WebFOCUS

Server Installation

WebFOCUS Reporting Server Release 8.1M

DataMigrator Server Release 7 Version 7.06

DataMigrator Console and Client
Active Technologies, EDA, EDA/SQL, FIDEL, FOCUS, Information Builders, the Information Builders logo, iWay, iWay Software, Parlay, PC/FOCUS, RStat, Table Talk, Web390, WebFOCUS, WebFOCUS Active Technologies, and WebFOCUS Magnify are registered trademarks, and DataMigrator and Hyperstage are trademarks of Information Builders, Inc.

Adobe, the Adobe logo, Acrobat, Adobe Reader, Flash, Adobe Flash Builder, Flex, and PostScript are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Due to the nature of this material, this document refers to numerous hardware and software products by their trademarks. In most, if not all cases, these designations are claimed as trademarks or registered trademarks by their respective companies. It is not this publisher's intent to use any of these names generically. The reader is therefore cautioned to investigate all claimed trademark rights before using any of these names other than to refer to the product described.

Copyright © 2015, by Information Builders, Inc. and iWay Software. All rights reserved. Patent Pending. This manual, or parts thereof, may not be reproduced in any form without the written permission of Information Builders, Inc.
Contents

Preface ................................................................................................................9

Documentation Conventions ...................................................................................10
Related Publications .................................................................................................10
Customer Support ...................................................................................................11
Information You Should Have ....................................................................................11
User Feedback ...........................................................................................................12
iWay Software Training and Professional Services ..................................................12

1. Introduction to Installation ............................................................................15

Versions ..................................................................................................................16
What to Read After You Install ................................................................................16

2. Installation for Windows ................................................................................19

Installation Requirements ......................................................................................20
Platform and Operating Environment Requirements ...............................................20
JVM Requirements for Java Services (Server Installations Only) ................................21
IP Port Number Requirements ..............................................................................22
SMTP E-Mail Server Information (Server Optional) ...............................................22
Browser Requirements ..........................................................................................23
Disk Space Requirements .....................................................................................23
Memory Requirements (Server Only) ....................................................................23
Communications Requirements ...........................................................................23
User ID Requirements ...........................................................................................24
Choosing Between Interactive and Silent Installation ............................................25
Choosing Between Private and Shared Access to the Data Management Console .......25
Accessing the Software .........................................................................................26
Downloading the Installation Software Using FTP ..................................................27
Installing ................................................................................................................28
Installation and Configuration Directories ................................................................41
Verifying Installation .............................................................................................44
3. Installation for UNIX

Installation Requirements........................................................................................................64
Platform and Operating Environment Requirements..........................................................64
JVM Requirements for Java Services (Server Installations Only)......................................65
IP Port Number Requirements.............................................................................................67
SMTP E-Mail Server Information (Server Optional)..........................................................67
Browser Requirements.........................................................................................................67
Disk Space Requirements.....................................................................................................68
Memory Requirements..........................................................................................................68
Communications Requirements...........................................................................................69
User ID Requirements.........................................................................................................69
Installation and Configuration Directories...............................................................................70
Installing.................................................................................................................................72
Installing and Configuring Silently.........................................................................................84
Verifying Installation.............................................................................................................86
Security Providers................................................................................................................89
Preventing Unsecured Server Starts After Upgrades..........................................................90
Starting and Using a Server.................................................................................................91
Generating a Trace...............................................................................................................92
Third-Party Software and Licenses.......................................................................................94
OpenFlex SDK.....................................................................................................................94
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information for a UNIX Installation</td>
<td>94</td>
</tr>
<tr>
<td>Sample Metadata, Data, and Other Tutorial Samples</td>
<td>94</td>
</tr>
<tr>
<td>Java Listener JVM Defaults</td>
<td>95</td>
</tr>
<tr>
<td>Limiting CPU Use on Machines With Multiple CPUs</td>
<td>96</td>
</tr>
<tr>
<td>Troubleshooting for UNIX</td>
<td>98</td>
</tr>
<tr>
<td>4. Installation for z/OS</td>
<td>105</td>
</tr>
<tr>
<td>Installation for HFS and PDS</td>
<td>106</td>
</tr>
<tr>
<td>Choosing How to Deploy</td>
<td>106</td>
</tr>
<tr>
<td>File Locations</td>
<td>108</td>
</tr>
<tr>
<td>Step-By-Step Installation Overview</td>
<td>114</td>
</tr>
<tr>
<td>HFS Deployment</td>
<td>115</td>
</tr>
<tr>
<td>Installation Requirements for HFS</td>
<td>115</td>
</tr>
<tr>
<td>Installing New on HFS</td>
<td>120</td>
</tr>
<tr>
<td>Starting and Stopping a Server for HFS</td>
<td>164</td>
</tr>
<tr>
<td>DB2 Security Exit Configuration for HFS</td>
<td>166</td>
</tr>
<tr>
<td>MSODDX for DD Translation for User Subroutines</td>
<td>172</td>
</tr>
<tr>
<td>Overriding the Time Zone Setting</td>
<td>172</td>
</tr>
<tr>
<td>Adding a Configuration Instance for HFS</td>
<td>173</td>
</tr>
<tr>
<td>Upgrading Your Server Release for HFS</td>
<td>185</td>
</tr>
<tr>
<td>Accounting for HFS - SMF Records</td>
<td>198</td>
</tr>
<tr>
<td>Performance Considerations for HFS</td>
<td>204</td>
</tr>
<tr>
<td>General Information for a z/OS HFS Installation</td>
<td>207</td>
</tr>
<tr>
<td>Third-Party Software and Licenses</td>
<td>209</td>
</tr>
<tr>
<td>Troubleshooting for HFS</td>
<td>210</td>
</tr>
<tr>
<td>PDS Deployment</td>
<td>219</td>
</tr>
<tr>
<td>Installation Requirements for PDS</td>
<td>220</td>
</tr>
<tr>
<td>Installing a New Server for PDS</td>
<td>227</td>
</tr>
<tr>
<td>Starting and Stopping a Server for PDS</td>
<td>252</td>
</tr>
<tr>
<td>DB2 Security Exit Configuration for PDS</td>
<td>253</td>
</tr>
<tr>
<td>MSODDX: DDNAME Translation for User Subroutines</td>
<td>258</td>
</tr>
<tr>
<td>Overriding the Time Zone Setting</td>
<td>258</td>
</tr>
<tr>
<td>Adding a Configuration Instance for PDS</td>
<td>259</td>
</tr>
<tr>
<td>Upgrading Your Server Release for PDS</td>
<td>269</td>
</tr>
</tbody>
</table>
5. Installation for IBM i ................................................................. 303

Step 1. Reviewing System Requirements ............................................. 304
  Operating System Release Requirements ............................................. 304
  Shell Requirements .............................................................................. 305
  JVM Requirements for Java Services ...................................................... 305
  IP Port Number Requirements .............................................................. 308
  SMTP E-Mail Server Information (Server Optional) ............................... 308
  Browser Requirements ........................................................................ 309
  Disk Space Requirements .................................................................... 309
  Memory Requirements ........................................................................ 309
  Communications Requirements .......................................................... 309
  User ID Requirements ........................................................................ 309
  Installation and Configuration Directories ............................................. 310

Step 2. Creating User IDs ................................................................... 312

Step 3. Accessing the Installation Software ........................................... 314
  Copying the Installation Library From DVD ........................................... 314
  Downloading the Installation Software Using FTP ............................... 315

Step 4. Running the Installation Program ................................................ 316
  Additional Configurations ..................................................................... 324
  Refreshing an Installation .................................................................... 324
  Installing and Configuring Silently ....................................................... 324

Step 5. Verifying the Server Installation .................................................. 327

Step 6. Security Providers .................................................................... 328
  Preventing Unsecured Server Starts After Upgrades ........................... 329

Starting and Using the Server .............................................................. 329

CL and CMD Programs ................................................................-------- 333

General Information for an IBM i Installation ....................................... 334
  Sample Metadata, Data, and Other Tutorial Samples .......................... 334
6. Installation for OpenVMS .................................................................347

Step 1. Reviewing System Requirements .................................................348
  Operating System Level and Patch Requirements .........................348
  JVM Requirements for Java Services ..............................................349
  IP Port Number Requirements .......................................................350
  SMTP E-Mail Server Information (Server Optional) ......................351
  Browser Requirements .................................................................351
  Disk Space Requirements .............................................................351
  Memory Requirements .................................................................351
  Workspace Manager Shared Memory Resources Requirements .........352
  Communications Requirements ....................................................352
  User ID Requirements .................................................................352

Step 2. Creating User IDs .................................................................353

Step 3. Accessing the Installation Software ..........................................355
  Inserting and Mounting the Software CD ......................................355
  Downloading the Installation Software Using FTP .........................356

Step 4. Running the Setup Procedure ................................................357
  Configuring an Additional Server ...............................................364
  Refreshing an Installation ............................................................364
  Dismounting the Software CD ......................................................364
  Installing and Configuring Silently ..............................................365

Step 5. Verifying the Installation .......................................................367

Step 6. Security Providers ...............................................................368

Starting and Using the Server ........................................................371
  Other DCL Programs .................................................................372
  Adding JOB, GROUP or Other Defined Environment Values (EDAENV.COM) ..................................................373

End-User Requirements .................................................................374

Generating a Trace ........................................................................374
A. Information Builders and Third-Party Licenses

Information Builders License

OpenFlex SDK License

Zip Archiver License

Reader Comments
Preface

This documentation lists installation requirements, describes how to install the software, and addresses post-installation tasks, such as configuring adapters and securing the environment. It is intended for system administrators responsible for installing the software.

How This Manual Is Organized

This manual includes the following chapters:

<table>
<thead>
<tr>
<th>Chapter/Appendix</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Installation Lists the necessary terminology and prerequisites for general installation.</td>
</tr>
<tr>
<td>2</td>
<td>Installation for Windows Describes the requirements and step-by-step instructions for installing on Windows.</td>
</tr>
<tr>
<td>3</td>
<td>Installation for UNIX Describes the requirements and step-by-step instructions for installing on UNIX. This includes all UNIX platforms, such as HP-UX, AIX®, Solaris™, and Linux®.</td>
</tr>
<tr>
<td>4</td>
<td>Installation for z/OS Describes the requirements and step-by-step instructions for installing on z/OS, deployed using either the Hierarchical File System/UNIX System Services (HFS/USS) or partitioned data sets (PDS).</td>
</tr>
<tr>
<td>5</td>
<td>Installation for IBM i Describes the requirements and step-by-step instructions for installing on IBM i.</td>
</tr>
<tr>
<td>6</td>
<td>Installation for OpenVMS Describes the requirements and step-by-step instructions for installing on OpenVMS.</td>
</tr>
<tr>
<td>A</td>
<td>Information Builders and Third-Party Licenses Contains the license for Information Builders and licenses required by third party software used by Information Builders.</td>
</tr>
</tbody>
</table>
Documentation Conventions

The following table describes the documentation conventions that are used in this manual.

<table>
<thead>
<tr>
<th><strong>Convention</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THIS TYPEFACE</strong> or <strong>this typeface</strong></td>
<td>Denotes syntax that you must enter exactly as shown.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable) in syntax for a value that you or the system must supply.</td>
</tr>
<tr>
<td><strong>underscore</strong></td>
<td>Indicates a default setting.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.</td>
</tr>
<tr>
<td><strong>Key + Key</strong></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Indicates keys that you must press simultaneously.</td>
</tr>
<tr>
<td><strong>{}</strong></td>
<td>Indicates two or three choices. Type one of them, not the braces.</td>
</tr>
<tr>
<td><strong>[]</strong></td>
<td>Indicates a group of optional parameters. None is required, but you may select one of them. Type only the parameter in the brackets, not the brackets.</td>
</tr>
<tr>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td><strong>...</strong></td>
<td>Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).</td>
</tr>
<tr>
<td><strong>.</strong></td>
<td>Indicates that there are (or could be) intervening or additional commands.</td>
</tr>
</tbody>
</table>

Related Publications

Visit our Technical Content Library at [http://documentation.informationbuilders.com](http://documentation.informationbuilders.com). You can also contact the Publications Order Department at (800) 969-4636.
Customer Support

Do you have any questions about this product?

Join the Focal Point community. Focal Point is our online developer center and more than a message board. It is an interactive network of more than 3,000 developers from almost every profession and industry, collaborating on solutions and sharing tips and techniques. Access Focal Point at http://forums.informationbuilders.com/eve/forums.

You can also access support services electronically, 24 hours a day, with InfoResponse Online. InfoResponse Online is accessible through our website, http://www.informationbuilders.com. It connects you to the tracking system and known-problem database at the Information Builders support center. Registered users can open, update, and view the status of cases in the tracking system and read descriptions of reported software issues. New users can register immediately for this service. The technical support section of www.informationbuilders.com also provides usage techniques, diagnostic tips, and answers to frequently asked questions.

Call Information Builders Customer Support Services (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all your questions. Information Builders consultants can also give you general guidance regarding product capabilities. Please be ready to provide your six-digit site code number (xxxx.xx) when you call.

To learn about the full range of available support services, ask your Information Builders representative about InfoResponse Online, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions most effectively, be ready to provide the following information when you call:

- Your six-digit site code (xxxx.xx).
- Your iWay Software configuration:
  - The software version and release. On a server, you can find your version and release using the Version option in the Web Console.
  - The communications protocol (for example, TCP/IP or LU6.2), including vendor and release.
  - The stored procedure (preferably with line numbers) or SQL statements being used in server access.
  - The database server release levels for any adapters that may be involved.
  - The database name and release level.
The Master File and Access File.

The exact nature of the problem:

- Are the results or the format incorrect? Are the text or calculations missing or misplaced?
- Provide the error message and return code, if applicable.
- Is this related to any other problem?

Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?

What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?

Is this problem reproducible? If so, how?

Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?

Do you have a trace file?

How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

**User Feedback**

In an effort to produce effective documentation, the Technical Content Management staff welcomes your opinions regarding this document. Please use the Reader Comments form at the end of this document to communicate your feedback or to suggest changes that will support improvements to our documentation. You can also contact us through our website, [http://documentation.informationbuilders.com/connections.asp](http://documentation.informationbuilders.com/connections.asp).

Thank you, in advance, for your comments.

**iWay Software Training and Professional Services**

Interested in training? Our Education Department offers a wide variety of training courses for iWay Software and other Information Builders products.

For information on course descriptions, locations, and dates, or to register for classes, visit our website ([http://education.informationbuilders.com](http://education.informationbuilders.com)) or call (800) 969-INFO to speak to an Education Representative.
Interested in technical assistance for your implementation? Our Professional Services department provides expert design, systems architecture, implementation, and project management services for all your business integration projects. For information, visit our website (http://www.informationbuilders.com/support).
This chapter describes the different software packages that can be installed and configured from the software you have downloaded or received on physical media.

While the software is primarily for server installations (and the text often cites "server"), DataMigrator Console as well as non-Windows clients may be also be installed, as the package type is controlled by the license key that has been supplied for the software and is used in the installation process.

This guide is for all platforms and also suggests where to go for more information once you have installed your package, regardless of its type.
Versions

The software enables applications to access data without concern for the complexities and
incompatibilities of different operating systems, DBMSs, file systems, and networks. The
software provides access to both local and remote data on over 35 platforms from more
than 65 database formats, including DB2, FOCUS, Informix, Oracle, and SAP BW.

The software installs as one of the following versions, depending upon your license:

- **WebFOCUS Reporting Server.** Provides data access, number crunching, and report
generation functionality for WebFOCUS.
  
The WebFOCUS Reporting Server (sometimes referred to simply as a WebFOCUS Server)
is a component of the WebFOCUS environment, which includes the WebFOCUS client
and a web server. It may also include other components, such as a ReportCaster
Distribution Server, application servers, and servers used for accessing remote data.

  For information about the different ways in which you can choose to deploy a WebFOCUS
server in the WebFOCUS environment, see the WebFOCUS and ReportCaster Installation
and Configuration manual for your platform.

- **Full-Function Server.** Provides transparent access to data from your own applications
and third-party systems.

- **DataMigrator Server.** Hosts and executes the data and process flows that automate
your creation and maintenance of a data warehouse or data mart. The Windows installation
also includes the DataMigrator Console and Client.

- **DataMigrator Console and Client.** Front-end application for creating, maintaining and
scheduling process flows that automate your creation and maintenance of a data
warehouse or data mart.

- **Shared Application Server.** Runs WebFOCUS Maintain production applications.
  
The server includes the Web Console, with which you can administer the server once it has
been installed.

**What to Read After You Install**

After you have completed the installation, for more information about:

- Managing the server, see the Server Administration manual.

- Using adapters for accessing data, see the Adapter Administration manual.

- DataMigrator Client. This is a Windows application (and associated server client) for
developing and running DataMigrator requests.
Clients Toolkit. This is a client software toolkit for developing and using third party application access.

To find out more about administering a particular version of the software, for:

- WebFOCUS Reporting Server or Shared Application Server, see the *WebFOCUS Security and Administration* manual.

- DataMigrator Server or DMC Client, see the *DataMigrator User’s Guide*. 
This chapter describes how to install, or to configure an additional instance on a system running Microsoft® Windows.

Topics:
- Installation Requirements
- Accessing the Software
- Installing
- Installation and Configuration Directories
- Verifying Installation
- Starting and Using a Server or Data Management Console
- Security Providers
- Additional Installation Options
- Generating a Trace
- Third-Party Software and Licenses
- General Information for a Windows Installation
- Troubleshooting for Windows
Installation Requirements

Before you install, review the requirements in the following topics. Exact requirements vary according to your configuration and the number of users and deployed applications.

Platform and Operating Environment Requirements

**Processor.** The software runs on all Intel® Pentium®-based computers 400 MHz and higher.

For security reasons as well as performance considerations, it is advisable not to run server instances (or any of their components) on the primary domain controller (PDC) or on the backup domain controllers (BDC).

**Supported Software Releases.** The software is supported on most major releases of Microsoft Windows. For current information about supported releases:

   
   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied.

Confirm that your installation software is labeled for your operating system level.

**JVM Requirements for Java Services (Server Installations Only)**

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality. The following URL has Java EOL and EOSL information:

http://java.sun.com/products/archive/eol.policy.html

Installing maintenance updates to the EDAHOME of an existing server running releases prior to production 7.7.05 will also have the requirement of moving up all dependent configurations to use Java 1.6 (as instructed in this section).

You may install a Java JRE or a Java SDK. When you install a Java SDK, the JRE component (where the JVM lives) is included, so either is allowed. If using servlet, the Java SDK is required for the jar command, so it is generally preferred over the Java JRE. The SDK or JRE build type must also match the 32-bit or 64-bit bit type of the server. If an appropriate JVM from a JRE or SDK is not found on the library path or using variables as described below, or is not the appropriate bit type, a *Failed to find JVM* message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log indicating *JSCOM3 start failed* as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener and the terms are often used interchangeably.

There are several ways to specify the JVM location:

1. For Java JDK set JDK_HOME (to the install home location) in system wide environment or server environment start up file (edaenv.cfg).
2. For Java JRE set JAVA_HOME (to the install home location) in system wide environment or server environment configuration file (edaenv.cfg).

To change or add a variable in the server environment start up file (EDACONF bin\edaenv.cfg), either edit the file in a text editor before starting the server (a start menu icon is also available under the configure folder) or:
1. Start the server (services like Java Listener may fail until configured and the server is restarted).

2. Open the Web Console and sign in using an administrator ID.

3. Select Workspace from the main menu.

4. In the navigation pane, open the Configuration Files and Miscellaneous folders.

5. Right-click Environment - edaenv.cfg and select Edit.

6. Make the desired edit.

7. Save the file.

8. Restart the server (changes are not effective until server is restarted).

The format of edaenv.cfg variables is one per line in name=value pairs. Spaces before and after the equal sign are optional. Values with embedded spaces do not require quoting.

To add classes to the JVM class path for customer-written CALLJAVA applications, set the CLASSPATH variable at the operating system level before server start-up or use the Web Console to set the Java Listener IBI_CLASSPATH property.

If JVM-based adapters or features are not required, and the JVM environment is not configured, the message Failed to find JVM is normal and can be ignored.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Additionally, do not use IP port numbers already being used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.

**SMTP E-Mail Server Information (Server Optional)**

The server can send emails using STMP protocols. To use these features, the server needs the TCP/IP host name (or number) and port number for an accessible SMTP server (the default port number is 25).

The installation process allows this information to be set at installation time, but it may also be added (or changed) afterward using the Web Console. To change it from the Web Console, select Workspace from the main menu, and then select E-Mail SMTP Server from the ribbon.
The installation panel for supplying the SMTP information will also have inputs for the default email sender address (the *from* address for users reading an email from the server if none was specified in the originating application) and the server administrator email address (the address to send administrative warnings to, such as an agent crash).

**Browser Requirements**

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.

**Disk Space Requirements**

The installation requires 40MB of temporary disk space on your Windows %HOME% drive and approximately 1 GB of permanent disk space on the designated hard disk.

**Memory Requirements (Server Only)**

Memory usage depends on the following elements:

- Number of data access agents.
- Type of access that is performed (for example, joins, large-scale retrieval, and so on).
- Connection queue.

The memory requirements for installation and operation of the server are:

- General memory: 30Mb.
  
  (This includes memory used by the primary one-per-server-instance processes such as Workspace Manager, the print log, Deferred Listener, HTTP Listener, and TCP Listener.)

- Memory per active agent: 3.5Mb.

These numbers apply when the server is in an idle state, so they may fluctuate slightly.

**Communications Requirements**

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.
User ID Requirements

Depending on your security environment and company security policies, you need two types of Windows logon privileges:

- **Server administrator IDs (iadmin).** Server administrators use this ID to install, start, and stop the server. This ID is also used to configure the server if the server is configured to run with an OPSYS (operating system) Security Provider.

  The installation of the server requires that you are logged on as an administrator or as a member of the Administrator group. Administrators of the server are also responsible for tasks such as starting, stopping, pausing, resuming, and restarting services on remote or local computers.

  Although Administrative privileges are required only during installation, a Server Administrator needs to have at least Power User privileges in order to run the server as a service.

  Note that the name iadmin is used to refer to the server administrator ID throughout this manual, but you may use any name for this ID.

  A server administrator ID and password are encrypted and stored in the server configuration file. You must keep these IDs and passwords synchronized with Windows IDs and passwords to start the server with security set to OPSYS. When starting the server with security set to OPSYS, if the server administrator does not have a password, or the password is not synchronized with Windows, the server starts in safe mode, and not all functionality is available. For details about how to fix this problem, see *Troubleshooting for Windows* on page 58.

  For security purposes, you should not allow users and applications to use administrator or a member of the administrator group user ID. The server administrator ID should be available only to users who require server administrative privileges.

- **User and application IDs.** When users and applications try to access the server, the server is normally running with one or more Security Providers that do authorization logic. The OPSYS security provider requires that the ID and password exist within the security system of the operating system, and (when properly configured) processes impersonate the authorities of the actual ID at run time. Other Security Providers (PTH, LDAP, DBMS and CUSTOM) do authorization using their respective processes, but do not impersonate. The internals of the server also allow the server administrator to apply various access controls to IDs under any of these providers.

  For the OPSYS Security Provider, no special authorities are needed for the IDs.
**Note:** PTH is a security provider in which IDs and passwords are created and maintained solely within the realm of the server. It is effectively an internal security provider that uses internally saved passwords, and not an outside provider for authorization. PTH is the default provider for new installations. Prior release level servers that are upgraded to 7.7.06 or higher will maintain their previous providers (as these properties are stored within the EDACONF configuration of a server, which is unaffected by upgrades). An administrator for an upgraded site may use the Web Console Access Control page to set specific features that they may not have done previously.

For more information about running the server in secure mode, see *Security Providers* on page 46.

### Choosing Between Interactive and Silent Installation

You can run the installation procedure in:

- **Interactive mode.** This is the default installation mode. It displays windows that prompt you for installation parameters. We recommend that you use this mode the first time you install, so that you become familiar with the procedure. To install interactively, see *Installing* on page 28.

- **Silent mode.** In this mode you launch the installation and specify a text file that contains the installation parameters. The installation procedure does not prompt for any information. Installing silently can be helpful if, for example, you want to install many instances at once throughout your enterprise. To install silently, see *Installing and Configuring Silently* on page 51.

### Choosing Between Private and Shared Access to the Data Management Console

There are several tools available for administering the server:

- **Web Console,** which is installed with the server on all platforms, and is available to all authorized users with a TCP/IP connection.

  For more information about the Web Console, see the *Server Administration* manual.

- **Developer Studio,** a WebFOCUS component that is available to users who have installed it on their Windows computer.

  For more information about Developer Studio, see the *Developer Studio Application Development Getting Started* manual.

- **Data Management Console,** which is installed with the server on Windows, and is used primarily with DataMigrator.

  For more information about the Data Management Console, see the *DataMigrator User's Guide.*
You can install in a way that makes the Data Management Console available to remote users as a shared tool. You can choose between:

- **Private access.** You install in a standard Windows folder. The Data Management Console is available locally to users on that computer.

- **Shared access.** You install in a shared network folder specified using the Universal Naming Convention (UNC). The Data Management Console is available to remote users who access that shared folder.

Before installing, you need to create a shared folder on the computer on which you will install the software.

Access to the server by means of the Data Management Console (DMC) is limited by system security. To use the DMC, you can open it in several ways, such as:

- Mapping a drive to the location of dmcstart.bat.
- Creating a shortcut to dmcstart.bat on the user machine.

The location of dmcstart.bat defaults to ibi\srv77\dm\bin.

The Data Management Console is maintained locally on each client machine in Documents and Settings\UserID\Application Data\Information Builders. This requires 2M of disk space.

To use the loopback node, reconfigure it to connect to the share server host name, replacing the host name, localhost.

## Accessing the Software

### In this section:

* Downloading the Installation Software Using FTP

You can choose to access the installation software using either:

- **CD.** This is how most installations are performed. Log on using the iadmin ID or the Windows administrator ID before you insert the CD. You can execute the installation procedure directly from the CD, or you can copy the CD contents to disk and execute the installation procedure from there.

  Run the installation procedure, as described in *Installing* on page 28.

- **FTP.** Download the installation software from the Information Builders FTP site. Downloading the installation software involves:
  
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the installation software from the site.
3. **Unzipping** the downloaded file.

4. **Running** the isetup procedure to begin installing the software.

   For instructions, see *Downloading the Installation Software Using FTP* on page 27.

**Downloading the Installation Software Using FTP**

To download the installation software:

   
   The Information Builders Technical Support home page opens.

2. Click *My Downloads* in the My Account section on the right side of the page.
   
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install, and then click *Download* to the right of the platform name.

6. Fill in the registration form and then click *Continue*.
   
   The Software Download Agreement page opens.

7. Select *I agree...* to consent to the Download Agreement, and then click *Continue*.
   
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   
   A copy of the instructions is also automatically emailed to you for later reference.

8. Follow the instructions on the Download Page.

9. Run the installation procedure as described in *Installing* on page 28.

After you have completed the installation, you can delete the download directory in which you had unzipped the installation archive.
Installing

How to:
Install and Configure

When you install, several server properties are configured automatically. After installation, you can configure additional properties using the Web Console. The DMC Client also has properties that can be adjusted post install.

Procedure: How to Install and Configure

1. Exit all programs before continuing.
2. If you installed from the CD and the autorun feature has begun the installation, the screen below is displayed. Otherwise, execute the following file in the CD root folder, or from where you saved the installation software on disk:

   setup.exe

   A User Access Control (UAC) security prompt may appear. Respond yes.

   The Choose Setup Language window opens.

3. Select the language to be used during installation and click Next.
If you have no prior 7.7 installation, the **Setup/License Agreement window** opens:

If you have at least one prior 7.7 installation, one of the following two windows opens:

- **Question/Prior installation has been found window.** If this opens, your computer already has a single instance of 7.7 software installed. You will choose between configuring an additional instance, or refreshing the existing software. Go to Step 4.
Select a Directory/Select EDAHOME directory window. If this opens, your computer already has multiple instances of the software configured. You will choose between configuring an additional instance, and refreshing the existing software. Skip to Step 5.

4. If you want to:

- **Configure an additional instance**, click No.
  
  (If your existing 7.7 installation is a client, this option installs and configures your first instance, not an additional one.)

  The Software License Agreement window opens. Continue with Step 6.

- **Refresh the existing software**, click Yes. It will overwrite your existing installation directory (EDAHOME), and will use your existing configuration information in your current configuration directory (EDACONF).

  The installation begins without prompting you for parameters.
When installation is finished, the Setup Complete window opens.

For a server, select Start Server Workspace and Web Console and click Finish to exit the setup program. Continue with Verifying Installation on page 44.

For a client, see the DataMigrator User's Guide.

5. If you want to:

- **Configure an additional instance**, select the directory of the software for which you want to create a new instance, and then click New Installation/Configuration.

  The Software Registration window opens. Skip to Step 7.

- **Refresh existing software**, select the directory of the software you want to refresh, and then click Upgrade Selected.

  You will get new server software (or new client software, if you selected a client directory). It will retain the existing configuration information.

  The refresh begins without prompting you for parameters.

  When the refresh is finished, the Setup Complete window opens.

  For a server, select Start Server Workspace and Web Console and click Finish to exit the setup program. Continue with Verifying Installation on page 44.

  For client, see the DataMigrator User's Guide.

6. Click Yes to accept the terms of the agreement. Otherwise, click No to reject the agreement and exit the setup program.
The Software Registration window opens.

7. In the Software Registration window, type your user name, company, and license key. The license key is printed on a form included with the software and should be saved for future reference. You must include the hyphens.

The License Key determines which product you are installing, such as a Full-Function Server, a WebFOCUS Reporting Server, a DataMigrator Server, or a DMC Client. Default settings, such as folder names, are determined by the license key. The screens that follow are an example for a Full-Function Server (others will be similar).

8. Click Next.

- **If you typed an invalid License Key**, the setup program displays a warning. Click OK to correct the key.

- **If the License Key is correct**, the Registration Confirmation window opens, similar to the following.
If the License Key's CPU portion for a server is for less than the actual CPUs/cores found, a CPU violation message will occur. The user can:

- Continue the installation and virtualize the PC to a correct quantity afterwards.
- Discontinue the installation and reattempt the installation in an environment that is already virtualized correctly.

For more information, see Limiting CPU/Core Use on Machines With Multiple CPUs and Cores on page 57.

9. Click OK to continue.

The next window varies depending on whether there is a 7.7 release currently installed on the computer.

- If a 7.7 release is not currently installed, the Select Program Folder and Standard Location window opens.
The type of server or client you are installing determines the program folder default name. You can change the name and the location, plus you can indicate that you want to further customize specific directories.

Skip to Step 11.

If 7.7 software is currently installed, the Prior Installations Found: Select Option window opens. Continue with Step 10.

10. If you want to:

- **Install an additional instance**, select *Install and Create 77 configuration*.
  
  This will install a new software instance in a new installation directory (EDAHOME) and enable you to specify new configuration information in a new configuration directory (EDACONF).

- **Configure an additional instance**, select *Create additional 77 configuration*. 
This will use the existing software in your current installation directory (EDAHOME), and enable you to specify new configuration information in a new configuration directory (EDACONF).

This option enables you to run multiple instances, but requires space for just a single set of the software. It also makes maintenance easier, because if you apply upgrades to the install, you need to do so in only one location.

The Select Program Folder window opens:

The type of instance you are configuring determines the program folder default name. You can change the name and the location, plus you can indicate that you want to further customize specific directories.
Each program folder name must be unique. If you need to distinguish between multiple instances and want to use the default name, add a suffix (for example, WebFOCUS 77 Server 2).

11. Accept the default program folder and location, and decide if you want to further customize specific directories. There are two options for customizing, simple change installation root only (drive and top level directory for all locations), or full customization of all locations. For simple change installation root only, type or browse the name of the location and click Next.

The setup program adds the specified folder to the Windows Start menu, and creates a new Windows service with the same name as the folder.

12. If further customization of directories was selected, the following Select Directories window opens.
13. Specify the following locations, or accept the default values:

   a. **Product installation directory.** This contains the executable files. We refer to this location as EDAHOME. It must conform to the pattern:

   `*\ibi\srv77*\home*`

   If you are installing new, accept the default directory, or specify a different directory. The new software will be placed in this directory.

   If you are configuring an additional instance, using your existing software, accept the default EDAHOME directory. If several 7.7 installation directories exist, select the one that corresponds to the software home directory for which you are configuring a new instance.

   b. **Product configuration directory.** This contains configuration information for the instance. We refer to this location as EDACONF.

   If you changed the EDAHOME value, the default EDACONF value changes to conform to EDAHOME.

   EDACONF must be in the same srv77 path as EDAHOME. The lowest-level EDAHOME directory (home) becomes the product type directory in EDACONF. For example, if EDAHOME is

   `ibi\srv77\home`

   then EDACONF for a WebFOCUS Reporting Server defaults to:

   `ibi\srv77\wfs`

   Each instance must have its own configuration directory. If you are configuring an additional instance, be sure to append characters to the default name of the directory. (Otherwise, the installation will overwrite the existing configuration directory.) For example:

   `ibi\srv77\wfs2`

   Accept the default value, or click Browse, or type a name to specify a different directory.

   c. **Application directory.** This contains the server application directories. The application directories are folders under the internal location known as APPROOT.

   Accept the default value, or click Browse to select a different directory.

   d. **Profiles directory.** This contains the server user and group profiles and the admin.cfg file, which specifies the server administrator. We refer to this location as EDAPRFU.

   Accept the default value, or click Browse to select a different directory.
e. **Disk.** If there is more than one disk or shared folder to which the software can be installed, select the one on which you want to install.

f. Click Next.

The Configure Basic Information window opens.

14. Specify the following information and then click Next.

- **Server Administrator ID (Default = srvadmin).** You can accept the default or enter a different user ID.
- **Server Administrator’s Password.** Enter a non-blank password for the Server Administrator ID, then enter again to confirm.

- **HTTP Listener Port.** Type the base HTTP port number that the server is using for HTTP. The server requires three consecutive ports for the HTTP Listener and other IP-based services.

  If you are configuring multiple instances, be sure to specify a different range of ports for each instance.

  The default port automatically varies by product to support multiple instances on a particular computer:

  **For a Full-Function Server,** 8101 is the default value, which reserves ports 8101-8103.

  **For a WebFOCUS Reporting Server,** 8121 is the default value, which reserves ports 8121-8123.

  **For a DataMigrator Server,** 8117 is the default value, which reserves ports 8117-8119.

  **For a Shared Application Server** (for WebFOCUS Maintain), 8113 is the default, which reserves ports 8113-8115.

- **TCP Listener Port.** Type the TCP/IP port number that the server is using for TCP/IP. The port should be the one immediately preceding the first HTTP port.

  If you are configuring multiple instances, be sure to specify a different port for each instance.

  The default port varies by product to support multiple servers on a particular computer:

  **For a Full-Function Server,** 8100 is the default value.

  **For a WebFOCUS Reporting Server,** 8120 is the default value.

  **For a DataMigrator Server,** 8116 is the default value.

  **For a Shared Application Server** (for WebFOCUS Maintain), 8112 is the default.

- **SMTP Mail Server Information (Optional).** The server has outbound email features using SMTP protocols. In order to use these features the TCP/IP host name (or number) and port number information for an accessible SMTP server are needed. The information may also be added (or changed) afterward using the Web Console by selecting **Workspace** from the main menu and **E-Mail SMTP Server** from the ribbon. Enter the following parameters:

  - **Host Name.** The SMTP Server node (host) name or TCP/IP number for outbound email features (SMTP_HOST).
- **Port Number.** The SMTP Server port number for the SMTP Server (SMTP_PORT). The default value is 25.

- **Sender Email.** The default sender from email address for users reading an email from the server, if none was specified in the originating application (SENDER_EMAIL).

- **Server Administrator Email.** The email address to send administrative warnings to, such as an agent crash (SERVER_ADMIN_EMAIL).

15. Click Next.

A final install/configure confirmation screen appears. You may go back to make corrections or proceed.
The setup program installs software and configures using the information you specified. The setup program creates a program group to receive the program icons for the product. The name of this group is based upon the product that was installed.

When the installation completes, the Setup Complete window opens.

16. If you wish to verify the installation immediately, select Start Server Workspace and Web Console and click Finish to exit the setup program, otherwise select the Do not start at this point option or the Start Data Management Console option.

You can now verify your installation, as described in Verifying Installation on page 44.

Installation and Configuration Directories

Directory names related to the software installation and configuration cannot include spaces, since that can cause incorrect operation, such as files not being found. The recommended default is drive:\ibi as a top-level directory. If your organization has an establish, alternate top-level directory for third-party software with this same requirement, it is valid to install under that location. For example, you could use drive:\thirdparty\ibi as a top-level directory.

The installation process creates these high-level directories:
**Home directory.** This installation directory stores the programs and other files. We refer to this as EDAHOME, and when the software is running, the full path is stored in the environment variable EDAHOME. The default directory is

```
drive:\ibi\srv77\home[suffix]
```

where:

- **drive**
  Is the hard drive on which the directory resides.

- **suffix**
  Is optional when installing and maintaining a single copy of the software. It is required if installing and maintaining multiple copies (for example, multiple server maintenance releases) to ensure that each installed instance has a uniquely-named home directory.

**Configuration directory.** The files that control the behavior of each instance reside here. We refer to this as EDACONF, and when the software is running, the full path is stored in the environment variable EDACONF. The default directory is

```
drive:\ibi\srv77\product_type[suffix]
```

where:

- **drive**
  Is the hard drive on which the directory resides.

- **product_type**
  Designates the type of product. The default values are:

  - **FFS** for a Full-Function Server
  - **DM** for a DataMigrator Server
  - **WFS** for a WebFOCUS Reporting Server
  - **WFM** for a Shared Application Server for WebFOCUS Maintain

- **suffix**
  Is optional for an initial default installation and configuration. This is required when configuring additional instances. You must add a suffix to the directory name to ensure that each instance has a uniquely-named configuration directory. In the following example, for an additional instance of a Full-Function Server, the suffix 002 has been added:

  ```
c:\ibi\srv77\ffs002
  ```
- **Application directory.** This is the default location for storing applications. We refer to this as APPROOT, and when a server is running, the full path is stored in the environment variable APPROOT. This directory may be shared by applications created with other Information Builders products and it defaults to

```
drive:\ibi\apps
```

where:

```
drive
```

Is the hard drive on which the directory resides.

Security for application directories is handled at the operating system level. To avoid any possibility of these directories being accessed inappropriately by means of APP commands (such as APP DELETE `AppDirName`), use directory security to set the appropriate permissions on these directories.

- **Profiles directory.** The user and group profiles reside here, as does the admin.cfg file, which specifies the server administrator. We refer to this as EDAPRFU, and when the server is running, the full path is stored in the environment variable EDAPRFU. This directory defaults to

```
drive:\ibi\profiles
```

where:

```
drive
```

Is the hard drive on which the directory resides.

**Multiple WebFOCUS Reporting Servers.** If you plan to install multiple copies of WebFOCUS on the same computer, and you want to provide each copy with its own WebFOCUS Reporting Server, you may wish to maintain a separate ibi root directory for each copy, so that you can keep the components of each copy (including the server) together in the same path.

For example, if you want to install two copies of WebFOCUS, one for testing and one for production, you could create a wfTest directory and a wfProd directory. They would include the following subdirectories (this is a partial list):

- **The test copy of WebFOCUS** would include:

```
c:\wfTest\ibi\srv77\home (server home directory)
c:\wfTest\ibi\srv77\wfs (server configuration directory)
c:\wfTest\ibi\WebFOCUS77 (WebFOCUS product components directory)
```

- **The production copy of WebFOCUS** would include:

```
c:\wfProd\ibi\srv77\home (server home directory)
c:\wfProd\ibi\srv77\wfs (server configuration directory)
```
Verifying Installation

Verifying Installation

How to:

- Verify Server Installation
- Verify Client Installation
- Determine Which Adapters Are Supported on Windows
- Register a License Code With the Server

After you have installed, verify that the software is functioning properly.

Procedure: How to Verify Server Installation

1. If the server is not already running, start it using whichever security mode you prefer using the Windows menu icon. The server start icons are located on the Windows Start menu in the program group assigned during the installation (for example, Information Builders/WebFOCUS 77 Server/Start Security ON). The options are:

   - **Start Security ON.** For a new installation, the default security provider is PTH. For a refresh of an existing installation, the server starts with the security provider defined in the `security_provider` keyword in the `edaserve.cfg` configuration file.

   - **Start Security OFF.** Security on the server will be OFF regardless of what is configured.

   For information about security providers, see Security Providers on page 46 and the Server Security chapter of the Server Administration manual.

2. Open the Web Console and sign in (if prompted) using the server administrator ID and password entered during configuration, if it is not already running.

   The Web Console start icon is located on the Windows Start menu in the program group assigned during the installation (for example, Information Builders/WebFOCUS 77 Server/Web Console).

   The Web Console opens. Online Web Console help, version information, new feature information, release notes, and licensing information are available by clicking Help (far right in menu bar).
3. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

Now that you have successfully verified your server installation, you can:

- **Configure server security**, as described in *Security Providers* on page 46.

- **Configure additional server properties**, such as outbound communication nodes and adapter support, using the Web Console.

  For more information about using the Web Console and configuring outbound nodes, see the *Server Administration* manual.

  For more information about configuring adapter support, see the *Adapter Administration* manual. For information about which adapters are supported, see *How to Determine Which Adapters Are Supported on Windows* on page 45.

If you license WebFOCUS Active Technologies, you must register your Active Technologies license code with the server, as described in *How to Register a License Code With the Server* on page 46.

**Procedure: How to Verify Client Installation**

To verify that you have successfully installed, use the base configuration that is created by the installation and start the Data Management Console (DMC).

The first step is to add a server node (right click on the server icon in the object tree to add one), and then connect. If the portion of the object tree for the newly added server opens to display application directories, the software is properly installed. See the *DataMigrator User’s Guide* for further use of the DMC.

**Procedure: How to Determine Which Adapters Are Supported on Windows**

For current information about which adapters are supported:

   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click *Supported Systems/Adapters*.
   The Supported Systems and Adapters page opens.

3. Click the link for the server release you want.
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
The support chart for that platform opens.

**Procedure: How to Register a License Code With the Server**

If you license WebFOCUS Active Technologies, you must register its license code with the server before using Active Technologies.

1. In the Web Console menu bar, select **Configuration/Monitor** from the Workspace menu.
2. In the navigation pane, right-click **License** and select **Configure**.
   
   The License Management pane opens.
3. Type the license code in the **license_active_report** field.
4. Click **Save and Restart Server**.

**Starting and Using a Server or Data Management Console**

Commonly used start, stop, and monitor features are available from the Windows Start menu under the folder in which the software was installed.

On Windows 8, a single start-panel icon is created. Clicking it switches the screen into desktop mode and opens a Windows Explorer session displaying the installed icons and folders (as normally seen after an installation). Once the explorer session is open, it is recommended that you simply use the standard Window 8 Desktop icon to flip from the start panel to desktop mode or else additional Explorer sessions will open.

Under the Diagnostics Functions folder there is a Command Windows for Manual Operations icon that allows you to issue direct edastart commands and options as documented for other platforms. Typically, these options should only be used in debugging situations by experienced administrators.

**Security Providers**

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the **Server Security** chapter in the **Server Administration** manual.
Additional Installation Options

In this section:
Installing and Configuring Silently

How to:
Configure an Additional Instance
Run the Data Management Console In Zero Footprint Mode
Refresh or Upgrade an Installation
Uninstall

This section explains how to add additional configurations, upgrade or refresh servers, and uninstall servers or configurations.

Procedure:  How to Configure an Additional Instance

Adding an additional configuration allows you to run multiple server instances without having to reinstall binaries. To add a configuration:

1. Execute the installation program from the original installation medium, as described in How to Install and Configure on page 28.

   The Choose Setup Language window opens.

2. Select the language to be used during installation and click Next:

   □ If one 7.7 server is found, you are asked if you would like to refresh the installation. Click No.

   □ If multiple 7.7 servers are found, select the EDAHOME directory of the server for which you want to create a new instance, and then click New Installation/Configuration.
3. Follow the steps for a normal installation, but be sure to select *Create additional 7.7 configuration* at the following window.

![Setup window showing options to install and create a new configuration or create an additional configuration.](image)

4. Click Next.

   When prompted for a Program Folder, be sure to provide a unique name so you do not overwrite an existing configuration.

5. When prompted for directories, be sure to provide unique locations so you do not overwrite an existing configuration. For example:

   C:\ibi\srv77\ffs2

6. When prompted for the Base TCP/IP Number, be sure to specify ports that are not used by another configuration. Each configuration requires four consecutive ports at a minimum. Additional services or features may require additional ports that should be in the consecutive range. These ports must be free, valid and not have any interference from other processes, so make sure the necessary number of consecutive ports for your new configuration are available.
Procedure: How to Run the Data Management Console In Zero Footprint Mode

A full DataMigrator Client must first be installed using UNC Network paths on a machine in the user’s network, as a prerequisite. This machine will then be used as a remote software "share". The UNC installation and configuration paths used for the remote machine also must be available to the local machines that will be set up to run in zero footprint mode and must continue to be available after the zero footprint DMC is set up.

A DataMigrator Client installation using UNC paths creates an additional command file script in the EDACONF\bin directory called zerofootprint.bat, which is used by local machines to set up a zero footprint DMC. No other installation paths, modes, or products create the zerofootprint.bat file, so if the file is not present, it is likely that an improper license key or non-UNC path was used during installation.

Install the prerequisite DataMigrator Client (as described above) as a first step, if it has not already been done. Be sure to remember to use a UNC path, and note the resulting full UNC path for the EDACONF bin\zerofootprint.bat file so you can use it in the later local machine step.

Once the DataMigrator Client is installed on the "share" machine, there are several choices for running the zerofootprint.bat script, depending on the requirements of the site:

- The end user opens a DOS command window and runs the zerofootprint.bat file using the full path UNC name.
- The end user opens the Windows Run option, enters the full path UNC name of the zerofootprint.bat file, and clicks OK.
- The end user uses Windows Explorer to navigate to the shared UNC directory where the zerofootprint.bat file is located and double-clicks it.
- An administrator puts the full path UNC name of the zerofootprint.bat file in a batch script that the user is directed to run.
- An administrator puts the full path UNC name of the zerofootprint.bat file in a batch script that is run automatically (such as a system update script).

After the zerofootprint.bat file is run, a DOS command window opens and a desktop icon shortcut to the DMC is created. On English-speaking locales, a Shortcut Created/OK pop-up message will also display. (This message times out after a short while, so it is compatible for use with unattended batch files.)

Once the shortcut icon is created, the end user can start the DMC from the shortcut icon (and the zerofootprint.bat file is no longer needed by that user). The DMC will behave like a locally installed instance. Any software updates to the original software installation location will be reflected to end users upon DMC restart (with no need to reinstall).
Procedure: How to Refresh or Upgrade an Installation

Refreshing reinstalls the files in the installation directory, without changing any configuration information in the configuration directory. However, this does remove any patches that have been applied to the directory tree.

If it becomes necessary to refresh the software, or if you want to upgrade to a new release:

1. Execute the installation program from the original installation medium, as described in How to Install and Configure on page 28.
   
   The Choose Setup Language window opens.

2. Select the language to be used during installation and click Next.

   When an existing 7.7 instance is found, you are asked if you would like to refresh the installation.

3. Click Yes.

   The installation begins without prompting you for parameters. The EDAHOME directory is replaced in its entirety, but any EDACONF directories remain.

Procedure: How to Uninstall

To uninstall:

1. For server installations, ensure that the server is stopped first.

2. Using the Windows Start menu, select Programs, the program group (for example, WebFOCUS 77 Server), and Uninstall. This program removes the EDAHOME and EDACONF directories of this instance.

If more than one configuration uses the same EDAHOME directory, the additional configurations contain unconfigure icons instead of uninstall icons. If you want to uninstall your initial configuration, you must unconfigure the additional configurations first. If you do not unconfigure these instances before uninstalling the EDAHOME directory, you will disable the additional configurations, including their unconfigure icons. A manual cleanup is then required.
Installing and Configuring Silently

How to:
Create the Installation Parameters File
Launch a Silent Installation

This is also known as a silent install. The most common form is an initial install which also results in an initial configuration (and is what is documented here). An initial installation and configuration should only be done once per EDAHOME (and program folder) and an additional product configuration used thereafter.

Installing silently can be helpful if you want to install multiple instances at once throughout an enterprise. To install an instance silently, you must first create a text file that specifies your installation parameters and then call isetup with the option and the file name. The silent method may also be used to do a software refresh.

We recommend that the first time you install, you use the default interactive mode, not the silent mode, so that you become familiar with the procedure. Installing interactively is described in Installing on page 28.

Procedure: How to Create the Installation Parameters File

Use a text editor to create a file with the following syntax to specify your product installation parameters:

```
-inst
-license nnn-nnn-nnnn-nn
-edahome drive:\ibi\srv77\home
-edaconf drive:\ibi\srv77\product_type
-port portnum
-host hostname
-approot drive:\ibi\apps
-programfolder "folder-title"
-pass password
-nostart
```

where:

```
 nnn-nnn-nnnn-nn
```

Is the 12-digit license. Include a hyphen (-) following the third, sixth, and tenth digits.

```
drive:\ibi\ 
```

Is the drive and directory to which you want to install the software.
**product_type**
Designates the type of product. The default values are:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

**portnum**
Is the base TCP port for the server.

**hostname**
Is the server host name.

**folder-title**
Is the name you want to assign to the Windows program folder and service. For example:

- `programfolder "WebFOCUS 77 Server"`

**password**
Is the password of the user ID with which you are installing the server.

To see a list of additional installation, configuration, and refresh options:

1. Open a command prompt window and navigate to the directory containing the installation setup.exe file for the software.
2. Enter the following:
   ```bash
   setup ?
   ```
3. Accept a display language and click Next.
   A Help screen with further parameter file options will display.

The user may continue with the install (interactive) or quit at this point to attempt a silent install/configure.

**Procedure: How to Launch a Silent Installation**

1. Open a command prompt and navigate to the directory containing the software and the setup.exe file for the install.
2. Type the following:
   ```bash
   setup -Lcode -opt drive:\path\srvoptions.txt
   ```
where:

**code**

Is the code specifying the language of the Web Console user interface. This language will also be used in the status windows displayed by the installation procedure.

The language code is preceded by -L (a hyphen followed by the letter "L").

The language codes are:

- **English** 0x409
- **French** 0x040c
- **German** 0x407
- **Japanese** 0x411
- **Spanish** 0x040a

**drive:\path\srvoptions.txt**

Is the full path and file name of the file specifying your installation options.

For example, to specify English and an options file named serveroptsFFS1.txt, type:

```
setup -L0x409 -opt C:\temp\serveroptionsFFS1.txt
```

3. After the installation has completed you should verify that it was successful, as described in Verifying Installation on page 44.

### Generating a Trace

**How to:**

- Generate a Server Trace
- Generate a Non-Server Trace

If you encounter a server problem, you can run a set of traces that will help you assess the problem, and, if necessary, communicate it to Customer Support Services for further assistance. This topic describes trace options and provides instruction for creating the traces.

There are two types of traces you can run to troubleshoot a problem:

- **A server trace**, in which you trace an agent that is running in a server context.
- **A non-server trace**, in which you trace an agent that is running outside a server context, that is, an agent that is running standalone.
Under normal conditions, applications are run in a server context. However, if you run your trace in a non-server context (that is, if you run a non-server trace) and produce the necessary diagnostic information, you can significantly reduce the amount of material that needs to be reviewed. Running a non-server trace also rules out server communications as a cause of a problem.

You can start traces, turn traces off, and perform the edastart -savediag function by selecting options from the Windows Start menu, under the Diagnostics folder. You can also open a DOS session to execute these commands.

**Tip:** The Diagnostics folder in the Windows Start menu as a Command Window for Manual Operations icon, which will directly open the DOS session in the EDACONF bin.

**Procedure: How to Generate a Server Trace**

To generate a server trace:

1. Turn tracing on by doing one of the following:
   - Go to the Web Console menu bar, select the Main Web Console Other Options control icon and then **Enable Traces**.
   - Start the server by issuing the following command:
     ```
     edastart -traceon
     ```
     You must preface edastart with the appropriate path, or place the directory in your system PATH variable.

2. Reproduce the problem.

3. Stop the server.

4. Issue the following command:
   ```
   edastart -savediag
   ```

5. Respond to the prompts to capture, and optionally archive and ship diagnostic information.

   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

   For information about sending the diagnostic information to Customer Support Services, see **Information You Should Have** on page 11 and **Customer Support** on page 11.
**Procedure:** How to Generate a Non-Server Trace

To generate a non-server trace:

1. Create a directory under APPROOT to reproduce the problem.
2. Copy any files required for the reproduction to the directory.
3. Switch to the directory.
4. Reproduce the problem using edastart -traceon and one of switches -t, -x, or -f.
5. Switch to a directory other than the problem reproduction directory.
6. Issue the following command:
   ```
   edastart -savediag
   ```
7. Respond to the prompts to capture, and optionally archive, diagnostic information.
   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.
   For information about sending the diagnostic information to Customer Support Services, see *Information You Should Have* on page 11 and *Customer Support* on page 11.

**Third-Party Software and Licenses**

**In this section:**

OpenFlex SDK

Zip Archiver

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software used on Windows and includes references to the full licenses included in *Information Builders and Third-Party Licenses* on page 385.

**OpenFlex SDK**

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see *OpenFlex SDK License* on page 391 or visit our website at, [http://www.informationbuilders.com](http://www.informationbuilders.com).
Zip Archiver

The software includes a third-party zip.exe archiving utility for use in the save diagnostic feature (edastart -savediag). The utility, located in the EDAHOME bin directory, is provided at no charge. Information Builders makes no claim of ownership, nor charges for the utility or inclusion, nor does it warranty it and is provided solely to assist our customers. To see the software full license statement, issue the command:

```
ZIP -L
```

There are many free and commercial versions of zip-based archivers. The one supplied is Info-Zip 3.0 with BSD like licensing. For more information about Info-ZIP, visit their website at, www.info-zip.org.

For more information, see Zip Archiver License on page 399 or visit our website at, http://www.informationbuilders.com.

If Winzip WZZIP or PKWare PKZIPC are on the system path, the first one found will be used instead of zip.exe. If you prefer to not use the supplied version of zip.exe (for example, if your enterprise has a policy against using freeware), you can manually remove it from the EDAHOME bin directory or replace it with any zip version that conforms to the same usage rules.

General Information for a Windows Installation

In this section:

- Sample Metadata, Data, and Other Tutorial Samples
- Limiting CPU/Core Use on Machines With Multiple CPUs and Cores

This section covers general information for a Windows Installation.

Sample Metadata, Data, and Other Tutorial Samples

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), Tutorials (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.

There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the Create Legacy Sample Tables and Files tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.
If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).

Limiting CPU/Core Use on Machines With Multiple CPUs and Cores

When the effective number of CPUs (cores) on a computer exceeds the number allowed by the server license, depending upon the license, either the server will not start or users will be given warnings in edaprint.log and at Web Console or Data Management Console login.

To correct the situation, the installation site has two choices:

- Install the server on a computer with a physical number of CPUs/cores that is less than or equal to the license amount.
- Create a virtual environment using VMware or Microsoft Virtual PC with a number of cores that matches the license requirement, and run the server instance under one of these virtualization options.

**Note:** Running multiple instances of the server (each under a limited virtual processor set) or adding processors to the virtual set after the server is running, constitutes a license violation.

Microsoft Virtual PC only supports single CPU/core virtualization, while VMware supports multiple CPU/cores. Both offer converter tools to reimage a PC into a virtualization. At server installation time, if a site is in violation, the site has the option of continuing (and converting to virtualization afterwards) or stopping the initial install to reattempt the installation in an environment that is already virtualized correctly.

The specifics of installing and configuring VMware and Microsoft Virtual PC or the use of their respective converter tools are beyond the scope of this document. From the perspective of a server installation, the installation utility does not know that virtualization has occurred and there is no difference. Consult the related virtualization documentation for further information on the use of these features.
Troubleshooting for Windows

How to:
Add Your Problem to the Troubleshooting Guide

Reference:
Problem: The Server Starts in Safe Mode
Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log
Problem: Java Listener Fails to Start With OPSYS Security Provider With JVM not found Written to the Log
Problem: Cannot Stop the Windows Service of the Server
Problem: ODBC Test Tool Does Not Show Expected Sources/Connections
Add Your Problem to the Troubleshooting Guide

As of the Version 7 Release 7.02, separately installable debuggable versions are no longer required to get a full stack trace of information for a savediag. The Debuggable Version - Install and Debuggable Version - Remove options have been removed from the Windows menu.

If you have an earlier Version 7.7x release that contains the debug menu options, and have installed service pack upgrades of 7702 (or higher), these menu options should be deleted, since they no longer function or are needed.

To troubleshoot an installation problem, identify your problem in the following list, and follow the link to a description of the solution.

If you cannot find your problem described in the list, and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11.

If you have a troubleshooting suggestion that is not described in the list, and you think others will find it helpful, we invite you to send it to us, as described in How to Add Your Problem to the Troubleshooting Guide on page 62. We will consider including your problem in a future release of this manual.

Problems:

- The server starts in safe mode (as indicated by a message in the Web Console at start up).
  
  For details, see Problem: The Server Starts in Safe Mode on page 59.

- A server start request partly fails with JVM not found messages written to edaprint.log.
For details, see Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log on page 60.

- The Java listener start request fails with Security OPSYS with JVM not found messages written to edaprint.log.
  
  For details, see Problem: Java Listener Fails to Start With OPSYS Security Provider With JVM not found Written to the Log on page 60.

- The Windows service will not stop.
  
  For details, see Problem: Cannot Stop the Windows Service of the Server on page 61.

Reference: Problem: The Server Starts in Safe Mode

**Problem:** The server starts in safe mode. The Web Console home page displays a message stating that the server is in safe mode and describing what triggered it.

**Cause:** A common cause for the server starting in safe mode is a problem with the server administrator ID password. For example, the password may have been updated on the operating system but not on the server, so the encrypted copy of the password stored by the server is out of synchronization with the password on the operating system.

**Solution:** The server administrator can click the fix hyperlink, which is displayed under the problem description, to display the relevant pane and resolve the problem.

For example, if the problem is that the server administrator password is out of synchronization:

1. Click the fix hyperlink displayed under the problem description.

2. In the left pane, open the Users folder, then the Server Administrator folder.

3. Click your user ID and select Properties from the pop-up menu.

   The Access Control pane is displayed on the right.

4. Type the correct operating system password in the Password field, and type it again in the Confirm Password field.

5. Click Save and Restart.

   The Security Mode pane opens on the right.

6. Click the Home icon in the menu bar to return to the Web Console home page.
Reference: Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log

Problem: The listener start request fails with JVM not found messages written to the edaprint.log file.

Cause: If the server cannot find the Java Virtual Machine (JVM), the JSCOM Listener will not be able to start, and messages will be written to the server log stating that the JVM cannot be found.

The log may be found in the following location:

On Windows:

\drive:\ibi\srv77\product_type\edaprint.log

On UNIX:

ibi/srv77/product_type/edaprint.log

On IBM i:

/home/iadmin/ibi/srv77/product_type/edaprint.log

where:

\drive
Is the hard drive on which the directory resides (on Windows).

\product_type
Designates the type of product. The default values are:

<table>
<thead>
<tr>
<th>\product_type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFS</td>
<td>for a Full-Function Server</td>
</tr>
<tr>
<td>DM</td>
<td>for a DataMigrator Server</td>
</tr>
<tr>
<td>WFS</td>
<td>for a WebFOCUS Reporting Server</td>
</tr>
<tr>
<td>WFM</td>
<td>for a Shared Application Server for WebFOCUS Maintain</td>
</tr>
</tbody>
</table>

Solution: Set up the JVM as described JVM Requirements for Java Services (Server Installations Only) on page 21.

Reference: Problem: Java Listener Fails to Start With OPSYS Security Provider With JVM not found Written to the Log

Problem: With the OPSYS security provider, the listener start request fails with JVM not found messages written to the edaprint.log file.

Cause: Sun Java installation seems to have changed for newer releases. Depending on the ID it was installed by, the client directory (that houses jvm.dll) may not have Read & Execute permission in relation to the ID that is used to start the server.
**Solution:** Based on the Java locations added to the system PATH variable during initial Java set up for the server, locate these directory folders using Windows Explorer. On each of the folders:

1. Right-click the folder, and select Properties.
2. In the Properties window, select the Security tab.
3. Select the ID that will be used to start the server, and select Read & Execute (which will also set the List Folder Contents and Read attributes).

If the JVM not found behavior continues, other intermediate directories for the already changed directories should also be checked for Read & Execute permissions and set in the same way.

---

**Reference:** Problem: Cannot Stop the Windows Service of the Server

**Problem:** When you try to stop the server, the associated Windows service does not stop.

**Cause:** Any server administrator can stop the server. The ID that installed the server is automatically defined as a server administrator. You can specify additional IDs as server administrators using the Web Console.

If an ID is not a server administrator it will not be able to stop the server, even if that same ID had started the Windows service that started the server.

**Solution:** Specify the ID that was not able to stop the service as a server administrator:

1. In the Web Console menu bar, select Access Control from the Workspace menu.
   
   The Manage Providers page opens.

2. Click the Users label (to the right of the folder) in the navigation pane.
   
   The New User option appears.

3. Click New User.
   
   The Access Control pane opens.

4. Identify the new administrator by filling in the fields in the Access Control pane.
   
   For more information about these fields and about specifying an additional server administrator, see the Server Administration manual.

5. Click Create, and then click Save and Restart.

---

**Reference:** Problem: ODBC Test Tool Does Not Show Expected Sources/Connections

**Problem:** The ODBC Test Tool starts, but either no configured sources (server connections) are shown, or they are not shown as expected.
**Cause:** The ODBC Test Tool accesses the ODBC Sources configured in the Data Sources (ODBC) section of the Control Panel Administrative Tools. It does not directly use configured connections. To be visible by ODBC, the connections (after creation and configuration) must be registered to ODBC, which is a separate post installation and post connection configuration step. Additionally, the connection configuration and registration steps must be done under the Windows icons for a client install (a 9xx-xxx-xxxx license) even though some server releases contain the Windows menu icons for these actions. That is why registering from a server installation is ineffective, leaving the connection list either empty or not as expected.

**Solution:** If a client installation has not been done, complete the client installation as a pre-requisite. Either start the DMC or (if you are familiar with the appropriate communication node syntax) use the Edit Communication Configuration File - ODIN.CFG icon to add connections and save. When finished adding, use the Register IWAY ODBC Driver icon to make them visible to ODBC. The Remove IWAY ODBC Driver icon may be used to remove the connection’s ODBC visibility. If you have more than one client installation on the machine, the Reset Shared icon may be used to switch the machine’s current ODBC configuration to see the client connection configuration within that icon group.

**Procedure:** How to Add Your Problem to the Troubleshooting Guide

If you have troubleshooting suggestions that you think others will find helpful, we invite you to send them to us so that we can consider including them in a future release. You can:

- Email them to books_info@ibi.com. Include your name and phone number, and include Server Installation Troubleshooting in the subject line.
- Send them to:
  Technical Content Management
  Information Builders
  Two Penn Plaza
  New York, NY 10121-2898
  Please include your name, phone number, email address, and postal address.
This document describes the requirements and procedures for installing on UNIX.

Topics:
- Installation Requirements
- Installation and Configuration Directories
- Installing
- Verifying Installation
- Security Providers
- Starting and Using a Server
- Generating a Trace
- Third-Party Software and Licenses
- General Information for a UNIX Installation
- Troubleshooting for UNIX
Installation Requirements

In this section:

- Platform and Operating Environment Requirements
- JVM Requirements for Java Services (Server Installations Only)
- IP Port Number Requirements
- SMTP E-Mail Server Information (Server Optional)
- Browser Requirements
- Disk Space Requirements
- Memory Requirements
- Communications Requirements
- User ID Requirements

Before you install, review the requirements in the following topics.

Platform and Operating Environment Requirements

The software is supported on most major platforms, including AIX, HP-UX, Linux, and Solaris. For current information about supported releases:

   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied. Confirm that your installation software is labeled for your operating system level.
JVM Requirements for Java Services (Server Installations Only)

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality. The following URL has Java EOL and EOSL information:

http://java.sun.com/products/archive/eol.policy.html

Installing maintenance updates to the EDAHOME of an existing server running releases prior to production 7.7.05 will also have the requirement of moving up all dependent configurations to use Java 1.6 (as instructed in this section).

You may install a Java JRE or a Java SDK. When you install a Java SDK, the JRE component (where the JVM lives) is included, so either is allowed. If using servlet, the Java SDK is required for the jar command, so it is generally preferred over the Java JRE. The SDK or JRE build type must also match the 32-bit or 64-bit bit type of the server. If an appropriate JVM from a JRE or SDK is not found on the library path or using variables as described below, or is not the appropriate bit type, a Failed to find JVM message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log indicating JSCOM3 start failed as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener and the terms are often used interchangeably.

There are several ways to specify the JVM location:

- For Java JDK, set JDK_HOME (to the install home location) in environment or server environment start-up file (edaenv.cfg).
- For Java JRE, set JAVA_HOME (to the install home location) in environment or server environment configuration file (edaenv.cfg).
The JDK JRE bin and server (or client) subdirectories must be specified in the load library path environment variable. A server restart is required, plus the appropriate JVM must be on the path if switching JRE levels. The load library path may be set by using any of the following methods.

- Set the JDK_HOME variable to the name of the Java SDK home directory and the required directories will be added internally using the library load path (LIBPATH on AIX, SHLIB_PATH on HP-UX, LD_LIBRARY_PATH on all other platforms.)

- Set the JVM server or client directory (in which libjvm resides) and its parent directory to the IBI_JNIPATH Java library load path. For example, on Linux:

  ```bash
  export IBI_JNIPATH=/usr/jdk1.6.0_38/jre/lib/i386/server:
  /usr/jdk1.6.0_38/jre/lib/i386:$IBI_LIBPATH
  ```

- Set or append the JVM server or client directory (in which libjvm resides) and its parent directory to the internal library load path (IBI_LIBPATH). This is least preferred method and only documented for backward compatibility. For example:

  ```bash
  export IBI_JNIPATH=/usr/jdk1.6.0_38/jre/lib/i386/server:
  /usr/jdk1.6.0_38/jre/lib/i386:$IBI_LIBPATH
  ```

To change or add operating system environment variables, set and export the variable in a .profile or script that always gets called during a server start. It is very common to place variables in the server edastart script, but it is recommended that they be placed in a script that in turn calls edastart (so that the edastart script remains vanilla).

To change or add a variable in a server environment start up file (EDACONF bin\edaenv.cfg), either edit the file in a text editor before starting the server or:

1. Start the server (services like Java Listener may fail until configured and the server is restarted).

2. Open the Web Console and login using an administrator ID.

3. Select Workspace from the main menu.

4. In the navigation pane, open the Configuration Files and Miscellaneous folders.

5. Right-click Environment - edaenv.cfg and select Edit.

6. Make the desired edit.

7. Save the file.

8. Restart the server (changes are not effective until server is restarted).

The format of edaenv.cfg variables is one per line in name=value pairs. Spaces before and after the equal sign are optional. Values with embedded spaces do not require quoting. Variables are always uppercase.
To add classes to the JVM class path for customer-written CALLJAVA applications, set and export the CLASSPATH variable to the operating system level before server start-up or use the Web Console to set the Java Listener IBI_CLASSPATH property.

If JVM-based adapters or features are not required, and the JVM environment is not configured, the message *Failed to find JVM* is normal and can be ignored.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Additionally, do not use IP port numbers already being used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.

**SMTP E-Mail Server Information (Server Optional)**

The server can send emails using STMP protocols. To use these features, the server needs the TCP/IP host name (or number) and port number for an accessible SMTP server (the default port number is 25).

The installation process allows this information to be set at installation time, but it may also be added (or changed) afterward using the Web Console. To change it from the Web Console, select Workspace from the main menu, and then select *E-Mail SMTP Server* from the ribbon.

The installation panel for supplying the SMTP information will also have inputs for the default email sender address (the *from* address for users reading an email from the server if none was specified in the originating application) and the server administrator email address (the address to send administrative warnings to, such as an agent crash).

**Browser Requirements**

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.
Disk Space Requirements

The following are approximate disk space requirements in megabytes. Specific sizes may vary slightly depending on the release being used and the options selected during configuration. The usage numbers do not include space for actual applications, databases, sort space, output preparation, or logs.

<table>
<thead>
<tr>
<th>Platform</th>
<th>After Installation - 32bit</th>
<th>After Installation - 64bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>Not supported</td>
<td>900 Mb</td>
</tr>
<tr>
<td>HP-UX PA-RISC</td>
<td>1.2G</td>
<td>1.1G</td>
</tr>
<tr>
<td>HP-UX IA64 (Integrity)</td>
<td>Not supported</td>
<td>1.1G</td>
</tr>
<tr>
<td>Linux for Intel/AMD</td>
<td>800 Mb</td>
<td>800 Mb</td>
</tr>
<tr>
<td>Linux for pSeries</td>
<td>Not supported</td>
<td>900 Mb</td>
</tr>
<tr>
<td>Linux for zSeries</td>
<td>Not supported</td>
<td>900 Mb</td>
</tr>
<tr>
<td>Solaris Sparc</td>
<td>900 Mb</td>
<td>900 Mb - 1G (depends on OS level)</td>
</tr>
<tr>
<td>Solaris x86</td>
<td>900 Mb</td>
<td>900 Mb</td>
</tr>
</tbody>
</table>

During installation, the disk space required is approximately 20 megabytes more than double the After Installation size. These numbers do not include space for applications. The ibisamp sample application requires an additional six megabytes.

Memory Requirements

Memory and shared memory usage depends on:

- Number of data access agents.
- Type of access performed (for example, joins, large-scale retrieval, and so on).
- Connection queue.

Memory usage differs depending on your implementation of UNIX and your server load.

The following table shows the approximate memory requirements for installing and running the server.
### Platform Memory Per Agent Other Memory *

<table>
<thead>
<tr>
<th>Platform</th>
<th>Memory Per Agent</th>
<th>Other Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP-UX</td>
<td>1 Mb</td>
<td>45 Mb</td>
</tr>
<tr>
<td>AIX</td>
<td>5 Mb</td>
<td>50 Mb</td>
</tr>
<tr>
<td>Solaris (Sparc)</td>
<td>19 Mb</td>
<td>125 Mb</td>
</tr>
<tr>
<td>Solaris (Intel)</td>
<td>10 Mb</td>
<td>72 Mb</td>
</tr>
<tr>
<td>Linux for Intel/AMD 32b</td>
<td>7 Mb</td>
<td>59 Mb</td>
</tr>
<tr>
<td>Linux for Intel/AMD 64b</td>
<td>9 Mb</td>
<td>87 Mb</td>
</tr>
<tr>
<td>Linux for pSeries 64b</td>
<td>27 Mb</td>
<td>165 Mb</td>
</tr>
<tr>
<td>Linux for zSeries 64b</td>
<td>10 Mb</td>
<td>93 Mb</td>
</tr>
<tr>
<td>Linux for zSeries 32b</td>
<td>7.5 Mb</td>
<td>72 Mb</td>
</tr>
</tbody>
</table>

* Other memory includes memory used by the primary one-per-server daemon processes, such as the Workspace Manager, the print log, Deferred Listener, HTTP Listener, and TCP Listener.

### Communications Requirements

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.

### User ID Requirements

When installing and using the server, you need two types of operating system user IDs:

- **Server administrator IDs (iadmin).** Server administrators use this ID to install, start, and stop the server. This ID is also used to configure the server if the server is configured to run with an OPSYS (operating system) security provider.

  The operating system ID you use when installing the server owns the server files and is the default server administrator for OPSYS mode. You can create a new operating system ID to run and own the server files, or use any ordinary (non-superuser) ID. However, you should not install the server as root. The server administrator ID should have a Korn, Bourne, or Bash shell as the default logon shell.

  Note that the name iadmin is used to refer to the server administrator ID and group throughout this manual, but you may use any name for this ID.
For security purposes, you should not allow users and applications to use the iadmin ID. It should be available only to users who require server administrative privileges.

- **User and application IDs.** When users and applications try to access the server, the server is normally running with one or more Security Providers that do authorization logic.

## Installation and Configuration Directories

The installation process creates these high-level directories:

- **Home directory.** This installation directory stores the software programs and other files. We refer to this as EDAHOME, and when the software is running, the full path is stored in the environment variable EDAHOME. The default directory is:

  
  \[ibi/srv77/home[suffix]\]

  where:

  - **suffix**

    Is optional when installing and maintaining a single copy of the software. It is required if installing and maintaining multiple copies (for example, multiple server maintenance releases) to ensure that each installed instance has a uniquely-named home directory. For example:

    \[/home/iadmin/ibi/srv77/home771\]
Configuration directory. The files that control the behavior of each instance reside here. We refer to this as EDACONF, and when the product is running, the full path is stored in the environment variable EDACONF. The default directory is

\[\text{ibi/srv77/product_type[suffix]}\]

where:

\textit{product\_type}

Designates the type of product. The default values are:

- \textbf{FFS} for a Full-Function Server
- \textbf{DM} for a DataMigrator Server
- \textbf{WFS} for a WebFOCUS Reporting Server
- \textbf{WFM} for a Shared Application Server for WebFOCUS Maintain

\textit{suffix}

Optional for an initial default installation and configuration. Required when configuring additional instances. You must add a suffix to the directory name to ensure that each instance has a uniquely-named configuration directory. In the following example, for an additional instance of an Full-Function Server, the suffix 002 has been added:

\[\text{/home/iadmin/ibi/srv77/ffs002}\]

Application directory. This is the default location for storing applications. We refer to this as APPROOT, and when the software is running, the full path is stored in the environment variable APPROOT. This directory may be shared by applications created with other Information Builders products. It defaults to the following:

\[\text{ibi/apps}\]

Security for application directories is handled at the operating system level. To avoid any possibility of these directories being accessed inappropriately by means of APP commands (such as APP DELETE \textit{AppDirName}), use directory security to set the appropriate permissions on these directories.

Profiles directory. The user and group profiles reside here, as does the admin.cfg file, which specifies the server administrator. We refer to this as EDAPRFU, and when the software is running, the full path is stored in the environment variable EDAPRFU. This directory defaults to the following:

\[\text{ibi/profiles}\]

Multiple WebFOCUS Reporting Servers. If you plan to install multiple copies of WebFOCUS on the same computer, and you want to provide each copy with its own WebFOCUS Reporting Server, you may wish to maintain a separate ibi root directory for each copy, so that you can keep copies of each components, including the server, together in the same path.
For example, if you want to install two copies of WebFOCUS, one for testing and one for production, you could create a wftest directory and a wfprod directory. They would include the following subdirectories (this is a partial list):

- The test copy of WebFOCUS would include:
  
  - home/iadmin/wftest/ibi/srv77/home (server home directory)
  - home/iadmin/wftest/ibi/WebFOCUS77 (WebFOCUS product components directory)

- The production copy of WebFOCUS would include:
  
  - home/iadmin/wfprod/ibi/srv77/home (server home directory)
  - home/iadmin/wfprod/ibi/srv77/wfs (server configuration directory)
  - home/iadmin/wfprod/ibi/WebFOCUS77 (WebFOCUS product components directory)

You could provide a separate apps directory for each copy of WebFOCUS, or specify a single apps directory to be shared by all copies of WebFOCUS.

### Installing

#### In this section:

- Installing and Configuring Silently

#### How to:

- Insert and Mount the Installation CD
- Download the Installation Software Using FTP
- Install
- Dismount the Installation CD
- Configure an Additional Server Instance
- Refresh or Upgrade an Installation

#### Example:

- Full-Function Server Installation Prompts and Responses

Before you can install, you must access the installation software. You can choose to access the installation software using either:

- **CD.** Most installations access the software from CD. You must first insert and mount the CD, as described in *How to Insert and Mount the Installation CD* on page 73.
You can run the installation program directly from the CD, or copy the CD contents to
disk and run the installation program from disk. The advantage of running the installation
from disk is an increase in speed, as well as having a copy of the installation program
available on disk for future use.

Even if there is no CD drive on the computer on which you will be installing, you can still
install using the CD. Simply insert and mount the CD on a computer with a drive, and
then copy the installation software from the CD to the computer on which you will be
installing the server, as described in How to Insert and Mount the Installation CD on page
73.

FTP. You download the installation software from the Information Builders FTP site.
Downloading the installation software involves:

1. Registering at the Information Builders FTP site.
2. Downloading the installation software from the site.
3. Unzipping the downloaded file.
4. Running the isetup procedure to begin installing.

For instructions, see How to Download the Installation Software Using FTP on page 76.

Procedure: How to Insert and Mount the Installation CD

To insert and mount the installation CD:

1. Log on using the server administrator ID (often referred to as iadmin).
2. Insert the CD into the CD drive.
3. Mount the CD by issuing the following command:

<table>
<thead>
<tr>
<th>For Operating System</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP-UX</td>
<td>mount -F cdfs device_name /cdrom_directory</td>
</tr>
<tr>
<td>AIX</td>
<td>mount -r -v cdrfs device_name /cdrom_directory</td>
</tr>
</tbody>
</table>
| Linux (all versions)     | Linux will usually auto mount your CD as /cdrom or
                          | /mnt/cdrom. If it is not mounted, you can use:
                          | mount device_name /cdrom_directory               |
| Solaris (without volume management) | mount -F hsfs -r device_name /cdrom_directory   |
A CD is auto mounted as:
/cdrom_directory/iWay

iWay is the standard volume label for iWay CDs.

where:

device_name

Is the system name for your CD device. Consult your UNIX System Administrator for the name of the device on your platform.

cdrom_directory

Is the directory to which you will be mounting the CD.

For Solaris Volume Management, this is a static directory.

The CD will be accessible to the ID performing the installation.

4. If the computer on which you want to install does not have a CD drive, perform the following substeps. Otherwise, if you have mounted the CD using a drive on the same computer on which you are installing, go to Step 5.

a. Unload the CD to a computer on your network that has a CD drive. You can use any UNIX or Windows computer.

b. Transfer the CD files (for example, FTP them in binary mode) to a temporary directory on the computer on which you wish to install.

c. If the names of any of the transferred files include uppercase letters, convert those names to lowercase. (Certain file transfer processes sometimes convert file names to uppercase.)

d. Ensure that the transferred files have the following permissions. If necessary, use the chmod command to reset them.
e. Go to *How to Install* on page 76.

5. You will now choose between running the installation program directly from the CD, or copying it to disk and running it from the disk.

To run the installation program:

- Directly from the CD, see *How to Install* on page 76.
- From disk, continue with the following steps.

6. Create an empty directory under the ID you are using for installation

   ```
   mkdir download_directory
   ```

   where:

   - **download_directory**
     - Is the name of the directory to which you will copy the contents of the installation CD.

7. Copy the CD contents to the directory you just created:

   ```
   cp /cdrom/* download_directory
   ```

   a. If the names of any of the copied files include uppercase letters, convert those names to lowercase. (The copy process sometimes converts file names to uppercase.)

   b. Ensure that the copied files have the following permissions. If necessary, use the `chmod` command to reset them.

<table>
<thead>
<tr>
<th>File</th>
<th>Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>inu.out</td>
<td>-rwxr-xr-x</td>
</tr>
<tr>
<td>isetup</td>
<td>-rwxr-xr-x</td>
</tr>
<tr>
<td>all other files</td>
<td>-rw-r--r--</td>
</tr>
</tbody>
</table>

8. Ensure that you are in the parent directory and not the download directory:

   ```
   cd $HOME
   ```

   **Caution:** Do not run the installation procedure from the download directory in which `isetup` resides, as this will cause errors in the installation process.

9. See *How to Install* on page 76.
After you complete the installation, you can delete the download directory if you wish.

**Procedure: How to Download the Installation Software Using FTP**

To download the installation software:

   The Information Builders Technical Support home page opens.

2. Click *My Downloads* in the My Account section on the right side of the page.
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the software, and then click *Download* to the right of the platform name.

6. Fill in the registration form and then click *Continue*.
   The Software Download Agreement page opens.

7. Select *I agree* to consent to the Download Agreement, and then click *Continue*.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is also automatically emailed to you for later reference.

8. Follow the instructions on the Download Page.

9. Run the installation procedure as described in *How to Install* on page 76.

   **Caution:** Do not run the installation procedure from the download directory in which isetup resides as this will cause errors in the installation process.

   After you complete the installation, you can delete the download directory if you wish.

**Procedure: How to Install**

For performance reasons, the software should not be installed on, or accessed using NFS-mounted disks. A directly connected disk is always preferable.

To install the software:
1. Log on using the iadmin user ID.
   Logging on with the iadmin ID is recommended (rather than with the su command).

2. Set the default protection mask to, at a minimum, read/execute (if it is not already set to that). For example:
   
   `umask 022`
   
   Ensure that you have write privileges to the directory from which you are running the isetup command. To test this, type:
   
   `touch xxxx`

3. Run the installation procedure, isetup, specifying its full path (including the CD or disk location). You can run the installation procedure from any location. Do not switch the current directory to the location of isetup.
   
   For example:
   
   `/cdrom/isetup`
   
   or
   
   `/u/iadmin/download/isetup`

4. Type 1 for the Install and Configure option.
   You are prompted for your license key.

5. Type your license key.
   Your license attributes are displayed, and the license key is confirmed. Certain license keys will issue a warning that the actual CPU quantity is over the licensed amount. In that case, the software needs to be run using OS commands that limit CPU use. For more information, see Limiting CPU Use on Machines With Multiple CPUs on page 96.
   
   You are then prompted for the location of the installation file iserver.tar.

6. Type the full path name of iserver.tar, or press Enter to accept the default.
   You are prompted for the password of the server administration ID (iadmin).

7. Type the password of the account you are using to install the software.
   The password, which does not display, is stored in encrypted form.
   
   You are now shown the default values of some basic properties, and given an opportunity to change them.

8. If you want to accept the default values, type Y and skip to Step 9. Otherwise, change any properties that you wish.
The properties are:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| EDAHOME     | Location of the server executable files. The default location is the iadmin ID home directory. The EDAHOME directory path name must conform to the pattern: */ibi/srv77*/home*  
  For more information about EDAHOME, see *Installation and Configuration Directories* on page 70. |
| EDACONF     | Location of the configuration files for this instance.  
  If you changed the EDAHOME value, the default EDACONF value changes to conform to EDAHOME.  
  EDACONF must be in the same srv77 path as EDAHOME. The lowest-level EDAHOME directory (home) becomes the product type directory in EDACONF.  
  For example, if EDAHOME is  
  /home/iadmin/ibi/srv77/home  
  then EDACONF for a WebFOCUS Reporting Server defaults to:  
  /home/iadmin/ibi/srv77/wfs  
  If you are configuring an additional instance, be sure to specify a new configuration directory here; do not use an existing directory. Each instance must have its own configuration directory. You can append characters to the name of the product_type directory to avoid overwriting the existing directory. For example:  
  /home/iadmin/ibi/srv77/wfs2  
  For more information about EDACONF, see *Installation and Configuration Directories* on page 70. |
| EDAPRFU     | Location of user and group profiles and of admin.cfg, which specifies the server administrator.  
  For more information about EDAPRFU, see *Installation and Configuration Directories* on page 70. |
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPROOT</td>
<td>Location of the server applications. For more information about APPROOT, see <em>Installation and Configuration Directories</em> on page 70.</td>
</tr>
</tbody>
</table>
| HTTP_BASE_PORT    | First of three consecutive port numbers for the HTTP Listener and other IP-based services. The default port automatically varies by product to support multiple servers on a particular computer. For:  
  - A Full-Function Server, 8101 is the default value, which reserves ports 8101-8103.  
  - A WebFOCUS Reporting Server, 8121 is the default value, which reserves ports 8121-8123.  
  - A DataMigrator Server, 8117 is the default value, which reserves ports 8117-8119.  
  - A Shared Application Server (for WebFOCUS Maintain), 8113 is the default, which reserves ports 8113-8115.                                                                                                                         |
<p>| TCP_BASE_PORT     | Port number on which the server TCP Listener listens. It must be outside the range of the three consecutive HTTP Listener ports. It defaults to the port immediately preceding the first HTTP Listener port. For example, if you accept the default HTTP Listener Port value of 8101, the TCP Listener port defaults to 8100.                                                                                                       |
| SMTP_HOST         | SMTP Server node (host) name or TCP/IP number for outbound email features. (Optional, only prompted for if changing directories and ports.)                                                                                                                                                                                                                  |
| SMTP_PORT         | SMTP Server port number for SMTP Server. The default value is 25. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)                                                                                                                                                                                                                       |
| SENDER_EMAIL      | Default <em>from</em> address for users reading an email from the server if none was specified in the originating application. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)                                                                                                           |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVER_ADMIN_EMAIL</td>
<td>Server administrator email address to send administrative warnings to, such as an agent crash. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)</td>
</tr>
</tbody>
</table>

For more information about EDAHOME, EDACONF, EDAPRFU, and APPROOT, see *Installation and Configuration Directories* on page 70.

If you decide to change a default, you are prompted for a replacement value each of the above variables, and given another chance to accept the default. If the SMTP Server node is not supplied, the remaining SMTP and EMAIL prompts do not occur.

If you entered N at the default settings prompt, you also have the option of installing the Century Corp demo files in one or more languages. (If you entered Y, they will not be installed.) All other demo files are always installed, automatically, in English.

9. Review the configuration options displayed on the screen, and type Y if you accept them. Alternatively, to start over, enter N; to quit the installation procedure, enter Q.

Several progress messages display while the server is being installed. You are then asked if you want to start the server.

10. If a server installation, type Y to start the server or N to exit.

If you start the server, startup messages and the Web Console URL are now displayed.

You should now verify your installation, as described in *Verifying Installation* on page 86.

**Example:**  **Full-Function Server Installation Prompts and Responses**

This is an example of a Full-Function Server installation that uses the default settings.

```
$ /cdrom/isetup
Welcome to the Product Set Up Facility
Please respond to the prompts or enter Q to quit at any prompt.

Select an option:
  1. Install and Configure
  2. Add Additional Configuration Instance
  3. Refresh Installation (Reinstall, Keep Configurations)
  4. Install Debuggables to the Installation Directory
Enter a selection (Default=1) :  1
```
Enter your License Key       (Current number of CPUs = 8)
(Format 999-999-9999-99) :   xxx-xxx-xxxx-xx
  License Key has been checked
Product: WebFOCUS Server
  Maximum Number of Adapters: Unlimited
  Maximum Number of Users:    8
  Maximum Number of CPUs:     Unlimited (8 found)

Please enter the full path name of the media for the product
(Default=/cdrom/iserver.tar)
Please supply media or <Enter> :

Enter credentials for the server's internal security
provider (PTH), the server's default start up mode.
Enter the Server Administrator ID
(Default=srvadmin) :
Enter the Administrator Password :
Use the WebConsole Access Control option to configure alternate
or additional security providers, such as OPSYS, LDAP or others.

Please review the default settings.
EDAHOME = /home/iadmin/ibi/srv99/home
EDACONF = /home/iadmin/ibi/srv99/wfs
EDAPRFU = /home/iadmin/profiles
APPROOT = /home/iadmin/ibi/apps
HTTP_BASE_PORT = 8121
TCP_BASE_PORT = 8120
If you are satisfied with the default settings you may proceed to
final confirmation else you will be prompted for individual values.
Proceed with defaults? (Y/N Default=Y)  :  y
The following selections have been made for ...
Install Options ...
  INSTALLATIONDEVICE = /cdrom/iserver.tar
  PRODUCT = server
  EDAHOME = /home/iadmin/ibi/srv77/home
  LICENSE = xxx-xxx-xxxx-xx
Configure Options ...
  EDACONF = /home/iadmin/ibi/srv77/wfs
  EDAHOME = /home/iadmin/ibi/srv77/home
  LICENSE = xxx-xxx-xxxx-xx
  PRODUCT = server
  EDAPRFU = /home/iadmin/profiles
  WORKSPACE_MANAGER_NAME = "WebFOCUS 77 Server"
  APPROOT = /home/iadmin/ibi/apps
  SERVERTYPE = ffs
  SERVERADMIN_ID = iadmin
  PTH_USER = srvadmin
  PTH_PASSWORD = 10838247AF51CF49
  HTTP_BASE_PORT = 8121
  TCP_BASE_PORT = 8120

Please confirm these values with one of the following responses ... 
  Y = Accept and Proceed
  N = Start Over
  Q = Quit

Please supply confirmation: y
Please wait while we are installing the product ...
ISETUP: Installation Step completed
Please wait while we are configuring the product ...
ISETUP: Configuration Step completed

Would you like to start the Server Workspace (Y/N Default=Y)? : n

Procedure: How to Dismount the Installation CD

If you have installed from a CD and you have finished accessing the installation CD, you may dismount, remove, and store the CD. All UNIX vendors use the following command to dismount:

  umount /cdrom

where:

cdrom

  Is the mount point directory used in the original mount command.

Normally, you will not need the CD again unless you need to reinstall.
**Procedure: How to Configure an Additional Server Instance**

If you have additional licenses and need to configure additional instances:

1. Log on using the iadmin ID.

2. Run `EDAHOME/bin/isetup`, where `EDAHOME` is the directory in which the software was installed.

3. At the main menu, select option 2, *Add Additional Configuration Instance*.

   The prompts for adding a configuration are similar to those for an original installation.

   Each instance must have its own configuration directory. When prompted for the configuration directory, append characters to the default name of the product type directory. Otherwise, the installation will overwrite the existing configuration directory.

   In the following example, the number 2 has been added to the default name of the WebFOCUS Reporting Server configuration directory:

   `/home/iadmin/ibi/srv77/wfs2`

   If the EDACONF directory you specify already exists, the installation process copies selected files from the current configuration's files to a directory named BACKUP that is a sibling directory to EDACONF, and then deletes the contents of the original directory. For example, if EDACONF is

   `/home/iadmin/ibi/srv77/wfs`

   then the selected configuration files are backed up to:

   `/home/iadmin/ibi/srv77/BACKUP`

**Procedure: How to Refresh or Upgrade an Installation**

Refreshing reinstalls the files in the installation directory, without changing any configuration information in the configuration directory. However, this does remove any patches that have been applied to the directory tree.

If it becomes necessary to refresh, or if you want to upgrade to a new release:

1. Log on using the iadmin user ID.

   Logging on with the iadmin ID is recommended (rather than with the su command).

2. Set the default protection mask to, at a minimum, read/execute (if it is not already set to that). For example:

   ```
   umask 022
   ```
Ensure that you have write privileges to the directory from which you are running the command. To test this, type:

```
touch xxxx
```

3. Run the installation procedure, isetup, specifying its full path (including the CD or disk location). You can run the installation procedure from any location. Do not switch the current directory to the location of isetup. For example:

```
/cdrom/isetup
```

or

```
/u/iadmin/download/isetup
```

4. At the main menu, type option 3, *Refresh Installation (Reinstall, Keep Configuration)*, and respond to the prompts.

**Installing and Configuring Silently**

**How to:**

Create the Installation Parameters File

Launch a Silent Installation

This is also known as a silent install. The most common form is an initial install, which also results in an initial configuration. An initial installation and configuration should only be done once per EDAHOME and an add product configuration used thereafter.

Installing silently can be helpful if you want to install multiple servers at once throughout an enterprise. To install a server silently, you must first create a text file that specifies your server installation parameters and then call isetup with the option and the file name. The silent method may also be used to do a software refresh.

We recommend that the first time you install, you use the default interactive mode, not the silent mode, so that you become familiar with the procedure. Installing a server interactively is described in *Installing* on page 72.

Run isetup -? to see full information on the setup and specific use of a parameters file for silent installation, configuration, or refresh.
Procedure: How to Create the Installation Parameters File

Use a text editor to create a file with the following syntax to specify your product installation parameters:

-inst
-license nnn-nnn-nnn-nn
-edahome /ibi/srv77/home
-edaconf /ibi/srv77/product_type
-port portnum
-host hostname
-approot /ibi/apps
-pass password
-nostart

where:

nnn-nnn-nnn-nn

Is the 12-digit license. Include a hyphen (-) following the third, sixth, and tenth digits.

/ibi/

Is the drive and directory to which you want to install the software.

product_type

Designates the type of product. The default values are:

- FFS for a Full-Function Server.
- DM for a DataMigrator Server
- WFS for a WebFOCUS Reporting Server
- WFM for a Shared Application Server for WebFOCUS Maintain

portnum

Is the base TCP port for the server.

hostname

Is the server host name.

password

Is the password of the user ID with which you are installing the server.

To see a list of additional installation, configuration, and refresh options:

1. Open a command prompt window and navigate to the directory containing the installation isetup file for the software.

2. Enter the following:

isetup -?
Procedure: How to Launch a Silent Installation

1. Open a command prompt and navigate to the directory containing the software and the setup.exe file for the install.

2. Type the following:

   /path/isetup -opt /path/srvoptions.txt

   where:

   /path/srvoptions.txt
   
   Is the full path and file name of the file specifying your installation options.

   For example, to specify English and an options file named serveroptssfs1.txt, type:

   /tmp/isetup -opt /tmp/serveroptionsffs1.txt

3. After the installation has completed, you should verify that it was successful, as described in Verifying Installation on page 86.

Verifying Installation

How to:

Verify Server Installation
Determine Which Adapters Are Supported on UNIX
Register a License Code With the Server

After installing, verify that the software is functioning properly.

Procedure: How to Verify Server Installation

To verify that you have successfully installed, use the configuration that is created by the base installation. You can verify the installation by bringing up, checking, connecting to, testing, disconnecting from, and shutting down the server. (If you started the server as the last step of the installation procedure, skip ahead to Step 4.)

1. Log on to your UNIX or Linux operating system using the iadmin ID.

2. Start the server with the appropriate path to edastart and the -start option. For example, for a WebFOCUS Reporting Server, you would type:

   /home/iadmin/ibi/srv77/wfs/bin/edastart -start

3. Check to ensure that the processes are up by specifying the -show option:

   /home/iadmin/ibi/srv77/wfs/bin/edastart -show
4. Start the Web Console by starting a browser pointed at the server HTTP Listener port, which was specified during installation. The URL format is http://host:port. (The URL is also displayed at the end of the installation procedure.)

For example, if default ports were used during installation, for:


5. If the server is running in a secure mode, you will first see a logon screen. Log on using the iadmin ID used during server configuration. For information about server security, see Security Providers on page 89.

The Web Console home page opens. The Home Page is arranged in a menu-like context for the various features it supports. Detailed use of the Web Console for configuration or general operation of the server is available by clicking Help in the left navigation menu and in the Server Administration manual.

6. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

7. When you are done using the server, you can stop it using the Web Console by clicking the Stop option on the Web Console toolbar.

8. If you experience any problems, examine the /home/iadmin/ibi/srv77/product_type/edaprint.log file.

Now that you have successfully verified your installation, you can:

- Dismount the installation CD, as described in How to Dismount the Installation CD on page 82, if you have not yet dismounted.
- Configure server security, as described in Security Providers on page 89.
- Configure additional server properties, such as outbound communication nodes and adapter support, using the Web Console.

For more information about using the Web Console and configuring outbound nodes, see the Server Administration manual.

For more information about configuring adapter support, see the Adapter Administration manual. For information about which adapters are supported, see How to Determine Which Adapters Are Supported on UNIX on page 88.
If you license WebFOCUS Active Technologies, you must register your Active Technologies license code with the server, as described in *How to Register a License Code With the Server* on page 88.

**Procedure:**  How to Determine Which Adapters Are Supported on UNIX

For current information about which adapters are supported:

   
The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click *Supported Systems/Adapters*.
   
The Supported Systems and Adapters page opens.

3. Click the link for the server release you want.
   
The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   
The support chart for that platform opens.

**Procedure:**  How to Register a License Code With the Server

If you license WebFOCUS Active Technologies, you must register its license code with the server before using Active Technologies.

1. In the Web Console menu bar, select *Configuration/Monitor* from the Workspace menu.

2. In the navigation pane, right-click *License* and select *Configure*.

   The License Management pane opens.

3. Type the license code in the *license_active_report* field.

4. Click *Save and Restart Server*.
Security Providers

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the Server Security chapter in the Server Administration manual.

Procedure: How to Satisfy Security Provider OPSYS Requirements

To run a server in security provider OPSYS mode in UNIX, you must perform the following steps. You must do this once after installing and after each refresh of the server with fixes.

Set up tscom300.out as a root-owned SUID program:

1. If the server is running, bring it down.
2. Log on to the system as root, or issue the su root command.
3. Change your current directory to the bin directory of the home directory created during the installation procedure.
   For example, type the following command:
   
cd /home/iadmin/ibi/srv77/home/bin

4. Change file ownership and permissions by typing the following commands:
   
   chown root tscom300.out
   chmod 4555 tscom300.out

5. Verify your changes by issuing the following command:
   
   ls -l tscom300.out

   The output should be similar to the following:
   
   -r-sr-xr-x 1 root iadmin 123503 Aug 23 04:45 tscom300.out
Note the permissions and ownerships.

When you start the server, it will now run with security provider OPSYS.

The chmod and chown steps will need to be repeated after any server upgrade since the tscom300.out file is replaced during upgrade, and the attributes are lost.

**Note:** If this Security Provider OPSYS step has been done and the site later decides to switch to Security OFF, special steps must be taken to ensure the mode remains after a full server shutdown (where edastart -start is used to restart the server). The steps are:

1. After the server recycles from the change to OFF, use the Web Console to open the environment configuration file of the server by clicking Workspace and expanding the Configuration Files folder, followed by the Miscellaneous folder.

2. Double-click Environment - edaenv.cfg to edit the file and add the EDAEXTSEC=OFF variable.

3. Save the file.

After the next full server shutdown, be sure to do an edastart -cleardir before restarting the server. This will clear any root owned files that would prevent a security OFF server from starting.

**Preventing Unsecured Server Starts After Upgrades**

If the explicit environment variable EDAEXTSEC is set to OPSYS (or ON) and the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.

This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade, reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg environment configuration file. The messages vary slightly by platform.

The edaprint messages are:

- *Configured security is 'ON' as set by EDAEXTSEC variable.*
- *Server has no root privilege.*
- *Workspace initialization aborted.*
- *(EDA13171) UNABLE TO START SERVER*
Starting and Using a Server

Reference: Commonly Used Server Start Options and Functions

For information about starting a server, see Verifying Installation on page 86.
For information about using and managing a server, see the Server Administration manual.

Reference: Commonly Used Server Start Options and Functions

<table>
<thead>
<tr>
<th>Command and Option</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>edastart</td>
<td>Starts the server with the line mode console, which enables you to view the server log and to dynamically issue edastart options, such as show, traceon, and stop. To display the console command prompt, press Ctrl + C.</td>
</tr>
<tr>
<td>edastart -start</td>
<td>Starts the server without the line mode console.</td>
</tr>
<tr>
<td>edastart -sstart n</td>
<td>Starts the server, but waits n seconds for actual start up.</td>
</tr>
<tr>
<td>edastart -show</td>
<td>Shows general status of server and agents.</td>
</tr>
<tr>
<td>edastart -stop</td>
<td>Stops the server.</td>
</tr>
<tr>
<td>edastart -cleardir</td>
<td>Removes all temporary directories (and their contents), as well as log and other files created by the server (including the rmlda*.log files, if active) in EDACONF. If Resource Manager is in use and you want to maintain the rmlda*.log data, backup the rmlda*.log files before using this feature and restore them afterward.</td>
</tr>
<tr>
<td>edastart -traceon</td>
<td>Turns on tracing. May be used at startup or afterward. It is preferable to run traces at startup, unless instructed otherwise. Turn tracing on only when there is a problem that needs to be traced, to avoid incurring the associated overhead.</td>
</tr>
<tr>
<td>edastart -traceoff</td>
<td>Turns off tracing.</td>
</tr>
<tr>
<td>edastart -?</td>
<td>Displays full set of edastart server control options.</td>
</tr>
</tbody>
</table>
Generating a Trace

<table>
<thead>
<tr>
<th>Command and Option</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>edastart -?s</td>
<td>Displays support information and support-related options.</td>
</tr>
</tbody>
</table>

If you encounter a server problem, you can run a set of traces that will help you assess the problem, and, if necessary, communicate it to Customer Support Services for further assistance. This topic describes trace options and provides instruction for creating the traces.

There are two types of traces you can run to troubleshoot a problem:

- A server trace, in which you trace an agent that is running in a server context.
- A non-server trace, in which you trace an agent that is running outside a server context, that is, an agent that is running in standalone mode.

Under normal conditions, applications are run in a server context. However, if you run your trace in a non-server context (that is, you run a non-server trace), and produce the necessary diagnostic information while significantly reducing the amount of material that needs to be reviewed. Running a non-server trace also rules out server communications as a cause of a problem.

**Procedure: How to Generate a Server Trace**

To generate a server trace:

1. Turn tracing on by doing one of the following:
   - Go to the Web Console menu bar, select the Main Web Console Other Options control icon and then Enable Traces.
   - Start the server by issuing the following command:
     ```
     edastart -traceon
     ```
     You must preface edastart with the appropriate path, or place the directory in your system PATH variable.

2. Reproduce the problem.
3. Stop the server.

4. Issue the following command:

   edastart -savediag

5. Respond to the prompts to capture, and optionally archive and ship diagnostic information.

Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

For information about sending the diagnostic information to Customer Support Services, see Information You Should Have on page 11 and Customer Support on page 11.

**Procedure: How to Generate a Non-Server Trace**

To generate a non-server trace:

1. Create a directory under APPROOT to reproduce the problem.

2. Copy any files required for the reproduction to the directory.

3. Switch to the directory.

4. Reproduce the problem using edastart -traceon and one of switches -t, -x, or -f.

5. Switch to a directory other than the problem reproduction directory.

6. Issue the following command:

   edastart -savediag

   You must preface edastart with the appropriate path, or place the directory in your system PATH variable.

7. Respond to the prompts to capture, and optionally archive, diagnostic information.

Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

For information about sending the diagnostic information to Customer Support Services, see Information You Should Have on page 11 and Customer Support on page 11.
Third-Party Software and Licenses

In this section:
OpenFlex SDK

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software used on UNIX and includes references to the full licenses included in Information Builders and Third-Party Licenses on page 385.

OpenFlex SDK

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see OpenFlex SDK License on page 391 or visit our website at: http://www.informationbuilders.com.

General Information for a UNIX Installation

In this section:
Sample Metadata, Data, and Other Tutorial Samples
Java Listener JVM Defaults
Limiting CPU Use on Machines With Multiple CPUs

This section covers general information for a UNIX Installation.

Sample Metadata, Data, and Other Tutorial Samples

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), Tutorials (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.
There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the *Create Legacy Sample Tables and Files* tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.

If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).

### Java Listener JVM Defaults

**How to:**

Tune the Java Listener From the Web Console

The Java Listener on AIX has a pre-set value for Maximum Java Heap Size (JVM_MAX_HEAP) because the internal default for Java for this heap size is insufficient, which causes server features to fail. The pre-set value does not reflect any specific tuning, but is simply a known working value. Specific tuning should be done based on application need.

Other UNIX/Linux operating systems have not shown issues with internal defaults, and are not pre-set. However, applications may benefit from tuning, and it should be done based on application need.

**Procedure:** How to Tune the Java Listener From the Web Console

To tune the Java Listener from the Web Console:

1. Select *Workspace* from the menu bar.
2. Open the *Java Services* folder.
3. Right-click *DEFAULT* and select *Properties*.
   
   The Java Services Configuration pane opens.

4. Expand the *JVM Settings* section.
5. Under *Non-standard JVM options*, enter values in the *Initial Java Heap Size* and *Maximum Java Heap Size* fields.
6. Click *Save and Restart Java Services*.
Limiting CPU Use on Machines With Multiple CPUs

How to:

Start the Server With Limited Effective CPUs for Solaris
Start the Server With Limited CPUs for Solaris Zones
Start the Server With Limited Effective CPUs for HP-UX
Start the Server With Limited Effective CPUs for AIX
Start the Server With Limited Effective CPUs for Linux (all vendors)

When the effective number of CPUs (cores) on a computer exceeds the number allowed by the server license, depending upon the license, either the server will not start or users are given warnings in edaprint.log and at Web Console or Data Management Console login.

To remediate the situation, the installation site has two choices:

- Install the server on a computer with a physical number of CPUs that is less than or equal to the license amount.
- Create a virtual environment with the number of cores that satisfies the license requirement, and run the server instance under that environment as outlined below.

Note that running multiple instances of the server (each under a limited virtual processor set) or adding processors to the virtual set after the server is running constitutes a license violation.

The virtual environment methods, specific commands, and options that should be used depend on the operating system vendor and what the site wants to accomplish with the operating system supplied tools. Basic syntax examples are supplied below as an assistance. Consult your operating system documentation for further specific information on the use of the respective commands as the commands are not a server feature, but an operating system provided environment in which the server runs, thus the operating system vendor should be consulted if you experience problems.

Syntax: How to Start the Server With Limited Effective CPUs for Solaris

The psrset operating system command is used to create virtual processor sets and run processes under them, but it also requires ID authorization. Authorization must be done by the root by adding a line to the /etc/user_attr file. For example:

```
iadmin:::type=normal;defaultpriv=basic,sys_res_config
```
The server admin decides on and forms a set, and then uses the resulting set number in the \texttt{psrset -e} command to start the server. For example:

\begin{verbatim}
$ psrset -c 2 3
processor 2: was not assigned, now 1
processor 3: was not assigned, now 1
$ cd ibi/srv77/wfs
$ psrset -e 1 bin/edstart -start
\end{verbatim}

\textbf{Syntax: \textit{How to Start the Server With Limited CPUs for Solaris Zones}}

Under Solaris Zones, the \texttt{psrset} command cannot be used. The appropriate way to limit access for a zoned system is to explicitly set up the local zone with dedicated CPUs using the global zone \texttt{zonecfg} command against the desired local zone, and then issue the applicable "add dedicated-cpu" subcommand and desired specific "set ncpus=" value subcommands. See the \textit{Solaris Administration Guide} for the further details on zones.

\textbf{Syntax: \textit{How to Start the Server With Limited Effective CPUs for HP-UX}}

The \texttt{psrset} operating system command is used to create virtual processor sets and run processes under them.

The server admin decides on and forms a set, and then uses the resulting set number in the \texttt{psrset -e} command to start the server. For example:

\begin{verbatim}
$ psrset -c 2 3
processor 2: was not assigned, now 1
processor 3: was not assigned, now 1
$ cd ibi/srv77/wfs
$ psrset -e 1 bin/edstart -start
\end{verbatim}

\textbf{Syntax: \textit{How to Start the Server With Limited Effective CPUs for AIX}}

The \texttt{mkrset} and \texttt{execrset} operating system commands are used to create processor/memory region sets and run processes under them, but they also require ID authorization. Authorization must be done by the root by issuing:

\begin{verbatim}
chuser capabilities=CAP_NUMA_ATTACH,CAP_PROPAGATE iadmin
\end{verbatim}

The server admin decides on and forms a set, and then uses the assigned name in the \texttt{execrset} command to start the server. For example:

\begin{verbatim}
$ mkrset -c 2-3 mycorp/mycpus
$ cd ibi/srv77/wfs
$ execrset mycorp/mycpus bin/edstart -start
\end{verbatim}
Syntax: How to Start the Server With Limited Effective CPUs for Linux (all vendors)

The taskset operating system command is used to bond a process to particular processors, in effect creating a virtual environment.

The server admin decides on the processors to use and uses them in the taskset command to start the server. For example:

$ cd ibi/srv77/wfs
$ taskset -c 3,4 bin/edstart -start

Troubleshooting for UNIX

How to:
Install and Activate the Debuggable Version of the Server

Reference:
Problem: The Server Starts in Safe Mode
Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log
Problem: Setting ulimit to Allow Core Dumps
Problem: Forcing Core Dump Information on Solaris
Problem: Forcing Core Dump Information on HP-UX
Problem: Forcing Core Dump Information on AIX
Problem: Forcing Core Dump Information on Linux
Problem: Process Core Dumps, Core Produced, No Snap, and Debugger Missing Error
Problem: Server Fails to Start With Cannot Create Shared Memory Message Written to edaprint

To troubleshoot an installation problem, identify your problem in the following list, and follow the link to a description of the solution.

If you cannot find your problem described in the list, and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11.

Problems:

- The server starts in safe mode (as indicated by a message in the Web Console at start up).

  For details, see Problem: The Server Starts in Safe Mode on page 99.
A server start request partly fails with JVM not found messages written to the edaprint.log. For details, see Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log on page 100.

In Linux releases only, isetup gives an immediate error about a GLIBC version not found. This means that the underlying glibc libraries are not high enough for isetup (nor the server) to run. Examine the error message to determine which version is missing, and then install that GLIBC RPM version (or higher), and any GLIBC dependencies, before proceeding.

Server with Non OPSYS Security where tscom300.out is also not configured as setuid does not write core dump information to the edaprint log, so there is no snap (core dump) in the diagnostic.

For details, see Problem: Setting ulimit to Allow Core Dumps on page 101.

Server with OPSYS Security (where tscom300.out is configured as setuid) does not write core dump information to the edaprint log, so there is no snap (core dump) in the diagnostic.

Many UNIX environments intentionally limit the ability to read core files in setuid applications (the mode in which Security Provider OPSYS runs) for security reasons. On some platforms, the feature is configurable, but the commands to activate it vary by platform or may not be implemented in earlier OS releases. If the crash can be reproduced in an unsecured server, the core information will be produced. This is the best route to producing a complete save diagnostic. If the server cannot be run unsecured to produce the crash, see the following for details:

Problem: Forcing Core Dump Information on Solaris on page 101.
Problem: Forcing Core Dump Information on HP-UX on page 102.
Problem: Forcing Core Dump Information on AIX on page 102.
Problem: Forcing Core Dump Information on Linux on page 102.

Reference: Problem: The Server Starts in Safe Mode

Problem: The server starts in safe mode. The Web Console home page displays a message stating that the server is in safe mode and describing what triggered it.

Cause: A common cause for the server starting in safe mode is a problem with the server administrator ID password. For example, the password may have been updated on the operating system but not on the server, so the encrypted copy of the password stored by the server is out of synchronization with the password on the operating system.

Solution: The server administrator can click the fix hyperlink, which is displayed under the problem description, to display the relevant pane and resolve the problem.
For example, if the problem is that the server administrator password is out of synchronization:

1. Click the fix hyperlink displayed under the problem description.
2. In the left pane, open the Users folder, then the Server Administrator folder.
3. Click your user ID and select Properties from the pop-up menu.
   The Access Control pane is displayed on the right.
4. Type the correct operating system password in the Password field, and type it again in the Confirm Password field.
5. Click Save and Restart.
   The Security Mode pane opens on the right.
6. Click the Home icon in the menu bar to return to the Web Console home page.

Reference: Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log

Problem: The listener start request fails with JVM not found messages written to the edaprint.log file.

Cause: If the server cannot find the Java Virtual Machine (JVM), the JSCOM Listener will not be able to start, and messages will be written to the server log stating that the JVM cannot be found.

The log may be found in the following location:

On Windows:

`drive:\ibi\srv77\product_type\edaprint.log`

On UNIX:

`ibi/srv77/product_type/edaprint.log`

On IBM i:

'/home/iadmin/ibi/srv77/product_type/edaprint.log`

where:

`drive`

Is the hard drive on which the directory resides (on Windows).
product_type

Designates the type of product. The default values are:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFS</td>
<td>for a Full-Function Server</td>
</tr>
<tr>
<td>DM</td>
<td>for a DataMigrator Server</td>
</tr>
<tr>
<td>WFS</td>
<td>for a WebFOCUS Reporting Server</td>
</tr>
<tr>
<td>WFM</td>
<td>for a Shared Application Server for WebFOCUS Maintain</td>
</tr>
</tbody>
</table>

**Solution:** Set up the JVM as described in *JVM Requirements for Java Services (Server Installations Only)* on page 65.

**Reference:** **Problem: Setting ulimit to Allow Core Dumps**

The ulimit value of a process controls how large (in blocks) a core can grow. If the value is set to zero, no dump is produced, and the dump information is not read, therefore, a proper save diagnostic stack trace (snap) cannot be produced.

To check the current value, issue:

`ulimit -c`

To set a ulimit so that dump information can be produced, stop the server, set a value, and restart:

```
bin/edastart -stop
ulimit -c 99999
bin/edastart -start
```

The actual size value is in blocks and will vary by need. Since the need is unpredictable, select a number and then check the dump information. If the information is incomplete, increase the value.

**Reference:** **Problem: Forcing Core Dump Information on Solaris**

Solaris uses the coreadm command to control the ability to produce core files.

To see the current value, issue:

`coreadm`

For secured servers, before the server starts, issue:

`coreadm -e proc-setid`

No reboot of OS or service daemons is required, but core files must have a non-zero ulimit –c value.
**Reference:**  **Problem: Forcing Core Dump Information on HP-UX**

As of HP-UX 11.31, the coreadm command controls the ability to produce core files. Sites with an operating system prior to HP-UX 11.31 can only use the unsecure server method to produce a complete save diagnostic for a crash.

To see the current settings or values for machines that support the coreadm command, issue:

```
coreadm
```

For secured server purposes (on HP-UX 11.31 or higher), before the server starts, issue:

```
coreadm -e proc-setid
```

No reboot of OS or service daemons is required, but core files must have a non-zero ulimit –c value.

---

**Reference:**  **Problem: Forcing Core Dump Information on AIX**

AIX uses the chdev command to control the ability to produce core files. This command is on by default, so it only needs to be adjusted if it has been turned off.

To see the current value, issue:

```
lsattr -El sys0 -a fullcore
```

For secured server purposes, before the server starts, issue:

```
chdev -l sys0 -a fullcore=true
```

---

**Reference:**  **Problem: Forcing Core Dump Information on Linux**

While Linux has options to activate core dumps, none currently work in the context of the server. Linux sites can only use the unsecure server method to produce a complete save diagnostic for a crash.

---

**Reference:**  **Problem: Process Core Dumps, Core Produced, No Snap, and Debugger Missing Error**

When a process crashes, the operating system generally produces a core dump. The server software is designed to detect this event and use the system debugger to extract the state of the crashed process from the core and produce what is known as a snap. While the specific debugger command may vary by vendor, the standard debugger for the vendor must be installed or a Not Found condition on running the debugger can occur (effectively a core, but no snap information). Some vendors install the debugger in /bin or /usr/bin, which are normally on $PATH, but some vendors use locations not normally on $PATH. This can result in a secondary reason for a debugger Not Found condition. Once the debugger is installed and/or on the $PATH, reproducing the crash condition will then produce the snap information.
Reference: Problem: Server Fails to Start With Cannot Create Shared Memory Message Written to edaprint

The full message indicates the need to review edapth traces for r1shmop* entries with errors. If the server was not started with traces, start it with traces, and then view the edapth trace.

One of the r1shmop* entries in the edapth trace will show a specific error, but a common error is size is greater than system shared memory limit. This particular message indicates that the system kernel value for shared memory needs to be increased. The actual required value is generally a multiple of machine page size (typically 4K, but it can vary). The number of agents a server runs, and other installed software can also be a factor, and the required value may vary (slightly) from release to release.

There are tools, such as size and ps that will allow an experienced administrator to narrow down the precise shared memory size requirements, considering all of the software in use. However, a good rule of thumb is to increase memory in 10% increments until a working value is found.

Error messages other than shared memory size can occur, in which case, the system message is displayed. These other messages may provide an administrator with enough information to determine the appropriate action. If not, call Customer Support Services for a review. Actual kernel change commands or steps vary by vendor, so they are not explicitly outlined here.

Procedure: How to Install and Activate the Debuggable Version of the Server

In core dump (crash) situations, the stack information may or may not provide enough information for a problem to be resolved. Debuggable versions of the software will generally provide that information, but would not normally be installed nor used due to the disk overhead they take and they are not optimized for performance.

If a diagnostic is determined to not have enough information and use of debuggables is warranted, Customer Support Services will inform you to install and activate the debuggable version of the server and re-run the reproduction to capture a new diagnostic with the detailed stack to help troubleshoot the problem.

Caution: Do not activate the debuggable version unless explicitly requested to by Customer Support Services.

To activate the debuggable version of the server:

1. Log on with the server administrator ID (often referred to as iadmin).
2. Download the iserverd archive file (for example, .tar, .zip, or .bck) from the FTP site to a local directory. Debuggables for UNIX environments are not normally shipped on the original CD media, but can be made available on CD by special request to Customer Support Services and requires a lead time of approximately one week. If CD media is being used, mount the media.

3. Run the isetup installation program located in the EDAHOME bin (if download was used) or in the root directory of the CD media.

4. At the main menu, select option 4, Install Debuggables to the Installation Directory and follow its steps supplying information similar to when the original install was performed.

5. After completion of isetup the server may be run in debug mode with the following steps.

   edastart -stop
   edastart -dbgon
   edastart -start (run until repro is completed)
   edastart -stop
   edastart -dbgoff
   edastart -start

6. If the debug version is no longer needed, the debuggables may be removed. If a service pack is being installed, the debuggables must be removed to prevent mismatches with the new release. To remove the debuggables, change the directory to the home directory of EDAHOME and issue rm -f dbg.

   Customer Support Services will provide you with additional instructions as your situation requires.
Installation for z/OS

The unified software for z/OS provides a choice of deployment environments, either:

- Hierarchical file system (HFS) or z/OS Distributed File Service zSeries File System (zFS) files on UNIX System Services. (This manual uses the term "HFS" generically to refer to both the HFS and the zFS file systems, except where explicitly stated otherwise.)

- Partitioned data set (PDS) libraries.

To compare their benefits, see *Choosing How to Deploy* on page 106.
Choosing How to Deploy

z/OS provides you with a choice of deployment environments. You can deploy using either:

- **The Hierarchical File System (HFS)** on UNIX System Services (USS). The HFS-deployed software stores executable code and user data on the HFS. Security is provided by UNIX file security and by your z/OS security package, such as RACF, eTrust™ CA-Top Secret®, or eTrust™ CA-ACF2®. You install from ISPF and start it using JCL. All other processes occur under USS.

- **Partitioned data sets (PDS)** which deploys software in partitioned data sets. The PDS-deployed software provides the same rich level of features as the HFS-deployed software, but removes the requirement for interaction with Unix System Services at installation time and run time. Administration of the software, from a systems perspective, has been streamlined to match that of the classic MVS version of the server (also known as the SSCTL server).

The following table compares the benefits of each way of deploying on z/OS.

<table>
<thead>
<tr>
<th>Feature</th>
<th>HFS / USS</th>
<th>PDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>File Management:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Server run-time and configuration files</strong></td>
<td>In the UNIX Hierarchical file system (HFS).</td>
<td>In partitioned data sets (PDSs).</td>
</tr>
<tr>
<td>Feature</td>
<td>HFS / USS</td>
<td>PDS</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>File Management:</strong></td>
<td>In the UNIX HFS and, optionally, in a PDS.</td>
<td>In a PDS and, optionally, in the UNIX HFS.</td>
</tr>
<tr>
<td><strong>User data, metadata, and procedures</strong></td>
<td><strong>Security</strong> Standard security packages are supported (RACF, eTrust™, CA-ACF2®, and eTrust CA-Top Secret). All directories and files must have their user/group/world attributes correctly set. A user ID with a UID of 0 (that is, a superuser) is required when running the server with security set to OPSYS or a special UNIXPRIV user ID can be used.</td>
<td>Standard security packages are supported (RACF, eTrust CA-ACF2, and eTrust CA-Top Secret). No additional security is required.</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>User IDs</strong></td>
<td>A UID of 0 (that is, a superuser) can install, but not administer or connect to, the server. Each user ID that will install, administer, or connect to the server requires an HFS segment with sufficient space and appropriate file permissions for the tasks that the ID will perform.</td>
<td>Any user ID can install, administer, and connect to the server.</td>
</tr>
<tr>
<td><strong>Adapters</strong></td>
<td>Use a mixture of USS-based and MVS-based libraries/APIs.</td>
<td>Use MVS-based libraries/APIs. The exception is DBMSs that support only USS-based libraries/APIs, such as DB2 CLI and Java-based adapters, such as MS SQL Server, which use vendor libraries/APIs residing in the hierarchical file system.</td>
</tr>
</tbody>
</table>
PDS deployment also requires each user of the server to be identified to USS by means of a default segment definition. For more information, see USS Segment Requirements on page 226.

**File Locations**

The software includes several groups of files used for installation, configuration, and administration. These groups are implemented differently in HFS and PDS deployments:

- **Supplied files (EDAHOME)**, which contains programs and related files. For more information, see Supplied Files Location (EDAHOME) on page 109.
- **Configuration (EDACONF)**, which contains the files that control the behavior of each configured instance. For more information, see *Configuration Files Location (EDACONF)* on page 110.

- **Applications (APPROOT)**, which is the default location for storing applications. For more information, see *Application Files Location (APPROOT)* on page 112.

- **Profiles**, which contains user and group profiles. For more information, see *Profile Files Location* on page 111.

- **Administration**, which includes a file that specifies server administrators. For more information, see *Administration Files Location* on page 111.

**Supplied Files Location (EDAHOME)**

The programs and related files are stored in a location referred to as EDAHOME. The installation process copies the software into EDAHOME.

- **In HFS** deployment, EDAHOME defaults to the following directory and several subdirectories:
  
  `ibi/srv77/home`

- **In PDS** deployment, EDAHOME defaults to the following partitioned data sets:
  
  `high_level_qualifier.P.HOME.component_type`

  where:

  `high_level_qualifier`

  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software (for example, IADMIN.SRV77). However, you can use any site-specific value.
**component_type**

Designates the type of server component. The values are:

- **ETC** for script and text files.
- **BIN** for binary-based object files.
- **ACX** for the server Access Files.
- **MAS** for the server Master Files.
- **FEX** for the server procedure (FOCEXEC) files.
- **ERR** for error files.
- **LOAD** for the load library.

**Configuration Files Location (EDACONF)**

The configuration files are stored in a location referred to as EDACONF. Each configured instance has its own EDACONF, which controls the behavior of that instance.

- **In HFS** deployment, EDACONF defaults to the following directory and several subdirectories:
  
  `ibi/srv77/product_type`

- **In PDS** deployment, EDACONF defaults to the following partitioned data sets:
  
  `high_level_qualifier.product_type.CONF.config_type`

  where:

  `high_level_qualifier`
  
  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software (for example, IADMIN.SRV77). However, you can use any site-specific value.

  `product_type`
  
  Designates the software installation type. There will be one `product_type` for each type of product that you install. The value is determined by your license key:

  - **FFS** for a Full-Function Server
  - **DM** for a DataMigrator Server
  - **WFS** for a WebFOCUS Reporting Server
  - **WFM** for a Shared Application Server for WebFOCUS Maintain

  `config_type`
  
  Designates the type of configuration file. The value(s) for:

  The primary configuration file is CFG.
The Report Server deferred execution configuration files are DEL, REQ, RPE, RPF, RPI, RQD, RQF, RQP, and RSP.

**Profile Files Location**

Server profiles are stored in the following location:

- **In HFS** deployment, the location is specified in the environment variable EDAPRFU, and defaults to the following directory:
  
  ibi\profiles

- **In PDS** deployment, the location is the following partitioned data set

  `high_level_qualifier.product_type.CONF.PRF`

  where:

  - `high_level_qualifier`
    
    Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software (for example, IADMIN.SRV77). However, you can use any site-specific value.

  - `product_type`
    
    Designates the software installation type. There will be one `product_type` qualifier for each type of product that you install. The value is determined by your license key:

    - **FFS** for a Full-Function Server
    - **DM** for a DataMigrator Server
    - **WFS** for a WebFOCUS Reporting Server
    - **WFM** for a Shared Application Server for WebFOCUS Maintain

  This PDS is allocated in ddname EDAPROF in the servers JCL.

**Administration Files Location**

The file that specifies server administrators is located in:

- **In HFS** deployment, the location is specified in the environment variable EDAPRFU, and defaults to the following directory:

  ibi\profiles

- **In PDS** deployment, the location is member ADMIN of the following partitioned data set

  `high_level_qualifier.product_type.CONF.CFG`
where:

**high_level_qualifier**

Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software (for example, IADMIN.SRV77). However, you can use any site-specific value.

**product_type**

Designates the software installation type. There will be one *product_type* qualifier for each type of product that you install. The value is determined by your license key:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

This PDS is allocated to ddname EDACFG in the servers JCL.

**Application Files Location (APPROOT)**

The server application files are stored in a location referred to as APPROOT. APPROOT may be shared by applications created with other Information Builders products.

- **In HFS** deployment, APPROOT defaults to the following directory:
  
  `ibi/apps`

- **In PDS** deployment, APPROOT defaults to the following partitioned data sets:

  `approot.appname.type.DATA`

  where:

  **approot**
  
  Designates the root qualifier for the server applications.

  **appname**
  
  Designates the name of the application. There will be one *appname* qualifier for each application.
**type**

Designates the type of application component. The values are:

- **ACCESS** for Access Files.
- **ETG** for DataMigrator flow information.
- **FOCEXEC** for procedure files.
- **FTM** for temporary files.
- **GIF** for image files (both GIF and JPG).
- **HTML** for HTML files.
- **MAINTAIN** for Maintain files.
- **MASTER** for Master Files.
- **WINFORMS** for forms.
- **DTD** for XML DTD files.
- **FOCCOMP** for foccomp files.
- **FOCSTYLE** for StyleSheet files.
- **SQL** for SQL files.
- **XML** for XML files.
- **XSD** for XML XSD files.
- **FOCUS** for FOCUS data files.

Two applications are generated automatically during installation: IBISAMP and BASEAPP, a default application space.
Step-By-Step Installation Overview

The installation process differs somewhat, depending on how you are deploying the software for z/OS. To deploy using:

- **HFS/USS:**
  1. Installation Requirements for HFS on page 115
  2. Installing New on HFS on page 120
  3. Starting and Stopping a Server for HFS on page 164
  4. DB2 Security Exit Configuration for HFS on page 166
  5. MSODDX for DD Translation for User Subroutines on page 172
  6. Overriding the Time Zone Setting on page 172
  7. Adding a Configuration Instance for HFS on page 173
  8. Upgrading Your Server Release for HFS on page 185
  9. Performance Considerations for HFS on page 204
  10. General Information for a z/OS HFS Installation on page 207
  11. Third-Party Software and Licenses on page 209
  12. Troubleshooting for HFS on page 210

- **PDS:**
  1. Installation Requirements for PDS on page 220
  2. Installing a New Server for PDS on page 227
  3. Starting and Stopping a Server for PDS on page 252
  4. DB2 Security Exit Configuration for PDS on page 253
  5. MSODDX: DDNAME Translation for User Subroutines on page 258
  6. Overriding the Time Zone Setting on page 258
  7. Adding a Configuration Instance for PDS on page 259
  8. Upgrading Your Server Release for PDS on page 269
  9. Performance Considerations for PDS on page 285
  10. General Information for a z/OS PDS Installation on page 291
  11. Third-Party Software and Licenses on page 293
  12. Troubleshooting for PDS on page 294
HFS Deployment

The topics in this section describe how to install your software in a Hierarchical File System (HFS) environment on UNIX System Services.

Installation Requirements for HFS

Before beginning the installation, review all requirements.
**Operating System Requirements**

The software runs on any supported release of z/OS. For current information about supported releases:

   
   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   
   The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied.

Confirm that your server installation software is labeled for your operating system level.

**JVM Requirements for Java Services**

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality.

The following URL has Java EOL and EOSL information:


Installing maintenance updates to the EDAHOME of an existing server running releases prior to production 7.7.05 will also have the requirement of moving up all dependent configurations to use Java 1.6 (as instructed in this section).
You may install a Java JRE or a Java SDK. When you install a Java SDK, the JRE component (where the JVM lives) is included, so either is allowed. If using servlet, the Java SDK is required for the jar command, so it is generally preferred over the Java JRE. The SDK or JRE build type must also match the 32-bit or 64-bit bit type of the server. If an appropriate JVM from a JRE or SDK is not found on the library path or using variables as described below, or is not the appropriate bit type, a Failed to find JVM message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log indicating JSCOM3 start failed as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener and the terms are often used interchangeably.

The JDK JRE bin and server (or client) subdirectories must be specified in the load library path environment variable. A server restart is required, plus the appropriate JVM must be on the path if switching JRE levels. The load library path will be prompted at install time if JVM-based adapters or features are required. Otherwise, it can be manually set by editing the EDAENV file using any of the following methods.

- For Java JDK, set JDK_HOME (to the install home location) in the server environment configuration file (EDAENV).
- For Java JRE, set JAVA_HOME (to the install home location) in the server environment configuration file (EDAENV).
- Use library path (LIBPATH) to set explicit pathing. Use of JDK_HOME or JAVA_HOME is preferred as they are less prone to error. The JRE bin and server (or client) subdirectories must be specified in a path-based environment variable and a server restart is required.

To change or add operating system environment variables, set and export the variable in a .profile or script that always gets called during a server start. It is very common to place variables in the server edastart script, but it is recommended that they be placed in a script that in turn calls edastart (so that the edastart script remains vanilla).

To change or add a variable in a server environment start up file (EDACONF bin\edaenv.cfg), either edit the file in a text editor before starting the server or:

1. Start the server (services like Java Listener may fail until configured and the server is restarted).
2. Open the Web Console and log on using an administrator ID.
3. Select Workspace from the main menu.
4. In the navigation pane, open the Configuration Files and Miscellaneous folders.
5. Right-click Environment - edaenv.cfg and select Edit.
6. Make the desired edit.
7. Save the file.
8. Restart the server (changes are not effective until server is restarted).

The format of edaenv.cfg variables is one per line in name=value pairs. Spaces before and after the equal sign are optional. Values with embedded spaces do not require quoting. Variables are always uppercase.

If JVM-based adapters or features are not required, and the JVM environment is not configured, the message *Failed to find JVM* is normal and can be ignored.

To add classes to the JVM class path for customer-written CALLJAVA applications, set and export the CLASSPATH variable to the operating system level before server start-up or use the Web Console to set the Java Listener IBI_CLASSPATH property.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Additionally, do not use IP port numbers already being used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.

**Browser Requirements**

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.

**Disk Space Requirements**

The server disk space requirement for:

- Installation is 620 megabytes.
- Run time is a combination of the server software (620 megabytes) plus the space required for applications, databases, sorts, output preparation, and logs. The actual space required will depend on the number and size of the applications and databases that you deploy to the server.
You can divide your space requirements in different ways. For example, you may choose to employ one mount point for the working directory for users and trace files (edatemp), and one mount point for the application directory (apps). Another option is to employ one mount point for edatemp, and one for each individual application.

For more information about using mount points, see the IBM USS documentation.

**Memory Requirements**

Memory usage of a configured environment consists of the following elements:

- Workspace Manager
- Listeners
- Concurrently running application agents

Actual memory usage depends on application features, and varies depending on the application. The SHRLIBRGN SIZE parameter (defined on SYS1.PARMLIB, member BPXPRMxx) can affect the amount of memory that the server address space will allocate. For SHRLIBRGN SIZE, we recommend the default MVS installation value of 64Mb:

```
SHRLIBRGN SIZE(67108864)
```

Server memory usage:

- The workspace (including Listeners) uses 200 megabytes.
- Each pre-started agent requires 4 megabytes.

The minimum amount of memory for a newly installed server with no workload is 250Mb. However, depending on usage, workload, and configuration options, 500Mb is recommended to start, to be adjusted as needed.

**Communications Requirements**

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.

The server supports only IBM TCP/IP. It does not support Interlink or any other third-party TCP/IP.
Installing New on HFS

In this section:

Step 1. Establish the HFS Directory for the Software
Step 2. Set Up User IDs
Step 3. Collect Required Information for Adapters
Step 4. Access the Installation Software
Step 5. Run ISETUP
Step 6. Test the Installation
Step 7. Configure Server Security

To install on z/OS deployed using the Hierarchical File System (HFS) and UNIX System Services (USS), perform the following steps.

**Step 1. Establish the HFS Directory for the Software**

How to:

Establish the HFS Directory for the Software

The installation requires a set of HFS directories where the product executable files, configuration files and sample applications are loaded. The software also uses HFS directories for temporary files during the software operation, by default. Application files can be kept in the HFS directories or in PDS.

To better control the space allocated to the software, we recommend defining a separate HFS data set, OMVS.IADMIN, and mounting it as /u/iadmin for the exclusive use of the software. Note that both names can be changed and existing HFS data sets used as an alternative.

The sample JCL in step 1a is for 1 gigabyte of space. The total space that can be allocated to an HFS data set is dependent on the operating system release and the physical device type. Refer to IBM documentation for more information about HFS allocation. For an SMS-managed data set, add the appropriate parameters.
**Procedure: How to Establish the HFS Directory for the Software**

To establish the HFS directory for the server:

1. Create the following JCL to define the HFS data set:

   ```
   //********** JOB CARD GOES HERE **********/
   //
   //*************DEFINE HFS **************
   //DEFWEB EXEC PGM=IEFBR14
   //DD1 DD DISP=(NEW,CATLG),DSN=OMVS.IADMIN,DSNTYPE=HFS,
   // VOL=SER=VPWRKC,DCB=(DSORG=PO),
   // SPACE=(CYL,(1200,5),,CONTIG,ROUND)
   ```

2. Add a job card and submit the JCL.

3. Mount the file system by issuing the following commands at the command line in Option 6 of ISPF:

   ```
   MOUNT FILESYSTEM('OMVS.IADMIN')
   MOUNTPOINT ('/u/iadmin') TYPE (HFS) MODE (RDWR)
   ```

   where:

   **OMVS.IADMIN**

   Is the name associated with the file system defined in Step 1.

   **/u/iadmin**

   Is the mount entry point for the file system. Specify a directory appropriate for your site.

   The specified directory must exist before you issue the MOUNT command. Once the directory is created, the minimum permissions for all directory levels leading to iadmin must be 755.

4. Update your BPXPRMxx member of SYS1.PARMLIB to permanently mount the file system.
Step 2. Set Up User IDs

**In this section:**
- Software Installation ID (iinstal)
- OPSYS Server Administrator ID (iadmin)
- PTH Administrator ID
- Server System ID (iserver)
- General IDs (for Connecting Users)

**User ID Installation Scenarios**
- Step 2A. Define the Software Installation ID
- Step 2B/RACF. Define the OPSYS Server Administrator ID With RACF
- Step 2B/ACF2. Define the OPSYS Server Administrator ID With CA-ACF2
- Step 2B/Top Secret. Define the OPSYS Server Administrator ID With CA-Top Secret
- Step 2C/RACF. Define the Server System User ID With RACF
- Step 2C/ACF2. Define the Server System User ID With CA-ACF2
- Step 2C/Top Secret. Define the Server System User ID With CA-Top Secret
- Step 2D. Define the Server System User ID With UNIXPRIV Profiles
- Step 2E. Add the OMVS Segment to General User IDs

**How to:**
Verify the OPSYS Server Administrator ID

To install and run the software, the following types of user IDs are required:

- Server installation ID (iinstal).
- OPSYS Server administrator ID (iadmin).
- PTH Administrator ID (srvadmin).
- Server system ID (iserver).
- General IDs (for connecting users).
The number of IDs and their names depend on the needs and configuration of your site.

**Software Installation ID (iinstal)**

An ID is required to unload the software installation from tape and to create PDSs and HFS directories. Many sites already have a suitable ID that they use for installing vendor software.

The sample ID name *iinstal* is used throughout the installation procedure to refer to this ID, but you can choose any name. (We have omitted the second "l" from "install" due to a seven-character length restriction in some RACF and eTrust™ CA-Top Secret® environments.)

To define iinstal, see *Step 2A. Define the Software Installation ID* on page 125.

**OPSYS Server Administrator ID (iadmin)**

An ID is required to administer the server. It will own and have full access to server files installed in the HFS directory that you specify during installation. This ID should be available only to users who require administrative server privileges, such as starting and stopping the server, adding adapters, and changing run-time parameters.

The sample ID name *iadmin* and group *isrvgrp* are used throughout the installation procedure to refer to this ID, but you can choose any names. To define iadmin, if you are using:

- **RACF**, see *Step 2B/RACF. Define the OPSYS Server Administrator ID With RACF* on page 125.
- **CA-ACF2**, see *Step 2B/ACF2. Define the OPSYS Server Administrator ID With CA-ACF2* on page 126.
- **CA-Top Secret**, see *Step 2B/Top Secret. Define the OPSYS Server Administrator ID With CA-Top Secret* on page 127.

**PTH Administrator ID**

An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of the server.

For more information about running the server in secure mode, see *Step 7. Configure Server Security* on page 157.

**Server System ID (iserver)**

If you plan to run the server with security provider OPSYS, you must create a user ID for internal use by the server. The server will use this server system ID when it needs superuser privileges. For example, it will use it to impersonate a connected user when the server agent is created.

This ID does not need TSO logon privileges. All IDs require an OMVS segment. Be sure never to delete this ID. Doing so would cause server administration problems.
The sample ID name iserver is used throughout the installation procedure to refer to this ID, but you can choose any name.

You can define this server system ID as either:

- **A superuser ID.** This is an ID whose security definition specifies UID(0), authorizing it to perform all z/OS UNIX functions without restriction.

  To define iserver using a superuser ID, if you are using:
  - **RACF,** see *Step 2C/RACF. Define the Server System User ID With RACF* on page 129.
  - **CA-ACF2,** see *Step 2C/ACF2. Define the Server System User ID With CA-ACF2* on page 130.
  - **CA-Top Secret,** see *Step 2C/Top Secret. Define the Server System User ID With CA-Top Secret* on page 130.

- **An ID employing profiles with UNIXPRIV for authorization,** which is necessary for certain superuser privileges.

  By granting limited superuser privileges with a high degree of granularity to an ID that does not have superuser authority, you minimize the number of assignments of superuser authority at your installation and reduce your security risk.

  This is supported for sites using RACF, eTrust™ CA-ACF2®, and eTrust CA-Top Secret. Note that global access checking is not used for authorization checking to UNIXPRIV resources.

  To define iserver using UNIXPRIV profiles, see *Step 2D. Define the Server System User ID With UNIXPRIV Profiles* on page 131.

**General IDs (for Connecting Users)**

Any user requiring access to the server must have a non-superuser ID (that is, it must have a unique UID other than 0) and have an OMVS segment. For information about this, see *Step 2E. Add the OMVS Segment to General User IDs* on page 133.

**User ID Installation Scenarios**

There are two user ID installation scenarios:

- **Installation and administrator IDs are the same.**

  The user ID must have a unique non-zero UID. It cannot be a superuser. For this scenario, logon to TSO with this ID and do not change the default administrator ID that is presented on the first full panel of the ISETUP installation process.
Installation and administrator IDs are different.

The installation ID can be a superuser or non-superuser, and must have authority over the administrator ID so that it can change ownership of the server directory structure from the installation ID to the administrator ID. The command issued during the installation process to change ownership is shown.

The administrator ID must have a unique non-0 UID. It cannot be a superuser.

Step 2A. Define the Software Installation ID

When defining the software installation ID:

- The installation ID requires read access to the BPX.FILEATTR.APF facility class.
- The installation ID requires an OMVS segment.
- The installation ID can be any existing user ID. If it is the same as the administrator ID (iadmin), see one of the following topics for a sample definition. If you are using:
  - RACF, see Step 2B/RACF. Define the OPSYS Server Administrator ID With RACF on page 125.
  - CA-ACF2, see Step 2B/ACF2. Define the OPSYS Server Administrator ID With CA-ACF2 on page 126.
  - CA-Top Secret, see Step 2B/Top Secret. Define the OPSYS Server Administrator ID With CA-Top Secret on page 127.

Step 2B/RACF. Define the OPSYS Server Administrator ID With RACF

The server administrator ID requires an OMVS segment.

To define the server administrator ID with RACF:

1. Have the Security Administrator issue the following RACF commands:

   ```
   ADDUSER iadmin PASSW(xxxx)
   DFLTGRP(ISRVGRP)
   OMVS(UID(8) HOME('/u/iadmin') PROGRAM('/bin/sh'))
   TSO(ACCTNUM(12345) PROC(PROC01))
   ```

2. Verify that the ADDUSER command completed successfully by issuing the following command, and be sure that the command is available to the iadmin ID:

   ```
   [TSO] LISTUSER iadmin OMVS NORACF
   ```
3. A Security Administrator must update the Facility classes of RACF, using the following commands issued with ISPF Option 6:

   RDEFINE FACILITY BPX.FILEATTR.APF UACC(NONE)
   PERMIT BPX.FILEATTR.APF CL(FACILITY) ID(iadmin) ACCESS(READ)

4. Refresh the RACF Facility class so that these commands will take effect.

   SETROPTS RACLIST(FACILITY) REFRESH

5. Continue by verifying the server administrator ID, as described in *How to Verify the OPSYS Server Administrator ID* on page 129.

**Step 2B/ACF2. Define the OPSYS Server Administrator ID With CA-ACF2**

The server administrator ID requires an OMVS segment.

To define the server administrator ID with eTrust CA-ACF2:

1. To define the ID that will administer the server, issue the following commands:

   SET LID
   INSERT iadmin GROUP(admin) PASSWORD(pass) STC
   SET PROFILE(USER) DIV(OMVS)
   INSERT iadmin UID(n) HOME(/) OMVSPGM(/bin/sh)

   where:

   iadmin
   Is the ID you are creating to administer the server.

   admin
   Is the group in which iadmin will reside.

   pass
   Is the password for iadmin.

   n
   Is the UID.

2. Continue by verifying the server administrator ID, as described in *How to Verify the OPSYS Server Administrator ID* on page 129.
**Step 2B/Top Secret. Define the OPSYS Server Administrator ID With CA-Top Secret**

The server administrator ID requires an OMVS segment.

To define the server administrator ID with eTrust CA-Top Secret:

1. **Create a department ID for everyone defined to eTrust CA-Top Secret who will be using the server, by issuing the command**

   ```
   TSS CRE(dept) TYPE(DEPT) NAME('formal department name')
   ```

   where:
   - **dept**
     - Is the name of the department you are creating.
   - **formal department name**
     - Is the label you want to associate with the new department.

2. **For users within the department you just created for the server, you can define resource access within a group. To define an ID for that group, issue the command**

   ```
   TSS CRE(deptgrp) NAME('dept group') DEPT(dept) TYPE(GROUP) GID(n)
   ```

   where:
   - **deptgrp**
     - Is the name of the group you are creating.
   - **dept group**
     - Is the label you want to associate with the new group.
   - **dept**
     - Is the name of the department you created.
   - **n**
     - Is the number you want to assign to the new group.

3. **Create the iadmin ID and attach it to the new department by issuing the following commands**

   ```
   TSS CRE(iadmin) NAME('iadmin id') TYPE(USER) DEPT(dept) PASSWORD(pass) GROUP(deptgrp) DFLTGRP(deptgrp)
   ```

   where:
   - **iadmin**
     - Is the ID you are creating to administer the server.
**iadmin id**
Is the label you want to associate with the new ID.

**dept**
Is the name of the department that you created.

**pass**
Is the password for the ID you are creating.

**deptgrp**
Is the group you created.

**4.** Issue the following command to define the user’s USS shell program (using OMVSPGM), facility access (using FAC), and, optionally, the initial directory (using HOME).

The OMVS segment of the ACID defines the ACID’s UID, the user’s home directory, and the initial program that the user will run. The initial program is generally the shell program that the user invokes.

\[ \text{TSS ADD(} \text{iadmin}) \text{ UID(}n\text{)} [\text{HOME(}u/\text{dir}\text{)}] \text{ OMVSPGM(}\text{bin/sh}\text{)} \text{ FAC(BATCH,TSO)} \]

where:

**iadmin**
Is the ID you created to administer the server.

**n**
Is the UID. It cannot be 0 (zero).

**HOME**
Defines the initial directory path name. If it is omitted, USS sets the user's initial directory to the root directory.

**dir**
Is the ID home directory.

**5.** Issue the following command

\[ \text{TSS PER(} \text{iadmin}) \text{ IBMFAC(}\text{BPX.FILEATTR.APF}\text{)} \text{ ACC(READ)} \]

where:

**iadmin**
Is the ID you created to administer the server.

**6.** Continue by verifying the server administrator ID, as described in *How to Verify the OPSYS Server Administrator ID* on page 129.
**Procedure**: How to Verify the OPSYS Server Administrator ID

To verify the server administrator ID:

1. Verify that the home directory of the server administrator ID is correct by logging on to the server administrator ID (if not already logged on) and issuing the following command from ISPF option 6:
   
   ```
   OSHHELL pwd
   ```
   
   You should receive the following response:
   
   `/u/iadmin`
   
   This directory should be the home directory specified in the UID definition for iadmin.

2. For a second confirmation, issue the following command:
   
   ```
   OSHHELL echo $HOME
   ```
   
   You should receive the following response:
   
   `/u/iadmin`

3. Verify that the server administrator ID has a unique UID and the correct GID defined by issuing the following command and press Enter:
   
   ```
   OSHHELL id
   ```
   
   You should receive the following response:
   
   `uid=8(IADMIN) gid=50(ISRVGRP)`
   
   This UID and GID should match what is defined in the OMVS segment.

**Step 2C/RACF. Define the Server System User ID With RACF**

The RACF commands in this procedure must be issued by the Security Administrator. The server system user ID does not require logon authority.

To define the server system user ID with RACF:

1. Issue the following RACF command

   ```
   ADDUSER iserver DFLTGRP(OMVSGRP) OMVS(UID(0)) NOPASSWORD
   ```

   where:

   ```
   iserver
   ```

   Is the account you use for the system server ID.

2. Verify that the above ADDUSER command completed successfully by issuing the following command:

   ```
   [TSO] LISTUSER iserver OMVS NORACF
   ```
You should receive the following output:

```
USER=iserver
OMVS INFORMATION
----------------------
UID=0000000000
HOME=/u/iserver
PROGRAM=/bin/sh
```

**Step 2C/ACF2. Define the Server System User ID With CA-ACF2**

To define the server system user ID with eTrust CA-ACF2, issue the following commands:

```sh
SET LID
INSERT iserver NAME(iserverID) GROUP(pgm)
SET PROFILE(USER) DIV(omvs)
INSERT iserver UID(0) HOME(/) PROGRAM(/bin/sh)
SET PROFILE(GROUP) DIV(omvs)
INSERT pgm GID(n)
```

where:

- `iserver` is the ID you are defining for the server system ID.
- `iserverID` is the description you want to associate with the system server ID.
- `pgm` is the ID group.
- `omvs` is the name of your OMVS division.
- `n` is the group ID.

**Step 2C/Top Secret. Define the Server System User ID With CA-Top Secret**

To define the server system user ID with eTrust CA-Top Secret:

1. Issue the following commands

   ```sh
   TSS CRE(iserver) TYPE(USER) NAME('server system ID') DEPT(dept)
   PASS(pass,0) SOURCE(INTRDR)
   ```
where:

iserver
Is the name you wish to assign to the server system ID you are defining.

depth
Is the name of the department you created in step 2b.

server system ID
Is the label you want to associate with the new ID.

pass
Is the ID password.

This password never expires.

Note that the SOURCE(INTRDR) setting prevents this ACID from logging on.

2. Define the required access for the server system ID by issuing the following command

```
TSS ADD(iserver) UID(0) HOME(/) OMVSPGM(/bin/sh) GROUP(deptgrp) DFLTGRP(deptgrp)
```

where:

iserver
Is the server system ID.

deptgrp
Is the name of the group you created in step 2b.

3. You can choose to audit the server system ID. Each time the ACID is used, an audit record will be written to eTrust CA-Top Secret audit tracking file. To set this option, issue the following command

```
TSS ADD(iserver) AUDIT
```

where:

iserver
Is the server system ID.

**Step 2D. Define the Server System User ID With UNIXPRIV Profiles**

Resource names in the UNIXPRIV class are associated with z/OS UNIX privileges. In order to use authorization to grant z/OS UNIX privileges, you must define profiles in the UNIXPRIV class protecting these resources. The UNIXPRIV class must be active. If you are using RACF, SETROPTS RACLST must be in effect for the UNIXPRIV class.

To use profiles in the UNIXPRIV class to grant authorization for superuser privileges to a server system ID that does not have superuser authority (UID=0), you must assign:
READ access for `SUPERUSER.FILESYS.CHOWN`

CONTROL access for `SUPERUSER.FILESYS`

**Note:**

- It is strongly recommended that you do not assign TSO privileges to the UNIXPRIV user ID. This can be done by adding the keyword NOPASSWORD to the RACF command ADDUSER.

- The installation routine ISETUP will ask for the server system ID (default ISERVER). It will check if the supplied userid has a UID of 0. If it does not, UNIXPRIV authorization is assumed. This will result in an entry in the ibi/srv77/product_type/bin/edaserve.cfg file as follows:
  
  ```
  server_system_id = ISERV3/PRIV
  ```
  
  rather than
  
  ```
  server_system_id = ISERVER
  ```

  If you installed the software with the server system ID pointing to a superuser ID (UID=0), and then decide to use UNIXPRIV userid, the value in the edaserve.cfg file must reflect the /PRIV syntax. Edit the file manually or using the Web Console, click **Workspace**, **Configuration/Monitor**. Open the **Configuration Files** folder, double-click **Workspace**, and change the server_system_id value before starting the server.

For more information about UNIXPRIV authorization, for:

- RACF, see the *IBM Security Server RACF Security Administrator's Guide*.

- ACF2, see the *eTrust CA-ACF2 Security Cookbook*.

- Top Secret, see the *eTrust CA-Top Secret Security Cookbook*. 
**Example:** Server System User ID With UNIXPRIV

The server system ID requires different authorities in order to be used with UNIXPRIV. The following RACF example lists the authorities for a system server ID with UNIXPRIV authorization, named ISERVR3. Authorizations for your site may differ.

**Occurrences of ISERVR3**
- In standard access list of general resource profile UNIXMAP U100122
- In standard access list of general resource profile TSOAUTH RECOVER
- In standard access list of general resource profile TSOAUTH JCL
- In standard access list of general resource profile ACCTNUM EDA
- In standard access list of general resource profile UNIXPRIV
  - SUPERUSER.FILESYS.CHOWN
- In standard access list of general resource profile UNIXPRIV
  - SUPERUSER.FILESYS
- Owner of profile ISERVR3.* (G)
- First qualifier of profile ISERVR3.* (G)
- In access list of group EDA
- User entry exists

**Step 2E. Add the OMVS Segment to General User IDs**

To add the OMVS segment to general user IDs:

1. For all end-users connecting to servers, ensure that each user ID has an OMVS segment (or is set up to use a default user ID as documented in the IBM manual *UNIX System Services Planning*).

   For example, to modify an existing RACF TSO user ID profile, from ISPF Option6, issue the following command

   ```
   ALTUSER user_ID OMVS(UID(nnn) HOME('/u/user_ID') PROGRAM('/bin/sh'))
   ```

   where:

   - `user_ID` is the user ID you are modifying.

**Step 3. Collect Required Information for Adapters**

For current information about which adapters are supported:


   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click **Supported Systems/Adapters**.

   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
4. Click the link for your platform.

The support chart for that platform opens.

You must provide information to configure the adapters that you are licensed to install. The installation procedure automatically prompts you for this information. When you are prompted for an optional steplib, ddname, or environment variable, the installation procedure will indicate this with an OPT> prompt.

If you are using non-APF-authorized DBMS libraries, you must allocate the libraries to the ddname TASKLIB in IRUNJCL. The installation routine collects the information and allocates the required libraries in STEPLIB.

After you have installed and configured the server, you will be able to further configure your adapters using a web-based server configuration tool called the Web Console.

The following table describes what information you need to provide for each adapter that you have. (If an adapter is not listed, no information needs to be provided for it.) Note that the table refers to:

- **EDAENV.** This parameter file is a member of
  
  `high_level_qualifier.product_type.DATA`

- **IRUNJCL.** This procedure starts the server, and is a member of the configuration library
  
  `high_level_qualifier.product_type.DATA`

  where:

  `high_level_qualifier`

  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software (for example, IADMIN.SRV77). However, you can use any site-specific value.
**product_type**

Is one of the following:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adabas</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- load library</td>
</tr>
<tr>
<td></td>
<td>This is required only for the synonym creation process. For example, in a production</td>
</tr>
<tr>
<td></td>
<td>environment in which all synonyms already exist, you can omit this.</td>
</tr>
<tr>
<td></td>
<td>When you configure the adapter, you will need to provide the name of the Adabas source</td>
</tr>
<tr>
<td></td>
<td>library and the associated data set name.</td>
</tr>
<tr>
<td>CA-DATACOM</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- CUSLIB load library</td>
</tr>
<tr>
<td></td>
<td>- CAILIB load library</td>
</tr>
<tr>
<td></td>
<td>- utility library</td>
</tr>
<tr>
<td></td>
<td>- URT library</td>
</tr>
<tr>
<td>CA-IDMS</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td>(both DB and SQL)</td>
<td>- load library</td>
</tr>
<tr>
<td></td>
<td>- DBA load library</td>
</tr>
<tr>
<td></td>
<td>Provide the data set names to which the following ddnames are allocated:</td>
</tr>
<tr>
<td></td>
<td>- SYSIDMS. Check with your CA-IDMS DBA regarding this ddname.</td>
</tr>
<tr>
<td></td>
<td>- SYSCTL. Is the library corresponding to the central version you want to use.</td>
</tr>
<tr>
<td>Adapter</td>
<td>Information you must provide</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Call Java</td>
<td>You must have the JDK installed.</td>
</tr>
<tr>
<td></td>
<td>Provide a value for the following environment variables:</td>
</tr>
<tr>
<td></td>
<td>- CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will</td>
</tr>
<tr>
<td></td>
<td>be appended to CLASSPATH.</td>
</tr>
<tr>
<td></td>
<td>- This adapter requires configuration of the JSCOM3 listener. The path to JVM must be</td>
</tr>
<tr>
<td></td>
<td>provided using either JDK_HOME or JAVA_HOME. The installation will prompt for it.</td>
</tr>
<tr>
<td>CICS Transaction</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- CICS EXCI load library</td>
</tr>
<tr>
<td>DB2 CAF</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- DSNLOAD load library</td>
</tr>
<tr>
<td></td>
<td>For security information, see <a href="#">DB2 Security Exit Configuration for HFS on page 166</a>.</td>
</tr>
<tr>
<td></td>
<td>- DSNEXIT load library (optional)</td>
</tr>
<tr>
<td>DB2 CLI</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- DSNLOAD load library</td>
</tr>
<tr>
<td></td>
<td>For security information, see <a href="#">DB2 Security Exit Configuration for HFS on page 166</a>.</td>
</tr>
<tr>
<td></td>
<td>- DSNEXIT load library (optional; this is needed only for an explicit connection).</td>
</tr>
<tr>
<td></td>
<td>Provide a value for the following environment variable:</td>
</tr>
<tr>
<td></td>
<td>- DSNAOINI, which contains the full path and file name of the DB2 CLI .ini file.</td>
</tr>
<tr>
<td>Adapter</td>
<td>Information you must provide</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------</td>
</tr>
</tbody>
</table>
| EJB     | You must have the JDK installed. Provide a value for the following environment variables:  
- CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will be appended to CLASSPATH.  
  If you are deploying the adapter to access an EJB on a:  
  - WebLogic server, specify the following path:  
    `/pathspec/weblogic.jar`  
  - WebSphere server, specify the following paths:  
    `/pathspec/websphere.jar`  
    `/pathspec/ejbcontainer.jar`  
    (one for each EJB container)  
- This adapter requires configuration of the JSCOM3 listener. The path to JVM must be provided using either JDK_HOME or JAVA_HOME. The installation will prompt for it. |
| IMS     | Provide the data set names for the following STEPLIB allocations:  
- DFSPZP load library (optional; not needed if PZP modules are stored in the DFSRESLB library)  
- DFSRESLB load library |
| IMSBMP  | Provide the data set names for the following STEPLIB allocation:  
- DFSRESLB load library  
Provide the data set names for the following FOCPSB allocation:  
- FOCPSB library containing FOCPSB definitions |
<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
</table>
| JDBC             | You must have the JDK installed. Provide a value for the following environment variables:  
|                  |  - CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will be appended to CLASSPATH.  
|                  |  - This adapter requires configuration of the JSCOM3 listener. The path to JVM must be provided using either JDK_HOME or JAVA_HOME. The installation will prompt for it.          |
| Microsoft SQL Server | Select the Call Java adapter, in addition to the Microsoft SQL Server adapter. Provide a value for the following environment variables:  
|                  |  - CLASSPATH. Provide the paths to the following files. These paths will be appended to CLASSPATH.  
|                  |    - msbase.jar  
|                  |    - mssqlserver.jar  
|                  |    - msutil.jar  
|                  |  - This adapter requires configuration of the JSCOM3 listener. The path to JVM must be provided using either JDK_HOME or JAVA_HOME. The installation will prompt for it.          |
| Millennium       | Provide the data set name for the following STEPLIB allocation:  
|                  |    - load library  |
| Model 204        | Provide the data set name for the following STEPLIB allocation:  
|                  |    - load library  |
| MQSeries         | Provide the data set names for the following STEPLIB allocations:  
|                  |    - SCSQLOAD load library  
<p>|                  |    - SCSQAUTH load library  |</p>
<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATURAL Batch</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- NATURAL load library</td>
</tr>
<tr>
<td>SAP (SQL)</td>
<td>Provide values for the following environment variables:</td>
</tr>
<tr>
<td></td>
<td>- LIBPATH, which contains the path to SAP RFC SDK.</td>
</tr>
<tr>
<td></td>
<td>- <code>SAP_CODEPAGE=0126</code>, or the correct SAP code page for your language environment.</td>
</tr>
<tr>
<td>SAP BW</td>
<td>Provide values for the following environment variables:</td>
</tr>
<tr>
<td></td>
<td>- LIBPATH, which contains the path to SAP RFC SDK. <code>SAP_CODEPAGE=0126</code>, or the correct SAP code page for your language environment.</td>
</tr>
<tr>
<td>Supra</td>
<td>Provide the dataset name for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- LINKLIB load library.</td>
</tr>
<tr>
<td></td>
<td>- INTERFLM load library.</td>
</tr>
<tr>
<td></td>
<td>- ENVLIB load library.</td>
</tr>
<tr>
<td></td>
<td>Provide the dataset name to which the following ddname is allocated:</td>
</tr>
<tr>
<td></td>
<td>- CSIPARM containing the CSIPARM definition, which in turn points to the Central PDM you are accessing.</td>
</tr>
<tr>
<td></td>
<td>- CSISYSIN containing the parameters used for connecting the multi-session adapter to the Central PDM.</td>
</tr>
<tr>
<td>VSAM CICS</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- SDFHEXCI load library</td>
</tr>
</tbody>
</table>
Step 4. Access the Installation Software

**How to:**
- Unload the Installation Software From Tape
- Download the Installation Software Using FTP

**Reference:**
- Optional Low-Level Qualifier Changes
- Default Low-Level Qualifiers

You can choose to access the server installation software using either:

- **Tape.** The software is provided on a 3490 or 3590 cartridge.
  
  You must unload the installation data set from the tape before you can run the installation. This is how most installations are performed.

- **FTP.** You download the installation software from the Information Builders FTP site.
  
  Downloading the installation software involves:
  
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the installation data set from the site.
  3. **Running** the isetup procedure to complete the download process and install the software.

**Procedure: How to Unload the Installation Software From Tape**

The software is provided on a cartridge in 3490 or 3590 format with MVS PDSs. Perform the following to unload the installation data set from the tape:

1. Log on to TSO.
2. Run an IEBCOPY job to allocate and unload the `QUALIFIER.HOME.DATA` data set. This PDS contains the members needed for the actual installation.

   It is recommended that you use `HOME.DATA` as the low-level qualifier for the target data set. Although you can specify any low-level qualifier, `HOME.DATA` enables the installation procedure to generate default data set names, simplifying your installation.

   **Note:** If you do not use `HOME.DATA`, then change the following line to reflect the value you used.

   ```
   // SET EDAUSSD='HOME.DATA'
   ```
Do this before you run ISETUP.

The following sample JCL is for the initial unload to a new data set:

```
//IEBCOPY EXEC PGM=IEBCOPY,REGION=0M
//SYSPRINT DD SYSOUT=* 
//SYSUT1 DD UNIT=workunit,SPACE=(CYL,(5,1))
//OUT1 DD DISP=(NEW,CATLG,DELETE),
//      DSN=qualifier.HOME.DATA,
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//      SPACE=(CYL,(5,5,25)),
//      UNIT=SYSDA
//IN1 DD DISP=(OLD,PASS),
//      DSN=HOME.DATA,
//      UNIT=cart,
//      VOL=(,RETAIN,,SER=volser),
//      LABEL=(1,SL)
//SYSPRINT DD SYSOUT=* 
//SYSIN DD * 
COPY INDD=IN1,OUTDD=OUT1
```

where:

- **workunit**
  
  Is the unit for the work data set.

- **qualifier**
  
  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software. However, you can use any site-specific value.

  For PDS, we recommend retaining the low-level qualifier HOME.DATA, but you can change this to any site-specific value. If you use a low-level qualifier other than HOME.DATA, you must then edit member PDSSNAME to change the string “HOME.DATA” to the low-level qualifier you specify here.

- **cart**
  
  Is the unit type of the tape drive. Common names include 3490, TAPE, and 3590. Change as needed.

- **volser**
  
  Is the value shown on the media label.

After this job has run, qualifier.HOME.DATA is allocated, cataloged, and populated with the members needed to continue the product installation.
**Procedure:** How to Download the Installation Software Using FTP

To download the installation software:

   The Information Builders Technical Support home page opens.

2. Click **My Downloads** in the My Account section on the right side of the page.
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click **Download** to the right of the platform name.

6. Fill in the registration form and then click **Continue**.
   The Software Download Agreement page opens.

7. Select **I agree...** to consent to the Download Agreement, and then click **Continue**.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is automatically emailed to you for later reference.

8. Log on to TSO.

9. Follow the instructions on the Download Page in your TSO session.

10. Review **Optional Low-Level Qualifier Changes** on page 143. If you did not restore the first data set as HOME.DATA (see download instructions) then change the following line to reflect the data value you used:
    ```
    //         SET  EDAUSSD='HOME.DATA'
    ```

11. Run the ISETUP procedure.
    Specify (F)tp for Input Source on the second panel.
    Note that after the server is properly installed, you can optionally delete any downloaded temporary files.
    Continue with **Step 5. Run ISETUP** on page 143.
Optional Low-Level Qualifier Changes

We recommend retaining the default low-level qualifiers that are supplied for the installation libraries. However, if you need to change any of them (for example, to conform to site-specific naming conventions), you can do so by editing them in member PDSSNAME of high_level_qualifier.HOME.DATA. You can see a list of the qualifiers in Default Low-Level Qualifiers on page 143.

**Caution:** If you change any low-level qualifiers and do not reflect those changes exactly in USSSNAME, you will experience problems with the server installation and operation.

Once you have finished changing any names, continue with Step 5. Run ISETUP on page 143.

Default Low-Level Qualifiers

The following low-level qualifiers are set in high_level_qualifier.HOME.DATA(PDSSNAME):

- `SET EDAUSSD='HOME.DATA'` Server installation library
- `SET EDAUSSL='HOME.LOAD'` Server base load library
- `SET FFSUSSD='FFS.DATA'` Full Function server
- `SET WFSUSSD='WFS.DATA'` WebFocus Reporting server
- `SET ETLUSSD='DM.DATA'` DataMigrator
- `SET WFMUSSD='WFM.DATA'` WebFocus Maintain Server
- `SET CGWUSSD='CGW.DATA'` Communications Gateway
- `SET CLNUSSD='CLN.DATA'` Client
- `SET EDACICS='HOME.CICS.LOAD'` CICS load library

Step 5. Run ISETUP

Server installation consists of a series of ISPF panels, which gather the required information. After the panel dialog is complete, JCL is created and submitted to install the server on z/OS. This JCL job retrieves the remainder of the MVS libraries and HFS files from the media and configures a basic working server.

1. Execute the ISETUP member of your high_level_qualifier.HOME.DATA using ISPF option 6.
The first Installation and Configuration panel opens.

**IWay Software** Installation and Configuration Unified Server Install
Command ===> PO

Unified Server Installation
Please select one of the following options:

1. USS/HFS Deployment
   - Installation files and temporary files in HFS
   - Application files, like synonyms and procedures, in HFS (or optionally in both HFS and PDS)

2. PDS Deployment
   - Installation files and temporary files in PDS
   - Application files, like synonyms and procedures, in PDS (or optionally in both PDS and HFS)

Enter selection (Default=1) ===> 1

Press Enter to continue, PF3 to END
2. Type 1 and press Enter to continue to the next panel.

The following panel opens.

```
Information Builders   Installation and Configuration   z/OS USS Deploy
Command ===> P1

Please select one of the following options:

1. Install and Configure
2. Add Additional Configuration Instance
3. Refresh Installation (Reinstall, Keep Configurations)

Enter selection (Default=1) ===> 1
Enter License Key ===> - - - - - - - - - Last License key used
Input source (Option 1 or 3) ===> T (T)ape,(D)isk or (F)tp
Installation Userid ===> IADMIN Logged on Userid
OPSYS Administrator Userid ===> IADMIN Server install only
PTH Administrator Userid ===> srvadmin Server install only
PTH Administrator Password ===> - - - - - Retype ===> Server install only
Umask setting to use ===> 0022 Server install only

Enter Job Card information
Override JOB name checking ===> N
==> // JOB (ACCT INFO),
==> ///
==> ///
Press Enter to continue, PF3 to END
```

3. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Accept the default value 1, <em>Install and Configure</em>, for a new installation.</td>
</tr>
<tr>
<td></td>
<td>For option 2, <em>Add Additional Configuration Instance</em>, see <em>Adding a Configuration Instance for HFS</em> on page 173.</td>
</tr>
<tr>
<td></td>
<td>For option 3, <em>Refresh Installation</em>, see <em>Upgrading Your Server Release for HFS</em> on page 185.</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the license key that was provided with the software.</td>
</tr>
<tr>
<td></td>
<td>Be sure to store this key in a safe place for future reference.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Input source               | Enter the input source:  
  - T for Tape - If you received your software on tape media.  
  - D for Disk - If you selected manual download from the download instructions.  
  - F for FTP - If you selected automatic download from the download instructions. |
| Installation Userid        | Shows the current logon ID. It cannot be changed.                                                                                           |
| OPSYS Administrator Userid | Initially, this field shows the same ID as the installation user ID.  
  If the installation user ID is a superuser (UID=0), you must specify a non-superuser ID to administer the server. Specify this ID here. |
| PTH Administrator Userid   | An ID is required to administer the server immediately after initial installation. This is defined and maintained solely in the realm of the server. Defaults to `srvadmin` and it can be changed here.  
  For more information about running the server in secure mode, see *Step 7. Configure Server Security* on page 157. |
| PTH Administrator Password | Password for the PTH Administrator ID. It cannot be left blank and must be matched at Retype field.                                           |
| Umask setting to use       | Shows the current umask setting for the iadmin ID. The JCL passes this setting to the server for use at run time.  
  Every time the server creates a file in the `.../ibi/profiles` or `.../ibi/apps` directory structures (usually in response to Web Console activity), the server assigns to the file the default permissions 666 filtered by the umask value. You specify whichever umask value is necessary to mask out the permissions you do not want to grant.  
  For example, if you specify a umask value of 0022, the server create files with the permissions 644: umask 0022 is subtracted from the default 666, disallowing the group and world write permissions. |
### Instructions

To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using.

This job name is used for multiple submissions (for example, `jobnameA`, `jobnameB`, `jobnameC`, and so on) in the JCL generated by the installation procedure.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Job Card information</td>
<td>To provide your own JOB card information, including JOB name, enter <strong>Y</strong> and provide valid JOB card information in the <strong>Enter Job Card information</strong> field. The JOB card information that you enter will be used for each job that is submitted.</td>
</tr>
</tbody>
</table>

If you used the same user ID for both installation and administration, skip to Step 6. Otherwise, continue with Step 4.

**4. Press Enter to continue to the next panel.**

The following panel opens.

```
IWay Software  Installation and Configuration  z/OS USS Deployment  P5
Command ===>  Please read the following information carefully.

The installation userid and the administrator userid provided are different. Therefore at the end of the installation process, which will run under the installation userid, the ownership of the server files in the HFS file system will be changed from userid IINSTAL to userid IADMIN

(If IINSTAL is not a super user or does not have the authority to perform this change, the installation will fail.)

An installation PDS will also be created with install and runtime JCL members. The install JCL will use the JCL previously provided. The runtime JCL (to be submitted by IADMIN userid) may require different JOB card information. If so, please provide it below otherwise the previously entered JCL will be used.

Enter Job Card information (runtime JCL)  Override JOB name checking ===> N
===> // JOB (ACCT INFO),
===> //*
===> //*
Press Enter to continue, PF3 to return to previous menu
```

This panel appears only if you provided two different user IDs in the previous panel.
The installation process will change ownership of HFS files from the installation ID (iinstal) to the administrator ID (iadmin). The installation ID must have authority to issue the chown command to make this change of ownership. This action is taken at the end of the installation process.

5. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting the run-time jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, jobnameA, jobnameB, jobnameC, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each run-time job that is created.</td>
</tr>
</tbody>
</table>

6. Press Enter to continue to the next panel.

This following panel only appears if FTP was previously selected. Otherwise, skip to Step 8.

Please enter the following information for WebFocus Reporting Server

FTP download destination and user information

FTP Download Directory  ==> /u/iadmin/download
FTP Userid
FTP Password

Press Enter to continue, PF3 to return to previous menu
7. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTP Download Directory</td>
<td>This defaults to the current userid home directory plus /download. Change the value to an existing directory name or leave unchanged (/download will be created).</td>
</tr>
<tr>
<td>FTP Userid</td>
<td>Cut and paste from the download instructions</td>
</tr>
<tr>
<td>FTP Password</td>
<td>Cut and paste from the download instructions</td>
</tr>
</tbody>
</table>

8. Press Enter to continue to the next panel.

Note that in the current panel (and some later panels), if you are running ISETUP from:

- `high_level_qualifier.HOME.DATA`, the panel will display default values for some fields.
- Any other library, the panel will not display any default values.

In this and some later panels, you can see a field default value (if one exists) by blanking out the field and pressing Enter.
Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Media (installing from tape only)</strong></td>
<td></td>
</tr>
<tr>
<td>Volume serial number</td>
<td>Provide the volume serial number of the server media. The number is located on the tape supplied in your server package.</td>
</tr>
<tr>
<td>Work unit type</td>
<td>Review the default value and change if necessary. You can specify a UNIT= type value (for example, SYSDA), or you can direct work files to a specific volume serial number by specifying, in single quotation marks (&quot;), 'SYSDA,VOL=SER=volume'.</td>
</tr>
<tr>
<td><strong>Input Media (installing from disk/FTP only)</strong></td>
<td></td>
</tr>
<tr>
<td>Directory name of input</td>
<td>Provide the name of the directory in which the installation files reside.</td>
</tr>
<tr>
<td><strong>General Installation Parameters</strong></td>
<td></td>
</tr>
<tr>
<td>Base Directory</td>
<td>This indicates where to install the software. The default value is the home directory of the user ID you are using to install the product. Change this value, if necessary, to a valid directory that has space for the installation. The installation procedure checks whether this directory exists and has enough space. If either test fails, you will receive a message indicating the failure and available options.</td>
</tr>
<tr>
<td>Application Directory</td>
<td>This indicates where application components will reside. The default value is based on the value specified for Base Directory. To specify another location for application components, change the value for this field.</td>
</tr>
<tr>
<td>Profile &amp; Admin Directory</td>
<td>This indicates where user profiles and administration files will reside. The default value is based on the value specified for Base Directory. To specify a different location for application components, change the value for this field.</td>
</tr>
<tr>
<td>Server System Userid</td>
<td>This shows the default value, ISERVER. To change this value, see the requirements in Step 2. Set Up User IDs on page 122.</td>
</tr>
</tbody>
</table>
### Instructions

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP Listener Port</td>
<td>This indicates the port number that the server will use for HTTP. It is the first of three connection ports that must be available to the server. For example, if you choose port 8101, then ports 8101, 8102, and 8103 are used by the server. Ensure that you choose ports that are not currently being used.</td>
</tr>
<tr>
<td>TCP Listener Port</td>
<td>This is the port number of the TCP Listener. The default is one less than the port specified for the HTTP Listener, but it can be any port number other than the three reserved for HTTP.</td>
</tr>
</tbody>
</table>

#### MVS Installation Libraries

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDACONF Library</td>
<td>This is the full data set name the installation procedure will use to allocate the EDACONF configuration library on MVS. If you are running from <code>high_level_qualifier.HOME.DATA</code>, this field will have the default value <code>high_level_qualifier.product_type.DATA</code> (where <code>product_type</code> is based on license key). If you used another name to unload the first data set, this field will be blank. On subsequent running of ISETUP, the previous value used will be displayed. Change the value as necessary.</td>
</tr>
<tr>
<td>EDACONF Library Unit/Type</td>
<td>These show the values that the installation process will use to allocate the EDACONF library on MVS. If necessary, you can change these to site-specific values. Type can be <code>VOL=SER</code> (default), <code>DATAclas</code>, <code>MGMTclas</code>, or <code>STORclas</code>.</td>
</tr>
<tr>
<td>EDAHOME Library</td>
<td>This is the full data set name the installation procedure will use to allocate the EDAHOME load library on MVS. If you are running from <code>high_level_qualifier.HOME.DATA</code>, this field will have the default value <code>high_level_qualifier.HOME.LOAD</code>. If you used another name to unload the first data set, this field will be blank. On subsequent running of ISETUP, the previous value used will be displayed. Change the value as necessary.</td>
</tr>
</tbody>
</table>
## Instructions

These show the values that the installation process will use to allocate the EDAHOME load library on MVS. If necessary, you can change these to site-specific values.

Type can be `VOL=SER` (default), `DATAclas`, `MGMTclas`, or `STORclas`.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAHOME Library Unit/Type</td>
<td>These show the values that the installation process will use to allocate the EDAHOME load library on MVS. If necessary, you can change these to site-specific values. Type can be <code>VOL=SER</code> (default), <code>DATAclas</code>, <code>MGMTclas</code>, or <code>STORclas</code>.</td>
</tr>
</tbody>
</table>

9. Press *Enter* to continue to the next panel.

Depending on your license key, the Data Adapter panel may open before the Demonstration Files panel. If the Data Adapter panel opens, continue with Step 10. Otherwise, skip to Step 11.

10. The Data Adapter panel lists adapters that require the allocation of MVS libraries in IRUNJCL or environment variables in the EDAENV member.

To select specific adapters:

a. Type Y next to the required adapters and press Enter.

b. Supply the requested information, which is described in Step 3. Collect Required Information for Adapters on page 133.

   After you have finished installing and configuring, you can use the Web Console to finish configuring these adapters, and to configure adapters that do not have MVS JCL requirements.

c. Press Enter to continue to the next panel.

   The JSCOM3 Listener configuration panel opens.

11. Configuration of the JSCOM3 Listener is either optional or mandatory depending on which adapters were selected. If any Java-based adapters were selected (EJB, Call Java, JDBC, Microsoft SQL Server), the configuration is mandatory.

   a. The panel will prompt for the path to the Java environment to be passed to either JDK_HOME or JAVA_HOME, as described in JVM Requirements for Java Services on page 116.

   b. If no Java-based adapters were select, this configuration might still be desirable to enable server-side graphics and Adobe® Flex® features. To skip the configuration, leave the path blank.

12. Press Enter to continue to the next panel.

   The confirmation panel opens.
13. Ensure that all values on the Confirmation panel are correct, then select one of the following options:

- **N** to return to the initial panel so that you can change installation values.
- **C** to create JCL which you can submit at a later time. The JCL is placed in your `high_level_qualifier.product_type.DATA` configuration library.
- **S** to create JCL and submit the job immediately.

**Note:** If FTP was selected, JCL will be created to download the server software and run the install and configuration process.

14. As the job is processed, in SDSF, check JESLOG for errors and return codes.

The following is a table of the jobs created. All members are created in the configuration library (EDACONF).

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISETUPJ1</td>
<td>Main JCL Job stream that is used to install the software. For FTP processing, this JCL can be restarted at any step due to a previous failure. To do this, add \texttt{RESTART = proctime.stepname} to the JOB card and resubmit the ISETUPJ1 JCL.</td>
</tr>
<tr>
<td>ISOPTS1</td>
<td>Options used to install the server.</td>
</tr>
</tbody>
</table>
The following members all call procedure IRUNJCL, which is the main server JCL. If you need to change the server JCL, change member IRUNJCL.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTART</td>
<td>Starts the server.</td>
</tr>
<tr>
<td>ISTOP</td>
<td>Stops the server.</td>
</tr>
<tr>
<td>ICLEAR</td>
<td>Clears server resources after abnormal end.</td>
</tr>
<tr>
<td>ICLRDIR</td>
<td>Clears superuser-owned directories from a previously run secure server.</td>
</tr>
<tr>
<td>ISAVEDIA</td>
<td>Creates a directory called <strong>sdnnnnnn</strong> and populates it with full diagnostic information.</td>
</tr>
<tr>
<td>ISHOW</td>
<td>Shows current workspace status.</td>
</tr>
<tr>
<td>ITRCON</td>
<td>Turns on dynamic tracing (server will be started if not already running).</td>
</tr>
<tr>
<td>ITRCOFF</td>
<td>Turns off dynamic tracing (server will be started if not already running).</td>
</tr>
</tbody>
</table>

The following members contain batch JCL for auxiliary functions, and are also created in the configuration library.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMRUN</td>
<td>JCL to run DataMigrator batch jobs.</td>
</tr>
<tr>
<td>DB2V9PRM</td>
<td>DB2 version 9 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V10PR</td>
<td>DB2 version 10 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V11PR</td>
<td>DB2 version 11 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>GENDB2</td>
<td>JCL to bind the DB2/CAF plan.</td>
</tr>
<tr>
<td>IIMSBMP</td>
<td>Example JCL to run the IMS/XMI server job in BMP mode.</td>
</tr>
<tr>
<td>IIMSDLI</td>
<td>Example JCL to run the IMS/XMI server job in DLI mode.</td>
</tr>
<tr>
<td>IRDAAPPC</td>
<td>Example CLIST to run RDAAPP Client test tool.</td>
</tr>
<tr>
<td>IRDAAPPJ</td>
<td>Example JCL to run RDAAPP Client test tool.</td>
</tr>
</tbody>
</table>
The following members contain sample started task JCL, and are also created in the configuration library.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWAYS</td>
<td>A started task that starts the server.</td>
</tr>
<tr>
<td>IWAYP</td>
<td>A started task that stops the server.</td>
</tr>
<tr>
<td>EDAPRMP</td>
<td>A parameter file used by IWAYP.</td>
</tr>
<tr>
<td>EDAENV</td>
<td>A parameter file used by IWAYS, IWAYP, ISTART, and ISTOP.</td>
</tr>
</tbody>
</table>

The following table shows the HFS directory structures created during the installation process.

<table>
<thead>
<tr>
<th>Directory Structure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/u/iadmin/ibi/srv77/tape</td>
<td>Contains HFS files from the input media.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/srv77/install</td>
<td>Working directory for the installation process. Log and error files reside here.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/apps</td>
<td>The installation creates baseapp and one or more sample application directories under this directory.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/profiles</td>
<td>This is where user profiles are created, as well as admin.cfg.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/srv77/home</td>
<td>Software system directories are created under this directory.</td>
</tr>
</tbody>
</table>
### Step 6. Test the Installation

#### How to:

Test the Server Installation

This section describes how to verify server installation.

**Procedure:** How to Test the Server Installation

1. Log on to TSO as iadmin.
2. Submit the ISTART JCL to start the server. This executes the IRUNJCL proc.
3. Check the job output for errors. Look for the EDAPRINT message:

   ```plaintext
   (EDA13023) ALL INITIAL SERVERS STARTED
   ```

4. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

   ```plaintext
   http://host:port
   ```

   where:

   ```plaintext
   host
   ```

   is the name of the machine on which the server is installed.

<table>
<thead>
<tr>
<th>Directory Structure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/u/iadmin/ibi/srv77/product_type</td>
<td>Configuration directories are created under this directory. The license key specified in the ISETUP procedure determines <code>product_type</code>. <code>product_type</code> is one or more of the following: <code>FFS</code> for a Full-Function Server, <code>DM</code> for a DataMigrator Server, <code>WFS</code> for a WebFOCUS Reporting Server, <code>WFM</code> for a Shared Application Server for WebFOCUS Maintain</td>
</tr>
</tbody>
</table>
Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

The Web Console opens.

5. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

6. Continue with adapter configuration, as described in the Adapter Administration manual.

When you are finished using the server, you can use the Web Console to stop the server by going to the Web Console menu bar, selecting Workspace, and then Stop.

If you experience problems at start up, examine the job output for more information.

Step 7. Configure Server Security

In this section:
Security Providers

How to:
Configure Security With All Security Products
Configure Security With eTrust CA-ACF2
Configure Security With eTrust CA-Top Secret

Example:
Facility Entry Defining the Server to CA-Top Secret
ISERVER ACID Definition for CA-Top Secret
IADMIN ACID Definition for CA-Top Secret

If you will be configuring your server with an OPSYS security provider, you must perform the instructions in the following topics. (For PTH, DBMS, and LDAP security providers, skip these topics.)

- How to Configure Security With All Security Products on page 159, regardless of which security product you use.
- How to Configure Security With eTrust CA-ACF2 on page 160 if you use eTrust CA-ACF2.
How to Configure Security With eTrust CA-Top Secret on page 161 if you use eTrust CA-Top Secret.

You can see a full description of all server security providers in the Web Console help, and also in the Server Administration manual. To see it in the Web Console:

1. From the Web Console menu bar, select Help, then Contents and Search.

   The Web Console Help window opens.

2. In the left pane, expand Server Administration.

**Security Providers**

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the Server Security chapter in the Server Administration manual.

**Procedure: How to Satisfy Security Provider OPSYS Requirements**

To run a server with security provider OPSYS, you must perform the following steps. You must do this once after installing and after each refresh of the server with fixes.

Set up tscom300.out as a root-owned SUID program:

1. If the server is running, bring it down.

2. Log on to the system as root, or issue the su root command.

3. Change your current directory to the bin directory of the home directory created during the installation procedure.

   For example, type the following command:

   ```
   cd /home/iadmin/ibi/srv77/home/bin
   ```

4. Change file ownership and permissions by typing the following commands:

   ```
   chown root tscom300.out
   chmod 4555 tscom300.out
   ```

5. Verify your changes by issuing the following command:

   ```
   ls -l tscom300.out
   ```
The output should be similar to the following:

```
-r-sr-xr-x 1 root iadmin 123503 Aug 23 04:45 tscom300.out
```

Note the permissions and ownerships.

When you start the server, it will now run with security provider OPSYS.

The chmod and chown steps will need to be repeated after any server upgrade since the tscom300.out file is replaced during upgrade and the attributes are lost.

Note: If this Security Provider OPSYS step has been configured and the site later decides to switch to Security OFF, special steps must be taken to ensure the mode remains after a full server shutdown (where edastart -start is used to restart the server). The steps are:

1. After the server recycles from the change to OFF, use the Web Console to open the environment configuration file of the server by clicking Workspace and expanding the Configuration Files folder, followed by the Miscellaneous folder.

2. Double-click Environment - edaenv.cfg to edit the file and add the EDAEXTSEC=OFF variable.

3. Save your work.

After the next full server shutdown, be sure to do an edastart -cleardir before restarting the server. This will clear any root owned files that would prevent a security OFF server from starting.

Preventing Unsecured Server Starts After Upgrades

If the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.

This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg environment configuration file. The messages vary slightly by platform.

The edaprint messages are:

```
Configured security is 'ON' as set by EDAEXTSEC variable.
Server has no root privilege.
Workspace initialization aborted.
(EDA13171) UNABLE TO START SERVER
```

**Procedure: How to Configure Security With All Security Products**

To configure server security with RACF, eTrust CA-ACF2, or eTrust CA-Top Secret:

1. Log on to TSO using an ID with read access to the BPX.FILEATTR.APF facility class.
2. Using the name of the actual EDAHOME directory, change file attributes by entering the following TSO commands in ISPF Command Shell (option 6):

```
OSHELL extattr +a /u/iadmin/ibi/srv77/home/bin/tscom300.out
OSHELL extattr +a /u/iadmin/ibi/srv77/home/bin/tsqprx.out
```

3. Verify your changes by issuing the following command:

```
OSHELL ls -E /u/iadmin/ibi/srv77/home/bin/tscom300.out
OSHELL ls -E /u/iadmin/ibi/srv77/home/bin/tsqprx.out
```

The extended attributes portion of the output should be a-s-.

4. The libraries allocated to STEPLIB in IRUNJCL must be APF-authorized. Any non-APF-authorized libraries must be allocated to the TASKLIB DDNAME.

5. Test server security by repeating the process described in Step 6. Test the Installation on page 156.

**Procedure: How to Configure Security With eTrust CA-ACF2**

If you are installing the server to run with eTrust CA-ACF2 security package, you may have to apply fix number Q071149 for eTrust CA-ACF2 6.4 or Q051462 for eTrust CA-ACF2 6.5. If you are installing the server under z/OS 1.12 or higher to run with eTrust CA-ACF2 14.0, PTF R024848 may have to be applied if server USS user IDs are to be defined using the USS default segment. For more information about these fixes, contact Computer Associates.

The MVS address space must have access to those system resources that are required by each user. eTrust CA-ACF2 will check for job-level access as well as user-level access. Therefore, the job-level user ID must have access to all data sets. For example, this can be done by setting the MAINT attribute on the eTrust CA-ACF2 record for the job-level user ID. Refer to eTrust CA-ACF2 technical reference guides for further information.

The job-level user ID of the server should have the Multiple User, Single Address Space (MUSSAS) attribute set to on. If the server is run as a started task, you must enable the started task attribute for the job-level user ID. You must also use the Web Console to define this user ID with OPER authority. For more information, see the Server Administration manual.

Each user ID must be defined to eTrust CA-ACF2.

To create the necessary logon IDs and profile records, issue the following commands:

```
ACF
SET LID
INSERT OMVS GROUP(OMVSGRP) STC UID(0)
INSERT INETD GROUP(OMVSGRP) STC UID(0) HOME(/) OMVSPGM(/bin/sh)
INSERT TCPIP GROUP(OMVSGRP) STC UID(0)
```
For more information, see the following sections in Computer Associates eTrust CA-ACF2 Security for z/OS and OS/390 Cookbook:

- Defining USS Users
- Superusers
- HTTP Server
- Installation Steps

**Procedure: How to Configure Security With eTrust CA-Top Secret**

If you use Computer Associates eTrust CA-Top Secret, follow these guidelines and refer to the security vendor manual for implementing user-level security.

The TSS PERMIT command for BPX.FILEATTR.APF facility class access is:

```
TSS PER(user_acid) IBMFAC(BPX.FILEATTR.APF) ACC(READ)
```

This allows users to turn on the APF-authorized attribute for an HFS file. Please refer to z/OS UNIX System Services Support in the eTrust CA-Top Secret Security Cookbook for more information.

To use eTrust CA-Top Secret, perform the following steps:

1. Create a eTrust CA-Top Secret facility entry for the server security module, *PATHNAM.

   This is an example of a facility entry defining the server to eTrust CA-Top Secret:

   ```
   FACILITY DISPLAY
   PGM=*PATHNAM ID=9 TYPE=26
   ATTRIBUTES=IN-USE,ACTIVE,SHRPRF,ASUBM,TENV,NOABEND,MULTIUSER,NOXDEF
   ATTRIBUTES=LUMSG,STMSG,SIGN(M),NOPSEUDO,INSTDATA,NORNDPW,AUTHINIT
   ATTRIBUTES=NOPROMPT,MENU,NOAUDIT,RES,NOMRO,WARNPW,NOTSOC
   ATTRIBUTES=NOTRACE,NOLAB,NODORMPW,NONPWR,NOIMSXTND
   MODE=IMPL
   LOGGING=ACCESS,INIT,SMF,MSG,SEC9
   UIDACID=8 LOCKTIME=000 DEFACID=*NONE* KEY=8
   ```

   For more information, see How to Define z/OS UNIX System Services Users in Computer Associates' eTrust CA-Top Secret Security for OS/390 and z/OS Cookbook.

2. Within this entry, include eTrust CA-Top Secret parameters to establish the proper operating characteristics.

   The ISERVER and IADMIN ACIDs must have authority to the facility you have defined for the server and to the resources within the facility:

   - `TSS ADD(region_acid) MASTFAC(facility) <- defines the facility to CA-Top Secret`
   - `TSS ADD(user_acid) FAC(facility) <- adds it to users requiring server access`
3. Each user of the server must be defined to eTrust CA-Top Secret and given access to the appropriate system resources, including the facility you have defined for the server.

Each user requires an OMVS segment and HFS directories.

4. If you are operating with eTrust CA-Top Secret HFSSEC=ON, continue with Step 5. Otherwise, skip to Step 7.

5. In the definitions for IADMIN and ISERVER ACIDs (shown in the previous examples), set up the following security authorization:

```
XA HFSSEC = /U.IADMIN
ACCESS = ALL
```

6. eTrust CA-Top Secret provides superuser granularity with separate definitions for the following resource names:

```
SUPERUSER.FILESYS.FILE (CONTROL access)
SUPERUSER.FILESYS.CHOWN
SUPERUSER.FILESYS.MOUNT
SUPERUSER.FILESYS.PFSCTL
SUPERUSER.FILESYS.VREGISTER
SUPERUSER.IPC.RMID
SUPERUSER.PROCESS.GETPSEND
SUPERUSER.PROCESS.KILL
SUPERUSER.PROCESS.PTRACE
SUPERUSER.SETPRIORITY
```

Ensure that the server system ID, ISERVER, which has UID=0, is granted full access to all these resources. Grant access to the superuser-listed resources by means of the UNIXPRIV resource class. For example:

```
TSS ADD(owning_acid) UNIXPRIV(SUPERUSE)
TSS PER(acid) UNIXPRIV(SUPERUSER.FILESYS.FILE) ACC(CONTROL)
```

For details see the Superuser Granularity topic in Computer Associates' eTrust CA-Top Secret Security for OS/390 and z/OS Cookbook.

7. After you create a new user ID or change a user UID or GID, you must issue the following command to reflect the updates in Top Secret's in-storage tables:

```
TSS MOD(OMVSTABS)
```

The following commands can also be used to list all UIDs, GIDs and their owners:

```
TSS WHOOWNS UID(*)
TSS WHOOWNS GID(*)
```

This information can be used for diagnostic purposes.

For more information, see Computer Associates eTrust CA-Top Secret Security for OS/390 and z/OS Cookbook.
**Example:** Facility Entry Defining the Server to CA-Top Secret

The following is an example of a facility entry that defines the server to eTrust CA-Top Secret:

```
FACILITY DISPLAY
PGM=*PATHNAM ID=9 TYPE=26
ATTRIBUTES=IN-USE,ACTIVE,SHRPRF,ASUBM,TENV,NOABEND,MULTIUSER,NOXDEF
ATTRIBUTES=LUMSG,STMSG,SIGN(M),NOPSEUDO,INSTDATA,NORNDPW,AUTHINIT
ATTRIBUTES=NOPROMPT,MENU,NOAUDIT,RES,NOMRO,WARNPW,NOTSOC
ATTRIBUTES=NOTRACE,NOLAB,NODORMPW,NONPWR,NOIMSXTND
MODE=IMPL
LOGGING=ACCESS,INIT,SMF,MSG,SEC9
UIDACID=8 LOCKTIME=000 DEFACID=*NONE* KEY=8
```

**Example:** ISERVER ACID Definition for CA-Top Secret

Following is an example of an ISERVER ACID definition for eTrust CA-Top Secret. Note that:

- UID is zero.
- The facility of the server is set to IWAY as an example; it can differ at your site.
- The `SOURCE = INTRDR` setting prevents this ACID from logging on.

```
TSS LIST(ISERVER) DATA(ALL,PROFILE)
ACCESSORID = ISERVER             NAME = IWAY ID
    TYPE       = USER                SIZE = 512 BYTES
    SOURCE     = INTRDR
    DEPT ACID  = IWAY                DEPARTMENT = IWAY DEPT
    DIV ACID   = IWAYDIV             DIVISION = IWAYDIV
    GROUPS     = IWAYGRP
    DFLTGRP    = IWAYGRP
    --------- SEGMENT OMVS
    HOME       = /
    OMVSPGM    = /bin/sh
    UID        = 0000000000
```
**Example:** IADMIN ACID Definition for CA-Top Secret

Following is an example of an IADMIN ACID definition for eTrust CA-Top Secret. Note that UID is *not* zero.

```
TSS LIST(IADMIN) DATA(ALL,PROFILE)
ACCESSORID = IADMIN             NAME = IWAY ADMIN ID
TYPE       = USER               SIZE = 512 BYTES
FACILITY   = TSO
FACILITY   = BATCH
DEPT ACID  = IWAY               DEPARTMENT = IWAY DEPT
DIV ACID   = IWAYDIV            DIVISION = IWAY DIVISION
GROUPS     = IWAYGRP
DFLTGRP    = IWAYGRP
----------- SEGMENT OMVS
HOME       = /u/iadmin
OMVSPGM    = /bin/sh
UID        = 0000000008
```

### Starting and Stopping a Server for HFS

**In this section:**
- Starting and Stopping the Server Using a Batch Job
- Starting and Stopping the Server Using a Started Task
- Server Operations Using MVS Operator Commands

This section provides information on operation and use of the server. Additional information on the server and how to configure adapters is available in the Web Console help. The Web Console help is also available as the *Server Administration* manual.

#### Starting and Stopping the Server Using a Batch Job

To start the server, submit the ISTART member of the MVS configuration library (*high_level_qualifier*.product_type.DATA).

To stop a server, submit the ISTOP member of the MVS configuration library or use the Web Console. For information about using the Web Console, see the *Server Administration* manual.
Starting and Stopping the Server Using a Started Task

**Example:**
Sample IWAYS Started Task
Sample IWAYP Started Task

ISETUP creates started task JCL to start and stop the server. These started task members of the MVS configuration library are:

- **IWAYS**, which starts the server.
- **IWAYP**, which stops the server.

In order to execute the started tasks, you must:

- **Copy them** into SYS1.PROCLIB or any other JES2 Proclib data set.
- **Satisfy security requirements.** All external security-related permissions must exist for both the data sets and the started tasks. In order to issue the started tasks, the user must satisfy both of the following requirements:
  - Have at least OPERATOR authority defined within the Web Console.
  - Be in the same security group, or associated with the same security group, as the owner of the server directory structure (for example, as iadmin).

To submit the started tasks from the MVS console, issue the following command:

```
S IWAYS
S IWAYP
```

You can add the started tasks to any automation product that you run.

**Example:** **Sample IWAYS Started Task**

This is an example of iWAYS, the started task that starts the server:

```
//IWAYS       PROC
//TSCOM300    EXEC PGM=TSCOM300,
//       PARM='ENVAR("_EDC_UMASK_DFLT=0022")/'
//STEPLIB     DD   DSN=IADMIN.SRV77.HOME.LOAD,DISP=SHR
//EDAPRINT    DD   SYSOUT=A
//SYSPRINT    DD   SYSOUT=A
//SYSOUT      DD   SYSOUT=A
//EDAPARM     DD   DUMMY
//EDAENV      DD   DSN=IADMIN.SRV77.FFS.DATA(EDAENV),DISP=SHR
```
**Example:** Sample IWAYP Started Task

This is an example of IWAYP, the started task that stops the server:

```plaintext
//IWAYP       PROC
//TSCOM300    EXEC PGM=TSCOM300
//STEPLIB     DD   DSN=IADMIN.SRV77.HOME.LOAD,DISP=SHR
//EDAPRINT    DD   SYSOUT=A
//SYSPRINT    DD   SYSOUT=A
//SYSOUT      DD   SYSOUT=A
//EDAPARM     DD   DSN=IADMIN.SRV77.FFS.DATA(EDAPRMP),DISP=SHR
//EDAENV      DD   DSN=IADMIN.SRV77.FFS.DATA(EDAENV),DISP=SHR
```

**Server Operations Using MVS Operator Commands**

On MVS, you can issue operator MODIFY commands against the server job from either from the MVS Console or SDSF. You can use MODIFY commands to pass options to an already running job:

Use MVS Operator MODIFY commands in the following format:

```
F jobname, parameters
```

For instance:

```
F IWAY77,-SHOW
```

**Note:** If the server job is cancelled or it abends, submit the ICLEAR job in the configuration data set before restarting the server.

**DB2 Security Exit Configuration for HFS**

**Example:**

Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites

Changing DSN3SATH for eTrust CA-ACF2 Sites

Modifying the Link JCL for DSN3SATH

Customize the DB2 security exit to allow the Adapter for DB2 to run with user-level security enabled. If you do so, users will connect to DB2 with the authorization of the user ID with which they logged on to the server. The server must also be running with security turned on.

If you do not customize the DB2 security exit, all users will be assigned the connection ID to DB2 that is associated with the region, job submitter, or started task.

For DB2 CLI adapter, the connection to DB2 must be configured as *trusted* for the exit to be invoked.
The changes that must be made to the IBM DB2 sign-on exit, DSN3SATH, differ for RACF and eTrust CA-Top Secret sites and eTrust CA-ACF2 sites.

- For an example of the changes that must be made in DSN3SATH for RACF and eTrust CA-Top Secret sites, see *Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites* on page 168.

- For an example of the changes that must be made in DSN3SATH for eTrust CA-ACF2 sites, see *Changing DSN3SATH for eTrust CA-ACF2 Sites* on page 171.

The highlighted text and comments shown in the examples indicate the lines containing the recommended modification of DSN3SATH, which calls the module FOCDSN3 the supplied exit.

After you finish the edits, assemble the exit into an object file. This object file is input to the link JCL found in *Modifying the Link JCL for DSN3SATH* on page 172.

**Note:**

- The positioning of these lines is approximate, assuming that no other changes or additions have already been made to DSN3SATH. If any changes have been made, you should decide on the most appropriate location for this call to FOCDSN3.

- FOCDSN3 is used to set the proper primary (individual user ID) authorization.

- Another program, FOCDSN4, is used to set the proper secondary (group ID) authorization for RACF and eTrust CA-Top Secret. FOCDSN4 is not needed with eTrust CA-ACF2; the secondary authorization ID(s) will be set correctly without it.
Example: Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites

1. Search for the SATH001 label - add two lines (FOCDSN3):

```
SATH001 DS 0H
  USING WORKAREA,R11        ESTABLISH DATA AREA ADDRESSABILITY
  ST R2,FREMFLAG             SAVE FREEMAIN INDICATOR
  XC SAVEAREA(72),SAVEAREA CLEAR REGISTER SAVE AREA
  .
  .
```

**********SECTION 1: DETERMINE THE PRIMARY AUTHORIZATION ID ***********

*  IF THE INPUT AUTHID IS NULL OR BLANKS, CHANGE IT TO THE AUTHID IN EITHER THE JCT OR THE FIELD POINTED TO BY ASCBJBNS.
*  THE CODE IN THIS SECTION IS AN ASSEMBLER LANGUAGE VERSION OF THE DEFAULT IDENTIFY AUTHORIZATION EXIT. IT IS EXECUTED ONLY IF THE FIELD ASXBUSER IS NULL UPON RETURN FROM THE RACROUTE SERVICE. FOR EXAMPLE, IT DETERMINES THE PRIMARY AUTH ID FOR ENVIRONMENTS WITH NO SECURITY SYSTEM INSTALLED AND ACTIVE.

*************************************************************************

```
SPACE
  LA R1,AIDLPRIM LOAD PARM REG1 <--ADD
  CALL FOCDSN3 GO GET THE IBI EXIT <--ADD
  CLI AIDLPRIM,BLANK IS THE INPUT PRIMARY AUTHID NULL
  BH SATH020 SKIP IF A PRIMARY AUTH ID EXISTS
```
2. **Search for the SATH020 label** - add a comment box, add one line, and comment out four lines:

```
SATH020 DS 0H BRANCH TO HERE IF PRIMARY EXISTS
*****OPTIONAL CHANGE @CHAR7: FALLBACK TO SEVEN CHAR PRIMARY AUTHID***
* *
* IF YOUR INSTALLATION REQUIRES ONLY SEVEN CHARACTER PRIMARY *
* AUTHORIZATION IDS (POSSIBLY TRUNCATED) DUE TO DB2 PRIVILEGES *
* GRANTED TO TRUNCATED AUTHORIZATION IDS, THEN YOU MUST BLANK OUT *
* COLUMN 1 OF THE ASSEMBLER STATEMENT IMMEDIATELY FOLLOWING THIS *
* BLOCK COMMENT. THEN ASSEMBLE THIS PROGRAM AND LINK-EDIT IT INTO *
* THE APPROPRIATE DB2 LOAD LIBRARY AS EXPLAINED IN AN APPENDIX *
* OF "THE DB2 ADMINISTRATION GUIDE". *
* *
* OTHERWISE, YOU NEED DO NOTHING. *
* @KYD0271*
**********************************************************************
* MVI AIDLPRIM+7,BLANK BLANK OUT EIGHTH CHARACTER SPACE
   .. .. .. *
* RACF IS ACTIVE ON THIS MVS
**********************************************************************
* The logic was modified because in DB2 V8 AIDLACEE is always not NULL. We used to honor AIDLACEE first, FOCDSN4 second and then AS ACEE. Now we honor FOCDSN4 first, AIDLACEE second and then AS ACEE.
* 03/11/05 ASK0
**********************************************************************

USING ACEE,R6 ESTABLISH BASE FOR ACEE @KYL0108
L R6,AIDLACEE Get => caller ACEE if any
* ICM R6,'1111',AIDLACEE CALLER PASSED ACEE ADDRESS? @KYL0108 <-COMMENT
* BZ SATH024 NO, USE ADDRESS SPACE ACEE @KYL0108 <-COMMENT
* CLC ACEEACEE,EYEACEE IS IT REALLY AN ACEE? @KYL0108 <-COMMENT
* BE SATH027 YES, PROCEED NORMALLY @KYL0108 <-COMMENT

SPACE 1
SATH024 DS 0H USE ADDRESS SPACE ACEE @KYL0108
  .. .. ..
```
3. **Search for the SATH025 label** - replace sath025 and add sath026 (FOCDSN4):

```
SATH025 DS 0H

CALL FOCDSN4  GO GET THE IBI EXIT (4=GROUP AUTH)  <--ADD
LTR R6,R6     DOES AN ACEE EXIST? IF NOT,           <--ADD
BZ SATH026    CHECK ACEE IN ADDRESS SPACE        <--ADD
CLC ACEEACEE,EYEACEE  DOES IT LOOK LIKE AN ACEE?  <--ADD
BE SATH027    YES, GO DO GROUPS               <--ADD
SATH026 DS 0H  <--ADD

L R6,ASCBASXB  GET ADDRESS SPACE EXTENSION BLOCK  <--ADD
L R6,ASXBSENV-ASXB(,R6) GET ACEE ADDRESS         <--ADD
CLC ACEEACEE,EYEACEE  DOES IT LOOK LIKE AN ACEE?  <--ADD
BNE SATH049    NO, THEN CAN'T DO GROUPS           <--ADD
DROP R8        DROP ASCB BASE REG                 <--ADD
SPACE 1

SATH027 DS 0H  CHECK LIST OF GROUPS OPTION
TM RCVTOPTX,RCVTLGRP IS LIST OF GROUPS CHECKING ACTIVE
BZ SATH040    SKIP TO SINGLE GROUP COPY IF NOT
DROP R7       DROP RCVT BASE REG
SPACE 1

* RACF LIST OF GROUPS OPTION IS ACTIVE
EJECT
```

```
Example: Changing DSN3SATH for eTrust CA-ACF2 Sites

*DSN3SATH source is provided by ACF2.

1. Search for PRIMARY AUTHORIZATION ID - add two lines (FOCDSN3):

```
* **************************************************************
* PRIMARY AUTHORIZATION ID
* **************************************************************
* IF THE PRIMARY AUTHORIZATION ID IS NULL OR BLANKS
* IF CA-ACF2 IS AVAILABLE
* SET PRIMARY ID FROM ACFASVT (ASVLID)
* ELSE
* IF TSO FOREGROUND USER
* SET PRIMARY ID FROM TSO LOGON ID (ASCBJBNS)
* ELSE
* SET PRIMARY ID FROM JOB USER (JCTUSER)
* **************************************************************

SPACE 2 04260000
LA R1,AILPRIM LOAD PARM REG1
CALL FOCDSN3 GO GET THE IBI EXIT  
      CALL FOCDSN3 GO GET THE IBI EXIT  
      CLI AIDLPRIM,C' ' PRIMARY AUTHID THERE? 04270000
      BH PRIMWTO ..YES, EVERYTHINGS OK HERE 04280000
      L R3,PSAAOLD-PSA(0) CURRENT ASCB ADDRESS 04290000
      USING ASCB,R3 ASCB ADDRESSABILITY 04300000
      SPACE 2 04310000
```
**Example: Modifying the Link JCL for DSN3SATH**

This is sample link JCL for the IBM exit DSN3SATH. Modify the JCL to link the modules into the DB2 security exit as follows.

```plaintext
//LKED   EXEC PGM=IEWL,PARM='LIST,XREF,LET,RENT,AMODE=31'
//OBJECT    DD DSN=db2pref.SDSNSAMP.OBJ,DISP=SHR <--OUTPUT OF ASSEMBLE STEP
//EDAMOD    DD DSN=high_level_qualifier.HOME.LOAD,DISP=SHR
//SYSLMOD   DD DSN=db2pref.DSNEXIT,DISP=SHR
//SYSPRINT  DD SYSOUT=*  //SYSLIN    DD *
 //SYSUT1    DD UNIT=SYSDA,SPACE=(100,(50,50))
//SYSLIN    DD *
INCLUDE EDAMOD(FOCDSN3)
***********************************************************************
***  Omit the following line for eTrust CA-ACF2
***********************************************************************
INCLUDE EDAMOD(FOCDSN4)
ENTRY DSN3@ATH
NAME DSN3@ATH(R)
/*

where:

db2pref

Is the prefix for the DB2 data sets.

high_level_qualifier

Is the high-level qualifier for the data sets.

Once this job finishes successfully, you must recycle the DB2 subsystem in order for the changes to take effect.

**MSODDX for DD Translation for User Subroutines**

On z/OS, you can incorporate an additional routine called MSODDX into a user-written subroutine that needs to access ddnames allocated to a WebFOCUS Reporting Server, a DataMigrator Server, or a Full-function Server. MSODDX provides ddname translation services that enable external programs to access files under the ddname used by the Server.

For details, see Chapter 6, *Platform-Specific Commands and Features*, in the *Stored Procedures Reference* manual.

**Overriding the Time Zone Setting**

By default, the server will use the system set value for Time Zone. This can be overridden by setting the TZ in the EDAENV member of the servers configuration library.

TZ = valid tz string
For more information about time zone values, see the IBM UNIX System Services Command Reference and search for TZ.

Adding a Configuration Instance for HFS

**In this section:**
- Step 1. Run ISETUP
- Step 2. Test the Installation

Adding a configuration instance allows you to run additional or different configuration instances using the same software binaries. For example, if you installed using a Full-Function Server license code, you can use a WebFOCUS license to add a second configuration for a WebFOCUS Reporting Server. You can also add up to nine additional instances of the same type.

**Step 1. Run ISETUP**

To add a configuration instance, perform the following steps.

1. Execute ISETUP again. You should have a `high_levelQualifier.HOME.DATA` PDS unloaded from the installation tape. Use option 6 in ISPF to execute the ISETUP member of this PDS.

   **Note:** If this PDS is not available, run an IEBCOPY job to allocate and unload it from the installation tape.

   The first Installation and Configuration panel opens.

2. Enter 1 and press Enter to continue to the next panel.

   The first Installation and Configuration panel for HFS opens.

3. Complete the first Installation and Configuration panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Choose option 2, Add Additional Configuration Instance.</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the license key that was provided with the software for the type of software instance that you want to configure (for example, the license key for a WebFOCUS Reporting Server or for a Full-Function Server).</td>
</tr>
<tr>
<td>Input source</td>
<td>This is ignored for option 2.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Installation Userid</td>
<td>Shows the current logon ID. It cannot be changed.</td>
</tr>
<tr>
<td>OPSYS Administration Userid</td>
<td>Initially, this field shows the same ID as the installation user ID. If the installation user ID is a superuser (UID=0), you must specify a</td>
</tr>
<tr>
<td></td>
<td>non-superuser ID to administer the server. Specify this ID here.</td>
</tr>
<tr>
<td>PTH Administrator Userid</td>
<td>An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of</td>
</tr>
<tr>
<td></td>
<td>the server. It defaults to srvadmin and it can be changed here. For more information about running the server in secure mode, see Step 7.</td>
</tr>
<tr>
<td>PTH Administrator Password</td>
<td>Password for the PTH Administrator ID. It cannot be left blank and must be matched at Retype field.</td>
</tr>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, jobnameA, jobnameB, jobnameC, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each job that is submitted.</td>
</tr>
</tbody>
</table>

4. If you used the same user ID for both installation and administration, skip to Step 7. Otherwise, continue with Step 5.

5. Press Enter to continue to the next panel.

This panel appears only if you provided two different user IDs in the previous panel.
The installation process will change ownership of HFS server files from the installation ID (iinstal) to the administrator ID (iadmin). The installation ID must have authority to issue the chown command to make this change of ownership. This action is taken at the end of the installation process.

6. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting the run-time jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, jobnameA, jobnameB, jobnameC, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each run-time job that is created.</td>
</tr>
</tbody>
</table>

7. Press Enter to continue to the next panel.

The Add Configuration panel opens.

8. Enter the current base high-level qualifier used for EDAHOME.

This indicates where to install the configuration (EDACONF) and where the binaries (EDAHOME) are installed. The installation procedure checks whether this directory exists and if an instance is already installed. If either test fails, you receive a message indicating the failure and available options.

9. Press Enter to continue to the next panel.
If you are configuring the first instance of a given software type, the following panel opens.

**IWay Software Installation and Configuration z/OS USS Deployment**

Command ===>

Add Configuration

Please enter the following information for WebFocus Reporting Server

Using the following existing information

**HFS base Directory**

```bash
===>/u/iadmin
```

**EDAHOME Library**

```bash
===>/ADMIN.SRV77.HOME.LOAD
```

**Product Installation parameters (Blank any field for default)**

- **Application Directory**
  ```bash
  ===>/u/iadmin/ibi/apps
  ```
- **Profile & Admin Directory**
  ```bash
  ===>/u/iadmin/ibi/profiles
  ```
- **Server System Userid**
  ```bash
  ===> ISERVER
  ```
- **HTTP Listener Port**
  ```bash
  ===> 8121
  ```
- **TCP Listener Port**
  ```bash
  ===> 8120
  ```

**MVS Installation Library**

**EDACONF Library**

```bash
===>/ADMIN.SRV77.WFS.DATA
```

Press Enter to continue, PF3 to return to previous menu

Otherwise, if you are configuring an additional instance of a given software type, the following panel opens.
Please enter the following information for Full Function Server

Using the following existing information
- HFS base Directory  ==> /u/iadmin
- EDAHOME Library  ==> IADMIN.SRV77.HOME.LOAD
- Base EDACONF Library  ==> IADMIN.SRV77.FFS.DATA
- Current configurations  ==> ffs

Product Configuration Parameters
- Application Directory  ==> /u/iadmin/ibi/apps
- Profile & admin Directory  ==> /u/iadmin/ibi/profiles
- EDACONF suffix ( ffs plus)  ==> 1 or string suffix  ==> ISERVER
- HTTP Listener Port  ==> 8107  TCP Listener Port  ==> 8108

MVS Installation Library
- EDACONF Library  ==> IADMIN.SRV77.FFS1.DATA
- EDACONF Library Unit  ==> SYSDA  Type  ==> VOL=SER  ==>
Complete the panel as follows.

<table>
<thead>
<tr>
<th>Configuration Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application Directory</strong></td>
</tr>
<tr>
<td>This indicates where application components will reside for the configuration. The default value is based on the value specified for Base Directory on the previous panel. To specify another location for application components, change the value for this field.</td>
</tr>
<tr>
<td><strong>Profile &amp; Admin Directory</strong></td>
</tr>
<tr>
<td>This indicates where user profiles and administration files will reside. The default value is based on the value specified for Base Directory. To specify another location for application components, change the value for this field.</td>
</tr>
</tbody>
</table>
### Configuration Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| EDACONF suffix             | You are prompted for this information only if you are configuring an additional instance of a product type (for example, if you are configuring a second instance of a WebFOCUS Reporting Server). Each software instance must have its own set of configuration libraries. To guarantee this, and to prevent a new set of configuration libraries from overwriting an existing set, the suffix that you specify here will be appended to the name of the software type qualifier. For example, if you are configuring the second instance of a WebFOCUS Reporting Server, you could specify that the suffix "1" be added, so that the EDACONF high-level qualifier would be: \texttt{IADMIN.SRV77.WFS1} You can add a new configuration as a numeric or string suffix to the base software type. If you supply a string, the installation procedure ignores any numeric suffix. For a:  
- Numeric suffix, Enter a digit between 1 and 9. This will be added to the software type in the directory name and library name to distinguish it from other configuration instances.  
- String suffix, enter a string of between 1 and 5 characters (for example, TEST, PROD, or DEV). The string cannot contain embedded spaces. You can also use the string suffix to extend the numeric numbering past 9. Just supply a number greater than 9. If you change the suffix value, when you press Enter, the panel refreshes with a new value for EDACONF Library. |
| Server System Userid      | This shows the default value, ISERVER. To change this value, see the requirements in \textit{Step 2. Set Up User IDs} on page 122. |
| HTTP Listener Port        | This indicates the port number that the server will use for HTTP. It is the first of three connection ports that must be available to the server. For example, if you choose port 8101, then ports 8101, 8102, and 8103 are used by the server. Ensure that you choose ports that are not currently being used. |
### Configuration Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP Base Port</td>
<td>This is the port number of the TCP Listener. The default is one less than the port specified for the HTTP Listener, but it can be any port number other than the three reserved for HTTP.</td>
</tr>
<tr>
<td>EDACONF Library</td>
<td>This is the full data set name the installation procedure will use to allocate the EDACONF configuration library on MVS. If you are running from <code>high_level_qualifier.HOME.DATA</code>, this field will have the default value <code>high_level_qualifier.product_type.DATA</code> (where <code>product_type</code> is based on license key). If you are adding a configuration for a product type that has already been configured, the default value will reflect the EDACONF suffix value. If you used another name to unload the first data set, this field will be blank. On subsequent running of ISETUP, the previous value used will be displayed. Change the value as necessary.</td>
</tr>
<tr>
<td>Unit/Type</td>
<td>You are prompted for this information only if you are configuring the first instance of a product type (for example, if you are configuring the first instance of a WebFOCUS Reporting Server). These show the values that the installation process will use to allocate the output libraries. If necessary, you can change these to site-specific values. Type can be <strong>VOL=SER</strong> (default), <strong>DATAclas</strong>, <strong>MGMTCLAS</strong>, or <strong>STORCLAS</strong>.</td>
</tr>
</tbody>
</table>

11. Press Enter to continue to the next panel.

   Depending on your license key, the Data Adapter panel may open before the Demonstration Files panel. If the Data Adapter panel opens, continue with Step 12. Otherwise, skip to Step 13.
12. The Data Adapter panel lists adapters that require the allocation of MVS libraries in IRUNJCL or environment variables in the EDAENV member. To select specific adapters:

a. Type Y next to the required adapters and press Enter.

b. Supply the requested information, which is described in Step 3. Collect Required Information for Adapters on page 133.

After you have finished installing and configuring the server, you can use the Web Console to finish configuring these adapters, and to configure adapters that do not have MVS JCL requirements.

c. Press Enter.

The JSCOM3 Listener configuration panel opens.

13. Configuration of the JSCOM3 Listener is either optional or mandatory depending on which adapters were selected. If any Java-based adapters were selected (EJB, Call Java, JDBC, MS SQL Server), the configuration is mandatory.

a. The panel will prompt for the path to the Java environment to be passed to either JDK_HOME or JAVA_HOME, as described in JVM Requirements for Java Services on page 116.

b. If no Java-based adapters were select, this configuration might still be desirable to enable server-side graphics and Adobe® Flex® features. To skip the configuration, leave the path blank.

c. Press Enter to continue to the next panel.

14. Ensure that all values on the Confirmation panel are correct, then select one of the following options:

- N to return to the initial panel so that you can change installation values.
- C to create JCL which you can submit at a later time. The JCL is placed in your configuration library.
- S to create JCL and submit the job immediately.

15. As the job is processed, in SDSF, check JESLOG for errors and return codes.
Following is a table of the jobs created. All members are created in the configuration library (EDACONF).

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISETUPJ2</td>
<td>Main JCL Job stream that is used to install the server.</td>
</tr>
<tr>
<td>ISOPTS2</td>
<td>Options used to install the server.</td>
</tr>
</tbody>
</table>

The following members all call procedure IRUNJCL, which is the main server JCL. If you need to change the server JCL, change member IRUNJCL.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTART</td>
<td>Starts the server.</td>
</tr>
<tr>
<td>ISTOP</td>
<td>Stops the server.</td>
</tr>
<tr>
<td>ICLEAR</td>
<td>Clears server resources after abnormal end.</td>
</tr>
<tr>
<td>ICLRDIR</td>
<td>Clears superuser-owned directories from a previously run secure server.</td>
</tr>
<tr>
<td>ISAVEDIA</td>
<td>Creates a directory called sdnnnnnn and populates it with full diagnostic information.</td>
</tr>
<tr>
<td>ISHOW</td>
<td>Shows current workspace status.</td>
</tr>
<tr>
<td>ITRCON</td>
<td>Turns on dynamic tracing (server will be started if not already running).</td>
</tr>
<tr>
<td>ITRCOFF</td>
<td>Turns off dynamic tracing (server will be started if not already running).</td>
</tr>
</tbody>
</table>

The following members contain batch JCL for auxiliary functions, and are also created in the configuration library.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMRUN</td>
<td>JCL to run DataMigrator batch jobs.</td>
</tr>
<tr>
<td>DB2V9PRM</td>
<td>DB2 version 9 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V10PR</td>
<td>DB2 version 10 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V11PR</td>
<td>DB2 version 11 DBRM referenced in GENDB2 JCL.</td>
</tr>
</tbody>
</table>
### Description

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDB2</td>
<td>JCL to bind the DB2/CAF plan.</td>
</tr>
<tr>
<td>IIMSBMP</td>
<td>Example JCL to run the IMS/XMI server job in BMP mode.</td>
</tr>
<tr>
<td>IIMSDLI</td>
<td>Example JCL to run the IMS/XMI server job in DLI mode.</td>
</tr>
<tr>
<td>IRDAAPPC</td>
<td>Example CLIST to run RDAAPP Client test tool.</td>
</tr>
<tr>
<td>IRDAAPPJ</td>
<td>Example JCL to run RDAAPP Client test tool.</td>
</tr>
</tbody>
</table>

The following members contain sample started task JCL, and are also created in the configuration library.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWAYS</td>
<td>A started task that starts the server.</td>
</tr>
<tr>
<td>IWAYP</td>
<td>A started task that stops the server.</td>
</tr>
<tr>
<td>EDAPRMP</td>
<td>A parameter file used by IWAYP.</td>
</tr>
<tr>
<td>EDAENV</td>
<td>A parameter file used by IWAYS, IWAYP, ISTART, and ISTOP.</td>
</tr>
</tbody>
</table>

The following table shows the HFS directory structures created during the installation process.

<table>
<thead>
<tr>
<th>Directory Structure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/u/iadmin/ibi/srv77/tape</td>
<td>Contains HFS files from the input media.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/srv77/install</td>
<td>Working directory for the installation process. Log and error files reside here.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/apps</td>
<td>The installation creates baseapp and one or more sample application directories under this directory.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/profiles</td>
<td>This is where user profiles are created, as well as admin.cfg.</td>
</tr>
</tbody>
</table>
### Directory Structure

<table>
<thead>
<tr>
<th>Directory Structure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/u/iadmin/ibi/srv77/home</td>
<td>Server system directories are created under this directory.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/srv77/product_type</td>
<td>Configuration directories are created under this directory. The license key specified in the ISETUP procedure determines product_type.</td>
</tr>
<tr>
<td></td>
<td>product_type is one or more of the following:</td>
</tr>
<tr>
<td></td>
<td>FFS for a Full-Function Server</td>
</tr>
<tr>
<td></td>
<td>DM for a DataMigrator Server</td>
</tr>
<tr>
<td></td>
<td>WFS for a WebFOCUS Reporting Server</td>
</tr>
<tr>
<td></td>
<td>WFM for a Shared Application Server for WebFOCUS Maintain</td>
</tr>
</tbody>
</table>

### Step 2. Test the Installation

#### How to:
Test the Server Installation

This section describes how to verify server installation.

#### Procedure: How to Test the Server Installation

1. Log on to TSO as iadmin.
2. Submit the ISTART JCL to start the server. This executes the IRUNJCL proc.
3. Check the job output for errors. Look for the EDAPRINT message:

   (EDA13023) ALL INITIAL SERVERS STARTED

4. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

   http://host:port

   ```
where:

*host*

Is the name of the machine on which the server is installed.

*port*

Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

The Web Console opens.

5. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

6. Continue with adapter configuration, as described in the *Adapter Administration* manual.

When you are finished using the server, you can use the Web Console to stop the server by going to the Web Console menu bar, selecting *Workspace*, and then *Stop*.

If you experience problems at start up, examine the job output for more information.

### Upgrading Your Server Release for HFS

**In this section:**

- Step 1. Access the Installation Software
- Step 2. Run ISETUP
- Step 3. Test the Server Installation
- Step 4. Reconfigure Server Security
- Step 5. Reconfigure Adapters

Use this option to upgrade a server to a new maintenance level within the same major release. A major release is indicated by the first two digits of the release number.
**Step 1. Access the Installation Software**

**How to:**
- Unload the Installation Software From Tape
- Download the Installation Software Using FTP

**Reference:**
- Optional Low-Level Qualifier Changes
- Default Low-Level Qualifiers

You can choose to access the server installation software using either:

- **Tape.** The software is provided on a 3490 or 3590 cartridge.
  You must unload the installation data set from the tape before you can run the installation. This is how most installations are performed.

- **FTP.** You download the installation software from the Information Builders FTP site.
  Downloading the installation software involves:
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the installation data set from the site.
  3. **Running** the isetup procedure to complete the download process and install the software.

**Procedure: How to Unload the Installation Software From Tape**

The software is provided on a cartridge in 3490 or 3590 format with MVS PDSs. Perform the following to unload the installation data set from the tape:

1. Log on to TSO.

2. Run an IEBCOPY job to allocate and unload the `qualifier.HOME.DATA` data set. This PDS contains the members needed for the actual installation.

   It is recommended that you use HOME.DATA as the low-level qualifier for the target data set. Although you can specify any low-level qualifier, HOME.DATA enables the installation procedure to generate default data set names, simplifying your installation.

   **Note:** If you do not use HOME.DATA, then change the following line to reflect the value you used.

   ```
   // SET EDAUSSD='HOME.DATA'
   ```
Do this before you run ISETUP.

The following sample JCL is for the initial unload to a new data set:

```jcl
//IEBCOPY EXEC PGM=IEBCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*  
//SYSUT1 DD UNIT=workunit,SPACE=(CYL,(5,1))
//OUT1 DD DISP=(NEW,CATLG,DELETE),
//      DSN=qualifier.HOME.DATA,
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//      SPACE=(CYL,(5,5,25)),
//      UNIT=SYSDA
//IN1 DD DISP=(OLD,PASS),
//      DSN=HOME.DATA,
//      UNIT=cart,
//      VOL=(,RETAIN,,SER=volser),
//      LABEL=(1,SL)
//SYSPRINT DD SYSOUT=*  
//SYSIN DD *
COPY INDD=IN1,OUTDD=OUT1
```

where:

`workunit`

Is the unit for the work data set.

`qualifier`

Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software. However, you can use any site-specific value.

For PDS, we recommend retaining the low-level qualifier HOME.DATA, but you can change this to any site-specific value. If you use a low-level qualifier other than HOME.DATA, you must then edit member PDSSNAME to change the string “HOME.DATA” to the low-level qualifier you specify here.

`cart`

Is the unit type of the tape drive. Common names include 3490, TAPE, and 3590. Change as needed.

`volser`

Is the value shown on the media label.

After this job has run, `qualifier`.HOME.DATA is allocated, cataloged, and populated with the members needed to continue the product installation.

Proceed to Step 2. Run ISETUP on page 189.
Procedure: How to Download the Installation Software Using FTP

To download the installation software:

The Information Builders Technical Support home page opens.

2. Click My Downloads in the My Account section on the right side of the page.
The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click Download to the right of the platform name.

6. Fill in the registration form and then click Continue.
The Software Download Agreement page opens.

7. Select I agree... to consent to the Download Agreement, and then click Continue.
The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
A copy of the instructions is automatically emailed to you for later reference.

8. Log on to TSO.

9. Follow the instructions on the Download Page in your TSO session.

10. Review Optional Low-Level Qualifier Changes on page 189. If you did not restore the first data set as HOME.DATA (see download instructions) then change the following line to reflect the data value you used:

    //         SET EDAUSSD='HOME.DATA' 

11. Run the ISETUP procedure.
Specify (F)tp for Input Source on the second panel.
Note that after the server is properly installed, you can optionally delete any downloaded temporary files.
Continue with Step 2. Run ISETUP on page 189.
Optional Low-Level Qualifier Changes

We recommend retaining the default low-level qualifiers that are supplied for the installation libraries. However, if you need to change any of them (for example, to conform to site-specific naming conventions), you can do so by editing them in member USSSNAME of high_level_qualifier.HOME.DATA. You can see a list of the qualifiers in Default Low-Level Qualifiers on page 189.

**Caution:** If you change any low-level qualifiers and do not reflect those changes exactly in USSSNAME, you will experience problems with the server installation and operation.

Once you have finished changing any names, continue with Step 2. Run ISETUP on page 189.

Default Low-Level Qualifiers

The following low-level qualifiers are set in high_level_qualifier.HOME.DATA(PDSSNAME):

```
//         SET  EDAUSSD='HOME.DATA'        Server installation library
//         SET  EDAUSSL='HOME.LOAD'        Server base load library
//         SET  FFSUSSD='FFS.DATA'         Full Function server
//         SET  WFSUSSD='WFS.DATA'         WebFocus Reporting server
//         SET  ETLUSSD='DM.DATA'          DataMigrator
//         SET  WFMUSSD='WFM.DATA'         WebFocus Maintain Server
//         SET  CGWUSSD='CGW.DATA'         Communications Gateway
//         SET  CLNUSSD='CLN.DATA'         Client
//         SET  EDACICS='HOME.CICS.LOAD'   CICS load library
```

Step 2. Run ISETUP

**Caution:** Ensure that all server processes are stopped before upgrading.

Server upgrade consists of a series of ISPF panels, which gather information for the upgrade. After the panel dialog is complete, JCL is created and submitted (if required) to upgrade the server on z/OS. This JCL job retrieves the remainder of the MVS libraries and HFS files from the media.

1. Execute the ISETUP member of your high_level_qualifier.HOME.DATA using ISPF option 6. The Installation and Configuration panel opens.

2. Select 1 for HFS deployment and press Enter to continue to the next panel.

3. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Choose option 3, Refresh Installation.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the 10-digit license key that was provided with the software.</td>
</tr>
<tr>
<td>Input source</td>
<td>Choose the Input source, T for tape, D for disk (see note), or F for automatic FTP download direct to MVS.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you downloaded the server software using FTP to another platform and then manually transferred the files to MVS, choose D and, on the next panel, provide the directory name where the transferred files reside.</td>
</tr>
<tr>
<td>Installation Userid</td>
<td>Shows the current logon ID. It cannot be changed.</td>
</tr>
<tr>
<td>OPSYS Administration Userid</td>
<td>Initially, this field shows the same ID as the installation user ID.</td>
</tr>
<tr>
<td></td>
<td>If the installation user ID is a superuser (UID=0), you must specify a non-superuser ID to administer the server. Specify this ID here.</td>
</tr>
<tr>
<td>PTH Administrator Userid</td>
<td>An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of the server. It defaults to <code>srvadmin</code>.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> For a Refresh Installation, this parameter is ignored, as no configuration files are updated. ISETUP must be run by the OPSYS Administration userid.</td>
</tr>
<tr>
<td>PTH Administrator Password</td>
<td>Password for the PTH Administrator ID.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> For a Refresh Installation, this parameter is ignored, as no configuration files are updated. ISETUP must be run by the OPSYS Administration userid.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Umask setting to use</td>
<td>Shows the current umask setting for the iadmin ID. The JCL passes this setting to the server for use at run time. Every time the server creates a file in the .../ibi/profiles or .../ibi/apps directory structures (usually in response to Web Console activity), the server assigns to the file the default permissions 666 filtered by the umask value. You specify whichever umask value is necessary to mask out the permissions you do not want to grant. For example, if you specify a umask value of 0022, the server create files with the permissions 644: umask 0022 is subtracted from the default 666, disallowing the group and world write permissions.</td>
</tr>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, jobnameA, jobnameB, jobnameC, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each job that is submitted.</td>
</tr>
</tbody>
</table>

If you used the same user ID for both installation and administration, skip to Step 7. Otherwise, continue with the following step.

4. Press Enter to continue to the next panel.

This panel appears only if you provided two different user IDs in the previous panel.

The installation process will change ownership of HFS server files from the installation ID (iinstal) to the administrator ID (iadmin). The installation ID must have authority to issue the chown command to make this change of ownership. This action is taken at the end of the installation process.
5. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting the run-time jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, jobnameA, jobnameB, jobnameC, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each run-time job that is created.</td>
</tr>
</tbody>
</table>

6. If you selected input source T or D, skip to Step 7.

If you selected F for automatic FTP only, complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTP Download</td>
<td>Directory to be used as the target for the FTP files. This directory must already exist.</td>
</tr>
<tr>
<td>FTP Userid</td>
<td>User ID provided on the download instructions.</td>
</tr>
<tr>
<td>FTP Password</td>
<td>Password provided on the download instructions.</td>
</tr>
</tbody>
</table>
7. Press Enter to continue to the next panel, and complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFS Base Directory</td>
<td>Base directory of the current server that is to be refreshed. The value will be checked to see if it contains a valid server directory structure. (It should contain .../ibi/srvxx/home/bin where xx is the major release level.) From this value, the current installation library name is obtained and this will be the location used to create the refresh JCL.</td>
</tr>
</tbody>
</table>

8. Press Enter to continue to the next panel, and complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Media (installing from tape)</strong></td>
<td></td>
</tr>
<tr>
<td>Volume serial number</td>
<td>Provide the volume serial number of the server media. The number is located on the tape supplied in your server package.</td>
</tr>
<tr>
<td>Volume unit type</td>
<td>Review the default value and change it, if necessary.</td>
</tr>
<tr>
<td>Work unit type</td>
<td>Review the default value and change, if necessary.</td>
</tr>
<tr>
<td></td>
<td>You can specify a UNIT= type value (for example, SYSDA), or you can direct work files to a specific volume serial number by specifying, in single quotation marks (&quot;), 'SYSDA,VOL=SER=volume'.</td>
</tr>
<tr>
<td><strong>Input Media (installing from disk)</strong></td>
<td></td>
</tr>
<tr>
<td>Directory name of input</td>
<td>Provide the name of the directory in which the installation files reside.</td>
</tr>
</tbody>
</table>
### MVS Installation Libraries

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAHOME Library</td>
<td>This is the full data set name the installation procedure will use to allocate the EDAHOME load library on MVS and where the refresh load modules will be stored. If you are running from <code>high_level_qualifier.HOME.DATA</code>, this field will have the default value <code>high_level_qualifier.HOME.LOAD</code>. If you used another name to unload the first data set, this field will be blank. On subsequent running of ISETUP, the previous value used will be displayed. Change the value as necessary.</td>
</tr>
<tr>
<td>EDAHOME Library Unit/Type</td>
<td>These show the values that the installation process will use to allocate the EDAHOME load library on MVS. If necessary, you can change these to site-specific values. Type can be <strong>VOL=SER</strong> (default), <strong>DATACLAS</strong>, <strong>MGMTCLAS</strong>, or <strong>STORCLAS</strong>.</td>
</tr>
</tbody>
</table>

**Note:** The EDACONF Library name is where the refresh JCL will be created. This library is the current server installation library. The value cannot be changed.

9. Ensure that all values on the panel are correct, then select one of the following options:

- **N** to return to the initial panel so that you can change installation values.
- **C** to create JCL which you can submit at a later time. The JCL is placed in your configuration library.
- **S** to create JCL and submit the job immediately.

10. As the job is processed, in SDSF, check JESLOG for errors and return codes.

The following jobs are added to the current configuration library of the server:

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISETUPJ3</td>
<td>Main JCL Job stream that is used to install the server.</td>
</tr>
<tr>
<td>ISOPTS3</td>
<td></td>
</tr>
</tbody>
</table>
The following directories are added to the HFS directory structure of the existing server:

<table>
<thead>
<tr>
<th>Directory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/u/iadmin/ibi/srv77/tape</td>
<td>Contains HFS files from the input media.</td>
</tr>
<tr>
<td>/u/iadmin/ibi/srv77/install</td>
<td>Working directory for the installation process. Log</td>
</tr>
<tr>
<td></td>
<td>and error files reside here.</td>
</tr>
</tbody>
</table>

**Step 3. Test the Server Installation**

**How to:**
Test the Server Installation

This section describes how to test the server installation.

**Procedure:**  **How to Test the Server Installation**

1. Log on to TSO as iadmin.
2. Submit the ISTART JCL to start the server.
3. Check the job output for errors. Look for the EDAPRINT message:
   
   *(EDA13023) ALL INITIAL SERVERS STARTED*

4. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

   `http://host:port`

   where:

   - `host`
     Is the name of the machine on which the server is installed.

   - `port`
     Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

   The Web Console opens.
5. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

When you are finished using the server, you can use the Web Console to stop the server by going to the Web Console menu bar, selecting Workspace, and then Stop.

If you experience problems at start up, examine the job output for more information.

**Step 4. Reconfigure Server Security**

In this section:

Preventing Unsecured Server Starts After Upgrades

For information about configuring server security, see *Step 7. Configure Server Security* on page 157.

To reconfigure server security to OPSYS provider only:

1. Log on to TSO using an ID with read access to the BPX.FILEATTR.APF facility class.

2. Using the name of the actual EDAHOME directory, change file attributes by entering the following TSO commands in ISPF Command Shell (option 6):

   ```
   OShell extattr +a /u/iadmin/ibi/srv77/home/bin/tscom300.out
   OShell extattr +a /u/iadmin/ibi/srv77/home/bin/tsqprx.out
   ```

3. Verify your changes by issuing the following command:

   ```
   OShell ls -E /u/iadmin/ibi/srv77/home/bin/tscom300.out
   OShell ls -E /u/iadmin/ibi/srv77/home/bin/tsqprx.out
   ```

   The extended attributes portion of the output should be a-s.

4. The libraries allocated to STEPLIB in IRUNJCL must be APF-authorized. Any non-APF-authorized libraries must be allocated the TASKLIB DDNAME.

5. Test server security by repeating the process described in *Step 3. Test the Server Installation* on page 195.

This step will need to be repeated after any server upgrade since these files are replaced during upgrade.
Preventing Unsecured Server Starts After Upgrades

If the security provider is set to OPSYS in the configuration file and, additionally, explicit environment variable EDAEXTSEC is set to OPSYS (or ON), and the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.

This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg configuration file. The messages vary slightly by platform.

The edaprint messages are:

I Configured primary security is 'OPSYS' as set in configuration file
E Server security explicitly set to OPSYS, but lacks authority!
Workspace initialization aborted.
(EDA13171) UNABLE TO START SERVER

Step 5. Reconfigure Adapters

While most adapters do not require additional steps after updating binary files, the following table notes the adapters that do require some consideration.

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Steps After Updating Binaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adabas</td>
<td><img src="image1" alt="Re-enable the module containing SVC using the Web Console adapter configuration page." /></td>
</tr>
<tr>
<td></td>
<td><img src="image2" alt="Test the adapter from the adapter page before running your applications." /></td>
</tr>
<tr>
<td>DB2 CAF</td>
<td><img src="image3" alt="Rebind the DB2 plan using the Web Console adapter configuration page." /></td>
</tr>
<tr>
<td></td>
<td><img src="image4" alt="Test the adapter from the adapter page before running your applications." /></td>
</tr>
</tbody>
</table>
Accounting for HFS - SMF Records

How to:
Report From SMF Data
Enable Accounting
Set the Accounting Field

Reference:
SMF RECTYPES
SMF Record Format for RECTYPES 1 and 4
SMF Record Format for RECTYPES 2 and 5
Accounting for DB2 in a Server Task

The server provides an optional facility to use for accounting purposes that enables you to log resource utilization on a per-user basis. This facility enables the server to generate SMF records for query-level and user-level accounting.

Server accounting requires that the server STEPLIB data sets be APF-authorized. When SMF records are generated, they contain:

- The logon ID and security ID of the user.
- The CPU time and EXCPs consumed.
- Data based on the type of record written.

You can process the SMF records using the accounting programs that exist at your site. Examples of SMF records are provided in SMF Record Format for RECTYPES 1 and 4 on page 201.

In order to write SMF records, the server must be running APF authorized.

Two sample Master Files (SMFVSAM and SMFFIX) are provided for accessing accounting statistics. They reside under the catalog subdirectory in the EDAHOME location. Their difference is that SMFVSAM can be used to report directly from the system-live SYS1.MANx records, while SMFFIX can be used to report from a sequential file produced from running the SMFDUMP utility. These Master Files enable you to interpret the SMF records generated by the accounting facility using reporting requests or store procedures. Both Master Files are for logoff records only, as indicated by ALIAS=2 on the RECTYPE field entry.

A sample procedure report to query the SMF data is also provided under the same location. It is called smfman1.fex.
**Syntax:**  
**How to Enable Accounting**

To enable accounting, insert the following statement into the server configuration file (edaserve.cfg):

```
smf_recno=smfnumber
```

where:

- **smfnumber**
  
  Is an integer in a range from 128 to 255, inclusive. This number represents the SMF number used by the accounting facility when it sends records to the SMF system.

By default, both RECTYPE pairs will be created when accounting is enabled. You can override the default by coding the following parameter on edaserve.cfg:

```
smf_subtype = {all|logon|query}
```

where:

- **all**
  
  Cuts all records. This is the default.

- **logon**
  
  Cuts logon records only (RECTYPE pair 1 and 2).

- **query**
  
  Cuts query records only (RECTYPE pair 4 and 5).

**Syntax:**  
**How to Set the Accounting Field**

Up to 40 characters can be supplied that appear in the SMF records field SMFOFA40. The SET BILLCODE command can be used in any support server profile to provide the account field information. The syntax is

```
SET BILLCODE=value
```

where:

- **value**
  
  Is the 1–40 characters to be used on each SMF record produced.

  This information can also be set dynamically from a client application by coding an RPC with the SET command and executing it with the value as a parameter. WebFOCUS users can send the SET command to the server.

**Procedure:**  
**How to Report From SMF Data**

To report from SMF data, execute the sample procedure `{smfman1.fex}`, provided under home/catalog (DDNAME EDAHFEX for a PDS Deployment server).
You will be prompted for the DSN of the SMF VSAM data set from which you want to report, and the `smf_recno` value used to produce the SMF records.

Following is a listing of `smfman1.fex`:

```plaintext
DYNALLOC FILE SMFVSAM DSN &SMFDSN. Please provide SMF VSAM DSN. SHR REU
DEFINE FILE SMFVSAM
CPU/D8.2 = SMFOFCPU / 100 ;
USER/A20 = SMFOFUID ;
EXCPS/I6 = SMFOFEXC ;
TIME/D9.2 = SMFOFLTM / 100 ;
HR/I2 = SMFOFTME / 360000 ;
MIN/I2 = (SMFOFTME - (HR*360000)) / 6000 ;
TOD/A5 = EDIT(HR) | ':' | EDIT(MIN) ;
END
TABLE FILE SMFVSAM
PRINT USER CPU EXCPS TIME TOD
WHERE SMFOFRTY EQ &SMFNUM. Please provide SMF number(type) for report.
END
```

**Reference: SMF RECTYPES**

There are four RECTYPE values defined to produce SMF records:

<table>
<thead>
<tr>
<th>RECTYPE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indicates a start of task record. When included in a report, these statistics tell when a task initiation occurred, and are of no particular use in chargeback. By pairing start and end of task records for all tasks within a time period, statistics, such as average active time, peak task count, and average task count, can be determined. These values can be used for future capacity planning activities for the server.</td>
</tr>
<tr>
<td>2</td>
<td>Indicates the start of a task record. When included in a report, these statistics tell when a task termination occurred. These records are cut for both publicly and privately deployed services and contain statistics for the subtask as a whole. For privately deployed services, RECTYPE (2) records contain statistics associated with a single user connection.</td>
</tr>
<tr>
<td>4</td>
<td>Begin query. Record layout is the same as RECTYPE (1).</td>
</tr>
<tr>
<td>5</td>
<td>End query. Record layout is the same as RECTYPE (2).</td>
</tr>
</tbody>
</table>
Reference: SMF Record Format for RECTYPES 1 and 4

The record format for RECTYPES 1 and 4 of the SMF records written by the server is defined below. The format is provided in the system 390 assembler DSECT form.

```assembly
SMFON    DSECT
SPACE
*----------------------------------------------------*
* USAGE ACCOUNTING SMF RECORD LAYOUT FOR LOGON RECORDS. *
* THIS IS THE DSECT DESCRIBING THE SMF RECORD WHICH IS PASSED TO *
* YOUR EXIT ON AT USER LOGON TIME. IT IS COMPLETELY READY TO BE *
* WRITTEN WHEN YOUR EXIT RECEIVES CONTROL.             *
*----------------------------------------------------*
SPACE

SMFONLEN DS    H'116'            RECORD LENGTH
SMFONSEG DS    XL2'0000'         SEGMENT DESCRIPTOR (0 UNLESS SPANNED)
SMFONFLG DS    XL1               SYSTEM INDICATOR
SMFONRTY DS    XL1               RECORD TYPE
SMFONTME DS    XL4               TIME, IN HUNDREDTHS OF A SECOND
SMFONDTE DS    PL4               DATE, 00CYYDDDF, WHERE F IS THE SIGN
SMFONSID DS    CL4               SYSTEM IDENTIFICATION
SMFONSBS DS    CL4               SUBSYSTEM IDENTIFICATION
SMFONSBT DS    XL2'0001'         SUBTYPE OF RECORD – X'0001' INDICATES X
                                THIS IS A LOGON RECORD
SPACE
```
THE NEXT FIELDS ARE THOSE PRESENT IN THE LOGON RECORD FOR THE START OF A USER SESSION.

SPACE
SMFONMSO DS CL8 JOBNAME
SMFONJID DS CL8 JOBID (FROM SSIBJBID)
SMFONASI DS Y ASID
SMFONRV1 DS XL2 RESERVED
SMFONUID DS CL20 SECURITY USERID
SMFONLID DS CL20 USERID PRESENTED AT LOGON (SAME AS SMFONSID UNLESS CHANGED VIA MSIDTR SECURITY EXIT)
SMFONRNV DS XL8 RESERVED FOR FUTURE EXPANSION
SMFONCT1 DS XL4 RESERVED FOR FUTURE EXPANSION
SMFONSRV DS CL8 SERVICE NAME FROM SERVICE BLOCK
SMFONR50 DS XL4 RESERVED FOR FUTURE EXPANSION
SMFONCNT DS XL1 CONNECTION TYPE
SPACE
SMFONTSO EQU 1 CONNECTION VIA TSO
SMFONCIC EQU 2 CONNECTION VIA CICS
SMFONVTM EQU 4 CONNECTION VIA VTAM
SMFONPSR EQU 8
SPACE
SMFONRS1 DS XL3 RESERVED
SMFONID1 DS F SYSPLEX ID 1
SMFONID2 DS F SYSPLEX ID 2
SMFOFPID DS XL20 POOLED USER ID
SMFONRS2 DS XL12 RESERVED
SMFONL EQU -*SMFON LENGTH OF THE SMF LOGON RECORD

Reference: SMF Record Format for RECTYPES 2 and 5

The record format for RECTYPES 2 and 5 of the SMF records written by the server is defined below. The format is provided in the system 390 assembler DSECT form.

SMFOF DSECT
SPACE
* ---------------------------------------------------- *
* USAGE ACCOUNTING SMF RECORD LAYOUT FOR LOGOFF RECORDS. *
* *
* THIS IS THE DSECT DESCRIBING THE SMF RECORD WHICH IS PASSED TO *
* YOUR EXIT ON AT USER LOGOFF TIME. IT IS COMPLETELY READY TO BE *
* WRITTEN WHEN YOUR EXIT RECEIVES CONTROL. *
* ---------------------------------------------------- *
SPACE

Reference: SMF Record Format for RECTYPES 2 and 5

The record format for RECTYPES 2 and 5 of the SMF records written by the server is defined below. The format is provided in the system 390 assembler DSECT form.
THE FIRST TWENTY FOUR BYTES OF THE RECORD ARE THE SMF HEADER.

THESE FIELDS ARE REQUIRED IN ALL SMF RECORDS (18 BYTES FOR RECORDS WITHOUT SUBTYPES; WE USE SUBTYPES, THE HEADER IS 24 BYTES).

SPACE

SMFOFLEN DS H'168'  RECORD LENGTH
SMFOFSEG DS XL2'0000'  SEGMENT DESCRIPTOR (0 UNLESS SPANNED)
SMFOFGLG DS XL1  SYSTEM INDICATOR
SMFOFRTY DS XL1  RECORD TYPE
SMFOFTME DS XL4  TIME, IN HUNDREDTHS OF A SECOND
SMFOFDTE DS PL4  DATE, 00CYDDDF, WHERE F IS THE SIGN
SMFOFSID DS CL4  SYSTEM IDENTIFICATION
SMFOFSBS DS CL4  SUBSYSTEM IDENTIFICATION
SMFOFSBT DS XL2'0002'  SUBTYPE OF RECORD - X'0002' INDICATES X THIS IS A LOGOFF RECORD

SPACE

THE NEXT FIELDS ARE THOSE PRESENT IN THE LOGOFF RECORD FOR THE END OF A USER SESSION.

SPACE

SMOFMSO DS CL8  JOBNAME
SMOFJID DS CL8  JOBID (FROM SSIBJBID)
SMOFASI DS Y  ASID
SMOFPRV1 DS XL2  RESERVED
SMOFUID DS CL20  SECURITY USERID
SMOFLID DS CL20  USERID PRESENTED AT LOGON (SAME AS X SMOFSID UNLESS CHANGED VIA MSIDTR X SECURITY EXIT)
SMFMEMA DS XL4  MEMORY ABOVE THE LINE (IN KILOBYTES)
SMFMEMB DS XL4  MEMORY BELOW THE LINE (IN KILOBYTES)
SMFZIIIP DS XL4  ZIIP CPU NORMALIZED (HUNDREDTHS OF A SEC)
SMFOSRV DS CL8  SERVICE NAME FROM THE SERVICE BLOCK
SMFZPOCP DS XL4  ZIIP ON CP (HUNDREDTHS OF A SEC)
SMOFCNT DS XL1  CONNECTION TYPE

SPACE

Server Installation 203

4. Installation for z/OS
**Reference: Accounting for DB2 in a Server Task**

When using a server to access DB2 data, certain processing takes place within the DB2 address space and is governed by the DB2 chargeback system. If a user requests data from DB2, the server passes the request to the DB2 subsystem. The DB2 subsystem then processes the request, performing such tasks as retrieving rows and aggregating the data. It generates the answer set, and passes the output back to the server. The server then performs any joins and formatting which have not been performed by DB2 to satisfy the original request.

Charges incurred while the request was being processed by the DB2 subsystem are added to the charges accumulated in the server task that originated the request for processing. If the server accounting is enabled, these charges are associated with the user logon and security IDs in the SMF records described earlier.

**Performance Considerations for HFS**

**In this section:**

- Running the Server in a Non-Swappable Address Space
- Workload Manager

There are several ways in which you can improve the server performance:
Non-swappable address space. We recommend that you run the server in a non-swappable address space. For more information, see Running the Server in a Non-Swappable Address Space on page 205.

Workload Manager (WLM). You can balance server workload by using Workload Manager. For more information, see Workload Manager on page 205.

Running the Server in a Non-Swappable Address Space

We recommend that you run the server in a non-swappable address space. In order to make the server address space permanently non-swappable, add the following entry to SYS1.PARMLIB(SCHEDxx):

```
PPT PGMNAME(TSCOM300) /* PROGRAM NAME */
NOSWAP /* NON-SWAPPABLE */
CANCEL /* CAN BE CANCELLED */
```

Do not use the KEY 0 parameter, or any other parameter (such as NOPASS), unless the system programmer completely understands the consequences of adding the parameter.

All local spawn transactions will perform in the mode of the server. For example, if the server address space is non-swappable, all local spawn execute as non-swappable.

The server executes limited non-local spawn, such as when the user executes a UNIX system command. Non-local spawn execute as swappable.

The server never executes a fork subroutine. (A fork subroutine creates a new process. The new process, called the child process, is an almost exact copy of the calling process, which is called the parent process.)

Workload Manager

Although the server may run in a specific performance group, transactions submitted by server agents may perform differently than the server by adding the following keyword to edaserve.cfg:

```
wlm_enclave_trname = WLM_transaction_name
```

where:

- **WLM_transaction_name**
  
  Can be up to 8 characters.

This is a service-level keyword.

Using this setting, the task will join a Workload Manager (WLM) enclave when a request starts, and leave the enclave when the request finishes. This gives WLM control of the dispatching priority of the task. The transaction rules defined on WLM will determine the default service class assigned to this transaction, and that service class will determine how the request runs.
This feature helps to balance a workload so that a long request will not affect a short request. This can be achieved through WLM rules designed to lower the priority of a long request after a certain period of time. Without this feature, all requests share the region priority.

The transaction name passed in this keyword must match one defined in the WLM Classification Rules for the Job Entry Subsystem (JES). A corresponding WLM Service Class pointed to by this rule will then be associated with this service.

The classification rules for JES must be used even if the server is started as a started task. The subtasks are always run under JES.

For example, you would include the following in edaserve.cfg:

```
SERVICE = DEFAULT

BEGIN
wlm_enclave_trname = IWAYFAST
.
.
.
END
```

The WLM definition is:

```
Subsystem Type JES - Batch Jobs
Classification:

Default service class is PRDBATLO
There is no default report class.

<table>
<thead>
<tr>
<th>Qualifier</th>
<th>Qualifier</th>
<th>Starting</th>
<th>Service</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td># type</td>
<td>name</td>
<td>position</td>
<td>Class</td>
<td>Class</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>1</td>
<td>TN</td>
<td>IWAYFAST</td>
<td>EDAQRYHI</td>
<td></td>
</tr>
</tbody>
</table>
```

WLM subrules (levels 2 and above) are supported. For a server request to join an enclave in a particular service class, the names of all rule qualifiers below our transaction name are checked. For example, consider the following WLM definition:

```
Subsystem Type JES - Batch Jobs
Classification:

Default service class is PRDBATLO
There is no default report class.

<table>
<thead>
<tr>
<th>Qualifier</th>
<th>Qualifier</th>
<th>Starting</th>
<th>Service</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td># type</td>
<td>name</td>
<td>position</td>
<td>Class</td>
<td>Class</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>1</td>
<td>SSC</td>
<td>PRDMVS</td>
<td>PRDDFLT</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>TN</td>
<td>IWAYFAST</td>
<td>EDAQRYHI</td>
<td></td>
</tr>
</tbody>
</table>
```
In this particular case, the qualifier 1 type is SSC (Subsystem Collection), and a server request will only join the enclave IWAYFAST if it is running on a particular LPAR in the SYSPLEX. This qualifier (PRDMVS) must match the XCF group definition: issue `$DMASDEF` (for JES2) and check the value of XCFGRPNM field.

You can handle WLM scheduling environments by defining them to WLM and then adding the JOB statement parameter SCHENV=xxxxx to the ISTART JCL.

**General Information for a z/OS HFS Installation**

**In this section:**
- Sample Metadata, Data, and Other Tutorial Samples
- Frequently Asked Questions for HFS

This section covers general information for a z/OS installation.

**Sample Metadata, Data, and Other Tutorial Samples**

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), *Tutorials* (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.

There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the *Create Legacy Sample Tables and Files* tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.

If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).

**Frequently Asked Questions for HFS**

**Q: How do I execute server user profiles from a PDS?**

**A:** We recommended that you copy the server user profiles from the PDS to the HFS directory `/ibi/profiles`, and rename them to add the extension `.prf` (for example, `user_id.prf`). Alternatively, you can use the following technique to execute user profiles from a PDS:

1. In the IRUNJCL member, allocate DDNAME `//MVSPROF` to the PDS containing user profiles. For example:

```bash
//MVSPROF DD DISP=SHR,DSN=high_level_qualifier.EDAPROF.DATA
```
2. Add the highlighted lines to the global server profile, edasprof.prf:

```
APP MAP MVSPROF fex=//dd:mvsprof
APP MAP MVSAPP mas=//dd:master;fex=//dd:foexec;acx=//dd:access;
...  
APP PATH IBISAMP MVSAPP
-SET &USERID='12345678';
-SET &USERID=GETUSER(&USERID);
EX MVSPROF/&USERID
```

Q: What permissions are specified for application component files?

A: Application component files, such as FOCEXEC procedures (.FEX), Master Files (.MAS), and Access Files (.ACX), reside in the /ibi/apps/applicationname directory, where they are created with a permission of 666 minus the UMASK setting.

For example, if the UMASK value is 022, each application component is created with a permission of 644.

Caution: When using the above UMASK values, if one user ID creates application components, all other users will be able to read them, but not to write, update, or refresh.

You can provide write access by changing the value of UMASK at installation time, or manually in IRUNJCL. For example:

```
//TSCOM300 EXEC PGM=TSCOM300,
  PARM='ENVAR("_EDC_UMASK_DFLT=0022")/'
//STEPLIB DD DISP=SHR,DSN=EDABXV.SRV77.HOME.LOAD
```

Q: Can I monitor server startup by checking the MVS SYSLOG?

A: Yes.

The following messages are written to the SYSLOG when

- The server starts successfully:
  
  (EDA13023) ALL INITIAL SERVERS STARTED

- The Server does not start:

  (EDA13171) UNABLE TO START IWAY SERVER
Third-Party Software and Licenses

**In this section:**

OpenFlex SDK

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software and includes references to the full licenses included in *Information Builders and Third-Party Licenses* on page 385.

**OpenFlex SDK**

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see *Zip Archiver License* on page 399 or visit our website, [http://www.informationbuilders.com](http://www.informationbuilders.com).
Troubleshooting for HFS

How to:
- Generate a Server Trace
- Generate a System Dump
- Add JCL Allocations to a Running Server
- Free Data sets Allocated to the Server
- Initialize the RDAAPP Application
- Add Your Problem to the Troubleshooting Guide
- Allocate a Data set From the z/OS System Console
- Free a Data set From the MVS System Console

Example:
- Allocating a VSAM Data set
- Allocating a SYMDUMP Data set With FREE=CLOSE Option
- Freeing an Allocated Data Set
- IRDAAPPC REXX Execution

Reference:
- Problem: The Server Abends With a U4039 Code
- Problem: INSUFFICIENT AUTHORITY TO GETPSEN messages in JESLOG
- Problem: Request fails, and JVM not found messages written to edaprint.log
- Secured Server Starts Unsecured or Does not Start After Upgrade
- Add Your Problem to the Troubleshooting Guide

To troubleshoot an installation problem, identify your problem in the following list, and follow the link to a description of the solution.

If you cannot find your problem described in the list, and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11. In addition, supply the following information to Customer Support Services:

- Server trace (see How to Generate a Server Trace on page 212).
- JCL for IRUNJCL.
Job output.

System dump, if needed (see How to Generate a System Dump on page 213).

Any additional information regarding how the problem occurred.

If you have a troubleshooting suggestion that is not described in the list, and you think others will find it helpful, we invite you to send it to us, as described in How to Add Your Problem to the Troubleshooting Guide on page 219. We will consider including your problem in a future release of this manual.

**Problems:**

- The server abends with a U4039 code.
  
  For details, see Problem: The Server Abends With a U4039 Code on page 211.

- INSUFFICIENT AUTHORITY TO GETSPENT messages appear in JESLOG.
  
  For details, see Problem: INSUFFICIENT AUTHORITY TO GETPSENTRY messages in JESLOG on page 211.

- The request fails, and JVM not found messages are written to edaprint.log.
  
  For details, see Problem: Request fails, and JVM not found messages written to edaprint.log on page 212.

**Reference:**  
**Problem: The Server Abends With a U4039 Code**

- **Problem:** The server abends with a U4039 code.
- **Cause:** This is a generic abend.
- **Solution:** Find out what caused the abend by checking the edaprint.log file, SYSOUT ddname, and the MVS system log.

**Reference:**  
**Problem: INSUFFICIENT AUTHORITY TO GETPSENTRY messages in JESLOG**

- **Problem:** INSUFFICIENT AUTHORITY TO GETPSENTRY messages appearing in JESLOG.
- **Cause:** See IBM APAR II11813.
- **Solution:** The APAR recommends issuing one of the following RACF commands:

```plaintext
SETROPTS LOGOPTIONS (NEVER(PROCACT))
SETROPTS LOGOPTIONS (DEFAULT(PROCACT))
```

However, when a non-superuser in the OMVS shell issues the command ps -ef, the following security message is repeated in SYSLOG:

```plaintext
ICH408I USER(default) GROUP(dgltgrp) NAME(bpxdefaultuser) 060 CL(PROCACT) INSUFFICIENT AUTHORITY TO GETPSENTRY
```
This does not indicate an error. It is an informational message issued because of RACF LOGOPTIONS settings. The ps -ef command is a request to show all processes that the requester is authorized to see, but a non-superuser is allowed to see only his or her own processes.

**Reference:**  
Problem: Request fails, and JVM not found messages written to edaprint.log  
Problem: The request fails, and JVM not found messages are written to edaprint.log.  
Cause: If the server cannot find the Java Virtual Machine (JVM), the JSCOM Listener will not be able to start, and messages will be written to the server log stating that the JVM cannot be found.  
Solution: Specify the location of the JVM in JDK_HOME or JAVA_HOME. (For information, see JVM Requirements for Java Services on page 116.)

**Reference:**  
Secured Server Starts Unsecured or Does not Start After Upgrade  
A server will implicitly attempt to start unsecured if proper authorization steps have not been completed. Starting the server normally clears edatemp. If prior edatemp files exist (and authorization has not been done), start up will fail due to an inability to clear the directory. However, if an edastart -cleardir command was issued just before the upgrade, there is nothing to clear, no error occurs, and the server starts. If the server starts and is not inspected after the initial start up, the server being in the wrong mode may go unnoticed.

The proper solution is to add proper authorizations after an upgrade, as described in Step 4. Reconfigure Server Security on page 196, and restart the server. A new safety measure has also been added. If the environment variable EDAEXTSEC is set to OPSYS explicitly, and a server lacks authorization, it will not start (see Preventing Unsecured Server Starts After Upgrades on page 197 for details).

**Procedure:**  
How to Generate a Server Trace  
To generate a server trace:

1. Turn tracing by going to the Web Console menu bar, selecting Workspace, and then Diagnostics; or else by running the ITRCON JCL member.

2. Reproduce the problem.

3. Submit the ISAVEDIA member to produce the diagnostic information.

A directory called sdnnnnnn is created under your configuration directory (for example, /ibi/srv77/ffs/sd123456). Diagnostic information is placed in this directory. Make sure you have access to this directory.
Procedure: How to Generate a System Dump

To generate a system dump:

1. Allocate DDNAME SYSMDUMP pointing to the data set with the following DCB parameters:
   
   RECFM=FB,LRECL=4160,BLKSIZE=4160.

2. To get the first dump, add the parameter FREE=CLOSE to your DD statement. The DD statement should appear as follows:

   //SYSMDUMP DD DISP=SHR,DSN=MYID.EDAPTH.SYSMDUMP,FREE=CLOSE

3. To get the last dump, the statement should appear as follows:

   //SYSMDUMP DD DISP=SHR,DSN=MYID.EDAPTH.SYSMDUMP

   Only two IDs must have privileges to write into this data set: ISERVER and IADMIN. General server users DO NOT need read or write access to the SYSMDUMP data set.

4. To prevent abendaid from intercepting the dump, add:

   //ABNLIGNR DD DUMMY

5. To prevent Language Environment from intercepting the dump, specify:

   EDADUMPOPT=UAIMM in EDAENV DD

   This enables you to get more accurate information reflecting the moment the abend actually occurs.

6. Save the entire job output for the server (including JES logs), and send it to Customer Support Services.

   Instead of using JCL allocations to add SYSMDUMP, the procedure described below can be used alternatively.

Procedure: How to Add JCL Allocations to a Running Server

A z/OS operator can issue modify commands from the z/OS system console to allocate DDNAMES to the server without restarting it. This procedure is useful if you need to reallocate a file that was freed to allow a batch overnight utility to run, or perhaps to add SYSMDUMP allocation to a running server.
### Syntax: How to Allocate a Data set From the z/OS System Console

**Syntax:**

\[ F \text{<iway_server_jobname/started task>},\text{DYNAM ALLOC FI <ddname> DA <dsname> <optional dynam parameters>} \]

**Example:** Allocating a VSAM Data set

\[ F \text{IWAY2, DYNAM ALLOC F VSAMFILE DA VSAM.FILEA.CLUSTER SHR} \]

**Example:** Allocating a SYSMDUMP Data set With FREE=CLOSE Option

\[ F \text{IWAY2, DYNAM ALLOC FILE SYSMDUMP DA PROD2.SYSMDUMP.DATA SHR CLOSE} \]

**Note:** The examples above assume IWAY2 is the jobname/started task ID for the server. All valid DYNAM ALLOC syntaxes are supported. For more information on the DYNAM command, please refer to the *Store Procedures Reference* manual.

The following message will be issued in the server JESMSGLG indicating if the command was processed successfully or not.

**Success:**

+DYNAM COMMAND SUCCESSFULLY PROCESSED Rc=0

**Failure:**

+DYNAM ERROR: IKJ56225I DATA SET IWAY.TEST ALREADY IN USE, TRY LATER

### Procedure: How to Free Data sets Allocated to the Server

A z/OS operator can issue modify commands from the z/OS system console to free DDNAMEs or DSNAMEs allocated to the server. Both global allocations (made at the server ISTART JCL) and local ones (DYNAM ALLOC commands issued by user tasks) can be freed. This procedure is useful if you need to free an allocation to run a batch utility overnight, without restarting the server.

**Syntax:** How to Free a Data set From the MVS System Console

To free a single DDNAME:

\[ F \text{<iway_server_jobname/started task>},\text{DYNAM FREE FI <ddname>} \]

To free a single DSNAME (all occurrences in the server):

\[ F \text{<iway_server_jobname/started task>},\text{DYNAM FREE DS <dsname>} \]

To free multiple DDNAMEs, passing a pattern (free all DDNAMEs staring with AB):

\[ F \text{<iway_server_jobname/started task>},\text{DYNAM FREE FI AB*} \]
To free multiple DSNAMEs (all occurrences in the server), passing a pattern (free all allocations of data sets starting with IWAY.VSAM):

F <iway_server_jobname/started task>,DYNAM FREE DA IWAY.VSAM*

A message will be issued in the iway_server JESMSGLG indicating if the command was process successfully or not, as follows.

Success:

+DYNAM COMMAND SUCCESSFULLY PROCESSED Rc=0

Failure:

+DYNAM ERROR: IKJ56225I DATA SET IWAY.TEST ALREADY IN USE, TRY LATER

Example: **Freeing an Allocated Data Set**

Suppose ISTART JCL (jobname IWAY2) has the following allocation:

//VSAMFILE DD DISP=SHR,DSN=VSAM.FILEA.CLUSTER

The operator can free this file using the command (from MVS console):

F IWAY2,DYNAM FREE FI VSAMFILE

Procedure: **How to Initialize the RDAAPP Application**

RDAAPP is an interactive client test application that facilitates the execution of SQL statements and stored procedures on the Unified server. During the installation process, JCL and REXX routines are created in the installation data set as members IRDAAPPJ and IRDAAPPC respectively.

The following installation data set is used for HFS deployment.

`qualify.server_type.DATA`

where:

product_type

Is determined by your license key.

The following installation data set is used for PDS deployment.

`qualify.PDS.product_type.DATA`

where:

product_type

Is determined by your license key.

Note: The RDAAPP application is not intended for use as a production tool.
1. To use the IRDAAPPJ JCL, you must first edit the member IRDAAPPJ and add your request details.

   a. To edit the member IRDAAPPJ, change the following field,

   ```
   //STDIN DD *
   Put your request here
   //</n
   to
   //</n
   (enter blank line)
   (enter userid)
   (enter password)
   LOOPBACK
   (enter request)
   (enter optional parameters)
   Q
   Q
   //</n
   
   b. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(enter userid)</td>
<td>Enter a valid user ID or blank line if the userid of the user who submitted the job is to be used for a trusted connection.</td>
</tr>
<tr>
<td>(enter password)</td>
<td>Enter the password for the above userid or a blank line if the userid/password of the user who submitted the job is to be used for a trusted connection.</td>
</tr>
<tr>
<td>LOOPBACK</td>
<td>Match a node name in the EDACS3 allocation in the IRDAAPPJ JCL. Default is LOOPBACK.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&lt;enter request&gt;</td>
<td>Enter one of the following values:</td>
</tr>
<tr>
<td></td>
<td>S</td>
</tr>
<tr>
<td></td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>?</td>
</tr>
<tr>
<td>&lt;enter optional</td>
<td>Depending on the above command, you may be prompted for:</td>
</tr>
<tr>
<td>parameters&gt;</td>
<td>Select engine (0/ENTER - EDA, 1 - DB2, 2 - TERADATA, and so on.).</td>
</tr>
<tr>
<td></td>
<td>Reclimit (Press Enter for all records).</td>
</tr>
<tr>
<td></td>
<td>Readlimit (Press Enter for all records).</td>
</tr>
<tr>
<td></td>
<td>Q</td>
</tr>
</tbody>
</table>

**c.** Once you have made the above edits, submit the JCL for execution.

**2.** Type the following command at the TSO ready prompt to use the IRDAAPPC REXX routine:

```ex
EX 'qualif.product_type.DATA(IRDAAPPC)'
```

or

```ex
EX 'qualif.PDS.product_type.DATA(IRDAAPPC)'
```

where:

`product_type`

Is determined by your license key.

**3.** After the prompts, enter the same information as specified in the above table.
Example: **IRDAAPPC REXX Execution**

The following is the screen output from a sample execution of the IRDAAPPC REXX routine:

```
********************************************************************
**                  RDAAPP Client test tool                       **
********************************************************************
<<< RDAAPP : Initializing EDA/API SQL, Version 7, Release 7 >>>
Default communications config file : //DD:EDACS3
Override? (Press enter for default) : <enter blank line>
<<< Initialization Successful >>>
Enter User Name : <enter userid or leave blank for current TSO userid>
Enter Password : <enter password or leave blank for current TSO userid password>
Enter server name, number, SELF, URL or ? (Hit return for 'LOOPBACK') :
<<< Successfully connected to synchronous server LOOPBACK >>>
Enter Command (? for command help):
S
SELECT COUNTRY FROM CAR;
Select engine (0/ENTER - EDA, 1 - DB2, 2 - TERADATA, etc) :
Reclimit (Hit enter for all records):
Readlimit (Hit enter for all records):
Please Wait...
ENGLAND
FRANCE
ITALY
JAPAN
W GERMANY
<<< 5 record(s) processed. (scb count 5) wait=4 secs, retrieval=0 secs>>> 
<<< 5 record(s) processed. (scb count 5)>>>
Q
Enter Connect or Quit:
Q
<<< RDAAPP : Exiting... >>>
***
Enter Command (? for command help):
Procedure: How to Add Your Problem to the Troubleshooting Guide

If you have troubleshooting suggestions that you think others will find helpful, we invite you to send them to us so that we can consider including them in a future release. You can:

- Email them to books_info@ibi.com. Include your name and phone number, and include Server Installation Troubleshooting in the subject line.

- Send them to:
  
  Technical Content Management
  Information Builders
  Two Penn Plaza
  New York, NY 10121-2898

  Please include your name, phone number, email address, and postal address.

PDS Deployment

In this section:

- Installation Requirements for PDS
- Installing a New Server for PDS
- Starting and Stopping a Server for PDS
- DB2 Security Exit Configuration for PDS
- MSODDX: DDNAME Translation for User Subroutines
- Overriding the Time Zone Setting
- Adding a Configuration Instance for PDS
- Upgrading Your Server Release for PDS
- Accounting for PDS - SMF Records
- Performance Considerations for PDS
- General Information for a z/OS PDS Installation
- Third-Party Software and Licenses
- Troubleshooting for PDS

The topics in this section describe how to install your server in a partitioned data set (PDS) environment.
Installation Requirements for PDS

In this section:
- Operating System Requirements
- JVM Requirements for Java Services
- IP Port Number Requirements
- Browser Requirements
- Disk Space Requirements
- Memory Requirements
- Communication Requirements
- USS Segment Requirements
- HFS Home and Configuration Directory Requirements

Before beginning server installation, review all requirements.

Operating System Requirements

The server runs on any supported release of z/OS. For current information about supported releases:

   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied. Confirm that your server installation software is labeled for your operating system level.
JVM Requirements for Java Services

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality. The following URL has Java EOL and EOSL information:

http://java.sun.com/products/archive/eol.policy.html

Installing maintenance updates to the EDAHOME of an existing server running releases prior to production 7.7.05 will also have the requirement of moving up all dependent configurations to use Java 1.6 (as instructed in this section).

You may install a Java JRE or a Java SDK. When you install a Java SDK, the JRE component (where the JVM lives) is included, so either is allowed. If using servlet, the Java SDK is required for the jar command, so it is generally preferred over the Java JRE. The SDK or JRE build type must also match the 32-bit or 64-bit bit type of the server. If an appropriate JVM from a JRE or SDK is not found on the library path or using variables as described below, or is not the appropriate bit type, a *Failed to find JVM* message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log indicating *JSCOM3 start failed* as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener and the terms are often used interchangeably.

The JDK JRE bin and server (or client) subdirectories must be specified in the load library path environment variable. A server restart is required, plus the appropriate JVM must be on the path if switching JRE levels. The load library path will be prompted at install time if JVM-based adapters or features are required. Otherwise, it can be manually set by editing the EDAENV file using any of the following methods.

- For Java JDK, set JDK_HOME (to the install home location) in the server environment configuration file (EDAENV).
- For Java JRE, set JAVA_HOME (to the install home location) in the server environment configuration file (EDAENV).
- Use library path (LIBPATH) to set explicit pathing. Use of JDK_HOME or JAVA_HOME is preferred as they are less prone to error. The JRE bin and server (or client) subdirectories must be specified in a path-based environment variable and a server restart is required.
To change or add operating system environment variables, set and export the variable in a .profile or script that always gets called during a server start. It is very common to place variables in the server edastart script, but it is recommended that they be placed in a script that in turn calls edastart (so that the edastart script remains vanilla).

To change or add a variable in a server environment start up file (EDACONF bin\edaenv.cfg), either edit the file in a text editor before starting the server or:

1. Start the server (services like Java Listener may fail until configured and the server is restarted).

2. Open the Web Console and log on using an administrator ID.

3. Select Workspace from the main menu.

4. In the navigation pane, open the Configuration Files and Miscellaneous folders.

5. Right-click Environment - edaenv.cfg and select Edit.

6. Make the desired edit.

7. Save the file.

8. Restart the server (changes are not effective until server is restarted).

The format of edaenv.cfg variables is one per line in name=value pairs. Spaces before and after the equal sign are optional. Values with embedded spaces do not require quoting. Variables are always uppercase.

If JVM-based adapters or features are not required, and the JVM environment is not configured, the message Failed to find JVM is normal and can be ignored.

To add classes to the JVM class path for customer-written CALLJAVA applications, set and export the CLASSPATH variable to the operating system level before server start-up or use the Web Console to set the Java Listener IBICLASSPATH property.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Do not use IP port numbers already used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.
Browser Requirements

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.

Disk Space Requirements

The server disk space requirements are:

<table>
<thead>
<tr>
<th>Supplied (EDAHOME) Data Sets</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>high_level_qualifier.P.HOME.ACX</td>
<td>2</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.BIN</td>
<td>750</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.CICS.LOAD</td>
<td>10</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.ERR</td>
<td>140</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.ETC</td>
<td>50</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.FEX</td>
<td>10</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.LOAD</td>
<td>400</td>
</tr>
<tr>
<td>high_level_qualifier.P.HOME.MAS</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration (EDACONF) Data Sets</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>high_level_qualifier.product_type.CONF.ACX</td>
<td>2</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.CFG</td>
<td>2</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.MAS</td>
<td>2</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.PRF</td>
<td>2</td>
</tr>
<tr>
<td>Installation Data Sets</td>
<td>3390 Cylinders</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>high_level_qualifier.HOME.DATA</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.DATA</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application Data Sets</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>approot.IBISAMP.type.DATA</td>
<td>38 (across 14 data sets)</td>
</tr>
<tr>
<td>approot.BASEAPP.type.DATA</td>
<td>56 (14 data sets using 4 cylinders per file)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deferred Execution Data Sets (Optional)</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.DEL</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.REQ</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RPE</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RPF</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RPI</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RQD</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RQF</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RQP</td>
<td>5</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.DFM.RSP</td>
<td>20</td>
</tr>
</tbody>
</table>

**Note:** Deferred Execution Datasets are not created by the install procedure. They are created when the Scheduler/Deferred service starts. By default, the Scheduler/Deferred service auto starts at server startup. To disable the feature, enter dfm_autostart = n in the EDASERVE administration control file.

<table>
<thead>
<tr>
<th>Supplementary Data Sets</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>high_level_qualifier.product_type.SYSRPC.FOCUS</td>
<td>1</td>
</tr>
</tbody>
</table>
**Supplementary Data Sets**

<table>
<thead>
<tr>
<th>high_level_qualifier.product_type.ETLLOG.FOCUS</th>
<th>3390 Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>(DataMigrator configurations only)</td>
<td></td>
</tr>
<tr>
<td>high_level_qualifier.product_type.ETLSTATS.FOCUS (DataMigrator configurations only)</td>
<td>1</td>
</tr>
<tr>
<td>high_level_qualifier.product_type.CONF.SMARTLIB.DATA</td>
<td>1</td>
</tr>
</tbody>
</table>

where:

**high_level_qualifier**

Is the high-level qualifier to be used for all output libraries. You specify the high-level qualifier during server installation, as described in Step 4. Run ISETUP on page 237, in Step 4.

**product_type**

Is one of the following:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

**approot**

Is the default location for storing applications. You specify approot during server installation, as described in Step 4. Run ISETUP on page 237.

**Memory Requirements**

Memory usage of a configured environment consists of the following elements:

- Workspace Manager
- Listeners
- Concurrently running application agents

Actual memory usage depends on application features, and varies depending on the application. The SHRLIBRGNSIZE parameter (defined on SYS1.PARMLIB, member BPXPRMxx) can affect the amount of memory that the server address space will allocate. For SHRLIBRGNSIZE, we recommend the default MVS installation value of 64Mb:

`SHRLIBRGNSIZE(67108864)`
Server memory usage:

- The workspace (including Listeners) uses 200 megabytes.
- Each pre-started agent requires 4 megabytes.

The minimum amount of memory for a newly installed server with no workload is 250Mb. However, depending on usage, workload, and configuration options, 500Mb is recommended to start, to be adjusted as needed.

**Communication Requirements**

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.

The server supports only IBM TCP/IP. It does not support Interlink or any other third-party TCP/IP.

**USS Segment Requirements**

PDS deployment requires each user of the server to be identified to USS by means of a default segment definition. This default OMVS segment is defined when USS is installed as a part of z/OS. Please refer to your IBM UNIX System Services documentation for more information about this subject.

**HFS Home and Configuration Directory Requirements**

Libraries and the APIs supporting them must reside in the HFS file system to enable the following features:

- Server-side graphics.

They are also required for the following Java-based and SAP-based adapters:

- Call Java.
- EJB.
- JDBC.
- Microsoft SQL Server.
- SQL SAP.
- SAP BWB.

At installation time, a panel with a list of adapters to be configured will be displayed. If any of the above adapters are selected, the installation will require the path for two HFS locations as follows:
To install a new Server for z/OS deployed using partitioned data set (PDS) libraries, perform the following steps.

**Step 1. Set Up User IDs**

You can use any user ID to install and run the server. Whichever ID you use becomes the first server administrator ID (sometimes referred to as iadmin).

**Step 2. Collect Required Information for Adapters**

For current information about which adapters are supported:


   The Information Builders Technical Support home page opens.
2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters. The Supported Systems and Adapters page opens.

3. Click the link for the release you want. The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform. The support chart for that platform opens.

You must provide information to configure the adapters that you are licensed to install. The installation procedure automatically prompts you for this information. When you are prompted for an optional steplib, ddname, or environment variable, the installation procedure will indicate this with an OPT> prompt.

After you have installed and configured the server, you will be able to further configure your adapters using a web-based server configuration tool called the Web Console.

The following table describes what information you need to provide for each adapter that you have. (If an adapter is not listed, no information needs to be provided for it.) Note that the table refers to:

- **IRUNJCL.** This procedure contains the JCL procedure for the server, and is a member of the configuration library

  `high_level_qualifier.PDS.product_type.DATA`

  where:

  - **high_level_qualifier**

    Is the high-level qualifier to be used for all output libraries. You specify the high-level qualifier during server installation, as described in Step 4. Run ISETUP on page 237, in Step 6.
**product_type**

Is one of the following:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adabas</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- load library</td>
</tr>
<tr>
<td></td>
<td>This is required only for the synonym creation process. For example, in a production environment in which all synonyms already exist, you can omit this.</td>
</tr>
<tr>
<td></td>
<td>When you configure the adapter, you will need to provide the name of the Adabas source library and the associated data set name.</td>
</tr>
<tr>
<td>CA-DATACOM</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- CUSLIB load library</td>
</tr>
<tr>
<td></td>
<td>- CAILIB load library</td>
</tr>
<tr>
<td></td>
<td>- utility library</td>
</tr>
<tr>
<td></td>
<td>- URT library</td>
</tr>
<tr>
<td>CA-IDMS (both DB and SQL)</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>- load library</td>
</tr>
<tr>
<td></td>
<td>- DBA load library</td>
</tr>
<tr>
<td></td>
<td>Provide the data set names to which the following ddnames are allocated:</td>
</tr>
<tr>
<td></td>
<td>- SYSIDMS. Check with your CA-IDMS DBA regarding this ddname.</td>
</tr>
<tr>
<td></td>
<td>- SYSCTL. Is the library corresponding to the central version you want to use.</td>
</tr>
<tr>
<td>CICS Transaction</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>- CICS EXCI load library</td>
</tr>
<tr>
<td>Adapter</td>
<td>Information you must provide</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------</td>
</tr>
</tbody>
</table>
| Call Java | You must have the JDK installed.  
Provide a value for the following environment variables:  
- CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will be appended to CLASSPATH.  
This adapter requires configuration of the JSCOM3 listener. Provide three required paths:  
- The path to JVM using either JDK_HOME or JAVA_HOME, as described in *JVM Requirements for Java Services* on page 221.  
- The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226. |
| EJB | You must have the JDK installed.  
Provide a value for the following environment variables:  
- CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will be appended to CLASSPATH.  
If you are deploying the adapter to access an EJB on a:  
- WebLogic server, specify the following path:  
  /pathspec/weblogic.jar  
- WebSphere server, specify the following paths:  
  /pathspec/websphere.jar  
  /pathspec/ejbcontainer.jar (one for each EJB container)  
This adapter requires configuration of the JSCOM3 listener. Provide three required paths:  
- The path to JVM using either JDK_HOME or JAVA_HOME, as described in *JVM Requirements for Java Services* on page 221.  
- The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226. |
### Adapter Information you must provide

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
</table>
| JDBC             | You must have the JDK installed.  
Provide a value for the following environment variables:  
- CLASSPATH. Provide the paths of the .jar files that you want to access. These paths will be appended to CLASSPATH.  
This adapter requires configuration of the JSCOM3 listener. Provide three required paths:  
- The path to JVM using either JDK_HOME or JAVA_HOME, as described in *JVM Requirements for Java Services* on page 221.  
- The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226. |
| Microsoft SQL Server | You must select Call Java adapter in addition to the Microsoft SQL Server adapter.  
Provide a value for the following environment variables:  
- CLASSPATH. Provide the paths to the following files; these paths will be appended to CLASSPATH.  
  - msbase.jar  
  - mssqlserver.jar  
  - msutil.jar  
This adapter requires configuration of the JSCOM3 listener. Provide three required paths:  
- The path to JVM using either JDK_HOME or JAVA_HOME, as described in *JVM Requirements for Java Services* on page 221.  
- The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226. |
| DB2 CAF          | Provide the data set names for the following STEPLIB allocations:  
- DSNLOAD load library  
  For security information, see *DB2 Security Exit Configuration for HFS* on page 166.  
- DSNEXIT load library (optional) |
<table>
<thead>
<tr>
<th>Adapter</th>
<th>Information you must provide</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 CLI</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>❑ DSNLOAD load library</td>
</tr>
<tr>
<td></td>
<td>For security information, see <em>DB2 Security Exit Configuration for HFS</em> on page 166.</td>
</tr>
<tr>
<td></td>
<td>❑ DSNEXIT load library (optional; this is needed only for an explicit connection).</td>
</tr>
<tr>
<td></td>
<td>Provide the data set name (including member name if applicable) for the following DDname:</td>
</tr>
<tr>
<td></td>
<td>❑ DSNAOINI, which contains the DB2 CLI ini file.</td>
</tr>
<tr>
<td>IMS</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>❑ DFSPZP load library (optional; not needed if PZP modules are stored in the DFSRESLB library)</td>
</tr>
<tr>
<td></td>
<td>❑ DFSRESLB load library</td>
</tr>
<tr>
<td>IMSBMP</td>
<td>Provide the data set names for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>❑ DFSRESLB load library</td>
</tr>
<tr>
<td></td>
<td>Provide the data set names for the following FOCPSB allocation:</td>
</tr>
<tr>
<td></td>
<td>❑ FOCPSB library containing FOCPSB definitions</td>
</tr>
<tr>
<td>Millennium</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>❑ load library</td>
</tr>
<tr>
<td>Model 204</td>
<td>Provide the data set name for the following STEPLIB allocation:</td>
</tr>
<tr>
<td></td>
<td>❑ load library</td>
</tr>
<tr>
<td>MQSeries</td>
<td>Provide the data set names for the following STEPLIB allocations:</td>
</tr>
<tr>
<td></td>
<td>❑ SCSQLOAD load library</td>
</tr>
<tr>
<td></td>
<td>❑ SCSQAUTH load library</td>
</tr>
<tr>
<td>Adapter</td>
<td>Information you must provide</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| NATURAL Batch | Provide the data set name for the following STEPLIB allocation:  
|             | ❑ NATURAL load library                                                                                                                                                                                                       |
| SAP (SQL)  | Provide values for the following environment variables:  
|             | ❑ LIBPATH, which contains the path to SAP RFC SDK.  
|             | ❑ SAP_CODEPAGE=0126, or the correct SAP code page for your language environment.  
|             | This adapter requires configuration of two required paths:  
|             | ❑ The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226  
|             | Is recommended that the code page conversion tables be created under directory edaconf_dir.                                                                                                                                         |
| SAP BW     | Provide values for the following environment variables:  
|             | ❑ LIBPATH, which contains the path to SAP RFC SDK. SAP_CODEPAGE=0126, or the correct SAP code page for your language environment.  
|             | This adapter requires configuration of two required paths:  
|             | ❑ The paths to edahome_dir and edaconf_dir, as described in *HFS Home and Configuration Directory Requirements* on page 226  
|             | Is recommended that the code page conversion tables be created under directory edaconf_dir.                                                                                                                                         |
| Supra      | Provide the dataset name for the following STEPLIB allocations:  
|             | ❑ LINKLIB load library.  
|             | ❑ INTERFLM load library.  
|             | ❑ ENVLIB load library.  
|             | Provide the data set name to which the following ddname is allocated:  
|             | ❑ CSIPARM containing the CSIPARM definition, which in turn points to the Central PDM you are accessing.  
|             | ❑ CSISYSIN containing the parameters used for connecting the multi-session adapter to the Central PDM.                                                                                                                              |
### Step 3. Access the Installation Software

#### How to:

- **Unload the Installation Software From Tape**
- **Download the Installation Software Using FTP**

#### Reference:

- Optional Low-Level Qualifier Changes
- Default Low-Level Qualifiers

You can choose to access the server installation software using either:

- **Tape.** The software is provided on a 3490 or 3590 cartridge.
  
  You must unload the installation data set from the tape before you can run the installation. This is how most installations are performed.

- **FTP.** You download the installation software from the Information Builders FTP site.
  
  Downloading the installation software involves:

  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the installation data set from the site.
  3. **Running** the isetup procedure to complete the download process and install the software.

### Procedure: How to Unload the Installation Software From Tape

The software is provided on a cartridge in 3490 or 3590 format with MVS PDSs. Perform the following to unload the installation data set from the tape:

1. Log on to TSO.
2. Run an IEBCOPY job to allocate and unload the `qualifier.HOME.DATA` data set. This PDS contains the members needed for the actual installation.
It is recommended that you use HOME.DATA as the low-level qualifier for the target data set. Although you can specify any low-level qualifier, HOME.DATA enables the installation procedure to generate default data set names, simplifying your installation.

**Note:** If you do not use HOME.DATA, then change the following line to reflect the value you used.

```
//         SET  EDAUSSD='HOME.DATA'
```

Do this before you run ISETUP.

The following sample JCL is for the initial unload to a new data set:

```
//IEBCOPY  EXEC PGM=IEBCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*  
//SYSUT1   DD UNIT=workunit,SPACE=(CYL,(5,1))
//OUT1     DD DISP=(NEW,CATLG,DELETE),
//         DSN=qualifier.HOME.DATA,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//         SPACE=(CYL,(5,5,25)),
//         UNIT=SYSDA 
//IN1      DD DISP=(OLD,PASS),
//            DSN=HOME.DATA,
//            UNIT=cart,
//            VOL=(,RETAIN,,SER=volser),
//            LABEL=(1,SL)
//SYSPRINT DD  SYSOUT=*  
//SYSIN     DD  *
COPY INDD=IN1,OUTDD=OUT1
```

where:

- **workunit**
  
  Is the unit for the work data set.

- **qualifier**
  
  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software. However, you can use any site-specific value.

  For PDS, we recommend retaining the low-level qualifier HOME.DATA, but you can change this to any site-specific value. If you use a low-level qualifier other than HOME.DATA, you must then edit member PDSSNAME to change the string “HOME.DATA” to the low-level qualifier you specify here.

- **cart**
  
  Is the unit type of the tape drive. Common names include 3490, TAPE, and 3590. Change as needed.
volser

Is the value shown on the media label.

After this job has run, qualifier.HOME.DATA is allocated, cataloged, and populated with the members needed to continue the product installation.

For details, see Optional Low-Level Qualifier Changes on page 237.

Procedure: How to Download the Installation Software Using FTP

To download the installation software:

   The Information Builders Technical Support home page opens.

2. Click My Downloads in the My Account section on the right side of the page.
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click Download to the right of the platform name.

6. Fill in the registration form and then click Continue.
   The Software Download Agreement page opens.

7. Select I agree... to consent to the Download Agreement, and then click Continue.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is automatically emailed to you for later reference.

8. Log on to TSO.

9. Follow the instructions on the Download Page in your TSO session.
   Continue with Optional Low-Level Qualifier Changes on page 237.
Reference: Optional Low-Level Qualifier Changes

We recommend retaining the default low-level qualifiers that are supplied for the installation libraries. However, if you need to change any of them (for example, to conform to site-specific naming conventions), you can do so by editing them in member PDSSNAME of high_level_qualifier.HOME.DATA. You can see a list of the qualifiers in Default Low-Level Qualifiers on page 237.

Caution: If you change any low-level qualifiers and do not reflect those changes exactly in PDSSNAME, you will experience problems with the server installation and operation.

Do not change the value of &CONFTYPE.

Once you have finished changing any names, continue with Step 4. Run ISETUP on page 237.

Reference: Default Low-Level Qualifiers

The following low-level qualifiers are set in high_level_qualifier.HOME.DATA(PDSSNAME):

```
// SET PDSFFSD='PDS.FFS.DATA'         Full Function server
// SET PDSWFSD='PDS.WFS.DATA'         WebFocus Reporting server
// SET PDSDMD='PDS.DM.DATA'           DataMigrator
// SET PDSWFMD='PDS.WFM.DATA'         WebFocus Maintain Server
// SET EDACCFG=&CONFTYPE..CONF.CFG    Configuration files
// SET EDACACX=&CONFTYPE..CONF.ACX
// SET EDACMAS=&CONFTYPE..CONF.MAS
// SET SMARTLIB=&CONFTYPE..CONF.SMARTLIB.DATA
// SET EDACPRF=&CONFTYPE..CONF.PRF    Profiles
// SET EDAHDAT='HOME.DATA'            Installation library
// SET EDAHETC='P.HOME.ETC'           Server html and text files
// SET EDAHACX='P.HOME.ACX'           Access files
// SET EDAHFEX='P.HOME.FEX'           RPCs
// SET EDAHMAS='P.HOME.MAS'           Master files
// SET EDAHBIN='P.HOME.BIN'           Server binary files
// SET EDAHERR='P.HOME.ERR'           Server NLS and error files
// SET EDALOAD='P.HOME.LOAD'          Load Library
// SET EDACICS='P.HOME.CICS.LOAD'     CICS Load Library
// SET SYSRPC=&CONFTYPE..SYSRPC.FOCUS
// SET FOCUSSU=&CONFTYPE..FOCUSSU.FOCUS
// SET ETLLOG=&CONFTYPE..ETLLOG.FOCUS
// SET ETLSTATS=&CONFTYPE..ETLSTATS.FOCUS
```

Step 4. Run ISETUP

Server installation consists of a series of ISPF panels, which gather the required information. After the panel dialog is complete, JCL is created and submitted to install the server on z/OS. This JCL job retrieves the remainder of the data sets from the media and configures a basic working server.
1. Execute the ISETUP member of your high_level_qualifier.HOME.DATA using ISPF option 6.

The first Installation and Configuration panel opens.

![Installation and Configuration Panel](image)

2. Type 2 and press Enter to continue to the next panel.

The following panel opens.

![Additional Configuration Instance Panel](image)
3. Complete the panel as directed in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Accept the default value 1, <em>Install and Configure</em>, for a new installation.</td>
</tr>
<tr>
<td></td>
<td>For option 2, <em>Add Additional Configuration Instance</em>, see <em>Adding a Configuration Instance for PDS</em> on page 259.</td>
</tr>
<tr>
<td></td>
<td>For option 3, <em>Refresh Installation</em>, see <em>Upgrading Your Server Release for PDS</em> on page 269.</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the license key that was provided with the software.</td>
</tr>
<tr>
<td></td>
<td>Be sure to store this key in a safe place for future reference.</td>
</tr>
<tr>
<td>Input source</td>
<td>Enter the input source:</td>
</tr>
<tr>
<td></td>
<td>- <em>T</em> for Tape - If you received your software on tape media.</td>
</tr>
<tr>
<td></td>
<td>- <em>D</em> for Disk - If you selected manual download from the download instructions.</td>
</tr>
<tr>
<td></td>
<td>- <em>F</em> for FTP - If you selected automatic download from the download instructions.</td>
</tr>
<tr>
<td>Installation Userid</td>
<td>Shows the current logon ID. It cannot be changed.</td>
</tr>
<tr>
<td>PTH Administrator Userid</td>
<td>An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of the server. It defaults to srvadmin, and it can be changed here.</td>
</tr>
<tr>
<td></td>
<td>For more information about running the server in secure mode, see <em>Step 6. Configure Server Security</em> on page 249.</td>
</tr>
<tr>
<td>PTH Administrator Password</td>
<td>Password for the PTH Administrator ID. It cannot be left blank and must be matched at Retype field.</td>
</tr>
</tbody>
</table>
### Field Instructions

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, \textit{jobnameA}, \textit{jobnameB}, \textit{jobnameC}, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter \textit{Y} and provide valid JOB card information in the \textit{Enter Job Card information} field. The JOB card information that you enter will be used for each job that is submitted.</td>
</tr>
</tbody>
</table>

4. Press Enter to continue to the next panel.

This following panel only appears if FTP was previously selected. Otherwise, skip to Step 6.

```
IWay Software Installation and Configuration z/OS PDS Deployment
Command ===> New Installation

Please enter the following information for Full Function Server

FTP download destination and user information

HLQ for downloaded files ===> \texttt{IADMIN.SRV77}

FTP Userid ===> 
FTP Password ===> 
```

Press Enter to continue, PF3 to return to previous menu
5. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLQ for downloaded files</td>
<td>This value defaults to the high level qualifier of the HOME.DATA file that ISETUP is running from. If necessary, change the value to any other high level qualifier that is to be used to create the uncompressed version of the FTP files.</td>
</tr>
<tr>
<td>FTP Userid</td>
<td>Cut and paste from the download instructions.</td>
</tr>
<tr>
<td>FTP Password</td>
<td>Cut and paste from the download instructions.</td>
</tr>
</tbody>
</table>

6. Press Enter to continue to the next panel.

Note that in the current panel (and some later panels), if you are running ISETUP from:

- `high_level_qualifier.HOME.DATA`, the panel will display default values for some fields.
- Any other library, the panel will not display any default values.

In this and some later panels, you can see a field’s default value (if one exists) byblanking out the field and pressing Enter.
Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Media (installing from tape only)</strong></td>
<td></td>
</tr>
<tr>
<td>Volume serial number</td>
<td>Provide the volume serial number of the server media. The number is located on the tape supplied in the server package.</td>
</tr>
<tr>
<td>Unit type</td>
<td>Review the default value and change if necessary.</td>
</tr>
<tr>
<td>Work unit type</td>
<td>Review the default value and change if necessary.</td>
</tr>
<tr>
<td></td>
<td>You can specify a UNIT= type value (for example, SYSDA), or you can direct work files to a specific volume serial number by specifying, in single quotation marks ('), 'SYSDA,VOL=SER=volume'.</td>
</tr>
</tbody>
</table>
### Field | Instructions
--- | ---
**Input Media (installing from disk/FTP only)**
- **Input Libraries HLQ** (EDAHOME) | This is the high-level qualifier that you had specified when you manually downloaded the installation software from the FTP site. This is an input field if Disk input source was previously selected. Otherwise, it is a protected field.
- **Copy to runtime libraries** | If you want to use the downloaded installation software as a backup, and create a new copy from which to run, enter Y. If the Input Libraries HLQ and the Output Libraries HLQ are the same, this value will be ignored and no copy will take place. Otherwise, accept the default N to run from the downloaded software.

### General Installation Parameters
- **Output Libraries HLQ** | This is the high-level qualifier that the installation procedure will use to allocate output libraries.
- **Unit/Type** | These show the values that the installation process will use to allocate the output libraries. If necessary, you can change these to site-specific values.

  Type can be **VOL=SER** (default), **DATACLAS**, **MGMTCLAS**, or **STORCLAS**.

- **Approot value** | This is where application components will reside.

  Note that this high-level qualifier *must* differ from the output libraries high-level qualifier (EDACONF) that you entered at the top of the panel.

  To specify a different qualifier for application components, change the value for this field. It can be up to 21 characters.

- **HTTP Listener Port** | This is the port number that the server will use for HTTP. It is the first of three connection ports that must be available to the server.

  For example, if you choose port 8101, then ports 8101, 8102, and 8103 are used by the server. Ensure that you choose ports that are not currently being used.
### Field Instructions

| TCP Listener Port | This is the port number of the TCP Listener.  
The default is one less than the port specified for the HTTP Listener, but it can be any port number other than the three reserved for HTTP. |

7. Press Enter to continue to the next panel.

Depending on your license key, the Data Adapter panel may open. If the Data Adapter panel opens, continue with Step 8; otherwise, skip to Step 9.

8. The Data Adapter panel lists adapters that require the allocation of MVS libraries in IRUNJCL or environment variables in the EDAENV member. To select specific adapters:

   a. Type Y next to the required adapters and press Enter.

   b. Supply the requested information, which is described in Step 2. Collect Required Information for Adapters on page 227.

After you have finished installing and configuring the server, you can use the Web Console to finish configuring these adapters, and to configure adapters that do not have MVS JCL requirements.

9. Press Enter to continue to the next panel.

The JSCOM3 Listener configuration panel opens.

   a. The panel will prompt for the path to the Java environment to be passed to either JDK_HOME or JAVA_HOME, as described in JVM Requirements for Java Services on page 116, and it will also prompt for edahome_dir and edaconf_dir, as described in HFS Home and Configuration Directory Requirements on page 226.

   b. Configuration of the JSCOM3 Listener is either optional or mandatory depending on which adapters were selected. If any Java-based adapters were selected (EJB, Call Java, JDBC, MS SQL Server), the configuration of all three paths listed above is mandatory. If SAP-based adapters were selected (SAP or SAP BW), only edahome_dir and edaconf_dir are required.

   c. If no Java-based or SAP based adapters were select, this configuration might still be desirable to enable the server-side graphics feature. To skip the configuration, leave the path blank.

10. Press Enter to continue to the next panel.

The confirmation panel opens.
11. If you wish to review a list of the data sets to be allocated, type Y in the Review output allocations field and press Enter.

A panel opens listing the data sets. You may need to page down to see the entire list. Press Enter when you are done to return to the confirmation panel.

12. Ensure that all values on the Confirmation panel are correct, then select one of the following options

- N to return to the initial panel so that you can change installation values.
- C to create JCL which you can submit at a later time. The JCL is placed in your `high_level_qualifier.PDS.product_type.DATA` configuration library.
- S to create JCL in `high_level_qualifier.PDS.product_type.DATA`, and submit the job immediately.

**Note:** If FTP was selected, JCL will be created to download the software and run the install and configuration process.

where:

`high_level_qualifier`

Is the high-level qualifier to be used for all output libraries. You specified the high-level qualifier during installation, as described in Step 4. Run ISETUP on page 237, in Step 4.
**product_type**

Is one of the following:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

13 As the job is processed, in SDSF, check JESLOG for errors and return codes.

Following is a table of the jobs created. All members are created in the configuration library (as described in Step 11).

<table>
<thead>
<tr>
<th><strong>Job</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ISETUPJ1</td>
<td>Main JCL Job stream that is used to install the server. For FTP processing, this JCL can be restarted at any step due to a previous failure. To do this, add RESTART = procname.stepname to the JOB card and resubmit the ISETUPJ1 JCL.</td>
</tr>
<tr>
<td>ISOPTS1</td>
<td>Options used to install.</td>
</tr>
</tbody>
</table>

The following members all call procedure IRUNJCL, which is the main server JCL. If you need to change the server JCL, change member IRUNJCL.

<table>
<thead>
<tr>
<th><strong>Member</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTART</td>
<td>Starts the server.</td>
</tr>
<tr>
<td>ISAVEDIA</td>
<td>JCL to print a copy of configuration files for diagnostic purposes.</td>
</tr>
<tr>
<td>ITRCON</td>
<td>Starts the server with traces on.</td>
</tr>
</tbody>
</table>

The following members contain batch JCL for auxiliary functions, and are also created in the configuration library.

<table>
<thead>
<tr>
<th><strong>Member</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CMRUN</td>
<td>JCL to run DataMigrator batch jobs. This is created only when installing a DataMigrator Server.</td>
</tr>
</tbody>
</table>
### Description

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBATDEF</td>
<td>JCL to create the deferred execution data sets, in case they were not created in the original install.</td>
</tr>
<tr>
<td>DB2V9PRM</td>
<td>DB2 version 9 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V10PR</td>
<td>DB2 version 10 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>DB2V11PR</td>
<td>DB2 version 11 DBRM referenced in GENDB2 JCL.</td>
</tr>
<tr>
<td>GENDB2</td>
<td>JCL to bind the DB2/CAF plan.</td>
</tr>
<tr>
<td>IIMSBMP</td>
<td>Example JCL to run the IMS/XMI server job in BMP mode.</td>
</tr>
<tr>
<td>IIMSDLI</td>
<td>Example JCL to run the IMS/XMI server job in DLI mode.</td>
</tr>
<tr>
<td>IRDAAPPCC</td>
<td>Example CLIST to run RDAAPP Client test tool.</td>
</tr>
<tr>
<td>IRDAAPPJ</td>
<td>Example JCL to run RDAAPP Client test tool.</td>
</tr>
</tbody>
</table>

The following members contain sample started task JCL, and are also created in the configuration library.

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWAYS</td>
<td>A started task that starts the server.</td>
</tr>
<tr>
<td>EDAENV</td>
<td>A parameter file used by the server. It contains all required environment variables.</td>
</tr>
</tbody>
</table>

### Step 5. Test the Server Installation

To test the server installation:

1. Log on to TSO as iadmin.
2. Submit the ISTART JCL from the configuration library to start the server. This executes the IRUNJCL proc. The configuration library is

   `high_level_qualifier.PDS.product_type.DATA`
where:

**high_level_qualifier**

Is the high-level qualifier to be used for all output libraries. You specified the high-level qualifier during server installation, as described in *Step 4. Run ISETUP* on page 237, in Step 6.

**product_type**

Is one of the following:

- **FFS** for a Full-Function Server
- **DM** for a DataMigrator Server
- **WFS** for a WebFOCUS Reporting Server
- **WFM** for a Shared Application Server for WebFOCUS Maintain

3. Check the job output for errors. Look for the EDAPRINT message:

```
(EDA13023) ALL INITIAL SERVERS STARTED
```

4. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

```
http://host:port
```

where:

**host**

Is the name of the machine on which the product is installed.

**port**

Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

The Web Console opens.

5. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree.

6. Continue with adapter configuration, as described in the *Adapter Administration* manual.

When you are finished using the server, you can use the Web Console to stop the server by going to the Web Console menu bar, selecting *Workspace*, and then *Stop*.

If you experience problems at start up, examine the job output for more information.
Step 6. Configure Server Security

In this section:
- Security Providers
- Preventing Unsecured Server Starts After Upgrades

How to:
- Configure Security With All Security Products
- Configure Security With eTrust CA-Top Secret

Example:
- Facility Entry Defining the Server to CA-Top Secret

If you will be configuring security provider OPSYS, you must perform the instructions in How to Configure Security With All Security Products on page 159, regardless of which security product you use. (For security providers PTH, DBMS, and LDAP, skip these topics.)

For a full description of all security providers:

1. From the Web Console menu bar, select Help, then Contents and Search.
   - The Web Console Help window opens.
2. In the left pane expand Server Administration.

Alternatively, see the Server Administration manual.

Security Providers

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the Server Security chapter in the Server Administration manual.

Procedure: How to Satisfy Security Provider OPSYS Requirements

To run a server with security provider OPSYS, you must perform the following steps. You must do this once after installing and after each refresh of the server with fixes.

Set up tscom300.out as a root-owned SUID program:
1. If the server is running, bring it down.

2. Log on to the system as root, or issue the su root command.

3. Change your current directory to the bin directory of the home directory created during the installation procedure.

   For example, type the following command:

   `cd /home/iadmin/ibi/srv77/home/bin`

4. Change file ownership and permissions by typing the following commands:

   `chown root tscom300.out`
   `chmod 4555 tscom300.out`

5. Verify your changes by issuing the following command:

   `ls -l tscom300.out`

   The output should be similar to the following:

   `-r-sr-xr-x 1 root iadmin 123503 Aug 23 04:45 tscom300.out`

   Note the permissions and ownerships.

When you start the server, it will now run with security provider OPSYS.

The chmod and chown steps will need to be repeated after any server upgrade since the tscom300.out file is replaced during upgrade and the attributes are lost.

**Note:** If this Security Provider OPSYS step has been configured and the site later decides to switch to Security OFF, special steps must be taken to ensure the mode remains after a full server shutdown (where edastart -start is used to restart the server). The steps are:

1. After the server recycled from the change to OFF, use the Web Console to open the environment configuration file of the server by clicking Workspace and expanding the Configuration Files folder, followed by the Miscellaneous folder.

2. Double-click *Environment - edaenv.cfg* to edit the file and add the `EDAEXTSEC=OFF` variable.

3. Save your work.

After the next full server shutdown, be sure to do an edastart -cleardir before restarting the server. This will clear any root owned files that would prevent a security OFF server from starting.

**Preventing Unsecured Server Starts After Upgrades**

If the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.
This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg environment configuration file. The messages vary slightly by platform.

The edaprint messages are:

Configured security is 'ON' as set by EDAEXTSEC variable.
Server has no root privilege.
Workspace initialization aborted.
(EDA13171) UNABLE TO START SERVER

**Procedure:** How to Configure Security With All Security Products

To configure security with RACF, eTrust CA-ACF2, or eTrust CA-Top Secret:

1. Log on to TSO using the ID used to install the server.
2. The libraries allocated to STEPLIB in IRUNJCL must be APF-authorized. Any non-APF-authorized libraries must be allocated to the TASKLIB DDNAME.
3. Restart the server.

**Note:** If you want to use eTrust CA-ACF2 or eTrust CA-Top Secret, please contact Customer Support Services.

**Procedure:** How to Configure Security With eTrust CA-Top Secret

To use eTrust CA-Top Secret security, perform the following step:

1. Create an eTrust CA-Top Secret facility entry for the server security module, R1SEC. The only need for permissions is for the RACROUTE call from the R1SEC program.

**Example:** Facility Entry Defining the Server to CA-Top Secret

The following is an example of a facility entry that defines the server to eTrust CA-Top Secret:

```
PGM=R1SEC  ID=1  TYPE=099
ATTRIBUTES=IN-USE,ACTIVE,SHRPRF,ASUBM,NOABEND,MULTIUSER,NOXDEF
ATTRIBUTES=LUMSG,STMSG,SIGN(M),INSTDATA,RNDPW,AUTHINIT
ATTRIBUTES=NOPROMPT,NOAUDIT,RES,WARNPW,NOTSOC,LCFTRANS
ATTRIBUTES=NOMSGLC,NOTRACE,NOEODINIT,IJU,NODORMPW,NOPWR
ATTRIBUTES=LUUPD  MODE=FAIL  DOWN=GLOBAL  LOGGING=ACCESS,INIT
UIDACID=8  LOCKTIME=000  DEFACID=*NONE*  KEY=8
MAXUSER=03000  PRFT=003
```
Starting and Stopping a Server for PDS

In this section:
Starting the Server Using a Batch Job
Starting the Server Using a Started Task
Stopping the Server

This section provides information on operation and use of the server. Additional information on the server and how to configure adapters is available in the Web Console help. The Web Console help is also available as the Server Administration manual.

Starting the Server Using a Batch Job
To start the server, submit the ISTART member of the MVS configuration library (high_level_qualifier.product_type.DATA) for your server.

Starting the Server Using a Started Task
ISETUP creates started task JCL to start the server. This started task in a member of the MVS configuration library is IWAYS.

In order to execute the started task, you must:

- **Copy it** into SYS1.PROCLIB or any other JES2 Proclib data set.
- **Satisfy security requirements.** All external security-related permissions must exist for both the data sets and the started tasks. In order to issue the started tasks, the user must satisfy both of the following requirements:
  - Have at least OPERATOR authority defined within the Web Console.
  - Be in the same security group, or associated with the same security group, as the owner of the server directory structure (for example, as iadmin).

To submit the started task from the MVS console, issue the following command:

```
S IWAYS
```

You can add the started task to any automation product that you run.

Stopping the Server
You can stop the server using any of the following methods:

- **Web Console.** From the Web Console menu bar select Workspace and then Stop.
MVS operator command. On the MVS Console or SDSF, issue the following operator MODIFY command:

```
F jobname, -stop
```

where:

`jobname`

Is the job under which the server is running.

- **Cancel the server job.** In SDSF, cancel the job.

DB2 Security Exit Configuration for PDS

**Example:**

Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites
Changing DSN3SATH for eTrust CA-ACF2 Sites
Modifying the Link JCL for DSN3SATH

Customize the DB2 security exit to allow the Adapter for DB2 to run with user-level security enabled. If you do so, users will connect to DB2 with the authorization of the user ID with which they logged on to the server. The server must also be running with security turned on.

If you do not customize the DB2 security exit, all users will be assigned the connection ID to DB2 that is associated with the region, job submitter, or started task.

For DB2 CLI adapter, the connection to DB2 must be configured as **trusted** for the exit to be invoked.

The changes that must be made to the IBM DB2 sign-on exit, DSN3SATH, differ for RACF and eTrust CA-Top Secret sites and eTrust CA-ACF2 sites.

- **For an example of the changes that must be made in DSN3SATH for RACF and eTrust CA-Top Secret sites, see Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites on page 254.**

- **For an example of the changes that must be made in DSN3SATH for eTrust CA-ACF2 sites, see Changing DSN3SATH for eTrust CA-ACF2 Sites on page 257.**

The highlighted text and comments shown in the examples indicate the lines containing the recommended modification of DSN3SATH, which calls the module FOCDSN3 the supplied exit.

After you finish the edits, assemble the exit into an object file. This object file is input to the link JCL found in Modifying the Link JCL for DSN3SATH on page 258.
Note:

- The positioning of these lines is approximate, assuming that no other changes or additions have already been made to DSN3SATH. If any changes have been made, you should decide on the most appropriate location for this call to FOCDSN3.

- FOCDSN3 is used to set the proper primary (individual user ID) authorization.

- Another program, FOCDSN4, is used to set the proper secondary (group ID) authorization for RACF and eTrust CA-Top Secret. FOCDSN4 is not needed with eTrust CA-ACF2. The secondary authorization ID(s) will be set correctly without it.

Example: Changing DSN3SATH for RACF and eTrust CA-Top Secret Sites

1. Search for the SATH001 label - add two lines (FOCDSN3):

```
SATH001 DS 0H
    USING WORKAREA,R11 ESTABLISH DATA AREA ADDRESSABILITY
    ST R2,FREMFLAG SAVE FREEMAIN INDICATOR
    XC SAVEAREA(72),SAVEAREA CLEAR REGISTER SAVE AREA
```

**********SECTION 1: DETERMINE THE PRIMARY AUTHORIZATION ID **********
* 
* IF THE INPUT AUTHID IS NULL OR BLANKS, CHANGE IT TO THE AUTHID *
* IN EITHER THE JCT OR THE FIELD POINTED TO BY ASCBJBNS. *
* THE CODE IN THIS SECTION IS AN ASSEMBLER LANGUAGE VERSION OF *
* THE DEFAULT IDENTIFY AUTHORIZATION EXIT. IT IS EXECUTED ONLY *
* IF THE FIELD ASXBUSER IS NULL UPON RETURN FROM THE RACROUTE *
* SERVICE. FOR EXAMPLE, IT DETERMINES THE PRIMARY AUTH ID FOR *
* ENVIRONMENTS WITH NO SECURITY SYSTEM INSTALLED AND ACTIVE. *
* *
```
SPACE
    LA R1,AIDLPRIM LOAD PARM REG1
    CALL FOCDSN3 GO GET THE IBI EXIT
    CLI AIDLPRIM,BLANK IS THE INPUT PRIMARY AUTHID NULL
    BH SATH020 SKIP IF A PRIMARY AUTH ID EXISTS
```
2. Search for the SATH020 label - add a comment box, add one line, and comment out four lines:

```assembly
SATH020  DS  0H              BRANCH TO HERE IF PRIMARY EXISTS
*****OPTIONAL CHANGE @CHAR7:  Fallback to seven char primary authid***
*   *
* IF YOUR INSTALLATION REQUIRES ONLY SEVEN CHARACTER PRIMARY    *
* AUTHORIZATION IDS (POSSIBLY TRUNCATED) DUE TO DB2 PRIVILEGES  *
* GRANTED TO TRUNCATED AUTHORIZATION IDS, THEN YOU MUST BLANK OUT *
* COLUMN 1 OF THE ASSEMBLER STATEMENT IMMEDIATELY FOLLOWING THIS *
* BLOCK COMMENT. THEN ASSEMBLE THIS PROGRAM AND LINK-EDIT IT INTO *
* THE APPROPRIATE DB2 LOAD LIBRARY AS EXPLAINED IN AN APPENDIX   *
* OF "THE DB2 ADMINISTRATION GUIDE".                             *
*   *
* OTHERWISE, YOU NEED DO NOTHING.                              *
*   @KYD0271*
**********************************************************************
*                  MVI     AIDLPRIM+7,BLANK    BLANK OUT EIGHTH CHARACTER
*                  SPACE                                            *
*                  .                                              *
*                  .                                              *
*                  .                                              *
*                  RACF IS ACTIVE ON THIS MVS                      *
**********************************************************************
**----------------------------------------------------------------**
** The logic was modified because in DB2 V8 AIDLACEE is always not**
** NULL. We used to honor AIDLACEE first, FOCDSN4 second and then **
** AS ACEE. Now we honor FOCDSN4 first, AIDLACEE second and then  **
** AS ACEE.                                                       **
** 03/11/05   ASK0                                               **
**----------------------------------------------------------------**
**----------------------------------------------------------------**
USING ACEE,R6            ESTABLISH BASE FOR ACEE       @KYL0108
L       R6,AIDLACEE        Get => caller ACEE if any        @KYL0108
* ICM R6,B'1111',AIDLACEE CALLER PASSED ACEE ADDRESS? @KYL0108 <--COMMENT
* BZ SATH024             NO, USE ADDRESS SPACE ACEE @KYL0108 <--COMMENT
* CLC ACEEACEE,EYEACEE   IS IT REALLY AN ACEE?  @KYL0108 <--COMMENT
* BE SATH027             YES, PROCEED NORMALLY  @KYL0108 <--COMMENT

SPACE 1
SATH024  DS  0H          USE ADDRESS SPACE ACEE       @KYL0108
.          .                      .                    
.          .                      .                    
```

---End---
3. Search for the SATH025 label - replace sath025 and add sath026 (FOCDSN4):

```
SATH025 DS 0H

CALL FOCDSN4  GO GET THE IBI EXIT (4=GROUP AUTH)  <--ADD
LTR R6,R6    DOES AN ACEE EXIST? IF NOT,  <--ADD
BZ SATH026   CHECK ACEE IN ADDRESS SPACE  <--ADD
CLC ACEEACEE,EYEACEE DOES IT LOOK LIKE AN ACEE?  <--ADD
BE SATH027   YES, GO DO GROUPS  <--ADD
SATH026 DS 0H  <--ADD

L R6,ASCBASXB GET ADDRESS SPACE EXTENSION BLOCK  <--ADD
L R6,ASXBSENV-ASXB(,R6) GET ACEE ADDRESS  <--ADD
CLC ACEEACEE,EYEACEE DOES IT LOOK LIKE AN ACEE?  <--ADD
BNE SATH049 NO, THEN CAN'T DO GROUPS  <--ADD
DROP R8 DROP ASCB BASE REG  <--ADD
SPACE 1  <--ADD

SATH027 DS 0H CHECK LIST OF GROUPS OPTION  <--ADD
TM RCVTOPTX,RCVTLGRP IS LIST OF GROUPS CHECKING ACTIVE
BZ SATH040 SKIP TO SINGLE GROUP COPY IF NOT
DROP R7 DROP RCVT BASE REG
SPACE 1  <--ADD

* RACF LIST OF GROUPS OPTION IS ACTIVE  <--ADD
EJECT
```

EJECT.
Example: Changing DSN3SATH for eTrust CA-ACF2 Sites

*DSN3SATH source is provided by ACF2.

1. Search for PRIMARY AUTHORIZATION ID - add two lines (FOCDSN3):

```
*****************************************************************
*                                                               *
*           PRIMARY AUTHORIZATION ID                            *
*                                                               *
*****************************************************************
*                                                               *
*      IF THE PRIMARY AUTHORIZATION ID IS NULL OR BLANKS        *
*      IF CA-ACF2 IS AVAILABLE                                  *
*      SET PRIMARY ID FROM ACFASVT (ASVLID)                     *
*      ELSE                                                     *
*      IF TSO FOREGROUND USER                                   *
*      SET PRIMARY ID FROM TSO LOGON ID (ASCBJBNS)              *
*      ELSE                                                     *
*      SET PRIMARY ID FROM JOB USER (JCTUSER)                   *
*                                                               *
*****************************************************************

SPACE 2                                               04260000
LA R1,AIDLPRIM LOAD PARM REG1  <--ADD
CALL FOCDSN3 GO GET THE IBI EXIT  <--ADD
CLI   AIDLPRIM,C' ' PRIMARY AUTHID THERE ?  04270000
BH    PRIMWTO ..YES, EVERYTHINGS OK HERE  04280000
L     R3,PSAAOLD-PSA(0) CURRENT ASCB ADDRESS  04290000
USING ASCB,R3 ASCB ADDRESSABILITY  04300000
SPACE 2                                               04310000
```
**Example: Modifying the Link JCL for DSN3SATH**

This is sample link JCL for the IBM exit DSN3SATH. Modify the JCL to link the modules into the DB2 security exit as follows.

```
//LKED EXEC PGM=IEWL,PARM='LIST,XREF,LET,RENT,AMODE=31'
//OBJECT DD DSN=\textit{db2pref.SDSNSAMP.OBJ},DISP=SHR \textit{ <--OUTPUT OF ASSEMBLE STEP}
//EDAMOD DD DSN=\textit{high_level_qualifier.HOME.LOAD},DISP=SHR
//SYSLMOD DD DSN=\textit{db2pref.DSNEXIT},DISP=SHR
//SYSPRINT DD SYSOUT=*  
//SYSUT1 DD UNIT=SYSDA,SPACE=(100,(50,50))
//SYSLIN DD *
\texttt{INCLUDE EDAMOD(FOCDSN3)}

***********************************************************************
*** Omit the following line for eTrust CA-ACF2
***********************************************************************
\texttt{INCLUDE EDAMOD(FOCDSN4)}
ENTRY DSN3@ATH
NAME DSN3@ATH(R)
/*

where:

\texttt{db2pref}

Is the prefix for the DB2 data sets.

\texttt{high_level_qualifier}

Is the high-level qualifier for the data sets.

Once this job finishes successfully, you must recycle the DB2 subsystem in order for the changes to take effect.

**MSODDX: DDNAME Translation for User Subroutines**

On z/OS, you can incorporate an additional routine called MSODDX into a user-written subroutine that needs to access ddnames allocated to a WebFOCUS Reporting Server, a DataMigrator Server, or a Full-function Server. MSODDX provides ddname translation services that enable external programs to access files under the ddname used by the Server.

For details, see Chapter 6, \textit{Platform-Specific Commands and Features}, in the \textit{Stored Procedures Reference}.

**Overriding the Time Zone Setting**

By default, the server will use the system set value for Time Zone. This can be overridden by setting the TZ in the EDAENV member of the servers configuration library.

\texttt{TZ = valid tz string}
For more information about time zone values, see the IBM UNIX System Services Command Reference and search for TZ.

Adding a Configuration Instance for PDS

**In this section:**

- Step 1. Run ISETUP
- Step 2. Test the New Configuration Instance

Adding a configuration instance allows you to run different server configuration instances using the same server binaries. For example, if you installed using a Full-Function Server license code, you can use a WebFOCUS license to add a second configuration for a WebFOCUS Reporting Server. You can also add up to nine additional servers of the same type.

**Step 1. Run ISETUP**

To add a configuration instance, perform the following steps.

1. Execute ISETUP again. You should have a high_level_qualifier.HOME.DATA PDS unloaded from the installation tape. Use option 6 in ISPF to execute the ISETUP member of this PDS.

   **Note:** If this PDS is not available, run an IEBCOPY job to allocate and unload it from the installation tape.
The first Installation and Configuration panel opens.

```
IWay Software                  Installation and Configuration                  Unified Server Install
Command ==> PD

Unified Server Installation
Please select one of the following options:

1. USS/HFS Deployment
   - Installation files and temporary files in HFS
   - Application files, like synonyms and procedures, in HFS (or optionally in both HFS and PDS)

2. PDS Deployment
   - Installation files and temporary files in PDS
   - Application files, like synonyms and procedures, in PDS (or optionally in both PDS and HFS)

Enter selection (Default=1) ==> 1

Press Enter to continue, PF3 to END
```

2. Type 2 and press Enter to continue to the next panel.

The following panel opens.

```
Information Builders                  Installation and Configuration                  z/OS PDS Deploy
Command ==> D1

Please select one of the following options:

1. Install and Configure
2. Add Additional Configuration Instance
3. Refresh Installation (Reinstall, Keep Configurations)

Enter selection (Default=1) ==> 1
Enter License Key ==> - - - Last License key used
Input source ==> T (T)ape,(D)isk or (F)tp
Installation Userid ==> IADMIN (Logged on Userid)
PTH Administrator Userid ==> srvadmin (Server install only)
PPTH Administrator Password ==> Retype ==>

Enter Job Card information
Override JOB name checking ==> N
==> // JOB (ACCT INFO),
==> //*
==> //*
Press Enter to continue, PF3 to END
```
3. Complete the first Installation and Configuration panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Choose option 2, <em>Add Additional Configuration Instance</em>.</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the license key that was provided with the software for the type of server instance that you want to configure (for example, the license key for a WebFOCUS Reporting Server or for a Full-Function Server).</td>
</tr>
<tr>
<td>Input source</td>
<td>This is ignored for option 2, adding a configuration instance.</td>
</tr>
<tr>
<td>Installation Userid</td>
<td>Shows the current logon ID. It cannot be changed.</td>
</tr>
<tr>
<td>PTH Administrator Userid</td>
<td>An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of the server. It defaults to <code>srvadmin</code>, and it can be changed here. For more information about running the server in secure mode, see <em>Step 6. Configure Server Security</em> on page 249.</td>
</tr>
<tr>
<td>PTH Administrator Password</td>
<td>Password for the PTH Administrator ID. It cannot be left blank and must be matched at Retype field.</td>
</tr>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the <code>//</code> on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, <code>jobnameA</code>, <code>jobnameB</code>, <code>jobnameC</code>, and so on) in the JCL generated by the installation procedure.</td>
</tr>
</tbody>
</table>
| Override JOB name checking   | To provide your own JOB card information, including JOB name, enter `Y` and provide valid JOB card information in the *Enter Job Card information* field. The JOB card information that you enter will be used for each job that is submitted.
4. Press Enter to continue to the next panel.

The following panel opens.

```
IWay Software       Installation and Configuration  z/OS PDS Deployment
Command ==>        DG

Add Configuration

Please enter the following information for WebFocus Reporting Server

Product Configuration Parameters

Current base HLO (EDAHOME) ==> _

Press Enter to continue, PF3 to return to previous menu
```

5. Enter the current base high-level qualifier used for EDAHOME.

This indicates where to install the configuration (EDACONF) and where the binaries (EDAHOME) are installed. The installation procedure checks whether the required set of EDAHOME data sets exist. If the test fails, you receive a message indicating the failure and available options.

6. Press Enter to continue to the next panel.

If you are configuring the first instance of a given product type, the following panel opens.
Otherwise, if you are configuring an additional instance of a given product type, the following panel opens. In this sample panel, two Full-Function Server configuration instances (FFS and FFS1) already exist, and a third (FFS2) is being added.

<table>
<thead>
<tr>
<th>Information Builders</th>
<th>Installation and Configuration</th>
<th>z/OS PDS Deploy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Add Configuration</td>
<td></td>
</tr>
</tbody>
</table>

Please enter the following information for WebFocus Reporting Server

(Blank any field for default)

Using the following existing information

<table>
<thead>
<tr>
<th>Current base HLQ</th>
<th>==&gt; IADMIN.SRV77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Libraries</td>
<td></td>
</tr>
<tr>
<td>Output Libraries HLQ</td>
<td>==&gt; IADMIN.SRV77</td>
</tr>
<tr>
<td>(EDACONF)</td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>==&gt; SYSDA</td>
</tr>
<tr>
<td>Type</td>
<td>==&gt; VOL=SER</td>
</tr>
</tbody>
</table>

Configuration options

| Approot value        | ==> PLEASE SUPPLY VALUE_     |
|                      | (21 Characters max)          |
| HTTP Listener Port   | ==> 8121                     |
| TCP Listener Port    | ==> 8120                     |
| Installation JCL Library | ==> IADMIN.SRV77.PDS.WFS.DATA |

Press Enter to continue, PF3 to return to previous menu
Information Builders Installation and Configuration z/OS PDS Deploy
Command ==> DI
Add additional Configurations

Please enter the following information for Full Function Server

Using the following existing information
Current base HLQ ==> IADMIN.SRV77
Base Install Library ==> IADMIN.SRV77.PDS.FFS.DATA

Current configurations ==> FFS

Configuration Options (blank any field for default)

Approot value ==> IADMIN.SRV77.APPS
EDACONF suffix (FFS plus) ==> 1 or string suffix ==> 
HTTP Listener Port ==> 8106 TCP Listener Port ==> 8105

Installation JCL Library ==> IADMIN.SRV77.PDS.FFS1.DATA

Press Enter to continue, PF3 to return to previous menu
7. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration Parameters</strong></td>
<td></td>
</tr>
<tr>
<td>Approot value</td>
<td>This indicates where application components will reside for this configuration. The default value is based on the value specified for Current Base HLQ (EDAHOME) on the previous panel. To specify a different location for application components, change the value of this field.</td>
</tr>
<tr>
<td></td>
<td>Different configurations which use the same base HLQ (high level qualifier) libraries (EDAHOME) can share the same approot value (that is, the same application files). Alternatively, they can use different approot values so that they have different sets of application files.</td>
</tr>
<tr>
<td></td>
<td>If you specify the approot value of an existing server configuration, the installation process will recreate the server supplementary data sets and sample files (see Disk Space Requirements on page 223). If you do not want them to be recreated, provide a different value for approot.</td>
</tr>
<tr>
<td>Output Libraries HLQ</td>
<td>You are prompted for this information only if you are configuring the first instance of a product type (for example, if you are configuring the first instance of a WebFOCUS Reporting Server).</td>
</tr>
<tr>
<td>(EDACONF)</td>
<td>This is the high-level qualifier that the installation procedure will use to allocate output libraries, that is, to allocate the configuration libraries for this server instance. This high-level qualifier is also known as EDACONF.</td>
</tr>
<tr>
<td>Unit/Type</td>
<td>You are prompted for this information only if you are configuring the first instance of a product type (for example, if you are configuring the first instance of a WebFOCUS Reporting Server).</td>
</tr>
<tr>
<td></td>
<td>These show the values that the installation process will use to allocate the output libraries. If necessary, you can change these to site-specific values.</td>
</tr>
<tr>
<td></td>
<td>Type can be VOL=SER (default), DATACLAS, MGMTCLAS, or STORCLAS.</td>
</tr>
<tr>
<td>Field</td>
<td>Instructions</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| EDACONF suffix        | You are prompted for this information *only* if you are configuring an *additional* instance of a product type (for example, if you are configuring a second instance of a WebFOCUS Reporting Server). Each instance must have its own set of configuration libraries. To guarantee this, and to prevent a new set of configuration libraries from overwriting an existing set, the suffix that you specify here will be appended to the name of the product type qualifier. For example, if you are configuring the second instance of a WebFOCUS Reporting Server, you could specify that the suffix "1" be added, so that the EDACONF high-level qualifier would be: **IADMIN.SRV77.PDS.WFS1.DATA** You can add a new configuration as a numeric or string suffix to the base product type. If you supply a string, the installation procedure ignores any numeric suffix. For a:  
  - **Numeric suffix**, enter a digit between 1 and 9. This will be added to the product type in the directory name and library name to distinguish it from other configuration instances.  
  - **String suffix**, enter a string of between 1 and 5 characters (for example, TEST, PROD, or DEV). The string cannot contain embedded spaces. You can also use the string suffix to extend the numeric numbering past 9. Just supply a number greater than 9. If you change the suffix value, when you press Enter, the panel refreshes with a new value for EDACONF Library. |
| HTTP Listener Port    | This indicates the port number that the server will use for HTTP. It is the first of three connection ports that must be available to the server. For example, if you choose port 8101, then ports 8101, 8102, and 8103 are used by the server. Ensure that you choose ports that are not currently being used. |
### Field | Instructions
--- | ---
TCP Listener Port | This is the port number of the TCP Listener. The default is one less than the port specified for the HTTP Listener, but it can be any port number other than the three reserved for HTTP.

8. Press Enter to continue to the next panel.

Depending on your license key, the Data Adapter panel may open before the confirmation panel. If the Data Adapter panel opens, continue with Step 9; otherwise, skip to Step 10.

9. The Data Adapter panel lists adapters that require the allocation of libraries in IRUNJCL or environment variables in the EDAENV member. To select specific adapters:

   a. Type Y next to the required adapters and press Enter.

   b. Supply the requested information, which is described in Step 2. Collect Required Information for Adapters on page 227.

      After you have finished installing and configuring the server, you can use the Web Console to finish configuring these adapters, and to configure adapters that do not have JCL requirements.

10. Press Enter to continue to the next panel.

    The JSCOM3 Listener configuration panel opens.

    a. The panel will prompt for the path to the Java environment to be passed to either JDK_HOME or JAVA_HOME, as described in JVM Requirements for Java Services on page 116, and it will also prompt for edahome_dir and edaconf_dir, as described in HFS Home and Configuration Directory Requirements on page 226.

    b. Configuration of the JSCOM3 Listener is either optional or mandatory depending on which adapters were selected. If any Java-based adapters were selected (EJB, Call Java, JDBC, MS SQL Server), the configuration of all three paths listed above is mandatory. If SAP-based adapters were selected (SAP or SAP BW), only edahome_dir and edaconf_dir are required.

    c. If no Java-based or SAP based adapters were select, this configuration might still be desirable to enable the server-side graphics feature. To skip the configuration, leave the path blank.

11. Press Enter to continue to the next panel.
The confirmation panel opens.

12. Ensure that all values on the Confirmation panel are correct, then select one of the following options:

- **N** to return to the initial panel so that you can change installation values.
- **C** to create JCL which you can submit at a later time. The JCL is placed in your configuration library.
- **S** to create JCL and submit the job immediately.

13. As the job is processed, validate the installation as described in *Step 2. Test the New Configuration Instance* on page 268.

**Step 2. Test the New Configuration Instance**

To test the configuration instance that you just added:

1. Log on to TSO as iadmin.

2. Submit the ISTART JCL from the configuration library to start the server. This executes the IRUNJCL proc. The configuration library is

   \[ \text{high_level_qualifier.PDS.product_type[suffix].DATA} \]

   where:

   - **high_level_qualifier**
     - Is the high-level qualifier to be used for all output libraries. You specified the high-level qualifier during server installation, as described in *Step 4. Run ISETUP* on page 237, in Step 6.

   - **product_type**
     - Is one of the following:
       - **FFS** for a Full-Function Server
       - **DM** for a DataMigrator Server
       - **WFS** for a WebFOCUS Reporting Server
       - **WFM** for a Shared Application Server for WebFOCUS Maintain

   - **suffix**
     - If you are testing an additional instance of a product type for which an earlier configuration exists, the new configuration library product type qualifier will have a suffix (for example, **FFS1** or **FFSDEV**). The suffix distinguishes the new configuration library from the original one.

3. Check the job output for errors. Look for the EDAPRINT message:

   **(EDA13023) ALL INITIAL SERVERS STARTED**
4. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

http://host:port

where:

host

Is the name of the machine on which the server is installed.

port

Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

The Web Console opens.

5. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree.

6. Continue with adapter configuration, as described in the Adapter Administration manual.

Upgrading Your Server Release for PDS

In this section:

Step 1. Access the Installation Software
Step 2. Run ISETUP
Step 3. Test the Server Installation
Step 4. Reconfigure Server Security
Preventing Unsecured Server Starts After Upgrades
Step 5. Reconfigure Adapters

Use this option to upgrade to a new maintenance level within the same major release or, starting with major release 77, upgrade to a higher major release level. A major release is indicated by the first two digits of the release number.

The purpose of the PDS refresh option is to create a new set of EDAHOME libraries. It is recommended that you test the new libraries in a test environment before manually changing your production JCL (IRUNJCL) to point to the new software. The upgrade process can overwrite an existing set of EDAHOME libraries (not recommended) if both "Current Base HLQ" and "HLQ for downloaded files" or "Output Libraries HLQ" are the same value.
**Step 1. Access the Installation Software**

**How to:**
- Unload the Installation Software From Tape
- Download the Installation Software Using FTP

You can choose to access the server installation software using either:

- **Tape.** The software is provided on a 3490 or 3590 cartridge.
  You must unload the installation data set from the tape before you can run the installation. This is how most installations are performed.

- **FTP.** You download the installation software from the Information Builders FTP site.
  Downloading the installation software involves:
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the installation data set from the site.
  3. **Running** the isetup procedure to complete the download process and install the software.

**Note:** The above FTP steps are for the AUTOMATIC download instructions to MVS. If you downloaded the software to another platform, then transferred the files to MVS (following the manual FTP instructions), a new set of EDAHOME Libraries will already exist on MVS, therefore there will be no need to run ISETUP. The only process that needs to occur is the copying of the DB2VPRM members from the new HOME.DATA to the current HOME.DATA of the release to be upgraded. Complete the upgrade by following steps 3-5 in *Step 2. Run ISETUP* on page 272.

**Procedure:** **How to Unload the Installation Software From Tape**

The software is provided on a cartridge in 3490 or 3590 format with MVS PDSs. Perform the following to unload the installation data set from the tape:

1. Log on to TSO.
2. Run an IEBcopy job to allocate and unload the qualifier.HOME.DATA data set. This PDS contains the members needed for the actual installation.

   It is recommended that you use HOME.DATA as the low-level qualifier for the target data set. Although you can specify any low-level qualifier, HOME.DATA enables the installation procedure to generate default data set names, simplifying your installation.
**Note:** If you do not use HOME.DATA, then change the following line to reflect the value you used.

```plaintext
// SET EDAUSSD='HOME.DATA'
```

Do this before you run ISETUP.

The following sample JCL is for the initial unload to a new data set:

```plaintext
//IEBCOPY EXEC PGM=IEBCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD UNIT=workunit,SPACE=(CYL,(5,1))
//OUT1 DD DISP=(NEW,CATLG,DELETE),
//      DSN=qualifier.HOME.DATA,
//      DCB=(RECFM=FB,LRECL=80,BLKSIZ=3200),
//      SPACE=(CYL,(5,5,25)),
//      UNIT=SYSDA
//IN1 DD DISP=(OLD,PASS),
//      DSN=HOME.DATA,
//      UNIT=cart,
//      VOL=(,,RETAIN,,SER=volser),
//      LABEL=(1,SL)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
COPY INDD=IN1,OUTDD=OUT1
```

where:

- **workunit**
  
  Is the unit for the work data set.

- **qualifier**
  
  Is the high-level qualifier for HOME.DATA and for all other data sets that the installation procedure allocates. We recommend that the high-level qualifier reflect the release of the software. However, you can use any site-specific value.

  For PDS, we recommend retaining the low-level qualifier HOME.DATA, but you can change this to any site-specific value. If you use a low-level qualifier other than HOME.DATA, you must then edit member PDSSNAME to change the string “HOME.DATA” to the low-level qualifier you specify here.

- **cart**
  
  Is the unit type of the tape drive. Common names include 3490, TAPE, and 3590. Change as needed.

- **volser**
  
  Is the value shown on the media label.

After this job has run, **qualifier**.HOME.DATA is allocated, cataloged, and populated with the members needed to continue the product installation.
Procedure: How to Download the Installation Software Using FTP

To download the installation software:

   The Information Builders Technical Support home page opens.

2. Click My Downloads in the My Account section on the right side of the page.
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click Download to the right of the platform name.

6. Fill in the registration form and then click Continue.
   The Software Download Agreement page opens.

7. Select I agree... to consent to the Download Agreement, and then click Continue.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is automatically emailed to you for later reference.

8. Log on to TSO.

9. Follow the instructions on the Download Page in your TSO session.
   Continue with Step 2. Run ISETUP on page 272.

Step 2. Run ISETUP

Software upgrade consists of a series of ISPF panels, which gather information for the upgrade. After the panel dialog is complete, JCL is created and submitted (if required) to create a new set of EDAHOME libraries.

1. Execute the ISETUP member of your high_level_qualifier.HOME.DATA using ISPF option 6.
The Installation and Configuration panel opens.

2. Select 2 for PDS deployment and press Enter to continue to the next panel.

3. Complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter selection</td>
<td>Choose option 3, <em>Refresh Installation</em>.</td>
</tr>
<tr>
<td>Enter License Key</td>
<td>Enter the 10-digit license key that was provided with the software.</td>
</tr>
<tr>
<td>Input source</td>
<td>Choose the Input source, T for tape or F for automatic FTP download direct to MVS.</td>
</tr>
<tr>
<td>Installation Userid</td>
<td>Shows the current logon ID. It cannot be changed.</td>
</tr>
<tr>
<td>PTH Administrator Userid</td>
<td>An ID is required to administer the server immediately after initial installation. This ID is defined and maintained solely in the realm of the server. It defaults to <em>srvadmin</em>. <strong>Note:</strong> For a Refresh Installation, this parameter is ignored, as no configuration files are updated. ISETUP must be run by the OPSYS Administration userid.</td>
</tr>
<tr>
<td>PTH Administrator Password</td>
<td>Password for the PTH Administrator ID. <strong>Note:</strong> For a Refresh Installation, this parameter is ignored, as no configuration files are updated. ISETUP must be run by the OPSYS Administration userid.</td>
</tr>
<tr>
<td>Enter Job Card information</td>
<td>To provide JOB card information for submitting jobs to the JES queue, provide a valid job name (a maximum of seven characters following the // on the first JCL line), which defaults to the user ID that you are currently using. This job name is used for multiple submissions (for example, <em>jobnameA</em>, <em>jobnameB</em>, <em>jobnameC</em>, and so on) in the JCL generated by the installation procedure.</td>
</tr>
<tr>
<td>Override JOB name checking</td>
<td>To provide your own JOB card information, including JOB name, enter Y and provide valid JOB card information in the Enter Job Card information field. The JOB card information that you enter will be used for each job that is submitted.</td>
</tr>
</tbody>
</table>
4. If you selected input source T, skip to Step 5.

If you selected F for automatic FTP only, complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLQ for downloaded files</td>
<td>High level qualifier to be used as the target for the FTP files. If this is the same value as &quot;Current Base HLQ&quot; (see below) then files will be overwritten. Two warning messages will be given and the enter key must be pressed to continue.</td>
</tr>
<tr>
<td>FTP Userid</td>
<td>User ID provided on the download instructions.</td>
</tr>
<tr>
<td>FTP Password</td>
<td>Password provided on the download instructions.</td>
</tr>
</tbody>
</table>

5. Press Enter to continue to the next panel, and complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Base HLQ (EDAHOME)</td>
<td>High level qualifier of the current server that is to be refreshed. This HLQ will be used to check if a full set of EDAHOME libraries exist. From this value, the current installation library name is obtained and this will be the location used to create the refresh JCL.</td>
</tr>
</tbody>
</table>

6. Press Enter to continue to the next panel, and complete the panel as follows.

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Media (installing from tape)</td>
<td></td>
</tr>
<tr>
<td>Volume serial number</td>
<td>Provide the volume serial number of the server media. The number is located on the tape supplied in your server package.</td>
</tr>
<tr>
<td>Volume unit type</td>
<td>Review the default value and change it if necessary.</td>
</tr>
</tbody>
</table>
### Field | Instructions
--- | ---
Work unit type | Review the default value and change if necessary. You can specify a UNIT= type value (for example, SYSDA), or you can direct work files to a specific volume serial number by specifying, in single quotation marks ('), 'SYSDA,VOL=SER=volume'.

**Output Libraries**

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Libraries HLQ</td>
<td>For tape input only: High level qualifier that will be used to allocate and load a full set of EDAHOME libraries. Change the value as necessary. If this is the same value as &quot;Current Base HLQ&quot; (see previous page) then files will be overwritten. Two warning messages will be given and the enter key must be pressed to continue.</td>
</tr>
<tr>
<td>HLQ for downloaded files</td>
<td>If FTP is selected, this &quot;HLQ for downloaded files&quot; was provided on the previous panel.</td>
</tr>
<tr>
<td>Unit/Type</td>
<td>Values that the installation process will use to allocate the EDAHOME libraries on MVS. If necessary, you can change these to site-specific values. Type can be <strong>VOL=SER</strong> (default), <strong>DATACLAS</strong>, <strong>MGMTCLAS</strong>, or <strong>STORCLAS</strong>.</td>
</tr>
<tr>
<td>Refresh edahome_dir?</td>
<td>Select Y/N to refresh the contents of the edahome_dir directory.</td>
</tr>
<tr>
<td>edahome_dir</td>
<td>If Y was selected above, enter the path to edahome_dir.</td>
</tr>
<tr>
<td>RA Active?</td>
<td>If you are refreshing a 7.7, 7.7.01, or 7.7.02 installation, and Resource Management is configured, select Y to recreate RMLDATxx datasets, otherwise select N. The default value is N.</td>
</tr>
</tbody>
</table>

**Note:** The installation JCL library name is where the refresh JCL will be created. This library is the current software installation library. The value cannot be changed.

**7.** Ensure that all values on the panel are correct, then select one of the following options:

- N to return to the initial panel so that you can change installation values.
C to create JCL which you can submit at a later time. The JCL is placed in your configuration library.

S to create JCL and submit the job immediately.

8. As the job is processed, in SDSF, check JESLOG for errors and return codes.

The following jobs are added to the current server configuration library:

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISETUPJ3</td>
<td>Main JCL Job stream that is used to install the software.</td>
</tr>
<tr>
<td>ISOPTS3</td>
<td></td>
</tr>
</tbody>
</table>

**Step 3. Test the Server Installation**

To test the installation:

1. Log on to TSO as iadmin.

2. Using a test server, replace all the EDAHOME libraries referenced in IRUNJCL with the new set.

3. Submit the ISTART JCL to start the server.

4. Check the job output for errors. Look for the EDAPRINT message:

   (EDA13023) ALL INITIAL SERVERS STARTED

5. Start the Web Console by opening a browser pointed at the listener port of the server. The URL format is

   http://host:port

   where:

   host
   
   Is the name of the machine on which the server is installed.

   port
   
   Is one port higher than the port specified when installing the server. For example, if you specified port 8100 during installation, then use port 8101 to access the Web Console.

   The Web Console opens.
6. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree.

When you are finished using the server, you can use the Web Console to stop the server by going to the Web Console menu bar, selecting Workspace, and then Stop.

If you experience problems at start up, examine the job output for more information.

**Step 4. Reconfigure Server Security**

For information about configuring server security, see *Step 7. Configure Server Security* on page 157.

To reconfigure server security to OPSYS provider only:

1. Log on to TSO.

2. The libraries allocated to STEPLIB in IRUNJCL must be APF-authorized. Any non APF-authorized libraries must be allocated the TASKLIB DDNAME.

3. Test server security by repeating the process described in *Step 3. Test the Server Installation* on page 195.

**Preventing Unsecured Server Starts After Upgrades**

If the security provider is set to OPSYS in the configuration file and, additionally, explicit environment variable EDAEXTSEC is set to OPSYS (or ON), and the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.

This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg configuration file. The messages vary slightly by platform.

The edaprint messages are:

- I Configured primary security is 'OPSYS' as set in configuration file
- E Server security explicitly set to OPSYS, but lacks authority!
- Workspace initialization aborted.
- (EDA13171) UNABLE TO START SERVER
Step 5. Reconfigure Adapters

While most adapters do not require additional steps after updating binary files, the following table notes the adapters that do require some consideration.

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Steps After Updating Binaries</th>
</tr>
</thead>
</table>
| Adabas     | - Change the value for EDALOAD in member EDAENV of your current server configuration library (qualif.PDS.product_type.DATA) to point to the new P.HOME.LOAD.  
            |   - Re-enable the module containing SVC using the Web Console adapter configuration page.       
            |   - Test the adapter from the adapter page before running your applications.                    |
| DB2 CAF    | - Rerun the IDB2BIND JCL found in your current server configuration library qualif.PDS.product_type.DATA. This needs to be done for each subsystem that is used.  
            |   - Test the adapter from the adapter page before running your applications.                    |
Accounting for PDS - SMF Records

**How to:**
- Report From SMF Data
- Enable Accounting
- Set the Accounting Field

**Reference:**
- SMF RECTYPES
- SMF Record Format for RECTYPES 1 and 4
- SMF Record Format for RECTYPES 2 and 5
- Accounting for DB2 in a Server Task

The server provides an optional facility to use for accounting purposes that enables you to log resource utilization on a per-user basis. This facility enables the server to generate SMF records for query-level and user-level accounting.

Server accounting requires that the server STEPLIB data sets be APF-authorized. When SMF records are generated, they contain:

- The logon ID and security ID of the user.
- The CPU time and EXCPs consumed.
- Data based on the type of record written.

You can process the SMF records using the accounting programs that exist at your site. Examples of SMF records are provided in *SMF Record Format for RECTYPES 1 and 4* on page 201.

In order to write SMF records, the server must be running APF authorized.

Two sample Master Files (SMFVSAM and SMFFIX) are provided for accessing accounting statistics. They reside in qualif.P.HOME.MAS.

Their difference is that SMFVSAM can be used to report directly from the system-live SYS1.MANx records, while SMFFIX can be used to report from a sequential file produced from running the SMFDUMP utility. These Master Files enable you to interpret the SMF records generated by the accounting facility using reporting requests or store procedures. Both Master Files are for logoff records only, as indicated by ALIAS=2 on the RECTYPE field entry.

A sample procedure report to query the SMF data is also provided in qualif.P.HOME.FEX(SMFMAN1).
How to Enable Accounting

Syntax:
To enable accounting, insert the following statement into the server configuration file (edaserve.cfg):

```
smf_recno=smfnumber
```

where:

- **smfnumber**
  - Is an integer in a range from 128 to 255, inclusive. This number represents the SMF number used by the accounting facility when it sends records to the SMF system.

By default, both RECTYPE pairs will be created when accounting is enabled. You can override the default by coding the following parameter on edaserve.cfg:

```
smf_subtype = {all | logon | query}
```

where:

- **all**
  - Cuts all records. This is the default.
- **logon**
  - Cuts logon records only (RECTYPE pair 1 and 2).
- **query**
  - Cuts query records only (RECTYPE pair 4 and 5).

How to Set the Accounting Field

Syntax:
Up to 40 characters can be supplied that appear in the SMF records field SMFOFA40. The SET BILLCODE command can be used in any support server profile to provide the account field information. The syntax is

```
SET BILLCODE=value
```

where:

- **value**
  - Is the 1–40 characters to be used on each SMF record produced.

This information can also be set dynamically from a client application by coding an RPC with the SET command and executing it with the value as a parameter. WebFOCUS users can send the SET command to the server.

How to Report From SMF Data

Procedure:
To report from SMF data, execute the sample procedure `smfman1.fex`, provided under home/catalog (DDNAME EDAHFEX for a PDS Deployment server).
You will be prompted for the DSN of the SMF VSAM data set from which you want to report, and the \texttt{smf\_recno} value used to produce the SMF records.

Following is a listing of \texttt{smfman1.fex}:

\begin{verbatim}
DYNAM ALLOC FI SMFVSAM DSN &SMFDSN. Please provide SMF VSAM DSN. SHR REU
DEFINE FILE SMFVSAM
CPU/D8.2 = SMFOFCPU / 100 ;
USER/A20 = SMFOFUID ;
EXCPS/I6 = SMFOFEXC ;
TIME/D9.2 = SMFOFLTM / 100 ;
HR/I2 = SMFOFTME / 360000 ;
MIN/I2 = (SMFOFTME - (HR*360000)) / 6000 ;
TOD/A5 = EDIT(HR) | ':' | EDIT(MIN) ;
END
TABLE FILE SMFVSAM
PRINT USER CPU EXCPS TIME TOD
WHERE SMFOFRTY EQ &SMFNUM. Please provide SMF number(type) for report.
END
\end{verbatim}

\textbf{Reference: SMF RECTYPES}

There are four RECTYPE values defined to produce SMF records:

<table>
<thead>
<tr>
<th>RECTYPE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indicates a start of task record. When included in a report, these statistics tell when a task initiation occurred, and are of no particular use in chargeback. By pairing start and end of task records for all tasks within a time period, statistics, such as average active time, peak task count, and average task count, can be determined. These values can be used for future capacity planning activities for the server.</td>
</tr>
<tr>
<td>2</td>
<td>Indicates the start of a task record. When included in a report, these statistics tell when a task termination occurred. These records are cut for both publicly and privately deployed services and contain statistics for the subtask as a whole. For privately deployed services, RECTYPE (2) records contain statistics associated with a single user connection.</td>
</tr>
<tr>
<td>4</td>
<td>Begin query. Record layout is the same as RECTYPE (1).</td>
</tr>
<tr>
<td>5</td>
<td>End query. Record layout is the same as RECTYPE (2).</td>
</tr>
</tbody>
</table>
Reference: SMF Record Format for RECTYPES 1 and 4

The record format for RECTYPES 1 and 4 of the SMF records written by the server is defined below. The format is provided in the system 390 assembler DSECT form.

```
SMFON    DSECT
SPACE
*----------------------------------------------------*
* USAGE ACCOUNTING SMF RECORD LAYOUT FOR LOGON RECORDS.              *
*                                                                     *
* THIS IS THE DSECT DESCRIBING THE SMF RECORD WHICH IS PASSED TO      *
* YOUR EXIT ON AT USER LOGON TIME.  IT IS COMPLETELY READY TO BE      *
* WRITTEN WHEN YOUR EXIT RECEIVES CONTROL.                           *
*----------------------------------------------------*
SPACE
*----------------------------------------------------*
* THE FIRST TWENTY FOUR BYTES OF THE RECORD ARE THE SMF HEADER.       *
* THESE FIELDS ARE REQUIRED IN ALL SMF RECORDS (18 BYTES FOR RECORDS  *
* WITHOUT SUBTYPES; WE USE SUBTYPES, THE HEADER IS 24 BYTES).         *
SPACE
SMFONLEN DS    H'116'            RECORD LENGTH
SMFONSEG DS    XL2'0000'         SEGMENT DESCRIPTOR (0 UNLESS SPANNED)
SMFONFLG DS    XL1               SYSTEM INDICATOR
SMFONRTY DS    XL1               RECORD TYPE
SMFONTIME DS   XL4               TIME, IN HUNDREDTHS OF A SECOND
SMFONDTE DS    PL4               DATE, 00CYYDDDF, WHERE F IS THE SIGN
SMFONSID DS    CL4               SYSTEM IDENTIFICATION
SMFONSBS DS    CL4               SUBSYSTEM IDENTIFICATION
SMFONSBT DS    XL2'0001'         SUBTYPE OF RECORD - X'0001' INDICATES X
                                THIS IS A LOGON RECORD
SPACE
```
THE NEXT FIELDS ARE THOSE PRESENT IN THE LOGON RECORD FOR THE START OF A USER SESSION.

SPACE
SMFONMSO DS CL8 JOBNAME
SMFONJID DS CL8 JOBID (FROM SSIBJBID)
SMFONASI DS Y ASID
SMFONRV1 DS XL2 RESERVED
SMFONUID DS CL20 SECURITY USERID
SMFONLID DS CL20 USERID PRESENTED AT LOGON (SAME AS SMFONSID UNLESS CHANGED VIA MSIDTR SECURITY EXIT)
SMFONRSV DS XL8 RESERVED FOR FUTURE EXPANSION
SMFONCTI DS XL4 RESERVED FOR FUTURE EXPANSION
SMFONSRV DS CL8 SERVICE NAME FROM SERVICE BLOCK
SMFONRVS0 DS XL4 RESERVED FOR FUTURE EXPANSION
SMFONCNT DS XL1 CONNECTION TYPE
SPACE
SMFONTSO EQU 1 CONNECTION VIA TSO
SMFONCIC EQU 2 CONNECTION VIA CICS
SMFONVTM EQU 4 CONNECTION VIA VTAM
SMFONPSR EQU 8
SPACE
SMFONRS1 DS XL3 RESERVED
SMFOND1 DS F SYSPLEX ID 1
SMFOND2 DS F SYSPLEX ID 2
SMFOFPID DS XL20 POOLED USER ID
SMFONR2 DS XL12 RESERVED
SMFONL EQU -*SMFON LENGTH OF THE SMF LOGON RECORD

Reference: SMF Record Format for RECTYPES 2 and 5

The record format for RECTYPES 2 and 5 of the SMF records written by the server is defined below. The format is provided in the system 390 assembler DSECT form.

SMFOF DSECT
SPACE
*----------------------------------------------------*
* USAGE ACCOUNTING SMF RECORD LAYOUT FOR LOGOFF RECORDS. *
* THIS IS THE DSECT DESCRIBING THE SMF RECORD WHICH IS PASSED TO *
* YOUR EXIT ON AT USER LOGOFF TIME. IT IS COMPLETELY READY TO BE *
* WRITTEN WHEN YOUR EXIT RECEIVES CONTROL. *
*----------------------------------------------------*
SPACE
SMFONRS1 DS XL3 SYSPLEX ID 1
SMFOND1 DS F SYSPLEX ID 2
SMFOFPID DS XL20 POOLED USER ID
SMFONR2 DS XL12 RESERVED
SMFONL EQU -*SMFON LENGTH OF THE SMF LOGON RECORD
THE FIRST TWENTY FOUR BYTES OF THE RECORD ARE THE SMF HEADER. THESE FIELDS ARE REQUIRED IN ALL SMF RECORDS (18 BYTES FOR RECORDS WITHOUT SUBTYPES; WE USE SUBTYPES, THE HEADER IS 24 BYTES).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMFOFLEN</td>
<td>RECORD LENGTH</td>
</tr>
<tr>
<td>SMFOFSEG</td>
<td>SEGMENT DESCRIPTOR (0 UNLESS SPANNED)</td>
</tr>
<tr>
<td>SMFOFCLASS</td>
<td>SYSTEM INDICATOR</td>
</tr>
<tr>
<td>SMFOFRV</td>
<td>RECORD TYPE</td>
</tr>
<tr>
<td>SMFOFTIME</td>
<td>TIME, IN HUNDREDTHS OF A SECOND</td>
</tr>
<tr>
<td>SMFOFDATE</td>
<td>DATE, 00CYDDDF, WHERE F IS THE SIGN</td>
</tr>
<tr>
<td>SMFOFSID</td>
<td>SYSTEM IDENTIFICATION</td>
</tr>
<tr>
<td>SMFOSBS</td>
<td>SUBSYSTEM IDENTIFICATION</td>
</tr>
<tr>
<td>SMFOSBI</td>
<td>SUBTYPE OF RECORD - X'0002' INDICATES X</td>
</tr>
</tbody>
</table>

THIS IS A LOGOFF RECORD

THE NEXT FIELDS ARE THOSE PRESENT IN THE LOGOFF RECORD FOR THE END OF A USER SESSION.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMFOFMSO</td>
<td>JOBNAME</td>
</tr>
<tr>
<td>SMFOFJID</td>
<td>JOBID (FROM SSIBJBID)</td>
</tr>
<tr>
<td>SMFOASID</td>
<td>ASID</td>
</tr>
<tr>
<td>SMFOPRV1</td>
<td>RESERVED</td>
</tr>
<tr>
<td>SMFOFUID</td>
<td>SECURITY USERID</td>
</tr>
<tr>
<td>SMFOSID</td>
<td>USERID PRESENTED AT LOGON (SAME AS X SMFOSID UNLESS CHANGED VIA MSIDTR X SECURITY EXIT)</td>
</tr>
<tr>
<td>SMFMEMA</td>
<td>MEMORY ABOVE THE LINE (IN KILOBYTES)</td>
</tr>
<tr>
<td>SMFMEMB</td>
<td>MEMORY BELOW THE LINE (IN KILOBYTES)</td>
</tr>
<tr>
<td>SMFZIP</td>
<td>ZIIP CPU NORMALIZED (HUNDREDTHS OF A SEC)</td>
</tr>
<tr>
<td>SMFOSRV</td>
<td>SERVICE NAME FROM THE SERVICE BLOCK</td>
</tr>
<tr>
<td>SMFPZCP</td>
<td>ZIIP ON CP (HUNDREDTHS OF A SEC)</td>
</tr>
<tr>
<td>SMFOSCNT</td>
<td>CONNECTION TYPE</td>
</tr>
</tbody>
</table>

SPACE
**SMFOFTSO EQU 1**  
**SMFOFCIC EQU 2**  
**SMFOFVTM EQU 4**  
**SMFOFPSR EQU 8**  
**SMFOFCC DS XL3**  
**SMFOFACT DS CL8**  
**SMFOFCPU DS XL4**  
**SMFOFEXC DS XL4**  
**SMFOFLTM DS FL4**  
**SMFPRTY DS XL1**  
**SMFCOMPL DS XL1**  
**SMFOFID1 DS F**  
**SMFOFID2 DS F**  
**SMFOPID DS XL20**  
**SMFOFA40 DS CL40**  
**SMFOFL EQU *-SMFOF**  
**Accounting for DB2 in a Server Task**

When using a server to access DB2 data, certain processing takes place within the DB2 address space and is governed by the DB2 chargeback system. If a user requests data from DB2, the server passes the request to the DB2 subsystem. The DB2 subsystem then processes the request, performing such tasks as retrieving rows and aggregating the data. It generates the answer set, and passes the output back to the server. The server then performs any joins and formatting which have not been performed by DB2 to satisfy the original request.

Charges incurred while the request was being processed by the DB2 subsystem are added to the charges accumulated in the server task that originated the request for processing. If the server accounting is enabled, these charges are associated with the user logon and security IDs in the SMF records described earlier.

**Performance Considerations for PDS**

**In this section:**

- Server Initialization Commands Configured in SRVINIT Member
- Running the Server in a Non-Swappable Address Space
- Workload Manager

There are several ways in which you can improve the server performance:
- **Server initialization commands.** You can specify DYNAM commands in member SRVINIT of the data set referenced by //EDACCFG DD in IRUNJCL. For more information, see *Server Initialization Commands Configured in SRVINIT Member* on page 286.

- **Non-swappable address space.** We recommend that you run the server in a non-swappable address space. For more information, see *Running the Server in a Non-Swappable Address Space* on page 289.

- **Workload Manager (WLM).** You can balance server workload by using Workload Manager. For more information, see *Workload Manager* on page 289.

### Server Initialization Commands Configured in SRVINIT Member

It is possible to specify DYNAM commands in member SRVINIT of the data set referenced by //EDACCFG DD in IRUNJCL. These commands will be executed during server startup and will be in effect until the server is shut down. You can execute the following DYNAM commands from SRVINIT:
Specify the types of component files that are skipped or created for the application when an APP CREATE command is issued. By default, all component file types are generated.

**filetype**

Are the component types that may be affected by this command: ACCESS, DTD, ETG, FOCCOMP, FOCEXEC, FOCSTYLE, GIF, HTML, MAINTAIN, MASTER, SQL, WINFORMS, XML, XSD. You must issue a separate command for each component type you wish to affect.

**SKIP**

Indicates that the designated file type should not be created when the APP CREATE command is issued.

**CREATE**

Creates the designated file type when the APP CREATE command is issued. This is the default setting.

**POSTFIX**

Specifies the lower-level qualifier of the DSN (data set name) for the component type. The APPROOT value is used to complete the full DSN, which is expressed as

```
approotvalue.appname.component_type
```

The default value for component_type is

**filetype.DATA**

**parms**

Are the allocation parameters you can set. The default parameter values are:

<table>
<thead>
<tr>
<th>Filetype</th>
<th>Parms</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESS</td>
<td>RECFM FB TRKS LRECL 80 BLKSIZE 22000 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>DTD</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>ETG</td>
<td>RECFM FB TRKS LRECL 80 BLKSIZE 22000 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>FOCCOMP</td>
<td>RECFM VB TRKS LRECL 32756 BLKSIZE 32760 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>FOCEXEC</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
</tbody>
</table>
### Filetype Parameters

<table>
<thead>
<tr>
<th>Filetype</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOCSTYLE</td>
<td>RECFM FB TRKS LRECL 1024 BLKSIZE 27648 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>GIF</td>
<td>RECFM VB TRKS LRECL 1028 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td></td>
<td>GIF type creates libraries for GIF and JPG files.</td>
</tr>
<tr>
<td>HTML</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>MAINTAIN</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>MASTER</td>
<td>RECFM FB TRKS LRECL 80 BLKSIZE 22000 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>SQL</td>
<td>RECFM VB TRKS LRECL 32756 BLKSIZE 32760 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>WINFORM</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>XML</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
<tr>
<td>XSD</td>
<td>RECFM VB TRKS LRECL 4096 BLKSIZE 27998 SPACE 50 50 DIR 50</td>
</tr>
</tbody>
</table>

- **DYNAM APP app1 [app2 ...]**

  Enable application libraries to be allocated during the server startup, improving performance. This command is not applicable to sequential data sets in the application (for example, FOCUS, FTM) which will only be allocated when they are referenced. For example:

  DYNAM APP IBISAMP BASEAPP  (default command at installation time)

- **DYNAM ALLOC commands**

  For sequential data sets in the application (for example, FOCUS, FTM) to be allocated at server startup (equivalent to adding a JCL allocation for these files in IRUNJCL).
Running the Server in a Non-Swappable Address Space

We recommend that you run the server in a non-swappable address space. In order to make the server address space permanently non-swappable, add the following entry to SYS1.PARMLIB(SCHEDxx):

```
PPT PGMNAME(TSCOM300) /* PROGRAM NAME */
NOSWAP /* NON-SWAPPABLE */
CANCEL /* CAN BE CANCELLED */
```

Do not use the KEY 0 parameter, or any other parameter (such as NOPASS), unless the system programmer completely understands the consequences of adding the parameter.

All local spawn transactions will perform in the mode of the server. For example, if the server address space is non-swappable, all local spawn execute as non-swappable.

The server executes limited non-local spawn, such as when the user executes a UNIX system command. Non-local spawn execute as swappable.

The server never executes a fork subroutine. (A fork subroutine creates a new process. The new process, called the child process, is an almost exact copy of the calling process, which is called the parent process.)

Workload Manager

Although the server may run in a specific performance group, transactions submitted by server agents may perform differently than the server by adding the following keyword to edaserve.cfg:

```
wlm_enclave_trname = WLM_transaction_name
```

where:

```
WLM_transaction_name
```

Can be up to 8 characters.

This is a service-level keyword.

Using this setting, the task will join a Workload Manager (WLM) enclave when a request starts, and leave the enclave when the request finishes. This gives WLM control of the dispatching priority of the task. The transaction rules defined on WLM will determine the default service class assigned to this transaction, and that service class will determine how the request runs.

This feature helps to balance a workload so that a long request will not affect a short request. This can be achieved through WLM rules designed to lower the priority of a long request after a certain period of time. Without this feature, all requests share the region priority.
The transaction name passed in this keyword must match one defined in the WLM Classification Rules for the Job Entry Subsystem (JES). A corresponding WLM Service Class pointed to by this rule will then be associated with this service.

The classification rules for JES must be used even if the server is started as a started task. The subtasks are always run under JES.

For example, you would include the following in edaserve.cfg:

```plaintext
SERVICE = DEFAULT

BEGIN
wlm_enclave_trname = IWAYFAST
.
.
.
END
```

The WLM definition is:

Subsystem Type JES - Batch Jobs
Classification:

Default service class is PRDBATLO
There is no default report class.

<table>
<thead>
<tr>
<th>Qualifier</th>
<th>Qualifier</th>
<th>Starting</th>
<th>Service</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td># type</td>
<td>name</td>
<td>position</td>
<td>Class</td>
<td>Class</td>
</tr>
<tr>
<td>1 TN</td>
<td>IWAYFAST</td>
<td></td>
<td>EDAQRYHI</td>
<td></td>
</tr>
</tbody>
</table>

WLM sub-rules (levels 2 and above) are supported. For a server request to join an enclave in a particular service class, the names of all rule qualifiers below our transaction name are checked. For example, consider the following WLM definition:

Subsystem Type JES - Batch Jobs
Classification:

Default service class is PRDBATLO
There is no default report class.

<table>
<thead>
<tr>
<th>Qualifier</th>
<th>Qualifier</th>
<th>Starting</th>
<th>Service</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td># type</td>
<td>name</td>
<td>position</td>
<td>Class</td>
<td>Class</td>
</tr>
<tr>
<td>1 SSC</td>
<td>PRDMVS</td>
<td></td>
<td>PRDDFLT</td>
<td></td>
</tr>
<tr>
<td>2 TN</td>
<td>IWAYFAST</td>
<td></td>
<td>EDAQRYHI</td>
<td></td>
</tr>
</tbody>
</table>
In this particular case, the qualifier 1 type is SSC (Subsystem Collection), and a server request will only join the enclave IWAYFAST if it is running on a particular LPAR in the SYSPLEX. This qualifier (PRDMVS) must match the XCF group definition: issue $DMASDEF (for JES2) and check the value of XCFGRPNM field.

You can handle WLM scheduling environments by defining them to WLM and then adding the JOB statement parameter SCHENV=xxxxx to the ISTART JCL.

General Information for a z/OS PDS Installation

In this section:
Sample Metadata, Data, and Other Tutorial Samples
Frequently Asked Questions for PDS

This section covers general information for a z/OS installation.

Sample Metadata, Data, and Other Tutorial Samples

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), Tutorials (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.

There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the Create Legacy Sample Tables and Files tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.

If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).

Frequently Asked Questions for PDS

Q: Why might someone want to use the PDS deployment?

A: PDS deployment provides the same rich level of features as the HFS-deployed server, including the Web Console, but removes the requirement for interaction with Unix System Services at installation and run time. It deploys the server software in partitioned data sets. Configuration and user-created source files, such as procedures and metadata, are also stored in PDS libraries.
Administration of the server, from a systems perspective, has been streamlined to match that of the classic MVS version of the server (also known as the SSCTL server). There are fewer user ID requirements for installing and operating the PDS-deployed server than the HFS-deployed version, and security management has been simplified.

Q: Does this replace the older MVS server (also known as SSCTL)?
A: The z/OS server with PDS deployment is a migration path from the older MVS server.

Q: Can one refresh a server's installation software that had been deployed one way with software using other type of deployment?
A: No. Each deployment type is independent of the other with regards to installation.

Q: Can both deployments of the server coexist on one z/OS system?
A: Yes, if your license agreement allows for this.

Q: Can one configure two server instances of the same server, one instance an HFS/USS deployment, and the other a PDS deployment?
A: No. Although the media and installation are unified, once the base server software is installed, the two deployment types run separately.

As with the HFS/USS deployment, the PDS deployment can have many instances running from the same EDAHOME set of libraries.

Q: Can I monitor server startup by checking the MVS SYSLOG?
A: Yes.

The following messages are written to the SYSLOG when

- The server starts successfully:
  
  (EDA13023) ALL INITIAL SERVERS STARTED

- The Server does not start:
  
  (EDA13171) UNABLE TO START IWAY SERVER

Q: What, if anything, does the PDS deployment not support? In what installation implementation?
A: The PDS deployment of the server currently does not support the following functions:

- The Web Console Run Stress option.
- Displaying server logs and traces in the Web Console.
- Formats XLSX and PPTX.

**Note:** As a workaround, you can issue the SET EXCELSERVEURL command to point to another reporting server that supports these formats.
Adobe Flex.

RACF TEMPDSN class—Supported except for FOCCACHE application datasets.

Third-Party Software and Licenses

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software and includes references to the full licenses included in Information Builders and Third-Party Licenses on page 385.

OpenFlex SDK

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see Zip Archiver License on page 399 or visit our website http://www.informationbuilders.com.
Troubleshooting for PDS

How to:
- Generate a Server Trace
- Generate a System Dump
- Add JCL Allocations to a Running Server
- Free Data sets Allocated to the Server
- Initialize the RDAAPP Application
- Add Your Problem to the Troubleshooting Guide
- Allocate a Data set From the z/OS System Console
- Free a Data set From the MVS System Console

Example:
- Allocating a VSAM Data set
- Allocating a SYSMDUMP Data set With FREE=CLOSE Option
- Freeing an Allocated Data Set
- IRDAAPPC REXX Execution

Reference:
- Problem: The Server Abends With a U4039 Code
- Add Your Problem to the Troubleshooting Guide

If you have a problem and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11. In addition, supply the following information to Customer Support Services:

- Server trace (see How to Generate a Server Trace on page 295).
- JCL for IRUNJCL.
- Job output.
- System dump, if needed (see How to Generate a System Dump on page 295).
- Any additional information regarding how the problem occurred.

If you have a troubleshooting suggestion and you think others will find it helpful, we invite you to send it to us, as described in How to Add Your Problem to the Troubleshooting Guide on page 301. We will consider including your problem in a future release of this manual.
Reference: Problem: The Server Abends With a U4039 Code

Problem: The server abends with a U4039 code.

Cause: This is a generic abend.

Solution: Find out what caused the abend by checking the edaprint.log file, SYSOUT ddname, and the MVS system log.

Procedure: How to Generate a Server Trace

To generate a server trace:

1. Turn tracing on by doing one of the following:
   - Going to the Web Console menu bar, selecting Workspace, and then Enable Traces.
   - Starting the server by running the ITRCON JCL member.
   - On the MVS Console or SDSF, issue the following operator MODIFY command:
     ```
     F jobname, -traceon
     ```
     where `jobname` is the job under which the server is running.

2. Reproduce the problem.

3. Submit the ISAVEDIA member to produce additional diagnostic information.


Procedure: How to Generate a System Dump

To generate a system dump:

1. Allocate DDNAME SYSMDUMP pointing to the data set with the following DCB parameters:
   ```
   RECFM=FB,LRECL=4160,BLKSIZE=4160.
   ```

2. To get the first dump, add the parameter FREE=CLOSE to your DD statement. The DD statement should appear as follows:
   ```
   //SYSMDUMP DD DISP=SHR,DSN=MYID.EDAPTH.SYSMDUMP,FREE=CLOSE
   ```

3. To get the last dump, the statement should appear as follows:
   ```
   //SYSMDUMP DD DISP=SHR,DSN=MYID.EDAPTH.SYSMDUMP
   ```

   Only two IDs must have privileges to write into this data set: ISERVER and IADMIN. General server users DO NOT need read or write access to the SYSMDUMP data set.
4. To prevent abendaid from intercepting the dump, add:

   //ABNLIGNR DD DUMMY

5. To prevent Language Environment from intercepting the dump, specify:

   EDADUMPOPT=UAIMM in EDAENV DD
   
   This enables you to get more accurate information reflecting the moment the abend actually occurs.

6. Save the entire job output for the server (including JES logs), and send it to Customer Support Services.

   Instead of using JCL allocations to add SYSMDUMP, the procedure described below can be used alternatively.

**Procedure: How to Add JCL Allocations to a Running Server**

A z/OS operator can issue modify commands from the z/OS system console to allocate DDNAMES to the server without restarting it. This procedure is useful if you need to re-allocate a file that was freed to allow a batch overnight utility to run, or perhaps to add SYSMDUMP allocation to a running server.

**Syntax: How to Allocate a Data set From the z/OS System Console**

F <iway_server_jobname/started task>,DYNAM ALLOC FI <ddname> DA <dsname> <optional dynam parameters>

**Example: Allocating a VSAM Data set**

F IWAY2,DYNAM ALLOC F VSAMFILE DA VSAM.FILEA.CLUSTER SHR

**Example: Allocating a SYSMDUMP Data set With FREE=CLOSE Option**

F IWAY2,DYNAM ALLOC FILE SYSMDUMP DA PROD2.SYSMDUMP.DATA SHR CLOSE

**Note:** The examples above assume IWAY2 is the jobname/started task ID for the server.

All valid DYNAM ALLOC syntaxes are supported. For more information on DYNAM command, please refer to the *Store Procedures Reference* manual.

The following message will be issued in the server JESMSGLG indicating if the command was processed successfully or not.

**Success:**

+DYNAM COMMAND SUCCESSFULLY PROCESSED Rc=0
Procedure: How to Free Data sets Allocated to the Server

A z/OS operator can issue modify commands from the z/OS system console to free DDNAMEs or DSNAMEs allocated to the server. Both global allocations (made at the server ISTART JCL) and local ones (DYNAM ALLOC commands issued by user tasks) can be freed. This procedure is useful if you need to free an allocation to run a batch utility overnight, without restarting the server.

Syntax: How to Free a Data set From the MVS System Console

To free a single DDNAME:

F <iway_server_jobname/started task>,DYNAM FREE FI <ddname>

To free a single DSNAME (all occurrences in the server):

F <iway_server_jobname/started task>,DYNAM FREE DS <dsname>

To free multiple DDNAMEs, passing a pattern (free all DDNAMEs staring with AB):

F <iway_server_jobname/started task>,DYNAM FREE FI AB*

To free multiple DSNAMEs (all occurrences in the server), passing a pattern (free all allocations of data sets starting with IWAY.VSAM):

F <iway_server_jobname/started task>,DYNAM FREE DA IWAY.VSAM*

A message will be issued in the iway_server JESMSGLG indicating if the command was process successfully or not, as follows.

Success:

+DYNAM COMMAND SUCCESSFULLY PROCESSED Rc=0

Failure:

+DYNAM ERROR: IKJ56225I DATA SET IWAY.TEST ALREADY IN USE, TRY LATER

Example: Freeing an Allocated Data Set

Suppose ISTART JCL (jobname IWAY2) has the following allocation:

//VSAMFILE DD DISP=SHR,DSN=VSAM.FILEA.CLUSTER

The operator can free this file using the command (from MVS console):

F IWAY2,DYNAM FREE FI VSAMFILE
Procedure: How to Initialize the RDAAPP Application

RDAAPP is an interactive client test application that facilitates the execution of SQL statements and stored procedures on the Unified server. During the installation process, JCL and REXX routines are created in the installation data set as members IRDAAPPJ and IRDAAPPC respectively.

The following installation data set is used for HFS deployment.

```
qualify.product_type.DATA
```

where:

- **product_type**
  - Is determined by your license key.

The following installation data set is used for PDS deployment.

```
qualify.PDS.product_type.DATA
```

where:

- **product_type**
  - Is determined by your license key.

**Note:** The RDAAPP application is not intended for use as a production tool.

1. To use the IRDAAPPJ JCL, you must first edit the member IRDAAPPJ and add your request details.
   a. To edit the member IRDAAPPJ, change the following field,

   ```
   //STDIN DD *
   Put your request here
   //
   
   to
   
   //STDIN DD *
   <enter blank line>
   <enter userid>
   <enter password>
   LOOPBACK
   <enter request>
   <enter optional parameters> Q
   Q
   //
   
   b. Complete the panel as follows.
### Instructions

<table>
<thead>
<tr>
<th>Field</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;enter userid&gt;</code></td>
<td>Enter a valid user ID or blank line if the userid of the user who submitted the job is to be used for a trusted connection.</td>
</tr>
<tr>
<td><code>&lt;enter password&gt;</code></td>
<td>Enter the password for the above userid or a blank line if the userid/password of the user who submitted the job is to be used for a trusted connection.</td>
</tr>
<tr>
<td>LOOPBACK</td>
<td>Match a node name in the EDACS3 allocation in the IRDAAPPJ JCL. Default is LOOPBACK.</td>
</tr>
<tr>
<td><code>&lt;enter request&gt;</code></td>
<td>Enter one of the following values:</td>
</tr>
<tr>
<td>S</td>
<td>To enter an SQL SELECT statement. Type the statement after you enter the value S (see the following example).</td>
</tr>
<tr>
<td>P</td>
<td>To enter an SQL PREPARE statement. Type the statement after you enter the value P.</td>
</tr>
<tr>
<td>D</td>
<td>To execute a prepared statement by supplying the ID. Type the ID after you enter the value E.</td>
</tr>
<tr>
<td>Q</td>
<td>To quit.</td>
</tr>
<tr>
<td>?</td>
<td>For this list of commands.</td>
</tr>
<tr>
<td><code>&lt;enter optional parameters&gt;</code></td>
<td>Depending on the above command, you may be prompted for:</td>
</tr>
<tr>
<td></td>
<td>Select engine (0/ENTER - EDA, 1 - DB2, 2 - TERADATA, and so on).</td>
</tr>
<tr>
<td></td>
<td>Reclimit (Hit Enter for all records).</td>
</tr>
<tr>
<td></td>
<td>Readlimit (Hit Enter for all records).</td>
</tr>
<tr>
<td>Q</td>
<td>Quit RDAAPP (It is needed twice).</td>
</tr>
</tbody>
</table>

**c.** Once you have made the above edits, submit the JCL for execution.

**2.** Type the following command at the TSO ready prompt to use the IRDAAPPC REXX routine:

```ex
EX 'qualif.product_type.DATA(IRDAAPPC)'
```
or

```
EX 'qualif.PDS.product_type.DATA(IRDAAPPC)'
```

where:

```
product_type
```

Is determined by your license key.

3. After the prompts, enter the same information as specified in the above table.

**Example:** IRDAAPPC REXX Execution

The following is the screen output from a sample execution of the IRDAAPPC REXX routine:

```
********************************************************************
**                  RDAAPP Client test tool                       **
********************************************************************
<<< RDAAPP : Initializing EDA/API SQL, Version 7, Release 7 >>>
Default communications config file : //DD:EDACS3
Override? (Press enter for default) :  <enter blank line>
<<< Initialization Successful >>>

Enter User Name : <enter userid or leave blank for current TSO userid>
Enter Password : <enter password or leave blank for current TSO userid password>
Enter server name, number, SELF, URL or ? (Hit return for 'LOOPBACK') :
<<< Successfully connected to synchronous server LOOPBACK >>>

Enter Command (? for command help):
```
S
SELECT COUNTRY FROM CAR;
```
Select engine (0/ENTER - EDA, 1 - DB2, 2 - TERADATA, etc) :
Reclimit (Hit enter for all records):
Readlimit (Hit enter for all records):

Please Wait...
ENGLAND
FRANCE
ITALY
JAPAN
W GERMANY

<<< 5 record(s) processed. (scb count 5) wait=4 secs, retrieval=0 secs>>>
<<< 5 record(s) processed. (scb count 5)>>>
```
Q
```
Procedure: How to Add Your Problem to the Troubleshooting Guide

If you have troubleshooting suggestions that you think others will find helpful, we invite you to send them to us so that we can consider including them in a future release. You can:

- Email them to books_info@ibi.com. Include your name and phone number, and include Server Installation Troubleshooting in the subject line.

- Send them to:
  Technical Content Management
  Information Builders
  Two Penn Plaza
  New York, NY 10121-2898

Please include your name, phone number, email address, and postal address.
This chapter describes the requirements and procedures for installing on IBM i.

**Note.** This manual uses the term IBM i generically to refer to all OS/400, i5/OS, and IBM i releases.

**Topics:**
- Step 1. Reviewing System Requirements
- Step 2. Creating User IDs
- Step 3. Accessing the Installation Software
- Step 4. Running the Installation Program
- Step 5. Verifying the Server Installation
- Step 6. Security Providers
- Starting and Using the Server
- CL and CMD Programs
- General Information for an IBM i Installation
- Generating a Trace
- Third-Party Software and Licenses
- Troubleshooting for IBM i
Step 1. Reviewing System Requirements

In this section:
- Operating System Release Requirements
- Shell Requirements
- JVM Requirements for Java Services
- IP Port Number Requirements
- SMTP E-Mail Server Information (Server Optional)
- Browser Requirements
- Disk Space Requirements
- Memory Requirements
- Communications Requirements
- User ID Requirements
- Installation and Configuration Directories

Before beginning installation, review the requirements in the following topics.

Operating System Release Requirements

For current information about supported releases:

   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied.
Confirm that your installation software is labeled for your operating system level.
Shell Requirements

The IBM i - QShell Interpreter (IBM i Installation Option 30) must be installed to use the product. The QShell Interpreter is a free optional feature of IBM i. The easiest way to check if this feature is installed is to enter QSH on the IBM i command line. If it is installed, a UNIX-like environment starts (F3 to exit). If it is not installed, you receive a *LIBL not found message. If it is not installed, install it before proceeding.

JVM Requirements for Java Services

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality. The following URL has Java EOL and EOSL information:

http://java.sun.com/products/archive/eol.policy.html

The location of the JVM on IBM i is controlled by the object QSYS/QJVAJNI. This is normally on the system path, so you do not need to do anything to fulfill basic JVM find requirements. However, if the default JVM level of the machine is not 1.6 or higher, corrective action may be required to access the correct JVM level.

Java is always pre-installed by IBM on IBM i systems and the only question is the current default release level in use.

If the default JVM is not found or is set to an appropriate release at server start time, a Failed to find JVM message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log, indicating JSCOM3 start failed, as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener, and the terms are often used interchangeably.

The easiest way to determine the current default for the server iadmin ID is to issue the command QSH CMD('java -version'), which will display the default release level for the ID.

There are several choices on how to address using the correct JVM level, but also varies by operating system levels due to changes or restrictions by IBM.

For V6R1 or lower, the choices are:

- Switch the Java default property of the machine to 1.6 or higher, which may or may not be desirable based on other applications that may be using Java.
Switch the server iadmin ID Java default property to 1.6 or higher.

Configure the server to have a 1.6 (or higher) JVM property, as described below. (This is now done automatically for new installs on V5R4 and V6R1.)

For V7R1, the choices are:

- Change the Java (5761-JV1) install options to point at the desired JVM level as a machine default. This may or may not be desirable based on other applications that may be using Java.
- Set JAVA_HOME to point at a desired JVM release level.

On V6R1 systems, to change or add a Java property of java_version=1.6, use EDTF against the `/QIBM/UserData/Java400/SystemDefault.properties` file or the server ID home directory SystemDefault.properties file. If an editor is not available, you can also create or append to the Java system or user property files using the following:

```bash
QSH CMD('echo "java.version=1.6" >> /QIBM/UserData/Java400/SystemDefault.properties')
```

or

```bash
QSH CMD('echo "java.version=1.6" >> $HOME/SystemDefault.properties')
```

On V6R1 systems, you may also configure the server JVM properties for the release level using the Web Console to access the Java Listener tuning:

1. Select **Workspace** from the menu.
2. Open the **Java Services** folder.
3. Right-click **DEFAULT** and select **Properties**.
   
The Java Services Configuration pane opens.
4. Expand the **JVM Settings** section.
5. Under **Non-standard JVM options**, enter `-Djava.version=1.6` in the **JVM_OPTIONS** field.
6. Click **Save and Restart Java Services**.

In V7R1 systems, the various Java releases that may be available will be found in the `/QOpenSys/QIBM/ProdData/JavaVM` folder. For example:

```
/QOpenSys/QIBM/ProdData/JavaVM/jdk14/64bit
/QOpenSys/QIBM/ProdData/JavaVM/jdk50/32bit
/QOpenSys/QIBM/ProdData/JavaVM/jdk50/64bit
/QOpenSys/QIBM/ProdData/JavaVM/jdk60/32bit
/QOpenSys/QIBM/ProdData/JavaVM/jdk60/64bit
```
To use the JVM from one of these releases, specifically for the server iadmin ID (if it is not already the system default), set the JAVA_HOME variable to point at a 32bit JDK. For example:

```
JAVA_HOME=/QOpenSys/QIBM/ProdData/JavaVM/jdk60/32bit
```

The variable may be set in any of the following ways:

- As a system variable set from the profile of the server iadmin ID, using INLPGM exit, a JOBQ RQSDTA() CL option, or any number of other methods for setting system variables within the environment of a job.
- As an exported QSH variable in any script that is used to call the edastart script.
- As a system variable in any customized CL that is used to call the QSH IFS edastart script, or as an export variable within the QSH portion of the CL.
- Add to the edaenv.cfg environment configuration file of the server.

Use of the -Djava property on V7R1 and higher is not an option, and if it was used previously under V6R1, and the machine is upgraded to V7R1, the Java release must be configured using V7R1 methods (described above).

To change or add operating system environment variables, set and export the variable in a .profile, script, or CL that always gets called during a server start. It is very common to place variables in the server edastart script, but it is recommended that they be placed in a script that in turn calls edastart (so that the edastart script remains vanilla).

To change or add a variable in a server environment start up file (EDACONF bin\edaenv.cfg), either edit the file in a text editor before starting the server or:

1. Start the server (services like Java Listener may fail until configured and the server is restarted).
2. Open the Web Console and log on using an administrator ID.
3. Select Workspace from the main menu.
4. In the navigation pane, open the Configuration Files and Miscellaneous folders.
5. Right-click Environment - edaenv.cfg and select Edit.
6. Make the desired edit.
7. Save the file.
8. Restart (changes are not effective until restart).

The format of edaenv.cfg variables is one per line in name=value pairs. Spaces before and after the equal sign are optional. Values with embedded spaces do not require quoting. Variables are always uppercase.
To add classes to the JVM class path for customer-written CALLJAVA applications, set and export the CLASSPATH variable to the operating system level before server start-up or use the Web Console to set the Java Listener IBI_CLASSPATH property by using the Web Console to access the Java Listener:

1. Select Workspace from menu bar.
2. Open the Java Services folder.
3. Right-click DEFAULT and select Properties.
   The Java Services Configuration pane opens.
4. Expand the Class Path section.
5. Add the desired full path jar names (one per line).
6. Click Save and Restart Java Services.

If JVM-based adapters or features are not required, and the JVM environment is not configured, the message Failed to find JVM is normal and can be ignored.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Additionally, do not use IP port numbers already being used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.

**SMTP E-Mail Server Information (Server Optional)**

The server can send emails using STMP protocols. To use these features, the server needs the TCP/IP host name (or number) and port number for an accessible SMTP server (the default port number is 25).

The installation process allows this information to be set at installation time, but it may also be added (or changed) afterward using the Web Console. To change it from the Web Console, select Workspace from the main menu, and then select E-Mail SMTP Server from the ribbon.

The installation panel for supplying the SMTP information will also have inputs for the default email sender address (the from address for users reading an email from the server if none was specified in the originating application) and the server administrator email address (the address to send administrative warnings to, such as an agent crash).
Browser Requirements

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.

Disk Space Requirements

The following are approximate disk space requirements. Specific sizes may vary slightly with options selected during configuration. The usage numbers do not include space for actual applications, data sources, sort space, output preparation, or logs.

<table>
<thead>
<tr>
<th>Version</th>
<th>During Install</th>
<th>After Install</th>
</tr>
</thead>
<tbody>
<tr>
<td>V5R4</td>
<td>2 GB</td>
<td>1 GB</td>
</tr>
<tr>
<td>V6R1 or higher</td>
<td>2 GB</td>
<td>1 GB</td>
</tr>
</tbody>
</table>

Memory Requirements

Memory and shared memory usage depend on the following elements:

- Number of data access agents.
- Type of access that is performed, such as joins and large retrieval.
- Connection queue.

Actual memory usage differs between applications and the server load.

Communications Requirements

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.

User ID Requirements

When installing and using the server, you need several types of operating system user IDs:
Server administrator IDs (iadmin). Server administrators use this ID to install, start, and stop the server. This ID is also used to configure the server if the server is configured to run with an OPSYS (operating system) Security Provider.

The operating system ID you use when installing the server owns the server files and is the default server administrator for OPSYS mode. You can create a new operating system ID to run and own the server files, or use any ordinary (non-QSECOFR) ID.

Note that the name iadmin is used to refer to the server administrator ID and group throughout this manual, but you may use any name for this ID.

For security purposes, you should not allow users and applications to use the iadmin ID. It should be available only to users who require server administrative privileges.

User and application IDs. When users and applications try to access the server, the server is normally running with one or more Security Providers that do authorization logic.

Server system ID (iserver). You have the option of creating a user ID that is QSECOFR for internal use by the server to proxy the authority of QSECOFR. The ID can be an account never used for logging in. You might wish to create an iserver ID if, for example, you do not want certain server processes to appear as owned by QSECOFR.

Note that the name iserver is used to refer to the server system ID throughout this manual, but you may use any name for this ID.

For specific information on creating IDs, see Step 2. Creating User IDs on page 312.

Installation and Configuration Directories

The installation process creates these high-level directories:

Home directory. This installation directory stores the product program links and other files. We refer to this as EDAHOME, and when the product is running, the full path is stored in the environment variable EDAHOME. The default directory is

\[ibi/srv77/home[/suffix]\]

\[suffix\]

Is optional when installing and maintaining a single release of the product. It is required if installing and maintaining multiple server releases, to ensure that each installed release has a uniquely-named home directory. For example:

\[/home/iadmin/ibi/srv77/home77\]

Home library. This installation library contains the actual server programs that appear in the home directory as symbolic links. The default library name is SRV77, but you can specify any valid library name.
Configuration directory. The files that control the behavior of each product instance reside here. We refer to this as EDACONF, and when the product is running, the full path is stored in the environment variable EDACONF. The default directory is

`ibi/srv77/product_type[suffix]`

where:

**product_type**
Designates the type of product. The default values are:

- **FFS** for a Full-Function Server.
- **DM** for a DataMigrator Server.
- **WFS** for a WebFOCUS Reporting Server.
- **WFM** for a Shared Application Server for WebFOCUS Maintain.

**suffix**
Optional for an initial default installation and configuration. Required when configuring additional instances of the product. You must add a suffix to the directory name to ensure that each instance has a uniquely-named configuration directory. For example:

`/home/iadmin/ibi/srv77/ffs002`

Application directory. This is the default location for storing applications. It is a folder under the server internal location known as APPROOT. This directory may be shared by applications created with other Information Builders products. The APPROOT location defaults to

`ibi/apps`

Security for application directories is handled at the operating system level. To avoid any possibility of these directories being accessed inappropriately by means of APP commands (such as APP DELETE AppDirName), use directory security to set the appropriate permissions on these directories.

Profiles directory. The user and group profiles reside here, as does the admin.cfg file, which specifies the server administrator. We refer to this as EDAPRFU, and when the server is running, the full path is stored in the environment variable EDAPRFU. This directory defaults to

`ibi/profiles`
Step 2. Creating User IDs

**Server administrator ID (iadmin)**

The installation of a server requires an ID to install and own the files as well as to administer the server; this is also known as the iadmin ID. The iadmin ID should:

- Not be QSECOFR, not have a group of QSECOFR, and not have other special authorities.
- Have authority to use RSTLIB for the duration of the installation process.
- Have a message queue delivery of *NOTIFY if this is not the default for the system.
- Have a writable explicit CURLIB (not *CRTDFT QGPL). We recommend a library that is the same name as the user ID (for example, CRTLIB IADMIN). However, if the DB2 interface is being used in SQL mode (vs. CLI) then the library should be created as a DB2 Collection (for example, STRSQL -> CREATE COLLECTION IADMIN) so DB2 Journaling is active for the server. Alternately, Journaling for DB2 may be redirected (instead of creating a specific collection) by creating a QDFTJRN Data Area entry in the CURLIB with:

  ```
  CRTDTAARA DTAARA(IADMIN/QDFTJRN) TYPE(*CHAR) LEN(25) VALUE('IADMIN QSQJRN *FILE')
  ```

  The CRTDTAARA VALUE parm must be padded to the sizing shown (10 10 5). If not, Journal redirection will not work.

**Note:** As of Release 7.6.3, requiring an explicit CURLIB is a requirement. Sites with prior installations must update the server admin ID to have a CURLIB if it did not (for example, CHGPRF CURLIB(IADMIN)). Otherwise, the installation process will fail. The easiest way to check if an ID has a CURLIB is to do a DSPLIBL and look for a library entry with type of CUR. Information Builders does not recommend CURLIB library names matching the software install library (for example, SRV77) as this allows the software library to possibly get corrupted with files from daily activities. It also creates a high possibility of accidental overwrites/deletions of important software.

- The server administrator ID should only have basic IBM i libraries and no System/36 compatibility libraries.
- Have a HOMEDIR other than the IBM i default of "/" and the directory should exist, for example, /home/iadmin.
- The server administrator ID (at the operating system level) must be configured for code page 37 (EBCDIC 8-bit West European) or a code page that is compatible with 37 in order for the server to work properly. Code Page 65535 (raw data mode) is not acceptable. After installation, the server itself (using the Web Console) may be configured for a particular code page configuration (and language).

To determine if the code page you use is compatible with code page 37, check if the square brackets ([ ]) in your code page are in the same position as on code page 37.
If square brackets are in the same position, your code page is compatible with 37. You do not need to do anything else.

If square brackets are not in the same position, change the code page that is specified in the IBM i iadmin profile to 37 (or to a code page compatible with 37). Then log iadmin off the system, and log it on again to install.

You can find IBM code page descriptions at:


This documentation refers to the server administrator ID, which you use to install and administer the server, as the iadmin ID, but you can name it anything you want. If you name it something other than iadmin, you will need to create a second ID, literally named iadmin, for the DVD library to properly unload. If you do not use this literal iadmin ID to install and own the files, you can remove it after installation.

While logged on as QSECOFR, create the server administrator ID and home directory using the following sample code:

CRTUSRPRF USRPRF(IADMIN) PASSWORD(MYPASS) HOMEDIR('/home/iadmin')
CCSID(37) TEXT('Server Administrator ID') DLVRY(*NOTIFY)
QSH CMD('mkdir /home/iadmin')
QSH CMD('chmod 755 /home/iadmin')
QSH CMD('chown iadmin /home/iadmin')

Running the server in secured mode also requires that particular files have their ownership changed to QSECOFR (this step is done after installation).

**User IDs**

End users of the server will also require an ID and password created/configured for the Security Provider modes a server is using. For the OPSYS Security Provider mode, no special authorities or setup parameters are needed for the IDs.

To keep the server secure, you should make the iadmin ID available only to users that require server administrative privileges.

**Server system ID (iserver)**

You have the option of creating a user ID that is QSECOFR for internal use by the server to proxy the authority of QSECOFR. We call this the Server system ID (iserver). The ID can be an account that is never used for logging in. You might wish to create an iserver ID if, for example, you do not want certain server processes to appear as owned by QSECOFR.

To create iserver, issue the following command

CRTUSRPRF USRPRF(id) PASSWORD(*NONE) USRCLS(*SECADM)
TEXT('Server System Security ID') SPCAUT(*SECADM *ALLOBJ *JOBCTL)
Step 3. Accessing the Installation Software

In this section:
Copying the Installation Library From DVD
Downloading the Installation Software Using FTP

You install the server from a library that is restored from either a DVD or a file that you downloaded by means of FTP. If you access the software using:

- **DVD**, the software is provided as a library on DVD that is copied to disk. This is how most installations are performed. For DVD installation, see *Copying the Installation Library From DVD* on page 314.

- **FTP**, you download the installation software from the Information Builders FTP site. Downloading the installation software involves:
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the server installation software from the site.
  3. **Unzipping** the downloaded file.
  4. **Running** the isetup procedure to begin installing the server.

For instructions, see *Downloading the Installation Software Using FTP* on page 315.

Copying the Installation Library From DVD

1. Log on as a QSECOFR authorized ID. The ID must have ALLOBJ authority and RSTLIB authority.
2. Place the media in the drive.
3. Restore the installation library from the DVD to disk by issuing the command

   \[
   \text{RSTLIB SAVLIB(InnnLIB) DEV(device) MBROPT(*ALL) ALWOBJDIF(*ALL) RSTLIB(instLibName)}
   \]

   where:

   \[
   \text{Innn}
   \]

   Is the software version and release number (for example, 776).
device
Is the device name. To view available devices, issue the command:

WRKCFGSTS CFGTYPE(*DEV) CFGD(*OPT)

RSTLIB(instLibName)
Is required if you will be using the product with a code page that is incompatible with code page 37, EBCDIC 8-bit West European. For example, this is required if you will be using the server with Japanese or another double-byte character set. Otherwise, this is optional but recommended. Be sure to use either a clean restore library or the ALWOBJDIF(*ALL) option to ensure overwriting any prior files.

instLibName is the name you assign to the library to which you are restoring the contents of the DVD. It can be any valid library name. The library should either not exist prior or be empty of files (CFG and SRV* in-particular). If you do not specify RSTLIB(instLibName), the restored installation library name defaults to the original save name.

Note that in examples later in the installation process we will show this as I776LIB, but you should always enter the actual name that you specified here.

For more information about using the software with different code pages, see the explanation of the Initial Code Page parameter in Step 2 in Step 4. Running the Installation Program on page 316.

4. If you are not using the real iadmin as the iadmin ID to own the files and manage the server, issue (as QSECOFR)

CHGOBJOWN OBJ(instLibName/INU) OBJTYPE(*PGM) NEWOWN(QSECOFR)

where:

instLibName
Is the name of the installation library that you restored from DVD in Step 3.

5. Log off the QSECOFR user ID and proceed to Step 4. Running the Installation Program on page 316.

After you complete the installation, you can delete the installation library.

Downloading the Installation Software Using FTP

To download the installation software:


   The Information Builders Technical Support home page opens.

2. Click My Downloads in the My Account section on the right side of the page.

   The Downloads, Upgrades, Service Packs, and PTFs page opens.
3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.

4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click Download to the right of the platform name.

6. Fill in the registration form and then click Continue.
   The Software Download Agreement page opens.

7. Select I agree... to consent to the Download Agreement, and then click Continue.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is also automatically emailed to you for later reference.

8. Follow the instructions on the Download Page.

9. Run the installation procedure as described in Step 4. Running the Installation Program on page 316.
   Note the name of the installation library: I77LIB.

   After you complete the installation, you can delete the iserver save file and the installation library.

Step 4. Running the Installation Program

In this section:
- Additional Configurations
- Refreshing an Installation
- Installing and Configuring Silently

Example:
- Full-Function Server Installation

Reference:
- Server Installation Parameters

1. Log on with the iadmin user ID.
2. On the IBM i command line, call the installation procedure. For example

```
CALL instLibName/ISETUP
```

where:

`instLibName`

Is the name of the installation library that you downloaded, or restored from DVD, in Step 3. Accessing the Installation Software on page 314. The default name is I77LIB.

3. Select the initial code page, or press Enter to accept the default value. (Most installation procedure prompts will allow you to press Enter to accept the default.)

For information about your code page choices, see Server Installation Parameters on page 319.

You are prompted for the type of installation you are performing.

4. Enter the installation option 1 (Install and Configure).

You are prompted for your license key.

5. Enter your license key. You can find it on your shipping manifest.

You are prompted for the name of the installation media library.

6. Enter the name of the installation library that you downloaded, or restored from DVD, in Step 3. Accessing the Installation Software on page 314. The default name is I77LIB.

You are prompted for the password of the server administrator (iadmin) ID.

7. Enter the server administrator password.

You are prompted for the server system (iserver) ID.

8. Enter the server system ID.

You are prompted to review the default values of the remaining installation parameters.

9. To accept all the default values, enter Y and skip to Step 11. Otherwise, to change any values, continue to Step 10.

**Installing the demo files.** By default, the Century Corp demo files are not installed. If you wish to install them, do not enter Y; continue to Step 10, where you will have the option of installing them in one or more languages. Note that all other demo files are installed automatically, in English, as part of the standard installation.

10. Enter N to be prompted individually for each installation parameter. For each one, you will be given the choice of accepting the default value or changing it.

For information about these parameter values, see Server Installation Parameters on page 319. Note that the default root location is the iadmin ID home directory.
If any of the prompted locations (such as EDAHOME) exist, they will be marked with "(*EXISTS*)" on the display line. This gives you the opportunity to change a location if you do not want to overwrite it by changing the default values.

When specifying a location, note these requirements:

- The EDAHOME directory path name must conform to the pattern *ibi/srv77*/home* and must be an absolute path.

- If you changed the EDAHOME value, the default EDACONF and EDAHOMELIB values change to conform to EDAHOME.

  EDACONF must be in the same srv77 path as EDAHOME. The lowest-level EDAHOME directory (home) becomes the product type directory in EDACONF.

  For example, if EDAHOME is

  `iadmin/ibi/srv77/home`

  then EDACONF for a WebFOCUS Reporting Server defaults to:

  `iadmin/ibi/srv77/wfs`

  If you are configuring an additional server instance, be sure to specify a new configuration directory here; do not use an existing directory. Each instance must have its own configuration directory. You can append characters to the name of the `product_type` directory to avoid overwriting the existing directory. For example:

  `iadmin/ibi/srv77/wfs2`

  For more information about EDAHOME and EDACONF, see *Installation and Configuration Directories* on page 310.

Note that the server National Language Support (NLS) is set to OFF by default. You can configure it using the Web Console after installation.

11. Review the configuration options displayed on the screen, and type Y if you accept them.

   Alternatively, to start over, enter N. To quit the installation procedure, enter Q.

   Several progress messages display while the server is being installed. You are then asked if you want to start the server.

12. Type Y to start the server or N to exit.

   If you start the server, startup messages and the Web Console URL are now displayed.

   You should now verify your installation, as described in *Step 5. Verifying the Server Installation* on page 327.
**Reference:**  **Server Installation Parameters**

The server installation procedure parameters are described in the following table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media for Product</td>
<td>Name of the installation library that you downloaded, or restored from DVD, in <em>Step 3. Accessing the Installation Software</em> on page 314. The default name is I771LIB.</td>
</tr>
<tr>
<td>Server Admin Password</td>
<td>Server administrator (iadmin) password. It is recommended that you supply a password. Otherwise, the server will start in safe mode.</td>
</tr>
<tr>
<td>Server System Support ID</td>
<td>The ID (ISERVER) used internally by the server for security authority. For more information about it, see <em>User ID Requirements</em> on page 309.</td>
</tr>
<tr>
<td>EDAHOME</td>
<td>IFS directory location for files. Any changes in the EDAHOME location must follow the pattern <em>ibi.srv77</em>.home* in its declaration.</td>
</tr>
<tr>
<td>EDAHOMELIB</td>
<td>QSYS library location for programs.</td>
</tr>
<tr>
<td>EDACONF</td>
<td>Location for the default configuration. The default value is based on the license key and any change in the EDAHOME directory pattern. The default will be a sibling directory to the EDAHOME directory in terms of its location, and have a name, such as ffs, wfm, dm, or wfs (based on the key and on any change in the EDAHOME pattern).</td>
</tr>
<tr>
<td>EDAPRFU</td>
<td>Location of user and group profiles and of admin.cfg, which specifies the server administrator.</td>
</tr>
<tr>
<td>APPROOT</td>
<td>Location for default applications and sample applications.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| HTTP_BASE_PORT      | First of three consecutive port numbers that the server uses for the HTTP Listener and other IP-based services. If you are configuring multiple server instances, be sure to specify a different range of ports for each instance. The default port automatically varies by product to support multiple servers on a particular computer:  
  - **For a Full-Function Server**, 8101 is the default value, which reserves ports 8101-8103.  
  - **For a WebFOCUS Reporting Server**, 8121 is the default value, which reserves ports 8121-8123.  
  - **For a DataMigrator Server**, 8117 is the default value, which reserves ports 8117-8119.  
  - **For a Shared Application Server** (for WebFOCUS Maintain), 8113 is the default, which reserves ports 8113-8115. |
<p>| TCP_BASE_PORT       | Port number on which the server TCP Listener listens. It must be outside the range of the three consecutive HTTP Listener ports. It defaults to the port immediately preceding the first HTTP Listener port. For example, if you accept the default HTTP Listener Port value of 8101, the TCP Listener port defaults to 8100. If you are configuring multiple server instances, be sure to specify a different port for each instance. |
| SMTP_HOST           | SMTP Server node (host) name or TCP/IP number for outbound email features. (Optional, only prompted for if changing directories and ports.)                                                                                                                                                                                                  |
| SMTP_PORT           | SMTP Server port number for SMTP Server. The default value is 25. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)                                                                                                                                                                             |
| SENDER_EMAIL        | Default <em>from</em> address for users reading an email from the server if none was specified in the originating application. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)                                                                                                                   |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVER_ADMIN_EMAIL</td>
<td>Server administrator email address to send administrative warnings to, such as an agent crash. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)</td>
</tr>
</tbody>
</table>

**Example: Full-Function Server Installation**

The following session is an example of a Full-Function Server installation in which the user has accepted the default values. The session begins with a CALL command issued from the command line of the IBM i menu.

```
$ CALL I77LIB/ISETUP

Welcome to the Product Set Up Facility
Please respond to the prompts or enter Q to quit at any prompt.

Select an option:
  1. Install and Configure
  2. Add Additional Configuration Instance
  3. Refresh Installation (Reinstall, Keep Configurations)
  4. Install Debuggables to the Installation Directory
Enter a selection (Default=1) : 1

Enter your License Key       (Current number of CPUs = 8)
(Format 999-999-9999-99) : xxx-xxx-xxxx-xx
License Key has been checked
Product: WebFOCUS Server
Maximum Number of Adapters: Unlimited
Maximum Number of Users: 8
Maximum Number of CPUs: Unlimited (8 found)

Please enter the media library name
(Default=I77LIB)
Please supply media or <Enter> :
```
Enter credentials for the server's internal security provider (PTH), the server's default start up mode.
Enter the Server Administrator ID (Default=srvadmin) :
Enter the Administrator Password :
Use the WebConsole Access Control option to configure alternate or additional security providers, such as OPSYS, LDAP or others.
Enter the Server System Support ID (Default=QSECOFR) :

Supply the location on disk in which to install the software.
This location is also known as EDAHOME.
(Default=/home/iadmin/ibi/srv77/home)

Please supply location or <Enter>:

Enter EDAHOME Library Name (max length 9) (Default=SRV77) :

Supply the location on disk in which to configure the software.
This location is also known as EDACONF.
( Default=/home/iadmin/ibi/srv77/wfs)
Please supply location or <Enter>:

Supply the location on disk where the product will look for user profiles and the admin.cfg file. This location is also known as EDAPRFU.
( Default=/home/iadmin/ibi/profiles)
Please supply location or <Enter>:

Supply the location on disk where the product will look for applications.
This location is also known as APPROOT.
( Default=/home/iadmin/ibi/apps)
Please supply location or <Enter>:
Enter HTTP Listener Port (HTTP_BASE_PORT). This is the first of four consecutive port numbers that are open and dedicated to the HTTP Listener and other IP based services. (Default=8121) :
Enter TCP Listener Port (TCP_BASE_PORT). The TCP Listener Port number must be outside the selected HTTP range (8121 - 8124).
(Default=8120) :

Enter SMTP Mail Server (Optional) :

The following selections have been made for ...
Install Options ...
  INSTALLATION_DEVICE = I77LIB
  PRODUCT = server
  EDAHOME = /home/iadmin/ibi/srv77/home
  EDAHOMELIB = SRV77
  LICENSE = xxx-xxx-xxxx-xx

Configure Options ...
  EDACONF = /home/iadmin/ibi/srv77/wfs
  EDAHOME = /home/iadmin/ibi/srv77/home
  EDAHOMELIB = SRV77
  LICENSE = xxx-xxx-xxxx-xx
  PRODUCT = server
  EDAPRFU = /home/iadmin/profiles
  WORKSPACE_MANAGER_NAME = "WebFOCUS 77 Server"
  APPROOT = /home/iadmin/ibi/apps
  SERVER_TYPE = ffs
  SERVER_ADMIN_ID = iadmin
  PTH_USER = srvadmin
  PTH_PASSWORD = 10838247AF51CF49
  HTTP_BASE_PORT = 8121
  TCP_BASE_PORT = 8120

Please confirm these values with one of the following responses ...
  Y = Accept and Proceed
  N = Start Over
  Q = Quit
Please supply confirmation: y
Please wait while we are installing the product ...
ISETUP: Installation Step completed
Please wait while we are configuring the product ...
ISETUP: Configuration Step completed

Would you like to start the Server Workspace (Y/N Default=Y)? : n
Additional Configurations

If you have additional licenses and need to configure an additional product, log on with the iadmin ID, start QSH, and run EDAHOME /bin/isetup, where EDAHOME is the directory on which the software was installed (ibi/srv77/home by default). At the main menu, select option 2, Add Additional Configuration Instance.

The prompts for adding a configuration are similar to those for an installation, but EDAHOME is the directory where the software was originally installed. Typically, you would not want to accept the defaults, as doing so will cause your current configuration to be overwritten. If the supplied EDACONF already exists, the installation will copy it to a directory called BACKUP.

Refreshing an Installation

Sometimes it is desirable to refresh the software installation directory (EDAHOME) because it has become accidentally damaged, populated with unwanted files, or needs updating with a service pack. To do this:

1. Log on with the iadmin user ID.
2. On the IBM i command line, call the installation procedure where it resides.
   
   For example:
   
   ```
   CALL I771LIB/ISETUP
   ```
   
3. Specify the initial code page to be used, as described in Step 4. Running the Installation Program on page 316.
4. At the main menu, select option 3, Refresh Installation (Reinstall, Keep Configuration), and follow the prompts.

This refreshes programming files under the software installation directory (EDAHOME) and does not affect any configuration directories. The complete directory tree (EDAHOME) and library (EDAHOMELIB) are removed and recreated. If any files need to be retained, they should be copied elsewhere beforehand.

Installing and Configuring Silently

How to:

Create the Installation Parameters File
Launch a Silent Installation

This is also known as a silent install. The most common form is an initial install, which also results in an initial configuration. An initial installation and configuration should only be done once per EDAHOME and an add product configuration used thereafter.
Installing silently can be helpful if you want to install multiple servers at once throughout an enterprise. To install a server silently, you must first create a text file that specifies your server installation parameters and then call isetup with the option and the file name. The silent method may also be used to do a software refresh.

We recommend that the first time you install, you use the default interactive mode, not the silent mode, so that you become familiar with the procedure. Installing a server interactively is described in *Step 4. Running the Installation Program* on page 316.

Run isetup -? to see full information on the setup and specific use of a parameters file for silent installation, configuration, or refresh.

**Procedure: How to Create the Installation Parameters File**

Use a text editor to create a file with the following syntax to specify your product installation parameters:

```
-inst
-license nnn-nnn-nnnn-nn
-edahome /ibi/srv77/home
-edaconf /ibi/srv77/product_type
-port portnum
-host hostname
-approot drive:\ibi\apps
-programfolder "folder-title"
-pass password
-nostart
```

where:

```
nnn-nnn-nnnn-nn
```

Is the 12-digit license. Include a hyphen (-) following the third, sixth, and tenth digits.

```
/ibi/
```

Is the drive and directory to which you want to install the software.

**product_type**

Designates the type of product. The default values are:

- **FFS** for a Full-Function Server.
- **DM** for a DataMigrator Server.
- **WFS** for a WebFOCUS Reporting Server.
- **WFM** for a Shared Application Server for WebFOCUS Maintain.

```
portnum
```

Is the base TCP port for the server.
**hostname**

Is the server host name.

**folder-title**

Is the name you want to assign to the Windows program folder and service. For example:

```
-programfolder "WebFOCUS 77 Server"
```

**password**

Is the password of the user ID with which you are installing the server.

To see a list of additional installation, configuration, and refresh options:

1. Open a command prompt window and navigate to the directory containing the installation setup.exe file for the software.

2. Enter the following:
   ```
   setup ?
   ```

3. Accept a display language and click Next.
   
   A Help screen with further parameter file options will display.

   The user may continue with the install (interactive) or quit at this point to attempt a silent install/configure.

**Procedure: How to Launch a Silent Installation**

1. Open a command prompt and navigate to the directory containing the software and the setup.exe file for the install.

2. Type the following:
   ```
   setup -opt /path/srvoptions.txt
   ```

   where:

   ```
   /path/srvoptions.txt
   ```

   Is the full path and file name of the file specifying your installation options.

   For example, to specify English and an options file named serveroptsFFS1.txt, type:

   ```
   setup -opt /temp/serveroptionsFFS1.txt
   ```

3. After the installation has completed you should verify that it was successful, as described in **Step 5. Verifying the Server Installation** on page 327.
Step 5. Verifying the Server Installation

How to: Verify Server Installation

To verify that you have successfully installed, use the configuration that is created by the installation. You can verify the installation by bringing up, checking, connecting to, testing, disconnecting from, and shutting down the server. (If you started the server as the last step of the installation procedure, skip ahead to Step 4.)

Procedure: How to Verify Server Installation

1. Log on to your IBM i operating system with the iadmin user ID.

2. There are several methods to start a server and options that may be used. The following method for starting a server (using the appropriate library name and TSCOM300 options) would be the most familiar to an IBM i Administrator:

   ```
   CALL SRV77/TSCOM300 PARM('edaconf' '/home/iadmin/ibi/srv77/ffs' 'start')
   ```

   Alternate startup methods and batch examples are noted below.

3. Check to ensure that the processes are up with -show:

   ```
   CALL SRV77/TSCOM300 PARM('edaconf' '/home/iadmin/ibi/srv77/ffs' 'show')
   ```

4. Start the Web Console by starting a browser pointed at the server HTTP Listener port specified during installation. The URL format is http://host:port. (The URL is also displayed at the end of the installation procedure.)

   For example, if default ports were used during installation, use http://host:8101 for a Full-Function Server and http://host:8121 for a WebFOCUS Server.

5. If the server is running in a secure mode, you will first see a logon screen. Log on using the iadmin ID used during server configuration. For information about configuring the server security, see Step 6. Security Providers on page 328.

   The Web Console home page opens. The Home Page is arranged in a menu-like context for the various features it supports. Detailed use of the Web Console for configuration or general operation of the server is available by clicking Help in the left navigation menu and in the Server Administration manual.

6. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).
7. When you are done using the server, you can stop it using the Web Console by clicking the Stop option on the Web Console toolbar.

8. If you experience any problems, examine the IFS /home/iadmin/ibi/srv77/ffs/edaprint.log file.

Step 6. Security Providers

In this section:
Preventing Unsecured Server Starts After Upgrades

How to:
Satisfy Security Provider OPSYS Requirements

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the Server Security chapter in the Server Administration manual.

Procedure: How to Satisfy Security Provider OPSYS Requirements

To run a server with security provider OPSYS in IBM i, you must satisfy the following requirements. You must do this once after installing and after each refreshing of the server with fixes.

Certain files must be owned and run under the QSECOFR profile or a QSECOFR-authorized ID (such as iserver) that allows impersonation for the OPSYS security mode. Running with security mode OPSYS requires users to send a password to connect to the server, or to use some other form of verification. Although general installation of the server software is done by iadmin (an ordinary user ID), this step requires QSECOFR authority.

To change ownerships, do the following:

1. Log on as QSECOFR.

2. Using the library specified during the installation, change the file ownership by entering the following commands:

   CHGPGM PGM(SRV77/TSCOM300) USRPRF(*OWNER)
   CHGOBJOWN OBJ(SRV77/TSCOM300) OBJTYPE(*PGM) NEWOWN(QSECOFR)
The CHGPGM and CHGOBJOWN steps will need to be repeated after any server upgrade since the tscom300.out file is replaced during upgrade and the attributes are lost.

**Note:** If this Security Provider OPSYS step has been done and the site later decides to switch to Security OFF, then special steps must be done to ensure the mode remains after a full server shutdown, where edastart -start is used to restart the server.

After the server recycles from the change to OFF, use the Web Console to open the environment configuration file of the server. Select *Workspace, Configuration Files, Miscellaneous*, and then select *Environment -edaenv*. Next, double-click to edit, add the variable EDAEXTSEC=OFF, and then save.

After the next full server shutdown, be sure to do an edastart -cleardir before restarting the server. This will clear any root owned files that would prevent a security OFF server from starting.

### Preventing Unsecured Server Starts After Upgrades

If the explicit environment variable EDAEXTSEC is set to OPSYS (or ON) and the server cannot impersonate users because it lacks platform-specific authorization steps, the server start aborts and error messages are written to the edaprint log.

This feature prevents an unsecured server start after a software upgrade if any of the required post-upgrade reauthorization steps are missed on a UNIX, IBM i, or z/OS HFS deployment. This is not applicable to other platforms. The setting may be placed in any normal server start-up shell or profile that a site is using or in the server edaenv.cfg configuration file. The messages vary slightly by platform.

The edaprint messages are:

- Configured security is 'ON' as set by EDAEXTSEC variable.
- TSCOM300.PGM has no QSECOFR authority.
- Workspace initialization aborted.
- (EDA13171) UNABLE TO START SERVER

### Starting and Using the Server

After configuring for secured mode (if desired), the server is started and managed using the same server startup and Web Console startup steps used for validating the server (steps 1-6).

If the server has not been configured for adapters, now is an appropriate time to do so, using the Web Console and the *Server Administration* manual. For current information about which adapters are supported:

The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.

   The Supported Systems and Adapters page opens.

3. Click the link for the server you want.

   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.

   The support chart for that platform opens.

To ensure that the Web Console is accessible, the ID that starts the server must be iadmin (the ID that installed the server) and have a code page compatible with the one you specified during installation in Step 4. Running the Installation Program on page 316. For more information about code pages, see Step 2. Creating User IDs on page 312.

IBM i sites have the option of using QSH commands that run edastart or a CALL TSCOM300 to start and manage a server. CALL TSCOM300 is described in General Information for an IBM i Installation on page 334.

The following chart lists commonly used edastart options and functions (the parameters are the same for CALL TSCOM300 usage).

<table>
<thead>
<tr>
<th>Command and Option</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>edastart</td>
<td>(No parameters) Starts the server with the line mode console to actively view the server log (edaprint). Also allows dynamically issuing edastart options, such as show, traceon, traceoff, quit, and stop. Use your 5250 SysReq key and enter 2 to receive the console command prompt to enter commands.</td>
</tr>
<tr>
<td></td>
<td>If you are using a PC and 5250 emulator software, see your emulator keyboard map for the equivalent key or use the Help instructions of your emulator on how to create mapping for the SysReq key.</td>
</tr>
<tr>
<td>edastart -start</td>
<td>Starts the server in background. Only a short message appears.</td>
</tr>
<tr>
<td>edastart -sstart n</td>
<td>Starts the server, but waits ( n ) seconds for actual startup.</td>
</tr>
<tr>
<td>edastart -show</td>
<td>Shows general status of server and agents.</td>
</tr>
<tr>
<td>edastart -stop</td>
<td>Stops the server.</td>
</tr>
<tr>
<td>Command and Option</td>
<td>Function</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>edastart -cleardir</td>
<td>Removes all temporary directories (and their contents), as well as log and other files created by the server (including the rmlda*.log files, if active) in EDACONF. If Resource Manager is in use and you want to maintain the rmlda*.log data, backup the rmlda*.log files before using this feature and restore them afterward.</td>
</tr>
<tr>
<td>edastart -quit</td>
<td>Exits the server line mode console log (edaprint) and returns to the operating system command prompt, but leaves the server running.</td>
</tr>
<tr>
<td>edastart -console</td>
<td>Re-enters the server line mode console log (edaprint).</td>
</tr>
<tr>
<td>edastart -traceon</td>
<td>Turns on tracing. May be used at initial startup or after. Tracing should not be turned on (due to overhead) unless there is a problem that needs to be traced. It is always preferable to start traces at initial startup time unless instructed otherwise.</td>
</tr>
<tr>
<td>edastart -traceoff</td>
<td>Turns off tracing.</td>
</tr>
<tr>
<td>edastart -?</td>
<td>Displays the full set of edastart server control options.</td>
</tr>
<tr>
<td>edastart -?s</td>
<td>Displays support information and support related options.</td>
</tr>
</tbody>
</table>

**Note:** The IBM i commands WRKACTJOB and WRKSBMJOB should not be used to shutdown a running server.

Alternate startup methods, which start the server either with command line options or as a submitted job, are detailed in *General Information for an IBM i Installation* on page 334.

You can use the following methods to start and manage the server environment using either native IBM i CALL syntax or QSH syntax. The directory and library names shown are examples; the actual names you use may differ.

- To start the server from the native IBM i menu command line, use:
  
  ```
  CALL SRV77/TSCOM300 PARM('-edaconf' '/home/iadmin/ibi/srv77/ffs' '-start')
  ```

- To start the server from the native IBM i menu command line with traces, use:
  
  ```
  CALL SRV77/TSCOM300 PARM('-edaconf' '/home/iadmin/ibi/srv77/ffs' '-start' '-traceon')
  ```
Starting and Using the Server

- To stop the server from the native IBM i menu command line, use:
  ```
  CALL SRV77/TSCOM300 PARM('-edaconf' '/home/iadmin/ibi/srv77/ffs' ' -stop')
  ```

- To clear all server resources after a malfunction or after server termination using WRKACTJOB or WRKSBMJOB from the native OS400 menu command line, use:
  ```
  CALL SRV77/TSCOM300 PARM('-edaconf' '/home/iadmin/ibi/srv77/ffs' '-clear')
  ```

- To start the server from the command line of a QSH session, use:
  ```
  QSH (starts QSH)
  /home/iadmin/ibi/srv77/ffs/bin/edastart -start
  ```

- To stop the server from the command line of a QSH session, use:
  ```
  QSH (starts QSH)
  /home/iadmin/ibi/srv77/ffs/bin/edastart -stop
  ```

- To start the server as a QSH session, but from the IBM i command line, use:
  ```
  QSH CMD('/home/iadmin/ibi/srv77/ffs/bin/edastart -start &')
  ```

- To stop the server as a QSH session, but from the IBM i command line, use:
  ```
  QSH CMD('/home/iadmin/ibi/srv77/ffs/bin/edastart -stop')
  ```

- To start the server as a submitted QSH session on the IBM i command line with a code page (Belgium), use:
  ```
  SBMJOB CMD(QSH CMD('/home/iadmin/ibi/srv77/ffs/bin/edastart -start &'))
  JOB(MYJOB) LANGID(NLB) CNTRYID(BE) CCSID(500)
  ```

- To start the server as a submitted job on the IBM i command line with a code page (Belgium) and specific job queue, use:
  ```
  SBMJOB CMD(CALL SRV77/TSCOM300 PARM('-edaconf' '/home/iadmin/ibi/srv77/ffs'))
  JOB(MYJOB) LANGID(NLB) CNTRYID(BE) CCSID(500) JOBQ(MYQUEUE)
  ```

If the -start or -sstart option is:

- **Included in a submitted job**, the full edaprint log is written to the edaprint.log file on disk, and standard short server start up messages are written to the job system spool file.

- **Omitted from a submitted job**, the full edaprint log is written to the edaprint.log file on disk, and the full edaprint log is written to the job system spool file.
You can view the spool file by means of WRKSBMJOB Option 8 (Work with spooled files) of the PGM-QZSHSH task (start using QSH shell scripts) or of the PGM-TSCOM300 task (start using TSCOM300) task.

You can issue other combinations of standard server control parameters by replacing the option in one of the examples above with another edastart option, such as -stop, -show, -traceon, and -traceoff.

**CL and CMD Programs**

The process of installing will also create and compile CL and CMD sources so that server functions, such as start, stop, show and tracing may be activated on the IBM i menu command line. The start command starts the server as a batch job issued to a specified job queue, and is particularly useful for automatically starting a server at boot time or with minimal effort.

The CL and CMD sources are created in a configuration bin directory, then copied into QTEMP and compiled into the user CURLIB (for example, the IADMIN library). The core EDASTART program is generic for any installation and is driven by the defaults within the command files. If you want to have more than one configuration, use separate libraries or rename the programs to prevent overwriting.

**Note:** Releases prior to Version 7.6.3 allowed *CRTDFT QGPL as a CURLIB and, if so configured, the CL and CMD files would have been placed into QGPL. These QGPL copies should be deleted and, if there are any site-created CLs that use them, they should be adjusted for the new location.

The basic commands and functions are listed in the following table.

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTART</td>
<td>edastart</td>
</tr>
<tr>
<td>ISTOP</td>
<td>edastart -stop</td>
</tr>
<tr>
<td>ISHOW</td>
<td>edastart -show</td>
</tr>
<tr>
<td>ISHOWLOG</td>
<td>edastart -showlog</td>
</tr>
<tr>
<td>ITRCON</td>
<td>edastart -traceon</td>
</tr>
<tr>
<td>ITRCOFF</td>
<td>edastart -traceoff</td>
</tr>
<tr>
<td>ICLEAR</td>
<td>edastart -clear</td>
</tr>
<tr>
<td>ICLRDIR</td>
<td>edastart -cleardir</td>
</tr>
</tbody>
</table>
To use any of the commands, type the command at the IBM i menu command line. You may also point to other EDACONF directories using the IBM i F4 Prompt mode.

The CL and CMD script may be further customized, or the defaults may be changed, by manually copying the desired file to a library and then changing and recompiling it. Detailed instructions for all steps are contained within the EDASTART CL source. Configuration of a particular language on the Web Console does not currently change the defaults with the file sources. These must be changed manually.

**General Information for an IBM i Installation**

**In this section:**
- Sample Metadata, Data, and Other Tutorial Samples
- Accessing IFS Files and QSYS Libraries

This section covers general information for an IBM i installation.

**Sample Metadata, Data, and Other Tutorial Samples**

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), **Tutorials** (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.

There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the **Create Legacy Sample Tables and Files** tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.

If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).
Accessing IFS Files and QSYS Libraries

In this section:
- Accessing IFS Files
- Accessing QSYS Libraries

The location of procedure (FOCEXEC) files, Master Files (MASTER), Access Files (ACCESS), and FOCUS database files may be QSYS, IFS, or both. IFS is the preferred location, and is the location used for files created by the HTTP Web Console.

Accessing IFS Files

How to: Access IFS Files

The native mode of the server is to use the QSH Integrated File System (IFS), which follows standard file syntax as found on UNIX platforms to access files.

Syntax: How to Access IFS Files

IFS access follows the standards of a number of other platforms for FILEDEF, USE, and APPS, but is most like UNIX because the file names follow the same rules. The following is a summary of the respective commands and conventions.

```plaintext
FILEDEF ddname DISK filename [{options}
USE
filename [AS name]
END

APP MAP MYAPP directory

where:

ddname

Is the reference name for the file being opened.

filename

Is either the relative path or full path and the file name (for example, myfile.dat, acctng/myfile.dat, or /home/iadmin/acctng/myfile.dat).

options

Are the available access options, such as LRECL or RECFM.
```
For more information about FILEDEF options, see the Stored Procedures Reference.

**name**

Is the optional alternate name of the Master File.

**directory**

Is the full path name of the directory (for example, /home/iadmin/acctng).

Use of a relative path name is not recommended, since this varies with any given connection to the server. Use of environment variables or shortcuts (for example, $HOME or ~) is not supported in any context.

### Accessing QSYS Libraries

**How to:**

- Map a QSYS Library to APPROOT
- Use FILEDEF to Access a QSYS Library Member
- Use DATASET to Access a QSYS Library Member
- Use the USE Command to Access a FOCUS Database

QSYS access works with libraries and has the following APP, FILEDEF, DATASET, and USE support for accessing existing applications.

The option to use IFS references to QSYS libraries is a native feature of IBM i. IFS references to QSYS names, such MYLIB, use IFS-style references, such as /QSYS.LIB/MYLIB.LIB, which are clearly recognizable as QSYS references.

To map a QSYS library to a WebFOCUS application root directory (APPROOT), use the APP MAP command, as described in *How to Map a QSYS Library to APPROOT* on page 337.

To access or create a FOCUS database in a QSYS library, you need to issue a USE command, as described in *How to Use the USE Command to Access a FOCUS Database* on page 339.

To access a member of a physical file (other than a FOCUS database) in a QSYS library, you can use either:

- **The FILEDEF command**, as described in *How to Use FILEDEF to Access a QSYS Library Member* on page 337.

- **The DATASET attribute** in a Master File synonym, as described in *How to Use DATASET to Access a QSYS Library Member* on page 338.

  Using the DATASET attribute has the advantage of automatically specifying the correct member when you refer to the synonym.
If you issue an explicit FILEDEF command, and a DATASET attribute exists, the FILEDEF command takes precedence.

Creating a HOLD file automatically creates the physical file if it does not already exist. Issuing a -WRITE or -READ statement, however, requires that the physical file exist.

**Syntax: How to Map a QSYS Library to APPROOT**

To assist with existing applications outside the pre-defined application root directory (APPROOT), the APP MAP command allows an alias to be assigned to a non-APPROOT directory. This alias becomes a virtual directory under APPROOT so it can then be referenced in an APP PATH command. Mapping does not automatically add to the path. It simply makes it available to participate in an APP PATH command. For more information about APPROOT, see the WebFOCUS Developing Reporting Applications manual.

In APP mode, the APP MAP command supports use of IFS QSYS library references so that the application name can be used for path search purposes in applications through the APP PATH command. However, the contents of a QSYS mapping are not available from the Web Console.

The syntax for mapping an application to a QSYS library is:

```bash
APP MAP appname /QSYS.LIB/libname.LIB
```

where:

- `appname` is the name of the application.
- `libname` is the name of the library to which you are mapping the application. The name must be uppercase.

**Syntax: How to Use FILEDEF to Access a QSYS Library Member**

To use the FILEDEF command to access a member of a physical file in a QSYS library, the syntax is:

```bash
FILEDEF ddname DISK QSYS:library/file(member) (LRECL n
```

where:

- `ddname` is the logical name you want to assign to the member. It can be up to eight characters in length, and can contain letters, numbers, and underscores. It must begin with a letter.

When used to associate a data source with a Master File, the `ddname` must match the name of the Master File.
library
   Is the QSYS library in which the file is located.

file
   Is the name of the file.

member
   Is the name of the member to which you are assigning a logical name.
   For the member of a single-member physical file, the member name must be identical to the file name. The operating system shorthand of *FIRST is not a valid alternative.
   For a member of a multiple-member physical file, you can specify any member name.

LRECL
   Specifies the logical record length (LRECL) of the member.

n
   Is the local record length.

**Syntax:** How to Use DATASET to Access a QSYS Library Member

To use the DATASET attribute of a Master File synonym to access a member of a physical file in a QSYS library, the syntax is

```plaintext
DATASET = QSYS:library/file(member) (LRECL n)
```

where:

library
   Is the QSYS library in which the physical file is located.

file
   Is the name of the physical file.

member
   Is the name of the member that you want to access.

LRECL
   Specifies the logical record length (LRECL) of the member.

n
   Is the local record length.
**Syntax:** How to Use the USE Command to Access a FOCUS Database

To access a FOCUS database, the syntax is:

```
USE
library/file[(member)] [AS name] [NEW]
END
```

where:

- **library**
  - Is the QSYS library in which the physical file is located.

- **file**
  - Is the name of the physical file.

- **member**
  - Is the name of the member that you want to access. If you omit the name, it defaults to the name of the physical file.

  This is the default name used by WebFOCUS to refer to the member. You can override it by specifying AS name.

- **AS**
  - Defines a logical name that you can use instead of the member name.

- **name**
  - Is the logical name you want to assign to the member.

- **NEW**
  - Creates the member, and also creates the physical file if it does not exist. The data source is created as a member of a physical file starting with "F$". The file is created in the specified QSYS library.

This construction allows you to organize multiple FOCUS databases within a single QSYS physical file with a functional name, such as FOCUS, ACCTG, SHIPPING, AR, or AP; or as individual QSYS physical file members, such as SHIP(SHIP), AR(AR), AP(AP), or SHIP(FOCUS).

Early releases of FOCUS and iWay (FOCUS Release 6.x, and iWay Releases 3.x and 4.x) created FOCUS databases with an arbitrary "F$" added to the beginning of the source physical name and used "FOCUS" as the member name. Therefore, the name on the disk was in the form CURLIB/F$MYDB(FOCUS). All subsequent releases do not assume this is a default, and therefore require either a USE command with an explicit AS, or that the files are renamed to fit the current conventions.

For more information about the USE command, see the *WebFOCUS Developing Reporting Applications* manual.
Generating a Trace

How to:
Generate a Server Trace
Generate a Non-Server Trace

If you encounter a server problem, you can run a set of traces that will help you assess the problem, and, if necessary, communicate it to Customer Support Services for further troubleshooting. This topic describes trace options and provides instruction for creating the traces.

There are two types of traces you can run to troubleshoot a problem:

- **A server trace**, in which you trace an agent that is running in a server context.
- **A non-server trace**, in which you trace an agent that is running outside a server context, that is, an agent that is running in standalone mode.

Under normal conditions, applications are run in a server context. However, if you run your trace in a non-server context (that is, you run a non-server trace), and produce the necessary diagnostic information, you can significantly reduce the amount of material that needs to be reviewed. Running a non-server trace also rules out server communications as a cause of a problem.

If you prefer to use native IBM i commands, a number of CMD/CL programs are created during installation in the server administrator comment library and can be used to start traces, turn traces off, and perform edastart -savediag functions. The commands are, respectively, ITRCON, ITRCOFF, and ISAVEDIA. To use them (instead of using edastart under QSH), enter the required command and press F4 for prompted mode, then edit parameters, as needed, and press Enter. For related information, see *CL and CMD Programs* on page 333.

**Procedure: How to Generate a Server Trace**

To generate a server trace:

1. Turn tracing on by doing one of the following:
   - Go to the Web Console menu bar, select the Main Web Console *Other Options* control icon and then *Enable Traces*.
   - Start the server by issuing the following command:

```
   edastart -traceon
```
You must preface edastart with the appropriate path, or place the directory in your system PATH variable.

2. Reproduce the problem.
3. Stop the server.
4. Issue the following command:
   
   edastart -savediag

5. Respond to the prompts to capture, and optionally archive and ship diagnostic information.

   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

   For information about sending the diagnostic information to Customer Support Services, see Information You Should Have on page 11 and Customer Support on page 11.

Procedure: How to Generate a Non-Server Trace

To generate a non-server trace:

1. Create an directory under APPROOT to reproduce the problem.
2. Copy any files required for the reproduction to the directory.
3. Switch to the directory.
4. Reproduce the problem using edastart -traceon and one of switches -t, -x, or -f.
5. Switch to a directory other than the problem reproduction directory.
6. Issue the following command

   edastart -savediag

   You must preface edastart with the appropriate path, or place the directory in your system PATH variable.

7. Respond to the prompts to capture, and optionally archive, diagnostic information.

   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

   For information about sending the diagnostic information to Customer Support Services, see Information You Should Have on page 11 and Customer Support on page 11.
Third-Party Software and Licenses

In this section:
OpenFlex SDK

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software used on IBM i and includes references to the full licenses included in Information Builders and Third-Party Licenses on page 385.

OpenFlex SDK

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see OpenFlex SDK License on page 391 or visit our website, http://www.informationbuilders.com.

Troubleshooting for IBM i

Reference:
Problem: The Server Starts in Safe Mode
Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log
Problem: Secured Server Starts Unsecured or Does not Start after Upgrade
Problem: CREATE SYNONYM Fails for Excel 2007 (or Higher) Workbooks

To troubleshoot an installation problem, identify your problem in the following list, and follow the link to a description of the solution.

If you cannot find your problem described in the list, and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11.

Problems:

- The server starts in safe mode (as indicated by a message in the Web Console at start up).

  See Problem: The Server Starts in Safe Mode on page 343.

- A server start request partly fails with JVM not found messages are written to edaprint.log.
See Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log on page 343.

Reference: Problem: The Server Starts in Safe Mode

Problem: The server starts in safe mode. The Web Console home page displays a message stating that the server is in safe mode and describing what triggered it.

Cause: A common cause for the server starting in safe mode is a problem with the server administrator ID password. For example, the password may have been updated on the operating system but not on the server, so the encrypted copy of the password stored by the server is out of synchronization with the password on the operating system.

Solution: The server administrator can click the fix hyperlink, which is displayed under the problem description, to display the relevant pane and resolve the problem.

For example, if the problem is that the server administrator password is out of synchronization:

1. Click the fix hyperlink displayed under the problem description.
2. In the left pane, open the Users folder, then the Server Administrator folder.
3. Click your user ID and select Properties from the pop-up menu.
   The Access Control pane is displayed on the right.
4. Type the correct operating system password in the Password field, and type it again in the Confirm Password field.
5. Click Save and Restart.
   The Security Mode pane opens on the right.
6. Click the Home icon in the menu bar to return to the Web Console home page.

Reference: Problem: Java Listener Fails to Start With JVM not found Messages Written to the Log

Problem: The listener start request fails with JVM not found messages written to the edaprint.log file.

Cause: If the server cannot find the Java Virtual Machine (JVM), the JSCOM Listener will not be able to start, and messages will be written to the server log stating that the JVM cannot be found.

The log may be found in the following location:

**On Windows:**

\drive\ibi\srv77\product_type\edaprint.log
On UNIX:

`ibi/srv77/product_type/edaprint.log`

On IBM i:

`/home/iadmin/ibi/srv77/product_type/edaprint.log`

where:

- **drive**
  - Is the hard drive on which the directory resides (on Windows).

- **product_type**
  - Designates the type of product. The default values are:
    - **FFS** for a Full-Function Server
    - **DM** for a DataMigrator Server
    - **WFS** for a WebFOCUS Reporting Server
    - **WFM** for a Shared Application Server for WebFOCUS Maintain

**Solution:** Set up the JVM as described in *JVM Requirements for Java Services* on page 305.

**Reference:** Problem: Secured Server Starts Unsecured or Does not Start after Upgrade

A server will implicitly attempt to start unsecured if proper authorization steps have not been completed. Starting the server normally clears edatemp. If prior edatemp files exist (and authorization has not been done), start up will fail due to an inability to clear the directory. However, if an edastart -cleardir command was issued just before the upgrade, there is nothing to clear, no error occurs, and the server starts. If the server starts and is not inspected after the initial start up, the server being in the wrong mode may go unnoticed.

The proper solution is to add proper authorizations after an upgrade, as described in *How to Satisfy Security Provider OPSYS Requirements* on page 328, and restart the server. A new safety measure has also been added. If the environment variable EDAEXTSEC is set to OPSYS explicitly, and a server lacks authorization, it will not start (see *Preventing Unsecured Server Starts After Upgrades* on page 329 for details).

**Reference:** Problem: CREATE SYNONYM Fails for Excel 2007 (or Higher) Workbooks

**Problem:** Using the Adapter for Excel Direct Retrieval, the CREATE SYNONYM process for Excel 2007 (or higher) Workbook .xlsx files fails on i5 V5R4.

**Cause:** The server uses Apache poi-ooxml-schemas (a light version of Java ooxml-schemas) to interpret Excel files. However, poi-ooxml-schemas fail on i5 V5R1 (but work on higher operating system levels). This has been investigated and determined to be outside the server code. It works if the ooxml-schemas jar file is substituted for the poi-ooxml-schemas jar file, or if the JVM is forced into interpret mode.
**Solution:** If you need to create synonyms from Excel 2007 .xlsx files on i5 V5R4, the simplest solution is to add a JVM property of -Dos400.run.mode=interpret to the Java Listener properties, rather than substituting jar files.
This chapter describes the requirements and procedures for proper installation on OpenVMS.

**Topics:**
- Step 1. Reviewing System Requirements
- Step 2. Creating User IDs
- Step 3. Accessing the Installation Software
- Step 4. Running the Setup Procedure
- Step 5. Verifying the Installation
- Step 6. Security Providers
- Starting and Using the Server
- Generating a Trace
- Third-Party Software and Licenses
- General Information for an OpenVMS Installation
- Troubleshooting for OpenVMS
Step 1. Reviewing System Requirements

In this section:
- Operating System Level and Patch Requirements
- JVM Requirements for Java Services
- IP Port Number Requirements
- SMTP E-Mail Server Information (Server Optional)
- Browser Requirements
- Disk Space Requirements
- Memory Requirements
- Workspace Manager Shared Memory Resources Requirements
- Communications Requirements
- User ID Requirements

Before beginning installation, review the requirements in the following topics.

Operating System Level and Patch Requirements

For current information about supported releases:

   The Information Builders Technical Support home page opens.

2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   The Supported Systems and Adapters page opens.

3. Click the link for the release you want.
   The Supported Systems and Adapters page for that release opens.

4. Click the link for your platform.
   The support chart for that platform opens.

In general, the operating system should have the latest cumulative patch levels applied.
Confirm that your installation software is labeled for your operating system level.

<table>
<thead>
<tr>
<th>OpenVMS Release</th>
<th>CD Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3-2 Alpha</td>
<td>OpenVMS V7.3-2 Alpha</td>
</tr>
<tr>
<td>8.3-1H1 IA64</td>
<td>OpenVMS 8.3-1H1 IA64 (Integrity)</td>
</tr>
</tbody>
</table>

Third-party TCP/IP packages from Process Software have also been tested in the past at the Multinet 4.4 and TCPWare 5.6 levels for basic connect and data retrieval, and are known to be operational and require no special configuration. If you have a problem using third-party TCP/IP products, be sure to specify the product, the release, and any installed patches when contacting Customer Support Services.

In OpenVMS 8.x, some DBMS vendors changed their products to use IEEE floating point for single (F) /double (D) float data, while others have retained use of G_FLOAT float point or depend upon the application itself. In order to support these varying float-type sources, OpenVMS 8.x servers use the SET VMSFLOATCONV = IEEE/G_FLOAT command to select the float type of the data, and it would be used in the server profile (edaprof.prf). Sites that use both IEEE and G_FLOAT data sources will need separate server configurations with the appropriate SET VMSFLOATCONV = IEEE/G_FLOAT command and a hub-sub configuration to allow the joining of data.

OpenVMS 8.x releases prior to the 7.7.02 server used separate builds type to read the different float types. As of 7.7.02, SET VMSFLOATCONV = IEEE/G_FLOAT is used. For configuration information, see Configuring for IEEE/G_FLOAT Float Data on page 378.

**JVM Requirements for Java Services**

If JVM-based adapters, server-side graphics, XBRL, or user-written CALLJAVA applications are to be used, a Java Runtime Environment (JRE) JVM must be installed on the machine, and the server must be configured to use it.

As of 7.7.05 and 8.0.01 production releases, the minimum JVM release level is 1.6 or higher, due to required internal components of the server. The Java Listener will not start unless 1.6 (or higher) is in use. Prior 7.x releases would allow the listener to start with any release, and sub-components would fail if they required a higher Java Level. The primary reason for this change is that Java 1.5 (and prior releases) are past their End of Service Life (EOSL) dates, and, as such, are unsupportable, in addition to lacking newer functionality. The following URL has Java EOL and EOSL information:

http://java.sun.com/products/archive/eol.policy.html
Installing maintenance updates to the EDAHOME of an existing server running releases prior to production 7.7.05 will also have the requirement of moving up all dependent configurations to use Java 1.6 (as instructed in this section).

You may install a Java JRE or a Java SDK. When you install a Java SDK, the JRE component (where the JVM lives) is included, so either is allowed. If using servlet, the Java SDK is required for the jar command, so it is generally preferred over the Java JRE. The SDK or JRE build type must also match the 32-bit or 64-bit bit type of the server. If an appropriate JVM from a JRE or SDK is not found on the library path or using variables as described below, or is not the appropriate bit type, a Failed to find JVM message will be displayed. Further Java Services debugging information about loading the JVM will be written to the server start log indicating JSCOM3 start failed as well as additional information that may be useful in resolving the problem. JSCOM3 is the actual process name for the Java Services Listener and the terms are often used interchangeably.

If JAVA* logicals are not active system-wide or are for Java 1.4 or 1.5, when we require 1.6, you must make the Java 1.6 logicals active by installing the desired Java SDK (from HP), and either at the system level or at the server level, execute the DCL initialization script that comes with the Java SDK (for example, @SYS$COMMON:[JAVA$60.COM]JAVA$60_SETUP.COM or any system symbol that may have been set up for Java 1.6 activation). At the server level, this could be done by adding the Java initialization script to the server edaenv.com file in the EDACONF bin directory (create it if needed). As of the 7.7.x release, the edaenv.com file is pre-created (on new installs) with standard DCL to initialize the required Java level. Older installs upgraded to 7.7.05 may need the edaenv.cfg file adjusted to use Java 1.6.

The OpenVMS Java logical JAVA$CLASSPATH is not currently supported for adding classes to the JVM class path for customer-written CALLJAVA applications. To add classes, use the logical CLASSPATH using UNIX style conventions enclosed in quotes as described in OpenVMS Java documentation or use the Web Console to set the Java Listener IBI_CLASSPATH property.

If JVM-based adapter or features are not required, and the JVM environment is not configured, the message Failed to find JVM is normal and can be ignored.

**IP Port Number Requirements**

The install process prompts for two IP port numbers: the TCP Listener and HTTP Listener. It also uses the next two consecutive ports after the supplied HTTP Listener port for FDS use. This results in a total of four IP ports.

The supplied IP port numbers must be above the IANA registered well-known reserve range (numbers under 1024) and not over the maximum legal number (65535). Additionally, do not use IP port numbers already being used by other applications or products. Netstat, or netstat like commands, should reveal what actual ports are in use.
SMTP E-Mail Server Information (Server Optional)

The server can send emails using STMP protocols. To use these features, the server needs the TCP/IP host name (or number) and port number for an accessible SMTP server (the default port number is 25).

The installation process allows this information to be set at installation time, but it may also be added (or changed) afterward using the Web Console. To change it from the Web Console, select Workspace from the main menu, and then select E-Mail SMTP Server from the ribbon.

The installation panel for supplying the SMTP information will also have inputs for the default email sender address (the from address for users reading an email from the server if none was specified in the originating application) and the server administrator email address (the address to send administrative warnings to, such as an agent crash).

Browser Requirements

The Web Console requires one of the following web browsers:

- Microsoft Internet Explorer® 9 or higher.
- Mozilla Firefox® 27 or higher.
- Google Chrome® 33 or higher.
- Apple Safari® 7 or higher and Mobile iOS v5.
- Opera 19 or higher.

Disk Space Requirements

The following are approximate disk space requirements. Specific sizes may vary slightly according to the options that were selected during configuration. The usage numbers do not include space for actual applications, databases, sort space, output preparation, or logs.

<table>
<thead>
<tr>
<th>Platform</th>
<th>Version</th>
<th>After Install</th>
</tr>
</thead>
<tbody>
<tr>
<td>OpenVMS for IA64 (Integrity)</td>
<td>8.3-1H1</td>
<td>1,100,000 blocks</td>
</tr>
</tbody>
</table>

Memory Requirements

Memory usage in a configured environment is determined by the following factors:

- Workspace Manager
- Listeners
- Concurrently running application agents
Actual memory usage varies depending on the features used by the application, and will increase or decrease as agents change between active and idle states.

**Workspace Manager Shared Memory Resources Requirements**

The Workspace Manager makes use of a specific system resource known as shared memory. Each individually configured server, with or without adapters, uses one shared memory. The size of this memory varies based upon the sizes of the agents table and the queue.

Generally, shared memory use does not require special configuration. It is just a resource that system administrators like to know is being used so they can monitor it with the SHOW MEMORY/POOLED command (non-paged section).

**Communications Requirements**

You need four TCP/IP ports for each server instance that you configure. Three of these ports must be consecutive. You specify these port numbers during installation. You may require additional ports depending on which options you configure later.

**User ID Requirements**

When installing and using the server, you need two types of operating system user IDs:

- **Server administrator IDs (iadmin).** Server administrators use this ID to install, start, and stop the server. This ID is also used to configure the server if the server is configured to run with an OPSYS (operating system) Security Provider.

  The operating system ID you use when installing the server owns the server files and is the default server administrator for OPSYS mode. You can create a new operating system ID to run and own the server files, or use any existing ID, provided it is set up as described in *Step 2. Creating User IDs* on page 353.

  Note that the name iadmin is used to refer to the server administrator ID and group throughout this manual, but you may use any name for this ID.

  For security purposes, you should not allow users and applications to use the iadmin ID. It should be available only to users who require server administrative privileges.

  If Active Technologies has been licensed, the installation path of the server (which is typically under the iadmin home directory) must not include any dollar signs ($) in the device or path name (as is common in OpenVMS device names like DISK$DKA0). Dollar signs in the EDAHOME path causes the underlying Flex Compiler to fail, regardless of the OpenVMS Java configuration. This requirement provides a simple workaround if Active Technologies is being used. Use of a concealed or regular logical to hide dollar signs in the installation path is allowed.

- **User and application IDs.** When users and applications try to access the server, the server is normally running with one or more Security Providers that do authorization logic.
Step 2. Creating User IDs

The installation of a server requires an ID to install and own the files, as well as to administer the server. This is also known as the iadmin ID. The same ID should be used for both functions (installation and administration) and should not be the SYSTEM ID. The iadmin ID can be any user ID that has the required privileges and quotas for running the server in all security modes. For the iadmin privileges necessary for running the server in security mode OPSYS, see Step 6. Security Providers on page 368, and configure for that mode at this time. We highly recommend running the server secured (that is, with security set to OPSYS, PTH, or DBMS).

The iadmin privileges necessary for running a server in security mode OFF are:

<table>
<thead>
<tr>
<th>Privilege</th>
<th>Function</th>
<th>Required for</th>
</tr>
</thead>
<tbody>
<tr>
<td>NETMBX</td>
<td>May create network device</td>
<td>Mailboxes</td>
</tr>
<tr>
<td>PRMGBL</td>
<td>May create permanent global sections</td>
<td>IPC Shared Memory</td>
</tr>
<tr>
<td>PRMMBX</td>
<td>May create permanent mailbox</td>
<td>IPC Control Pipes</td>
</tr>
<tr>
<td>SYSGBL</td>
<td>May create system wide global sections</td>
<td>IPC Shared Memory</td>
</tr>
<tr>
<td>SYSNAM</td>
<td>May insert in system logical name table</td>
<td>IPC Control Pipes</td>
</tr>
<tr>
<td>SYSPRV</td>
<td>May access objects using system protection</td>
<td>Creating system logical tables</td>
</tr>
<tr>
<td>TMPMBX</td>
<td>May create temporary mailbox</td>
<td>Mailboxes</td>
</tr>
<tr>
<td>SYSLCK</td>
<td>May lock system wide resources</td>
<td>Adapter for Progress only</td>
</tr>
</tbody>
</table>

Any additional privileges required by particular underlying databases must also be authorized.

We recommend running the OpenVMS server in security mode OPSYS. This is because non-secured servers also run as an account with elevated privileges and connecting end-user requests run as the privileged account, thus presenting a security risk. Non-secured mode should only be used when adequate safeguards have been taken so that the required privileges do not present a risk, or for short periods of time only (such as while debugging an issue).
The following OpenVMS minimal quota resources are also required for the iadmin ID:

<table>
<thead>
<tr>
<th>Quota Resources</th>
<th>UAF Keyword</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE_FILE</td>
<td>Pgfiquo</td>
<td>1000000</td>
</tr>
<tr>
<td>BUFFER_LIMIT</td>
<td>Bytlm</td>
<td>800000</td>
</tr>
<tr>
<td>IO_BUFFERED</td>
<td>BIOlm</td>
<td>200</td>
</tr>
<tr>
<td>IO_DIRECT</td>
<td>DIOlm</td>
<td>200</td>
</tr>
<tr>
<td>AST_LIMIT</td>
<td>ASTlm</td>
<td>300</td>
</tr>
<tr>
<td>QUEUE_LIMIT</td>
<td>TQEIm</td>
<td>50</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>Prio</td>
<td>4</td>
</tr>
<tr>
<td>WORKING_SET</td>
<td>WSdef</td>
<td>3076</td>
</tr>
<tr>
<td>MAXIMUM_WORKING_SET</td>
<td>WSquo</td>
<td>8192</td>
</tr>
<tr>
<td>MAX_JOBS</td>
<td>Maxjobs</td>
<td>0</td>
</tr>
<tr>
<td>EXTENT</td>
<td>WSextent</td>
<td>10240</td>
</tr>
<tr>
<td>FILE_LIMIT</td>
<td>Fillm</td>
<td>300</td>
</tr>
<tr>
<td>ENQUEUE_LIMIT</td>
<td>Enqlm</td>
<td>2000</td>
</tr>
<tr>
<td>JOB_TABLE_QUOTA</td>
<td>JTquota</td>
<td>10000</td>
</tr>
</tbody>
</table>

**Note:** The IMPERSONATE privilege (one of the requirements for secured mode operation) allows dynamic setting of quota levels and uses the above table of values. If the configuration is run in secured mode, the initial default values for server validation purposes do not need to be a concern unless the defaults are unusually low.

The iadmin ID must also have a UIC group associated with the ID (so the calls for ID information under OpenVMS 7.x and 8.x are returned in standard OpenVMS 6.x [group,member] format).

To check the UIC, issue the following:

```
WRITE SYS$OUTPUT F$USER()
```

**Note:** The iadmin ID should only be available to users who require administrative privileges to the server for security purposes.
End users of the server will also require an ID and password created/configured for the Security Provider modes a server is using. For the OPSYS Security Provider mode, see End-User Requirements on page 374.

Step 3. Accessing the Installation Software

In this section:
- Inserting and Mounting the Software CD
- Downloading the Installation Software Using FTP

You can choose to access the server installation software using either:

- **CD.** The software is provided on CD in OSD-2 format. This is how most installations are performed. You must insert and mount the CD as explained below in Inserting and Mounting the Software CD on page 355. Once mounted, you can execute the installation procedure directly from the CD, or you can copy the CD contents to disk and execute the installation procedure from there.

- **FTP.** You download the installation software from the Information Builders FTP site. Downloading the installation software involves:
  1. **Registering** at the Information Builders FTP site.
  2. **Downloading** the server installation software from the site.
  3. **Unzipping** the downloaded file.
  4. **Running** the isetup procedure to begin installing the server.

  For instructions, see Downloading the Installation Software Using FTP on page 356.

Inserting and Mounting the Software CD

To make the software on the CD accessible to the user performing the actual installation, the media must be mounted. After mounting, the set up program can be directly accessed, or the contents can be copied to disk for future access.

1. Log on as the iadmin user ID.
2. Insert the CD into the CD drive.
3. Issue the following command:

   $$\text{MOUNT } /\text{OVER=ID } \text{device_name}.$$
where:

device_name

Is the system name for your CD device. Consult your OpenVMS System Administrator for the name of the device for your platform. This document uses "CD:" to generically refer to this device for OpenVMS purposes.

The CD will now be accessible for the ID performing the actual installation and will have a root directory of:

[IWAY]

The installation process can be run directly from CD without copying any files to disk.

4. If you wish to run the installation directly from CD, proceed to Step 4. Running the Setup Procedure on page 357. However, it may be advantageous to copy all files to disk in order to speed installation.

If you are not installing directly from CD, create an empty subdirectory under the ID you are using for installation. For example:

CREATE /DIRECTORY [.TMP]

5. Copy the CD’s contents to the [.TMP] directory:

COPY CD:[IWAY]*.* IWAY:[IADMIN.TMP]

6. Ensure that you are in the parent directory and not the [.TMP] directory:

SET DEFAULT SYS$LOGIN

**Note:** Do not run the installation procedure from the [.TMP] directory in which ISETUP resides as this will cause errors in the installation process.


After you complete the installation, you can later delete the [.TMP] directory.

### Downloading the Installation Software Using FTP

To download the installation software:

   The Information Builders Technical Support home page opens.

2. Click *My Downloads* in the My Account section on the right side of the page.
   The Downloads, Upgrades, Service Packs, and PTFs page opens.

3. Click the link for your product (for example, WebFOCUS and iWay Server and iWay Client).
   The Downloads by Release page for your product opens.
4. Click your release from the Current Production Releases list.
   The Software Downloads page for your release opens.

5. Scroll down and find the platform on which you want to install the server, and then click Download to the right of the platform name.

6. Fill in the registration form and then click Continue.
   The Software Download Agreement page opens.

7. Select I agree... to consent to the Download Agreement, and then click Continue.
   The Download Instructions page opens. Select AUTOMATIC or MANUAL and follow the relevant instructions.
   A copy of the instructions is also automatically emailed to you for later reference.

8. Follow the instructions on the Download Page.

9. Run the installation procedure as described in Step 4. Running the Setup Procedure on page 357.

   Caution: Do not run the installation procedure from the [.download] directory in which ISETUP resides as this will cause errors in the installation process.

   After you complete the installation, you can delete the [.download] directory, as well as the directory to which the saveset was expanded.

Step 4. Running the Setup Procedure

In this section:
Configuring an Additional Server
Refreshing an Installation
Dismounting the Software CD
Installing and Configuring Silently

Example:
Installing and Starting a Full-Function Server

Reference:
Server Installation Parameters

The installation procedure name is called ISETUP. For performance reasons, you should not install to an FSD or NFS-mounted disk.

To install:
Step 4. Running the Setup Procedure

1. Log on with the iadmin user ID.

2. Set the default protection mask to at least read/execute (if it has not already been set this way). For example:

   ```
   SET PROTECTION=(S:RWED,O:RWED,G:RE,W:RE)/DEFAULT
   ```

3. Ensure that you are not in a directory containing the installation files:

   ```
   SET DEFAULT SYS$LOGIN
   ```

4. Ensure that you have write privileges to the directory in which you execute the installation. You can test whether you have write permissions as follows:

   ```
   CREATE [.XXX] /DIRECTORY
   ```

5. Execute the ISETUP procedure from either:

   - **CD**. For example:
     ```
     RUN CD:[IWAY]ISETUP
     ```
   - **Disk**. For example:
     ```
     RUN [.download]ISETUP
     ```

   You are prompted for the type of installation you are performing.

6. Enter option 1, *Install and Configure*.

   You are prompted for your license key.

7. Type your license key.

   Your license attributes are displayed, and the license key is confirmed.

   You are then prompted for the location of the installation file iserver.bck.

8. Type the full path (including the CD or disk drive) of the installation file, or press *Enter* to accept the default.

   For example, from CD:

   ```
   CD:[IWAY]iserver.bck
   ```

   For example, from disk:

   ```
   [.download]iserver.bck
   ```

   You are prompted for the password of the server administrator (iadmin) ID.

9. Type the server administrator password.

   The password does not display, and is stored in encrypted form.

   You are prompted to review the default values of the remaining installation parameters.
To accept all the default values, enter Y and skip to Step 12. Otherwise, to change any values, continue with Step 11.

**Installing the demo files.** By default, the Century Corp demo files are not installed. If you wish to install them, do not enter Y, but instead continue to Step 11, where you will have the option of installing them in one or more languages. (Note that all other demo files are installed automatically, in English, as part of the standard installation.)

Enter N to be prompted individually for each installation parameter. For each one, you will be given the choice of accepting the default value or changing it.

For information about these parameter values, see [Server Installation Parameters](#) on page 360. Note that the default root location is the iadmin ID home directory.

If any of the prompted locations (such as EDAHOME) exist, they will be marked with "(*EXISTS*)" on the display line. This gives you the opportunity to change a location if you do not want to overwrite it by changing the default values.

When specifying a location, note these requirements:

- The EDAHOME directory path name directory path name must conform to the pattern *ibi.srv77*.home* and must be an absolute path.

- If you changed the EDAHOME value, the default EDACONF value changes to conform to EDAHOME.

  EDACONF must be in the same srv77 path as EDAHOME. The lowest-level EDAHOME directory (home) becomes the product type directory in EDACONF.

  For example, if EDAHOME is

  ```
  [iadmin.ibi.srv77.home]
  ```

  then EDACONF for a WebFOCUS Reporting Server defaults to:

  ```
  [iadmin.ibi.srv77.wfs]
  ```

  If you are configuring an additional instance, be sure to specify a new configuration directory here; do not use an existing directory. Each instance must have its own configuration directory. You can append characters to the name of the product_type directory to avoid overwriting the existing directory. For example:

  ```
  [iadmin.ibi.srv77.wfs2]
  ```

  Note that National Language Support (NLS) is set to OFF by default. You can configure it using the Web Console after installation.

Review the configuration options displayed on the screen, and type Y if you accept them. Alternatively, to start over, enter N. To quit the installation procedure, enter Q.

Several progress messages display while the server is being installed. You are then asked if you want to start the server.
13. Type Y to start the server or N to exit.

If you start the software, startup messages and the Web Console URL are now displayed.

You should now verify your installation, as described in Step 5. Verifying the Installation on page 367.

**Reference: Server Installation Parameters**

The server installation procedure parameters are described in the following table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| EDAHOME   | Directory location for files. Any changes in the EDAHOME location must follow the pattern *ibi.srv77*.home* in its declaration.  
**Note:** Do not use dollar signs ($) in device or path names if Active Technologies has been licensed. |
| EDACONF   | Location for the default configuration. The default value is based on the license key and any change in the EDAHOME directory pattern. The default will be a sibling directory to the EDAHOME directory in terms of its location, and will have a name, such as ffs, wfm, dm, or wfs (based on the key and on any change in the EDAHOME pattern).  
When EDASTART is used to control the server, if the full path name of the EDACONF directory exceeds 31 characters, the directory is automatically aliased as EDASHARE=EDA\n where \n is the starting TCP port number of the server.  
When aliasing occurs, a message similar to the following appears:  
**Warning:** WSM id 'DISK$SOFTWARE:[IWAY.IBI.SRV77.FFS] has been aliased to EDASHARE=EDA\n100 due to length. |
<p>| EDAPRFU   | Location of user and group profiles and of admin.cfg, which specifies the server administrator. |
| APPROOT   | Location for default applications and sample applications. |</p>
<table>
<thead>
<tr>
<th><strong>Parameter</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HTTP_BASE_PORT</strong></td>
<td>First of three consecutive port numbers that the server uses for the HTTP Listener and other IP-based services. If you are configuring multiple instances, be sure to specify a different range of ports for each server instance. The default port automatically varies by product to support multiple servers on a particular computer:</td>
</tr>
<tr>
<td></td>
<td>❑ <strong>For a Full-Function Server</strong>, 8101 is the default value, which reserves ports 8101-8103.</td>
</tr>
<tr>
<td></td>
<td>❑ <strong>For a WebFOCUS Reporting Server</strong>, 8121 is the default value, which reserves ports 8121-8123.</td>
</tr>
<tr>
<td></td>
<td>❑ <strong>For a DataMigrator Server</strong>, 8117 is the default value, which reserves ports 8117-8119.</td>
</tr>
<tr>
<td></td>
<td>❑ <strong>For a Shared Application Server</strong> (for WebFOCUS Maintain), 8113 is the default, which reserves ports 8113-8115.</td>
</tr>
<tr>
<td><strong>TCP_BASE_PORT</strong></td>
<td>Port number on which the server TCP Listener listens. It must be outside the range of the three consecutive HTTP Listener ports. It defaults to the port immediately preceding the first HTTP Listener port. For example, if you accept the default HTTP Listener Port value of 8101, the TCP Listener port defaults to 8100. If you are configuring multiple server instances, be sure to specify a different port for each instance.</td>
</tr>
<tr>
<td><strong>SMTP_HOST</strong></td>
<td>SMTP Server node (host) name or TCP/IP number for outbound e-mail features. (Optional, only prompted for if changing directories and ports.)</td>
</tr>
<tr>
<td><strong>SMTP_PORT</strong></td>
<td>SMTP Server port number for SMTP Server. The default value is 25. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)</td>
</tr>
<tr>
<td><strong>SENDER_EMAIL</strong></td>
<td>Default from address for users reading an email from the server if none was specified in the originating application. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)</td>
</tr>
</tbody>
</table>
### Step 4. Running the Setup Procedure

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVER_ADMIN_EMAIL</td>
<td>Server administrator email address to send administrative warnings to, such as an agent crash. (Optional, only prompted for if changing directories and ports, and the SMTP Server host is supplied.)</td>
</tr>
</tbody>
</table>

**Example: Installing and Starting a Full-Function Server**

The following session is an example of a Full-Function Server installation from CD in which the user has accepted the default values. The session begins with a RUN command issued from the OpenVMS command prompt.

```
$ RUN CD:[IWAY]ISETUP

Welcome to the Product Set Up Facility
Please respond to the prompts or enter Q to quit at any prompt.

Select an option:
1. Install and Configure
   2. Add Additional Configuration Instance
   3. Refresh Installation (Reinstall, Keep Configurations)
   4. Install Debuggables to the Installation Directory
Enter a selection (Default=1) : 1

Enter your License Key       (Current number of CPUs = 8)
(Format 999-999-9999-99) : xxx-xxx-xxxx-xx
License Key has been checked
Product: WebFOCUS Server
Maximum Number of Adapters: Unlimited
Maximum Number of Users: 8
Maximum Number of CPUs: Unlimited (8 found)

Please enter the full path name of the media for the product
(Default=CD:[IWAY]iserver.bck)
Please supply media or <Enter> :
```
Enter credentials for the server's internal security provider (PTH), the server's default start up mode.
Enter the Server Administrator ID
(Default=srvadmin) :
Enter the Administrator Password :
Use the WebConsole Access Control option to configure alternate or additional security providers, such as OPSYS, LDAP or others.

------------------------------
Please review the default settings.
EDAHOME = IWAY:[iadmin.ibi.srv77.home]
EDACONF = IWAY:[iadmin.ibi.srv77.wfs]
EDAPRFU = IWAY:[iadmin.ibi.profiles]
APPROOT = IWAY:[iadmin.ibi.apps]
HTTP_BASE_PORT = 8121
TCP_BASE_PORT = 8120
If you are satisfied with the default settings you may proceed to final confirmation else you will be prompted for individual values. Proceed with defaults? (Y/N Default=Y) : y

The following selections have been made for ...
Install Options ...
    INSTALLATIONDEVICE = CD:[IWAY]iserver.bck
    PRODUCT = server
    EDAHOME = IWAY:[iadmin.ibi.srv77.home]
    LICENSE = xxx-xxx-xxxx-xx

Configure Options ...
    EDACONF = IWAY:[iadmin.ibi.srv77.wfs]
    EDAHOME = IWAY:[iadmin.ibi.srv77.home]
    LICENSE = xxx-xxx-xxxx-xx
    PRODUCT = server
    EDAPRFU = IWAY:[iadmin.ibi.profiles]
    WORKSPACE_MANAGER_NAME = "WebFOCUS 77 Server"
    APPROOT = IWAY:[iadmin.ibi.apps]
    SERVERTYPE = ffs
    SERVERADMIN_ID = iadmin
    PTH_USER = srvadmin
    PTH_PASSWORD = 10838247AF51CF49
    HTTP_BASE_PORT = 8121
    TCP_BASE_PORT = 8120
Please confirm these values with one of the following responses ...  
Y = Accept and Proceed  
N = Start Over  
Q = Quit  
Please supply confirmation: y  
Please wait while we are installing the product ...  
ISETUP: Installation Step completed  
Please wait while we are configuring the product ...  
ISETUP: Configuration Step completed

Would you like to start the Server Workspace (Y/N Default=Y)? : n

Configuring an Additional Server

If you have additional licenses and need to configure an additional instance, log on with the iadmin ID and run EDAHOME [.BIN]ISETUP.EXE, where EDAHOME is the directory on which the software was installed ([.IBI.SRV77.HOME] by default). At the main menu, select option 2, Add Additional Configuration Instance.

The prompts for adding a configuration are similar to those for an installation, but EDAHOME is the directory where the software was originally installed. Typically, you would not want to accept the defaults, as doing so will cause your current configuration to be overwritten. If the supplied EDACONF already exists, the installation will copy it to a directory called BACKUP.

Refreshing an Installation

Sometimes it is desirable to refresh the software installation directory (EDAHOME) because it has become accidentally damaged or needs updating with a service pack. To do this, run the ISETUP program on the CD from which the software was originally installed, as described in Step 4. Running the Setup Procedure on page 357, or from a service pack CD. At the main menu, select option 3, Refresh Installation (Reinstall, Keep Configuration). This refreshes programming files under the software installation directory (EDAHOME) and does not affect any configuration directories. The complete directory tree (EDAHOME) is removed and re-created. If any files need to be retained, they should be copied elsewhere beforehand.

Dismounting the Software CD

When you have finished accessing the CD, dismount it with the following command

DISMOUNT device_name:

where:

device_name:

Is the device name used in the original mount command.
Normally the CD will not be needed again unless a support situation requires debuggable versions of the software to be installed. A set of debuggables matching the original software is on the CD for this purpose. You will also need the CD if you refresh the installation.

Installing and Configuring Silently

**How to:**

Create the Installation Parameters File
Launch a Silent Installation

This is also known as a silent install. The most common form is an initial install, which also results in an initial configuration. An initial installation and configuration should only be done once per EDAHOME and an add product configuration used thereafter.

Installing silently can be helpful if you want to install multiple servers at once throughout an enterprise. To install a server silently, you must first create a text file that specifies your server installation parameters and then call isetup with the option and the file name. The silent method may also be used to do a software refresh.

We recommend that the first time you install, you use the default interactive mode, not the silent mode, so that you become familiar with the procedure. Installing a server interactively is described in *Step 4. Running the Setup Procedure* on page 357.

Run isetup -? to see full information on the setup and specific use of a parameters file for silent installation, configuration, or refresh.

**Procedure:** How to Create the Installation Parameters File

Use a text editor to create a file with the following syntax to specify your product installation parameters:

```
-inst
-license nnn-nnn-nnnn-nn
-edafile /ibi/srv77/home
-edaconf /ibi/srv77/product_type
-port portnum
-host hostname
-approot drive:\ibi\apps
-programfolder "folder-title"
-pass password
-nostart
```

where:

```
nnn-nnn-nn
```

Is the 12-digit license. Include a hyphen (-) following the third, sixth, and tenth digits.
Step 4. Running the Setup Procedure

/ibi/

Is the drive and directory to which you want to install the software.

product_type

Designates the type of product. The default values are:

- FFS for a Full-Function Server
- DM for a DataMigrator Server
- WFS for a WebFOCUS Reporting Server
- WFM for a Shared Application Server for WebFOCUS Maintain

portnum

Is the base TCP port for the server.

hostname

Is the server host name.

folder-title

Is the name you want to assign to the Windows program folder and service. For example:

-programfolder "WebFOCUS 77 Server"

password

Is the password of the user ID with which you are installing the server.

To see a list of additional installation, configuration, and refresh options:

1. Open a command prompt window and navigate to the directory containing the installation setup.exe file for the software.

2. Enter the following:

   setup ?

3. Accept a display language and click Next.

   A Help screen with further parameter file options will display.

   The user may continue with the install (interactive) or quit at this point to attempt a silent install/configure.

Procedure: How to Launch a Silent Installation

1. Open a command prompt and navigate to the directory containing the software and the setup.exe file for the install.

2. Type the following:

   setup -opt /path/srvoptions.txt
where:

/path/srvoptions.txt

Is the full path and file name of the file specifying your installation options.

For example, to specify English and an options file named serveroptsFFS1.txt, type:

setup -opt /temp/serveroptionsFFS1.txt

3. After the installation has completed you should verify that it was successful, as described in Step 5. Verifying the Installation on page 367.

**Step 5. Verifying the Installation**

**How to:** Verify Server Installation

To verify that you have successfully installed, use the configuration that is created by the installation. You can verify the product installation by bringing up, checking, connecting to, testing, disconnecting from, and shutting down. (If you started the server as the last step of the installation procedure, skip ahead to Step 5.)

**Procedure:** How to Verify Server Installation

1. Log on to your OpenVMS operating system with the iadmin user ID.

2. Activate the account privileges (if they are not yet activated) by issuing the following command.

   ```
   SET PROCESS /PRIV=ALL
   ```

   This is typically done by using AUTHORIZE to set privileges to be active by default, or by putting the SET PROCESS command in the ID login profile (LOGIN.COM).

3. Start the server with the appropriate path to edastart and the -start option

   ```
   @IWAY:[IADMIN.IBI.SRV77.FFS.BIN]EDASTART.COM -START
   ```

4. Check to see whether the processes are active using -show

   ```
   @IWAY:[IADMIN.IBI.SRV77.FFS.BIN]EDASTART.COM -SHOW
   ```

5. Start the Web Console by starting a browser pointed at the server HTTP Listener port specified during installation. The URL format is http://host:port. (The URL is also displayed at the end of the installation procedure.)

   For example, if default ports were used during installation, use http://host:8101 for a Full-Function Server and http://host:8121 for a WebFOCUS Server.
6. If the server is running in a secure mode, you will first see a logon screen. Log on using the iadmin ID used during server configuration. For information about configuring the server security, see Step 6. Security Providers on page 368.

The Web Console home page opens. The Home Page is arranged in a menu-like context for the various features it supports. Detailed use of the Web Console for configuration or general operation of the server is available by clicking Help in the left navigation menu and in the Server Administration manual.

7. If the Web Console opens and displays application tree folders in the left pane, the server is working because it uses its own underlying data access and reporting technologies to visualize the application tree. The server may be further data tested (if desired).

8. When you are done using the server, you can stop it using the Web Console by clicking the Stop option on the Web Console toolbar.

9. If you experience any problems, examine the IWAY:[IADMIN.IBI.SRV77.FFS]EDAPRINT.LOG file.

Step 6. Security Providers

**How to:**

Satisfy Security Provider OPSYS Requirements

Add/Change Privileges and Quotas (EDAENV.PRM)

The default security provider for a new installation is the internal security provider, PTH. The PTH provider implements security using user IDs, passwords, and group memberships stored in the admin.cfg configuration file.

After the initial installation, the Server Administrator that was configured during the installation can start the server and use the Web Console to further customize security settings, for example, to configure alternate or additional security providers, create additional PTH IDs, and register groups and users in a security role. For more information about security providers, see the Server Security chapter in the Server Administration manual.

**Procedure: How to Satisfy Security Provider OPSYS Requirements**

To run a server with security provider OPSYS in OpenVMS, you must satisfy the following requirements. You must do this when you set up the server administration (iadmin) ID.

Although installation can be done by an ordinary user, the changes listed here require the SYSTEM ID.
Run MCR AUTHORIZE to add the following privileges to the iadmin ID.

<table>
<thead>
<tr>
<th>Privilege</th>
<th>Function</th>
<th>Required for</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMKRNLS</td>
<td>May change mode to kernel</td>
<td>Server impersonation features</td>
</tr>
<tr>
<td>IMPERSONATE</td>
<td>May impersonate another user</td>
<td>Server impersonation features</td>
</tr>
<tr>
<td>NETMBX</td>
<td>May create network device</td>
<td>Mailboxes *</td>
</tr>
<tr>
<td>PRMGBL</td>
<td>May create permanent global sections</td>
<td>IPC Shared Memory *</td>
</tr>
<tr>
<td>PRMMBX</td>
<td>May create permanent mailbox</td>
<td>IPC Control Pipes *</td>
</tr>
<tr>
<td>SYSGBL</td>
<td>May create system wide global sections</td>
<td>IPC Shared Memory *</td>
</tr>
<tr>
<td>SYSNAM</td>
<td>May insert in system logical name table</td>
<td>IPC Control Pipes *</td>
</tr>
<tr>
<td>SYSPRV</td>
<td>May access objects using system protection</td>
<td>Creating system logical tables* and server security features</td>
</tr>
<tr>
<td>TMPMBX</td>
<td>May create temporary mailbox</td>
<td>Mailboxes *</td>
</tr>
<tr>
<td>WORLD</td>
<td>May affect other processes in the world</td>
<td>Control of impersonated processes</td>
</tr>
<tr>
<td>SYSLCK</td>
<td>May lock system wide resources</td>
<td>Adapter for Progress only *</td>
</tr>
</tbody>
</table>

* Also required for non-secured servers.

Any additional privileges or changes in quota required by particular underlying databases must also be authorized and customized in the EDAENV.PRM file, as described in How to Add/Change Privileges and Quotas (EDAENV.PRM) on page 370.

The default minimal quota resources are also contained in the default EDAENV.PRM file. You do not need to have values explicitly declared in the UAF or SYSTEM tables, provided the iadmin user ID has IMPERSONATE privileges. However, some situations may require quotas to be increased (for instance, if there are problems accessing very large databases). This is also done by customizing the EDAENV.PRM file, as described below.
Procedure: How to Add/Change Privileges and Quotas (EDAENV.PRM)

You can create privilege and quota settings using a configuration file (EDAENV.PRM). To customize the settings:

- Copy the default EDAHOME [.BIN]EDAENV.PRM file to EDACONF [.BIN].
- Edit and customize the EDACONF [.BIN]EDAENV.PRM file as needed (for edit rules, see below).
- Recycle the server.
- Repeat as needed until the desired effect is achieved (for example, until the page file quota is large enough to access large files).

EDAENV.PRM edit rules:

- Changing quota values are simply edited values.
- To add a quota, use the form name=value with one declaration per line. Actual names follow the standard OpenVMS names for resources.
- Privilege declarations lines have the format Privilege_n : privilege [, privilege, ...], where n is any integer from 1 to 99. The value for n must be unique among the Privilege_n lines. Any number of comma-separated privilege names per line may be declared, but each Privilege_n line must be on separate lines. Privilege names follow the standard OpenVMS names for these privileges.

The EDAENV.PRM file should not be confused with the EDAENV.COM file, which is used for running additional OpenVMS commands (typically logical declarations) at startup. An example of EDAENV.PRM follows:

```
io_direct = 200
queue_limit = 100
page_file = 2097152
buffer_limit = 800000
io_buffered = 200
ast_limit = 300
working_set = 3076
maximum_working_set = 8192
extent = 10240
file_limit = 4096
enqueue_limit = 4000
job_table_quota = 10000
priority = 4
privilege_1 : TMPMBX, NETMBX, PRMMBX
privilege_2 : PRMGBL, SYSGBL, SYSNAM
privilege_3 : SYSPRV, CMKRNL, WORLD
privilege_4 : SYSLCK, IMPERSONATE
```
Starting and Using the Server

After configuring for secured mode (if desired), the server is started and managed using the same server startup and Web Console startup steps used for validating the server (steps 1 - 6 in Step 5. Verifying the Installation on page 367).

If the server has not been configured for adapters, now is an appropriate time to do so using the Web Console and Server Administration manual. For current information about which adapters are supported:

   The Information Builders Technical Support home page opens.
2. In the Quick Links section on the right side of the page, click Supported Systems/Adapters.
   The Supported Systems and Adapters page opens.
3. Click the link for the server release you want.
   The Supported Systems and Adapters page for that release opens.
4. Click the link for your platform.
   The support chart for that platform opens.

Commonly used edastart options and functions are as follows:

<table>
<thead>
<tr>
<th>Command and Option</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>edastart</td>
<td>(No parameters) Starts the server with the line mode console to actively view the server log (edaprint). Also allows dynamically issuing edastart options, such as show, traceon, traceoff, quit, and stop. Use Ctrl+C to receive the console command prompt to enter commands.</td>
</tr>
<tr>
<td>edastart -start</td>
<td>Starts the server in background. Only a short message appears.</td>
</tr>
<tr>
<td>edastart -sstart n</td>
<td>Starts the server, but waits n seconds for actual startup.</td>
</tr>
</tbody>
</table>
## Command and Option

<table>
<thead>
<tr>
<th>Command and Option</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>edastart -show</td>
<td>Shows general status of the server and agents.</td>
</tr>
<tr>
<td>edastart -stop</td>
<td>Stops the server.</td>
</tr>
<tr>
<td>edastart -cleardir</td>
<td>Removes all temporary directories (and their contents), as well as log and other files created by the server (including the rmlda*.log files, if active) in EDACONF. If Resource Manager is in use and you want to maintain the rmlda*.log data, backup the rmlda*.log files before using this feature and restore them afterward.</td>
</tr>
<tr>
<td>edastart -quit</td>
<td>Exits the server line mode console log (edaprint) and returns to the operating system command prompt, but leaves the server running.</td>
</tr>
<tr>
<td>edastart -console</td>
<td>Re-enters the server line mode console log (edaprint).</td>
</tr>
<tr>
<td>edastart -traceon</td>
<td>Turns on tracing. May be used at initial startup or after start. Tracing should not be turned on (due to overhead) unless there is a problem that needs to be traced. It is always preferable to start traces at initial startup time unless instructed otherwise.</td>
</tr>
<tr>
<td>edastart -traceoff</td>
<td>Turns off tracing.</td>
</tr>
<tr>
<td>edastart -?</td>
<td>Displays the full set of edastart server control options.</td>
</tr>
<tr>
<td>edastart -?s</td>
<td>Displays support information and support-related options.</td>
</tr>
</tbody>
</table>

### Other DCL Programs

The commands below may be used to start or manage the server environment in a batch mode using DCL.

The process of installing a server also creates DCL sources so that server functions such as start, stop, show, and tracing may be activated with a single keyword. The start command starts the server as a batch job (SUBMIT) issued to the SYS$BATCH queue, and is particularly useful for automatically starting a server at boot time or with minimal effort.

The sources are created and permanently assigned to the configuration bin directory. The core EDASTART program is generic for any installation and is driven by the defaults within the command files. The basic commands and functions are listed in the table below.
<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTART [ID]</td>
<td>edastart</td>
</tr>
<tr>
<td>ISTOP [ID]</td>
<td>edastart -stop</td>
</tr>
<tr>
<td>ISHOW [ID]</td>
<td>edastart -show</td>
</tr>
<tr>
<td>ISHOWLOG [ID]</td>
<td>edastart -showlog</td>
</tr>
<tr>
<td>ITRCON [ID]</td>
<td>edastart -traceon</td>
</tr>
<tr>
<td>ITRCOFF [ID]</td>
<td>edastart -traceoff</td>
</tr>
<tr>
<td>ICLEAR [ID]</td>
<td>edastart -clear</td>
</tr>
<tr>
<td>ICLRDIR [ID]</td>
<td>edastart -cleardir</td>
</tr>
<tr>
<td>ISAVEDIA [ID]</td>
<td>edastart -savediag</td>
</tr>
</tbody>
</table>

To use any of the commands, type an "@" and the full path name of any of the DCL scripts.

- The DCL scripts may be further customized, or the defaults may be changed, by manually editing the files. Detailed instructions for all steps are contained within the sources.
- System symbols for the DCL scripts may be created, but this is left to OpenVMS administrators.
- A user ID may be supplied as an optional parameter and is used as the SUBMIT /USER= value. This is particularly useful when starting the server with the system boot script to ensure the server starts under the proper ID.

**Adding JOB, GROUP or Other Defined Environment Values (EDAENV.COM)**

At server startup, all Process level logicals are copied to the startup job stream; System level logicals are present by default. If a server must be configured to "see" Job or Group level logicals, or there are Process level logicals that should only be declared for the server, they must be individually declared in an EDACONF [.BIN]EDAENV.COM file. The contents of this file must be valid DCL syntax (typically just consisting of logical declarations). An example of EDAENV.COM follows:

```
$ DEFINE /GROUP ORASID MYORASID
```

**Note:** If EDAENV.COM is needed, you must create it. An empty template is not supplied.
End-User Requirements

ID's connecting to a server (secured or unsecured) have requirements in terms of specific setup and privileges. The requirements are as follows:

- An ID must have a UIC group associated with the ID, so the calls for ID information under OpenVMS 7.x are returned in standard OpenVMS 6.x [group,member] format.
  
  To check the UIC, issue the following:

  ```
  WRITE SYS$OUTPUT F$USER()
  ```

- An ID must have QUOTA on the same disk where the server writes its temp files (typically EDACONF [.EDATEMP]).

- An ID must have following privileges:
  - NETMBX, may create network device, required for use of mailboxes.
  - TMPMBX, may create temporary mailbox, required for use of mailboxes.
  - SYSLCK, may lock system wide resources, required for use of the Adapter for Progress only.

Generating a Trace

**How to:**

Generate a Server Trace
Generate a Non-Server Trace

If you encounter a server problem, you can run a set of traces that will help you assess the problem, and, if necessary, communicate it to Customer Support Services for further troubleshooting. This topic describes trace options and provides instruction for creating the traces.

There are two types of traces you can run to troubleshoot a problem:

- **A server trace**, in which you trace an agent that is running in a server context.

- **A non-server trace**, in which you trace an agent that is running outside a server context, that is, an agent that is running in standalone mode.

Under normal conditions, applications are run in a server context. However, if you run your trace in a non-server context (that is, you run a non-server trace), and produce the necessary diagnostic information, you can significantly reduce the amount of material that needs to be reviewed. Running a non-server trace also rules out server communications as a cause of a problem.
If you prefer to use DCL jobs to control tracing and save diagnostics functions, you can take advantage of a number of DCL scripts that are created during installation in the EDACONF [.BIN] directory and can be used to start traces, turn traces off, and perform edastart-savediag functions. The commands are, respectively, ITRCON.COM, ITRCOFF.COM, and ISAVEDIA.COM. An alternate ID parameter is available, under which you can submit the job. For details, see Other DCL Programs on page 372.

**Procedure: How to Generate a Server Trace**

To generate a server trace:

1. Turn tracing on by doing one of the following:
   - Go to the Web Console menu bar, select the Main Web Console Other Options control icon and then Enable Traces.
   - Start the server by issuing the following command:
     ```
     edastart -traceon
     ```
     **Note:** Preface edastart with an @ sign and pathname, unless a symbol has been set up.

2. Reproduce the problem.

3. Stop the server.

4. Issue the following command:
   ```
   edastart -savediag
   ```

5. Respond to the prompts to capture, and optionally archive and ship diagnostic information.

   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.

   For information about sending the diagnostic information to Customer Support Services, see Information You Should Have on page 11 and Customer Support on page 11.

**Procedure: How to Generate a Non-Server Trace**

To generate a non-server trace:

1. Create a directory under APPROOT to reproduce the problem.

2. Copy any files required for the reproduction to the directory.
3. Switch to the directory.
4. Reproduce the problem using edastart -traceon and one of switches -t, -x, or -f.
5. Switch to a directory other than the problem reproduction directory.
6. Issue the following command:
   ```
edastart -savediag
   ```
   **Note:** Preface edastart with an @ sign and pathname, unless a symbol has been set up.
7. Respond to the prompts to capture, and optionally archive, diagnostic information.
   Diagnostic information will commonly contain user data. If the release of that data is considered a security concern when shipping to Customer Support Services, the -savediag feature also allows a diagnostic to be saved and shipped later to allow the site the opportunity to review and cleanse the traces of data of this nature before shipping.
   For information about sending the diagnostic information to Customer Support Services, see *Information You Should Have* on page 11 and *Customer Support* on page 11.

### Third-Party Software and Licenses

**In this section:**
- OpenFlex SDK

As of Version 7 Release 6.8, to address display of third-party software license requirements, a license option has been added to the Help menu located on the Web Console. This section describes the third-party software used on OpenVMS and includes references to the full licenses included in *Information Builders and Third-Party Licenses* on page 385.

**OpenFlex SDK**

OpenFlex SDK is included by Information Builders for use with its HOLD FORMAT FLEX feature. This distribution is subject to the terms and conditions of the Mozilla Public License Version 1.1.

For more information, see *OpenFlex SDK License* on page 391 or visit our website, [http://www.informationbuilders.com](http://www.informationbuilders.com).
General Information for an OpenVMS Installation

In this section:
Sample Metadata, Data, and Other Tutorial Samples
Java Listener JVM Defaults
Configuring for IEEE/G_FLOAT Float Data

This section covers general information for an OpenVMS Installation.

Sample Metadata, Data, and Other Tutorial Samples

Releases prior to 7.7.06 pre-load various samples into the IBISAMP application. As of 7.7.06, on a new installation, the IBISAMP application is created, but is not pre-loaded. The server Web Console has a new feature on the ribbon and on the application tree (under new), Tutorials (the Create Tutorial Framework page), which has a pull-down for various samples. The DMC also has this feature on the application tree.

There are currently about 10 different tutorial/sample selections available on the pull-down select list to match various customer needs. The bulk of the prior IBISAMP sample objects can be generated by selecting the Create Legacy Sample Tables and Files tutorial. Other prior IBISAMP DataMigrator sample objects (usually starting with the characters dm*) are now loaded by choosing their respective DataMigrator tutorials. Under the new method, the tutorials/samples may be loaded to any application, not just IBISAMP.

If you are doing just a software refresh, the prior IBISAMP objects will be unchanged (because a refresh does not touch app directories).

Java Listener JVM Defaults

How to:
Tune the Java Listener From the Web Console

The Java Listener on OpenVMS Alpha has pre-set values for Initial Java Heap Size (JVM_INIT_HEAP) and Maximum Java Heap Size (JVM_MAX_HEAP) because the internal Java defaults for these values are insufficient (and cause features to fail). Plus, the OpenVMS Alpha Java documentation explicitly states that the internal defaults should not be depended on.
The pre-set values do not reflect any tuning, but are simply known working values. Specific tuning should be done based on your application need. Java’s own internal default for this heap size is insufficient and in-turn causes server features to fail. The pre-set value does not reflect any specific tuning, but is simply a known working value. Specific tuning should be done based on application need.

Since OpenVMS Integrity (IA64) Java does not have issues with these internal defaults, they are not pre-set. However, applications may benefit from specific tuning.

**Procedure:** How to Tune the Java Listener From the Web Console

To tune the Java Listener from the Web Console:

1. Select **Workspace** from the menu bar.
2. Open the **Java Services** folder.
3. Right-click **DEFAULT** and select **Properties**.
   The Java Services Configuration pane opens.
4. Expand the **JVM Settings** section.
5. Under **Non-standard JVM options**, enter values in the **Initial Java Heap Size** and **Maximum Java Heap Size** fields.
6. Click **Save and Restart Java Services**.

**Configuring for IEEE/G_FLOAT Float Data**

As of 7.7.02, OpenVMS 8.x builds are natively IEEE builds and the SET VMSFLOATCONV = IEEE/G-FLOAT command is used to SET the float read method for single (F)/double (D) float data. This requires separate configurations for each float type and a hub-sub arrangement to join data. By default, an IEEE build needs no explicit SET command to access IEEE float data, although it is allowed. To access G_FLOAT data, the following command must be added to the server edasprof.prf:

```
SET VMSFLOATCONV = G-FLOAT
```

This may be done from the Web Console using the server profile edit feature.

The SET command is ignored on non-applicable platforms, so application sources may be shared. The setting also does not apply to the OpenVMS 7.x builds, which are strictly G_FLOAT builds.
Troubleshooting for OpenVMS

How to:
Install and Activate the Debuggable Version of the Server

Reference:
Problem: The Server Starts in Safe Mode
Problem: EDASTART Window Displays Only a Few Lines
Problem: HTTP Listener Does Not Start Or Runs Intermittently
Problem: Missing Folders in Web Console Procedure and Metadata Panes
Problem: Unexpected EDASHARE Message
Problem: Java Tasks Fail When Using Oracle

To troubleshoot an installation problem, identify your problem in the following list, and follow the link to a description of the solution.

If you cannot find your problem described in the list, and cannot resolve it yourself, contact Customer Support Services as described in Information You Should Have on page 11 and Customer Support on page 11.

Problems:

- The server starts in safe mode (as indicated by a message in the Web Console at start-up).
  For details, see Problem: The Server Starts in Safe Mode on page 380.

- Issuing the edastart command without the -start option displays only a few lines in the EDASTART window.
  For details, see Problem: EDASTART Window Displays Only a Few Lines on page 380.

- The HTTP Listener does not start, or runs intermittently, unless traces are on (edastart -traceon option).
  For details, see Problem: HTTP Listener Does Not Start Or Runs Intermittently on page 381.
The Web Console Procedure and Metadata panes do not display any folders.

For details, see Problem: Missing Folders in Web Console Procedure and Metadata Panes on page 381.

You receive an unexpected EDASHARE message after starting the server.

For details, see Problem: Unexpected EDASHARE Message on page 381.

Reference: Problem: The Server Starts in Safe Mode

Problem: The server starts in safe mode. The Web Console home page displays a message stating that the server is in safe mode and describing what triggered it.

Cause: A common cause for the server starting in safe mode is a problem with the server administrator ID password. For example, the password may have been updated on the operating system but not on the server, so the encrypted copy of the password stored by the server is out of synchronization with the password on the operating system.

Solution: The server administrator can click the fix hyperlink, which is displayed under the problem description, to display the relevant pane and resolve the problem.

For example, if the problem is that the server administrator password is out of synchronization:

1. Click the fix hyperlink displayed under the problem description.

2. In the left pane, open the Users folder, then the Server Administrator folder.

3. Click your user ID and select Properties from the pop-up menu.

   The Access Control pane is displayed on the right.

4. Type the correct operating system password in the Password field, and type it again in the Confirm Password field.

5. Click Save and Restart.

   The Security Mode pane opens on the right.

6. Click the Home icon in the menu bar to return to the Web Console home page.

Reference: Problem: EDASTART Window Displays Only a Few Lines

Problem: Issuing the edastart command without the -start option displays only a few lines in the terminal session, even though the server starts and EDAPRINT.LOG is complete.

Cause: This is a file contention problem that generally happens on very fast systems. It does not affect creating and updating the EDAPRINT.LOG file.

Solution: Start the server by issuing the edastart -start command, immediately followed by the edastart -console command to display the edaprint log.
**Reference: Problem: HTTP Listener Does Not Start Or Runs Intermittently**

**Problem:** The HTTP Listener does not start, or runs intermittently, unless traces are on (edastart -traceon option).

**Cause:** This is caused by a TCP/IP socket synchronization problem on fast systems.

**Solution:** Briefly delay the socket logic by setting a delay variable intended for this purpose. To define the delay, add the following statement to the iadmin ID LOGIN.CON before starting the server:

```
DEFINE VMS_RECV_DELAY 1
```

The unit of measurement is the microsecond. A value of 1 usually resolves the problem. However, the value is likely to be affected by system load, so you will need to experiment to find the correct value for your system.

**Reference: Problem: Missing Folders in Web Console Procedure and Metadata Panes**

**Problem:** The Web Console Procedure and Metadata panes do not display any folders.

**Cause:** This is caused by a TCP/IP socket synchronization problem on fast systems.

**Solution:** Briefly delay the socket logic by setting a delay variable intended for this purpose. To define the delay, add the following statement to the iadmin ID LOGIN.CON before starting the server:

```
DEFINE VMS_RECV_DELAY 1
```

The unit of measurement is the microsecond. A value of 1 usually resolves the problem; however, the value is likely to be affected by system load, so you will need to experiment to find the correct value for your system.

**Reference: Problem: Unexpected EDASHARE Message**

**Problem:** After the server starts, you receive an unexpected EDASHARE message.

**Cause:** EDASHARE may have been declared manually in an earlier release.

**Solution:** Remove the manual EDASHARE declaration.

**Reference: Problem: Java Tasks Fail When Using Oracle**

**Problem:** Java tasks fail when using Oracle.

**Cause:** Newer Oracle releases use Java. When you call Oracle setup scripts (for example, in edaenv.com) and then start the server.

**Solution:** Call the standard Java setup environment after calling any Oracle setup scripts.
Procedure: How to Install and Activate the Debuggable Version of the Server

In core dump or crash situations, the stack information may or may not provide enough information for a problem to be resolved. Debugging software will generally provide that information, but will not normally be installed nor used due to the disk overhead they take. They are also not optimized for performance.

If diagnostic is determined to not have enough information and the use of debugging software is warranted, Customer Support Services will inform you to install and activate the debuggable version of the server. You will then re-run the reproduction to capture a new diagnostic with the detailed stack to help troubleshoot the problem.

Caution: Do not activate the debuggable version unless explicitly requested to by Customer Support Services.

To install and activate the debuggable version of the software:

1. Log on with the administrator ID (often referred to as iadmin).
2. Download the iserverd archive file (for example,.tar,.zip, or .bck) from the FTP site to a local directory. Debuggables for OpenVMS environments are not normally shipped on the original CD media, but can be made available on CD by special request to Customer Support Services and requires a lead time of approximately one week. IF CD media is being used, mount the media.
3. Run the isetup installation program (located in EDAHOME bin if download was used or in a root directory of the CD media).
4. At the isetup main menu, select option 4, Install Debuggables to the Installation Directory and follow the steps supplying information similar to when the original install was performed.
5. After completion of isetup, the software may be run in debug mode with the following steps.

   edastart -stop

   Copy the edastart.com to edastartdbg.com and on TSCOM symbol set up line edit bin\tscom300.exe to be dbg\tscom300.exe and save.

   edastart -dbgon
   edastartdbg -start

   The debugger starts and the user is required to type GO and GO for the actual executable to start (run until repro is completed).

   edastart -stop
   edastart -dbgoff
   edastart -start
The debugger GO/GO step may be avoided by creating a text file with the words GO and GO on separate lines and issuing a logical for DBG$INPUT before starting the server.

6. If the debug version is no longer needed, the debuggables may be removed. If a service pack is being installed, the debuggables must be removed to prevent mismatches with the new release. To remove the debuggables, change the directory to the home directory of EDAHOME and issue DELETE [.DBG...]*. * and then DELETE DBG.DIR;*.

Customer Support Services will provide you with additional instructions as your situation requires.
This section contains license text for Information Builders, as well as licenses required by the third-party software used by Information Builders.

Since Zip is only supplied on Windows environments, its license is only in reference to those environments. OpenFlex SDK is supplied on all environments, and, therefore, the license applies to all environments. For more information on these technologies and packages, see their respective websites.

Topics:
- Information Builders License
- OpenFlex SDK License
- Zip Archiver License
Information Builders License

CLICK WRAP SOFTWARE LICENSE AGREEMENT

INFORMATION BUILDERS ("IBI") IS WILLING TO GRANT YOU A LICENSE TO THE SOFTWARE AND ACCOMPANYING DOCUMENTATION YOU HAVE ORDERED ON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED HEREIN. THE LICENSE SHALL BE GRANTED PURSUANT TO EITHER: (A) THE TERMS OF AN APPLICABLE MUTUALLY EXECUTED MASTER SOFTWARE LICENSE AGREEMENT ("MSLA"); OR THE TERMS OF THIS CLICK WRAP SOFTWARE LICENSE AGREEMENT ("CWSLA"). IN THE EVENT THAT IBI DETERMINES, IN ITS SOLE AND EXCLUSIVE JUDGEMENT, THAT AN APPLICABLE MASTER SOFTWARE LICENSE AGREEMENT IS IN PLACE (THE "MSLA"), THEN THE TERMS OF THE MSLA SHALL APPLY AND SHALL SUPERSEDE THE TERMS OF THIS CWSLA. IF IN ITS SOLE AND EXCLUSIVE JUDGEMENT IBI DETERMINES THAT AN APPLICABLE MSLA IS NOT IN PLACE, THEN THE TERMS OF THIS CWSLA SHALL APPLY AND SHALL GOVERN YOUR USE OF THE SOFTWARE.

IMPORTANT NOTICE TO CUSTOMERS ENCOUNTERING THE DISPLAY OF THIS CWSLA DURING AN INSTALL: READ ALL OF THE TERMS AND CONDITIONS CONTAINED HEREIN CAREFULLY BEFORE ACCEPTING THESE TERMS. YOU ACCEPT THE TERMS BY EITHER: (A) CLICKING ON THE "YES" BUTTON BELOW (WINDOWS PLATFORM INSTALLS); (B) REPLYING "YES" WHERE INDICATED (NON-WINDOWS PLATFORM INSTALLS); OR (C) PROCEEDING OTHERWISE WITH THE INSTALLATION. BY PROCEEDING WITH THE INSTALLATION, YOU ACKNOWLEDGE THAT YOU ARE ACCEPTING AND AGREEING TO ALL OF THE TERMS AND CONDITIONS CONTAINED HEREIN. IF YOU ARE NOT WILLING TO BE BOUND BY THESE TERMS AND CONDITIONS, YOU MUST PROMPTLY TERMINATE THE INSTALLATION PROCEDURE BY CLICKING "NO" OR REPLYING "NO" TO EXIT.

IN THE EVENT IBI DETERMINES, IN ITS SOLE AND EXCLUSIVE JUDGEMENT, THAT AN APPLICABLE MUTUALLY ACCEPTED MSLA IS NOT IN PLACE, THEN THE TERMS OF THIS CWSLA REPRESENT THE ENTIRE AGREEMENT CONCERNING THE SOFTWARE BETWEEN YOU AND IBI, AND THE CWSLA SUPERSEDES ANY PRIOR PROPOSAL, REPRESENTATION, OR UNDERSTANDING BETWEEN THE PARTIES. IN ADDITION TO THE ABOVE, THE FOLLOWING TERMS APPLY UNDER THE CWSLA:

1. You are hereby granted a nonexclusive, nontransferable object code (machine readable) license to install and internally use the IBI computer software (the "Software") under the terms and conditions set forth in this CWSLA, including any documentation files accompanying the Software ("Documentation"). You do not obtain title to or any ownership or proprietary rights to the Software by virtue of this CWSLA. The Software is owned by IBI, which retains all right, title, and interest therein. The Software is protected by copyright, patent, trademark, trade secret, and other laws.
2. The license grant is limited to the Software products which have been duly licensed as evidenced by your payment of the applicable License Fees to IBI (or your agreement to pay them). The License Fee you pay is determined by certain licensing parameters which are set forth in IBI then current published fee schedule. Such license parameters may include, but are not limited to: (a) permitted number of copies; (b) hardware classification; (c) permitted number of Users; (d) permitted number of "Cores" on a duly licensed computer; (e) number of permitted Images; (e) number of connected Instances; all as more fully set forth in the applicable IBI fee schedule. The applicable licensing parameters shall be set forth in the ordering vehicle by which you have committed to pay the applicable License Fees, such as a Rider to the MSLA, or your purchase order. In no event, however, shall the license parameters of the license granted exceed those for a license for an equivalent dollar value as set forth in IBI’s then current published fee schedule, unless expressly agreed to in writing by IBI. Any "trial" or "evaluation" copy of the Software shall be of limited duration and shall expire upon expiration or termination of the trial period agreed upon by IBI in writing.

Unless otherwise set forth on the applicable Rider to the MSLA, or on a purchase order which has been accepted by IBI (IBI reserves the right to reject any purchase order within a reasonable period of time), this License grants you the right to use the Software on the single computer identified in the Rider to the MSLA or your purchase order by Model Number, Serial Number and installation location, such grant permits use on only one computer at any time. If you have multiple licenses for the Software, then at any one time you may have as many copies of the Software in use as you have licenses. The Software is in use on a computer when it is loaded into the temporary memory (i.e., RAM) or installed into the permanent memory (e.g., hard disk or other storage device) of that computer, except that a copy installed on a network server for the sole purpose of access from a computer terminal or workstation for which a separate license is required is not considered "in use." You may not use the Software to process work for any party other than yourself if you are the holder of an individual license for your company's own internal business purposes if the licensee is a company. Under no circumstances may the Software be used for purposes of performing service bureau work or on a time-share basis or rental or lease basis or be sold by the licensee, whether or not for consideration.

3. Copyright. The Software is owned by IBI or its suppliers and is protected by United States copyright laws and international treaty provisions. Therefore, you must treat the Software like any other copyrighted material (e.g., book or musical recording) except that you may either (a) make one copy of the Software solely for backup or archival purposes; or (b) transfer the Software to a single hard disk provided you keep the original solely for backup or archival purposes. You may not copy the written materials accompanying the Software.
Upgrade Fees. You agree that upgrade fees may apply in the event pricing parameter which applies to a license acquired hereunder is exceeded. You agree to promptly notify IBI in writing in the event you exceed any applicable licensing parameter, such as: (a) An increase in the number of copies licensed; (b) a change to a computer in a higher hardware classification; (c) An increase in the number of permitted Users. A "User" shall mean a specific individual employed by the licensee who you have authorized to use the Software, regardless of whether the individual is actively using the Software at any time; (d) an increase in the number of permitted Images. An "Image" is defined as a single instance or installation of the licensed Software, operating on an authorized computer; (e) An increase in the number of "Connected Instances". Certain iWay Software items are priced based on the number of connections to an application software package such as SAP, or a transaction system such as CICS. Each connection is referred to as an "Instance"; (f) An increase in the number of physical or virtual "Cores". Some Windows / Intel, UNIX or Linux based servers have a multicore chip set. A multicore server has a single chip which contains multiple processors, referred to as Cores. Some Intel based servers employ hyper-threading technology which allows virtual processors to be defined from one or more physical processors. For licensing purposes each virtual processor created via hyper-threading must be licensed, as opposed to the number of physical processors.

4. You may not sell, transfer, sublicense, rent, lease, convey, copy, modify, translate, convert to another programming language, decompile, disassemble, or create derivative works of the Software for any purpose. You may make one backup copy as specified in Section 3. However, decompilation or any attempt to break or circumvent the Software verification mechanisms (for example, copy protection) is expressly prohibited.

5. This license does not include any support, maintenance or upgrades, or enhancements of the Software. Such services are available through subscription to IBI's annual InfoResponse support offering.

6. IBI warrants that the distribution media on which the Software is furnished will be free of defects for 90 days from the date of purchase. The entire liability of IBI and your exclusive remedy for breach of this limited warranty is the replacement of any distribution media that is defective.

EXCEPT FOR THE LIMITED WARRANTY AS TO THE MEDIA, THE SOFTWARE IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE FITNESS, QUALITY, AND PERFORMANCE OF THE SOFTWARE IS WITH YOU. IBI DOES NOT WARRANT THAT USE OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE.

IBI SHALL NOT HAVE ANY LIABILITY FOR ANY KIND OF DAMAGES FOR LOST PROFITS, WHETHER DIRECT, INDIRECT, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL ARISING OUT OF THE USE OR PERFORMANCE OF THE SOFTWARE, THE SOFTWARE DOCUMENTATION, OR ANY SERVICES PROVIDED IN CONNECTION THEREWITH, EVEN IF IBI HAS BEEN ADVISED OF THE LIKELIHOOD OF SUCH DAMAGES OCCURRING.
If, notwithstanding the above disclaimers, IBI is found liable as a consequence of the use or performance of the Software, the Software Documentation or services provided (whether based on contract, negligence, tort, strict liability, breach of warranty, or any other legal theory of liability whatsoever), the amount of IBI's liability shall not exceed the license fee paid by you for your license for the Software.

Some jurisdictions do not allow excluding or limiting implied warranties or limiting liability for incidental or consequential damages, and some jurisdictions have special statutory consumer protection provisions that may supersede the limitations in this Section. As a result, these limitations may not apply to you if prohibited by the laws of your jurisdiction.

7. Term. This License is effective until terminated. You may terminate it at any time by destroying the media containing the Software, together with all copies of the Software in any form, and deleting the Software from any computer on which it is loaded. IBI may terminate this license by giving you written notice that you are in breach of any of the terms and conditions set forth in this Agreement. You agree that upon such termination, you will destroy or deliver to IBI all copies of the Software and related documents and delete all copies of the Software from any computer on which the Software is loaded.

8. You acknowledge and agree to the following:

a. You have read this License and are bound hereby.

b. This License may not be modified or waived except in a written document signed by an officer of IBI. Any modification or waiver contained in any document which you submit to IBI (whether prior to or after receiving the Software) shall be invalid and ineffective, and this License alone shall govern and control.

c. This License contains our full agreement and you are not relying on any statements or representations concerning the Software made to you, other than contained in the manuals and other written materials furnished by IBI.

d. This License shall be governed and controlled by the substantive laws of the State of New York.

e. If any term of this agreement is held illegal or unenforceable by any court of competent jurisdiction, such term shall be considered inoperable only to the extent of such illegality or unenforceability, and such holding shall not impair the validity or enforceability of any remaining term of this License. The parties agree to replace any such illegal or unenforceable provision with a new provision, which has the most nearly similar permissible economic or other effect.

f. A waiver of the breach of any provision hereof shall not be deemed to be a waiver of a subsequent breach of such provision or a waiver of the breach of any other provision.

g. The License shall be binding upon and inure to the benefit of the parties' respective heirs, successors, and assigns.
h. The terms of this CWSLA may be superseded upon the parties executing IBI's Master Software License Agreement and an applicable Rider identifying the Software licensed there under.

Information Builders, Inc.
Two Penn Plaza
New York, NY 10121-2898

(212) 736-4433
1. Definitions.

1.0.1. "Commercial Use" means distribution or otherwise making the Covered Code available to a third party.

1.1. "Contributor" means each entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. "Covered Code" means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.

1.4. "Electronic Distribution Mechanism" means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. "Executable" means Covered Code in any form other than Source Code.

1.6. "Initial Developer" means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. "Larger Work" means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. "License" means this document.

1.8.1. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.
1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant. The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by
Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute
the Original Code (or portions thereof) with or without Modifications, and/or as part of
a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to
make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of
the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial
Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code
that You delete from the Original Code; 2) separate from the Original Code; or 3) for
infringements caused by: i) the modification of the Original Code or ii) the combination
of the Original Code with other software or devices.

2.2. Contributor Grant. Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license
(a) under intellectual property rights (other than patent or trademark) licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Application of License. The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code. Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.
3.3. Description of Modifications. You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters

(a) Third Party Claims. If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs. If Contributor’s Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations. Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor’s Modifications are Contributor’s original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

3.5. Required Notices. You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients’ rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.
3.6. Distribution of Executable Versions. You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients’ rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient’s rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works. You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions. Netscape Communications Corporation ("Netscape") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.
6.2. Effect of New Versions. Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works. If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrases "Mozilla", "MOZILLAPL", "MOZPL", "Netscape", "MPL", "NPL" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED UNDER HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as "Participant") alleging that:
(a) such Participant’s Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant’s Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used, sold, distributed, or had made, Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY’S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.

11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the NPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

EXHIBIT A -Mozilla Public License.

``The contents of this file are subject to the Mozilla Public License Version 1.1 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.mozilla.org/MPL/

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.
The Original Code is ______________________________________.
The Initial Developer of the Original Code is ________________________. Portions created by ______________________ are Copyright (C) ______ _______________________. All Rights Reserved.

Contributor(s): ______________________________________.

Alternatively, the contents of this file may be used under the terms of the _____ license (the "[___] License"), in which case the provisions of [_____] License are applicable instead of those above. If you wish to allow use of your version of this file only under the terms of the [____] License and not to allow others to use your version of this file under the MPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [____] License. If you do not delete the provisions above, a recipient may use your version of this file under either the MPL or the [___] License."

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

**Zip Archiver License**


Copyright (c) 1990-2007 Info-ZIP. All rights reserved.

For the purposes of this copyright and license, "Info-ZIP" is defined as the following set of individuals:


This software is provided "as is," without warranty of any kind, express or implied. In no event shall Info-ZIP or its contributors be held liable for any direct, indirect, incidental, special or consequential damages arising out of the use of or inability to use this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the above disclaimer and the following restrictions:

- Redistributions of source code (in whole or in part) must retain the above copyright notice, definition, disclaimer, and this list of conditions.
Redistributions in binary form (compiled executables and libraries) must reproduce the above copyright notice, definition, disclaimer, and this list of conditions in documentation and/or other materials provided with the distribution. The sole exception to this condition is redistribution of a standard UnZipSFX binary (including SFXWiz) as part of a self-extracting archive; that is permitted without inclusion of this license, as long as the normal SFX banner has not been removed from the binary or disabled.

Altered versions—including, but not limited to, ports to new operating systems, existing ports with new graphical interfaces, versions with modified or added functionality, and dynamic, shared, or static library versions not from Info-ZIP—must be plainly marked as such and must not be misrepresented as being the original source or, if binaries, compiled from the original source. Such altered versions also must not be misrepresented as being Info-ZIP releases—including, but not limited to, labeling of the altered versions with the names "Info-ZIP" (or any variation thereof, including, but not limited to, different capitalizations), "Pocket UnZip," "WiZ" or "MacZip" without the explicit permission of Info-ZIP. Such altered versions are further prohibited from misrepresentative use of the Zip-Bugs or Info-ZIP email addresses or the Info-ZIP URL(s), such as to imply Info-ZIP will provide support for the altered versions.

Index

A
accessing files under ddnames 172, 258
Adabas adapter requirements for z/OS Server 135, 229
adapter requirements for z/OS Server 133, 227
adapters 166, 253
  DB2 CLI 166, 253

C
CA-DATACOM adapter requirements for z/OS Server 135, 229
CA-IDMS/DB adapter requirements for z/OS Server 135, 229
CA-IDMS/SQL adapter requirements for z/OS Server 135, 229
CA-Top Secret configuration for z/OS Server 161
Call Java adapter requirements for z/OS Server 136
CICS Transaction adapter requirements for z/OS Server 136, 229
CL and CMD programs 333, 372
communications requirements 23, 69, 309, 352

D
DATACOM adapter requirements for z/OS Server 135, 229
DB2 adapter 166, 253
  security exit 166, 253
DB2 CAF adapter requirements for z/OS Server 136, 231
DB2 CLI adapter 136, 166, 232, 253
  requirements for z/OS Server 136, 232
DB2 data 204, 285
DDNAME translation with MSODDX 172, 258
downloadable version of server
  OpenVMS 382
  UNIX 103
Dialogue Manager commands 385
disk space requirements 23, 68, 309, 351
  IBM i 309
  OpenVMS 351
  UNIX 68
  Windows 23
downloading installation files via FTP 27, 76, 315, 356
  IBM i Server 315
  OpenVMS Server 356
  UNIX Server 76
  Windows Server 27

E
EDAENV.COM 373
edasprint 60, 100, 212, 343
  JVM not found 60, 212
EJB adapter requirements for z/OS Server 137
eTrust CA-Top Secret 251
Index

F

FTPing installation files 27, 76, 142, 272, 315, 356
  IBM i Server 315
  OpenVMS Server 356
  UNIX Server 76
  Windows Server 27
  z/OS 142, 272

G

generating server traces 53, 92, 340, 374
GETPSEND troubleshooting 211

I

ibisamp samples 57, 95, 207, 291, 334, 377
IBM i Server 303, 304, 309, 312, 314, 315, 321, 324, 327, 328, 331, 333, 335, 336
  accessing IFS files 335
  accessing QSYS libraries 335
  additional configurations 324
  CL and CMD programs 333
  configuring security mode OPSYS 328
  conventions for QSYS 336
  creating user IDs 312
  disk space requirements 309
  downloading installation files 315
  installation requirements 304
  installing 321
  media availability 314
  memory usage 309
  refreshing installation 324
  startup options 331
  supported platforms 304
  user ID requirements 309
  verifying installation 327
IDMS/DB adapter requirements for z/OS Server 135, 229
IDMS/SQL adapter requirements for z/OS Server 135, 229
IFS files and QSYS libraries 335
IMS adapter requirements for z/OS Server 137, 232
installation requirements 20, 64, 304, 348
  IBM i 304
  OpenVMS 348
  UNIX 64
  Windows 20
INSUFFICIENT AUTHORITY TO GETPSEND 211
  troubleshooting 211
ISETUP procedure 143, 237

J

Java heap size 95, 377
Java Listener 95, 377
JDBC adapter requirements for z/OS Server 138
JVM not found 60, 100, 212, 343
  troubleshooting on Security OPSYS 60
  troubleshooting on USS 212

L

license code 46, 88

M

Master Files 198, 279
memory usage 23, 68, 309, 351
  IBM i 309
  OpenVMS 351
  UNIX 68
  Windows 23
Microsoft SQL Server adapter requirements for z/OS Server 138
Millennium adapter requirements for z/OS Server 138, 232
Model 204 adapter requirements for z/OS Server 138, 232
MODIFY commands 166
MQSeries adapter requirements for z/OS Server 138, 232
MSODDX in user-written subroutines 172, 258
MSODDX routine for DDNAME Translation 172, 258

N
NATURAL batch adapter requirements for z/OS Server 139, 233

O
adding JOB, GROUP or defined environment values 373
changing privileges and quotas 370
CL and CMD programs 372
configuring additional servers 364
configuring security mode OPSYS 368
creating user IDs 353
debuggable version 382
disk space requirements 351
dismounting software CD 364
downloading installation files 356
end-user requirements 374
installing 348
memory usage 351
mounting software CD 355
refreshing installation 364
software availability 355
OpenVMS Server (continued)
startup options 371, 372
supported platforms 348
troubleshooting tools 382
verifying installation 367
Web Console 371
OPSYS security mode 89, 158, 249, 328, 368
IBM i Server 328
OpenVMS Server 368
UNIX Server 89, 158, 249
overriding time zone setting 172, 258

P
performance enhancement 204, 285
HFS deployment 204
PDS deployment 285

Q
QSYS libraries and IFS files 335

R
RECTYPE values 198, 279
requirements
communications 23, 69, 309, 352

S
safe mode 59, 99, 343, 380
troubleshooting 59, 99, 343, 380
samples 57, 95, 207, 291, 334, 377
SAP adapter requirements for z/OS Server 139, 233
security
IBM i Server 328
OpenVMS Server 368
UNIX Server 89, 158, 249
server accounting 198, 199, 204, 279, 280, 285
enabling 199, 280
server accounting (continued)
  for DB2 204, 285
  statistics 198, 279
server does not start 381
  troubleshooting on OpenVMS 381
server traces 53, 92, 340, 374
service can’t be stopped on Windows 61
SMF records RECTYPES 1 and 4 201, 282
SMF records RECTYPES 2 and 5 202, 283
SMF RECTYPES 200, 281
SMFNUM facility 198, 199, 279, 280
starting the server in UNIX 91
statistics 198, 279
stored procedures 198, 279
Supra adapter requirements for z/OS Server 139, 233

T

time zone setting 172, 258
Top Secret configuration for z/OS Server 161
traces 53, 92, 340, 374
  generating 53, 92, 340, 374
Translating DDNAMES for migration 172, 258
troubleshooting 58, 59, 60, 61, 62, 98, 99, 100, 210, 211, 212, 219, 294, 295, 301, 342, 343, 379, 380, 381
  adding your problem to the manual 62, 219, 301
  EDASHARE message on OpenVMS 381
  IBM i server 342
  INSUFFICIENT AUTHORITY TO GETPSEND 211
  Java tasks fail with Oracle on OpenVMS 381
  JVM not found 60, 212
  JVM not found message 60, 100, 343
  OpenVMS server 379

troubleshooting (continued)
  safe mode 59, 99, 343, 380
  server on OpenVMS does not start 381
  U4039 abend on USS 211, 295
  UNIX server 98
  Windows server 58
  Windows service won’t stop 61
  z/OS USS server (HFS deployment) 210
  z/OS USS server (PDS deployment) 294
troubleshooting tools
  OpenVMS Server 382
  UNIX Server 103
tuning the Java Listener 95, 377
tutorials 57, 95, 207, 291, 334, 377

U

U4039 abend 211, 295
troubleshooting 211, 295
UNIX Server 63, 64, 68, 69, 72, 73, 76, 83, 86, 89, 91, 103, 158, 249, 352
  accessing installation software 72
  additional configurations 83
  configuring security mode OPSYS 89, 158, 249
  debuggable version 103
disk space requirements 68
downloading installation files 76
installation requirements 64
installing using .tar format 76
memory usage 68
mounting installation CD 73
refreshing installation 83
starting 91
supported operating systems 64
supported platforms 64
troubleshooting tools 103
user ID requirements 69, 352
verifying installation 86
Web Console 86
user IDs 24, 69, 309, 312, 352, 353
IBM i 309, 312
OpenVMS 353
UNIX 69, 352
Windows 24

V

verifying installation 44, 86, 327, 367
IBM i 327
OpenVMS Server 367
UNIX 86
Windows 44

VSAM CICS adapter requirements for z/OS Server
139, 234

W

Web Console 28, 86, 164, 252, 327
IBM i 327
UNIX 86
Windows NT/2000 28
z/OS 164, 252

Windows Server 19, 20, 23, 24, 26, 27, 28, 44, 50
disk space requirements 23
downloading installation files 27
installation requirements 20
installing 28
memory usage 23
refreshing the installation 50

Windows Server (continued)
software availability 26
supported hardware 20
supported software 20
uninstalling 50
user ID requirements 24
verifying installation 44
Web Console 28

Workspace Manager 352

Z

z/OS Server
adapter requirements 133, 227
allocating HFS files 120
communications requirements 226
configuring for CA-Top Secret 161
disk allocation 120
disk space requirements 118, 223
file systems 120
FTP steps 142, 188, 236, 272
installation requirements 115, 220
installing 143, 237
ISETUP procedure 143, 237
memory usage 119, 225
startup 164, 252
supported operating systems 116, 220
supported platforms 116, 220
tape steps 140, 234, 270
used IDs 122, 227
verifying installation 156, 184, 247, 268
In an ongoing effort to produce effective documentation, the Technical Content Management staff at Information Builders welcomes any opinion you can offer regarding this manual.

Please share your suggestions for improving this publication or alert us to corrections. Identify specific pages where applicable. You can contact us through the following methods:

**Mail:**
Technical Content Management
Information Builders, Inc.
Two Penn Plaza
New York, NY 10121-2898

**Fax:**
(212) 967-0460

**Email:**
books_info@ibi.com

**Website:**
http://documentation.informationbuilders.com/connections.asp

Name: __________________________________________________________

Company: _________________________________________________________

Address: _________________________________________________________

Telephone: ___________________________ Date: _______________________

Email: ___________________________________________________________

Comments: _______________________________________________________

Information Builders, Two Penn Plaza, New York, NY 10121-2898 (212) 736-4433

Server Installation DN4501055.0915
WebFOCUS Reporting Server Release 8.1M DataMigrator Server Release 7 Version 7.06
DataMigrator Console and Client
WebFOCUS

Server Installation

WebFOCUS Reporting Server Release 8.1M

DataMigrator Server Release 7 Version 7.06

DataMigrator Console and Client