ibi™ WebFOCUS®

Installation and Configuration for UNIX

Version 9.3.4 | May 2025

Contents

Introducing ibi WebFOCUS Installation

This chapter provides an overview of the ibi™ WebFOCUS® installation and configuration procedures.

About ibi WebFOCUS

WebFOCUS® is a complete, web-ready data access and reporting system that connects users to data. WebFOCUS accesses and processes information located in any format on any platform and presents that information to users through a web browser or through formats, such as PDF, XLS, and XML. Using HTML and user-friendly GUI tools, WebFOCUS developers can build powerful webpage interfaces that allow users to create and view reports.

WebFOCUS data access, network communications, and server operations are provided through WebFOCUS technology. WebFOCUS technology accesses data without concern for the complexities and incompatibilities of different operating systems, databases, file systems, file formats, and networks. You can access both local and remote data on over 35 platforms from more than 65 database formats, including SQL Server™, Oracle®, SAP®, and Db2®.

ibi WebFOCUS Installation Overview

This section briefly explains the different WebFOCUS installation components, as well as how those components interact and are configured.

ibi WebFOCUS and Your Network

WebFOCUS seamlessly integrates into your existing network by connecting web servers and application servers to your data. End users, developers, and administrators then access WebFOCUS through a web browser.

The main requirements for installing WebFOCUS are:

- **Web Browser.** To access WebFOCUS applications, you need a web browser and a TCP/IP connection to a web server or application server.
- **Web Server and Application Server.** WebFOCUS runs in part through a web server or application server. WebFOCUS is flexible and offers several configuration options, so you can choose whether to use both a web server and an application server or just an application server. Apache Tomcat™ is provided and can be used as both a web server and application server.

  Web servers handle requests by returning static files to a web browser or by executing processes that provide additional functionality. Application servers run Java servlets or other processes that the web server does not handle.

  WebFOCUS functionality can be implemented using Java servlets. Connecting with Java servlets is required for the most advanced features. For Java servlets, an application server is required and you can use WebFOCUS with or without an external web server.

  > **Note:** Either an application server or a servlet container or engine can be used to process WebFOCUS Java requests. However, the term *application server* is used in this documentation unless referring to a specific third-party product.

- **Data.** WebFOCUS can access data from almost anywhere. To access the data, you should know its location on your network and any necessary sign-in information.

A complete list of requirements is provided in ibi WebFOCUS Installation Requirements.

ibi WebFOCUS Components

There are two main WebFOCUS components to install:

- **ibi™ WebFOCUS® Client.** The WebFOCUS® Client runs as part of your application server and connects WebFOCUS to the Web. When a user makes a request from a browser, the WebFOCUS Client receives and processes the request by passing it to the ibi™ WebFOCUS® Reporting Server.

  The WebFOCUS Client installation includes:

    - Java-based web connectivity components.
    - User interfaces, tools, and utilities.

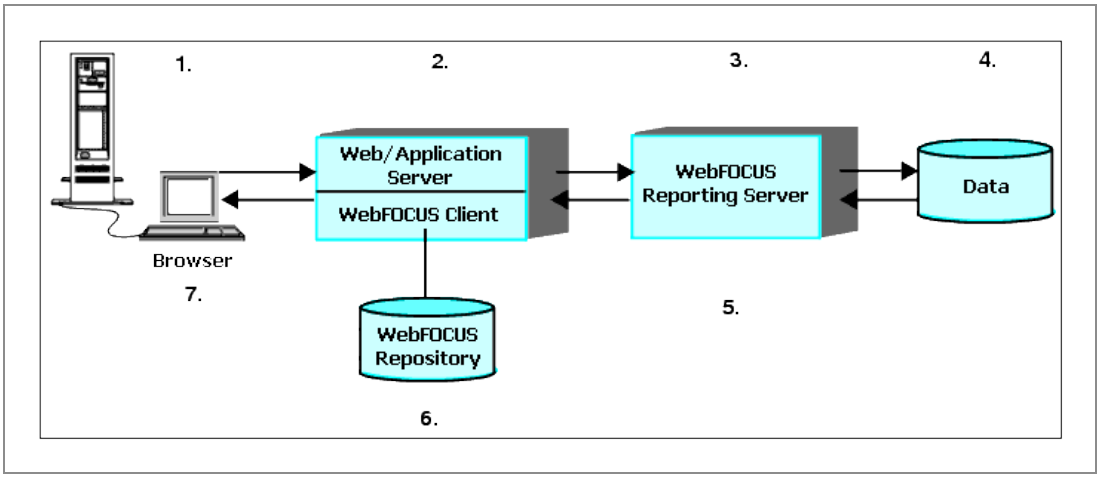
- **WebFOCUS® Reporting Server.** The WebFOCUS Reporting Server resides on machines that can access your data. The WebFOCUS Reporting Server provides data access, number crunching, and report generation functionality using WebFOCUS integration technology.

Note: For a description of the product features packaged with WebFOCUS, see the Product Packaging Quick Reference document.

ibi WebFOCUS Processing

The following steps and figure describe how WebFOCUS processes WebFOCUS report requests:

1. A user requests a report and passes parameters by calling a WebFOCUS servlet through links and forms on a webpage.
2. The request and parameters come to the WebFOCUS Client on the Web or application server, which processes the parameters and creates a request for the WebFOCUS Reporting Server.
3. The WebFOCUS Reporting Server receives the request, processes it, and accesses any needed data.
4. Data is retrieved from data sources to process the request.
5. The WebFOCUS Reporting Server processes the request of the user using the retrieved data.
6. The response is returned to the WebFOCUS Client on the web or application server.
7. The response is returned to the user in the appropriate format (for example, HTML, XML, PDF, Excel, and PNG).



ibi WebFOCUS Configuration

WebFOCUS employs a distributed architecture. This means that the WebFOCUS Client, the WebFOCUS Reporting Server, and your data can be located on any platform, anywhere in your network. You can easily connect an Apache web server running on UNIX to SQL Server data on Windows or Db2 data on z/OS.

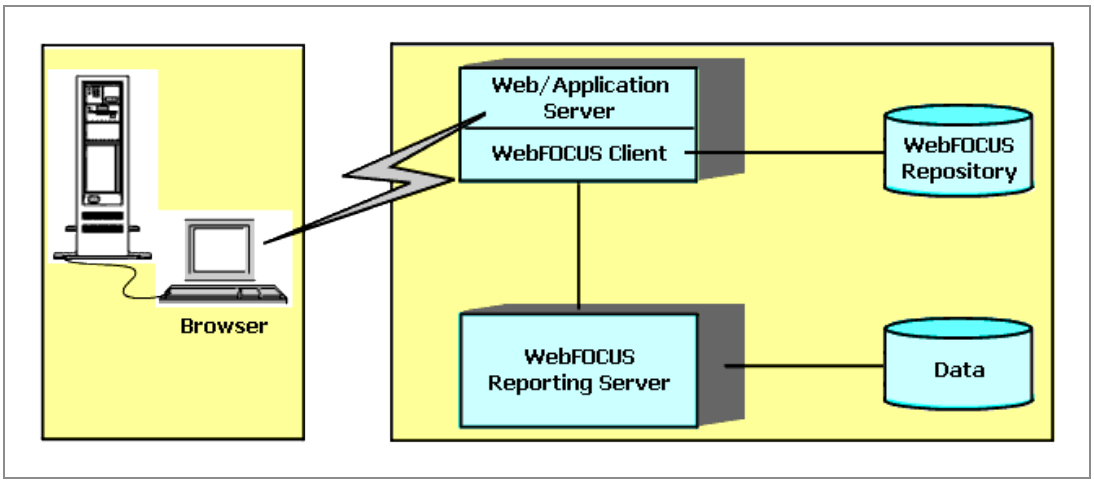
The configuration requirements are:

- The WebFOCUS Client must reside with the web and application servers.
- The WebFOCUS repository can reside on the same system or a different system.
- An instance of the WebFOCUS Reporting Server must be installed on machines with your data or machines that have access to your data. For example, if you are accessing Oracle, the WebFOCUS Reporting Server can be on the Oracle Server machine or on any machine with the Oracle Client.

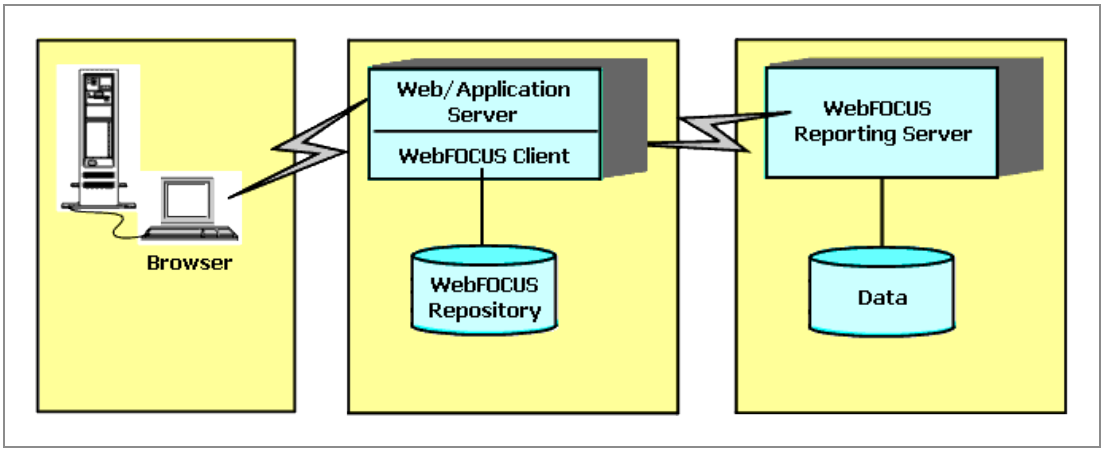
Note: All WebFOCUS components must be of the same release to communicate properly.

The following configurations are examples of how WebFOCUS could be distributed:

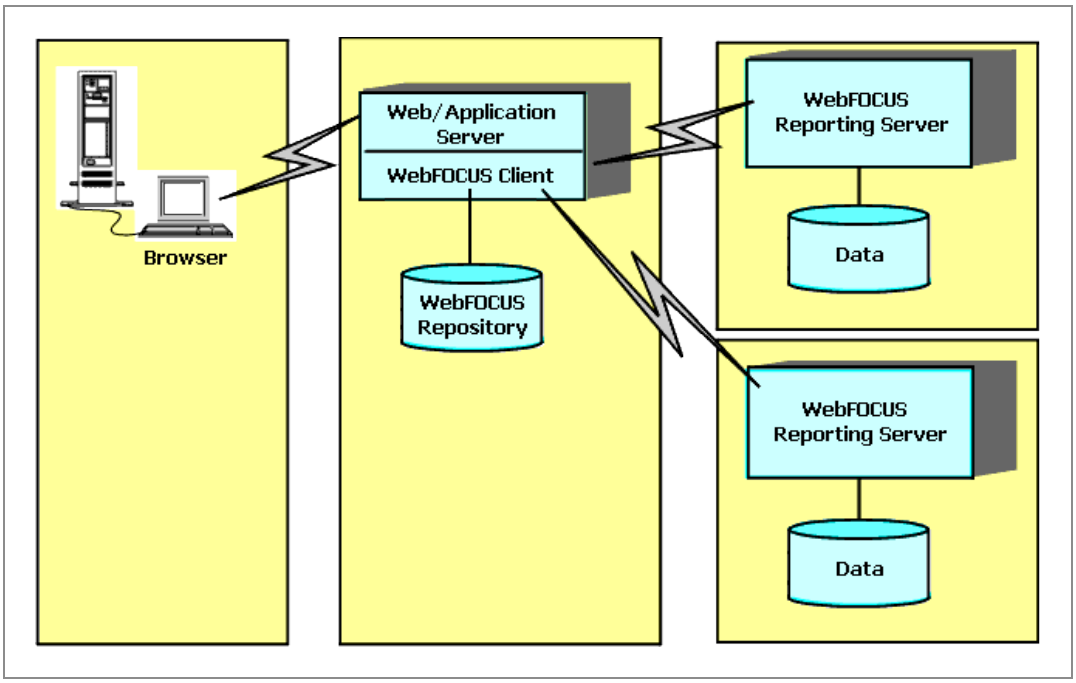
- **Stand-alone Configuration.** In a stand-alone configuration, the application server, WebFOCUS Client, WebFOCUS Reporting Server, and source data are all on the same machine.



- **Distributed Configuration.** In a distributed configuration, the WebFOCUS Client is installed on your web server, but the WebFOCUS Reporting Server and source data are on a different machine.



- **Multiple Data Source Configuration.** If you have source data on several different machines, WebFOCUS can integrate that data into one reporting environment. To allow this, instances of the WebFOCUS Reporting Server should be installed on machines with access to your source data. WebFOCUS technology provides the data access and format conversion functionality. For more information on integrating data from multiple machines and platforms, see the server documentation.



Note: In the previous example, the WebFOCUS Client connects to multiple WebFOCUS Reporting Servers. In other configurations, you can connect the WebFOCUS Client to a single WebFOCUS Reporting Server and then connect that WebFOCUS Reporting Server to other WebFOCUS Reporting Servers (hub-sub). For some data sources, you may need to connect WebFOCUS Reporting Servers to each other to perform joins.

- **Advanced Configuration Options.** WebFOCUS provides flexible options for more advanced configurations. You can run multiple instances of components and enable load balancing functionality. You can use the Cluster Manager to enable failover and statistical analysis of the best WebFOCUS Reporting Server to use in a cluster. You can cluster your application servers, if you wish. You can use a web server only to forward requests to the application server through a firewall. For more information on advanced configuration options, see the *ibi™ WebFOCUS® Security and Administration* manual.

ibi WebFOCUS ReportCaster Installation Overview

This section briefly explains the different ibi™ WebFOCUS® ReportCaster installation components, as well as how those components interact. If you are not using WebFOCUS® ReportCaster, proceed to ibi WebFOCUS Installation and Configuration Steps.

ibi WebFOCUS ReportCaster Components

ReportCaster enables you to schedule the delivery and automatic running of WebFOCUS reports and alerts, as well as independent files and URLs. ReportCaster distributes reports and files to individuals or lists through FTP, email, or a printer, and it can store reports in a Report Library.

There are three ReportCaster components:

- **ReportCaster Web Components.** ReportCaster web components are installed with the WebFOCUS Client as a J2EE web application. They include a user interface, an API, and connectivity components for managing delivery jobs and the Report Library.
- **ReportCaster Distribution Server.** The ReportCaster Distribution Server is a Java-based program that provides the back-end functionality to deliver reports and files. The Distribution Server can be installed with the WebFOCUS Client or installed on a separate machine.

  > **Note:** The ReportCaster Distribution Server is also referred to as the ReportCaster Server or the Distribution Server.

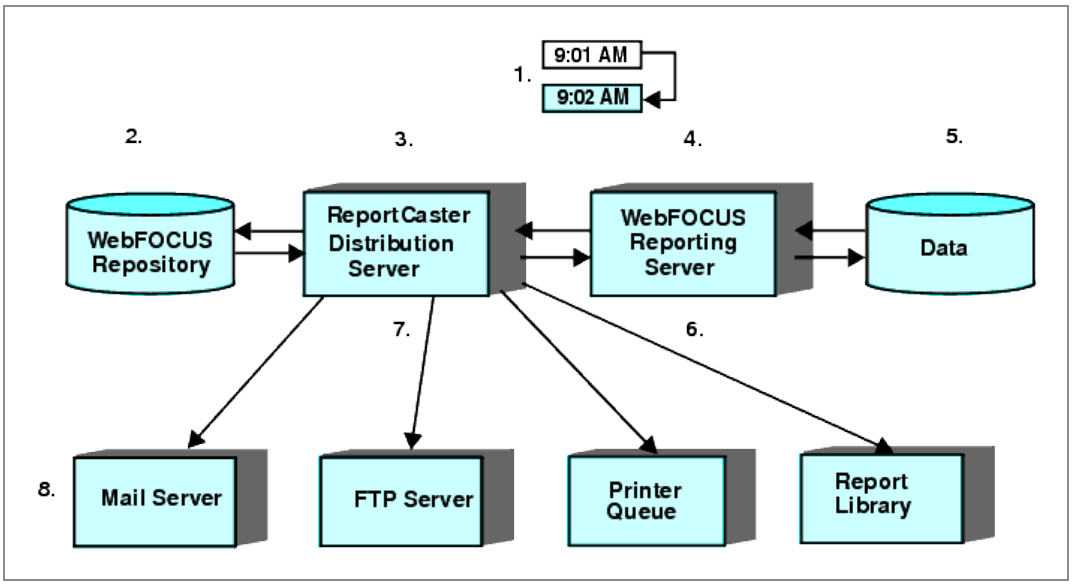
- **ReportCaster Tables.** The ReportCaster tables are part of the WebFOCUS repository, which ReportCaster uses for schedule, distribution, Report Library, and log information. You can store the WebFOCUS repository in a Derby™, Oracle, SQL Server, Db2, or any other supported JDBC™-compliant database.

ibi WebFOCUS ReportCaster Processing

To schedule a delivery job, the ReportCaster Distribution Server is accessed through either a ReportCaster user interface or an external API. The ReportCaster API allows independent applications to schedule delivery jobs on the ReportCaster Distribution Server.

After jobs have been scheduled, the ReportCaster Distribution Server handles their execution and delivery. The following steps and figure describe how the Distribution Server processing identifies schedules to be run and distributes scheduled reports for scheduled WebFOCUS procedures (FEX).

1. The Distribution Server checks the repository every minute for jobs that are scheduled to run. You can change the default value of 1 minute within the ReportCaster configuration tool.
2. If jobs are found, the Distribution Server extracts the information from the WebFOCUS repository.
3. Each job is placed in a queue based on a priority setting found in the job description of the repository. Jobs in the queue are submitted to the WebFOCUS Reporting Server as resources become available.
4. The WebFOCUS Reporting Server receives each request, processes it, and accesses any needed data.
5. Data is retrieved from data sources to process the requests.
6. The WebFOCUS Reporting Server creates responses to the requests.
7. Responses are returned to the Distribution Server, which creates the addressing information necessary to send reports to their recipients. This includes any protocol-specific headers needed for email or FTP.
8. The Distribution Server sends files to the appropriate servers for delivery, such as a mail server for email or an FTP server for FTP. It can also place them in the Report Library.



ibi WebFOCUS ReportCaster Configuration

ReportCaster components can run on the same machine or be distributed across different machines. The ReportCaster web components are installed with the WebFOCUS Client and must reside on the application server. The ReportCaster Distribution Server can be installed on the same machine as other WebFOCUS components or on its own machine. The WebFOCUS repository, which contains ReportCaster tables, can be on the same machine as the Distribution Server or it can be on a separate machine.

ibi WebFOCUS Installation and Configuration Steps

There are several steps to the installation and configuration process:

1. **WebFOCUS Introduction.** Review this section to ensure you understand the different components involved in the installation.
2. **Preinstallation Tasks.** Before installing WebFOCUS, review all the requirements.
3. **WebFOCUS Reporting Server Installation.** Install the WebFOCUS Reporting Server on machines with access to your source data. For more information, see the *ibi™*

WebFOCUS® Reporting Server Installation manual.

4. **WebFOCUS Client Installation.** Install the WebFOCUS Client, as explained in the following topic:
   For Windows: Installing the ibi WebFOCUS Client
   For UNIX: Installing the ibi WebFOCUS Client
5. **Web Server or Application Server Configuration.** Configure your web server or application server, as explained in the following topic:
   For Windows: Configuring Web and Application Servers
   For UNIX: Configuring Web and Application Servers.
6. **WebFOCUS Postinstallation Tasks.** Verify the WebFOCUS configuration and optionally change default settings, as explained in the following topic:
   For Windows: ibi WebFOCUS Client Postinstallation
   For UNIX: ibi WebFOCUS Postinstallation Tasks.
7. **Postinstallation Data Access and Description.** Use the WebFOCUS Reporting Server browser interface and its Help system to configure adapters (data access) and create synonyms (data description) for your data sources. These steps are also documented in the *ibi™ WebFOCUS® Reporting Server Administration* manual.

Review the *ibi™ WebFOCUS® Release Notes* document for information on known issues and documentation updates.

Application Server and Web Application Overview

This section provides some background information about third-party technologies used with WebFOCUS. It provides simplified overviews to assist those new to this technology.

Web Servers and Application Servers

The WebFOCUS Client web components run as part of your application server.

- Web servers generally handle HTML, images (for example, PNG), and other traditional web content and processing. The terms Web server and HTTP server are sometimes

used interchangeably. Microsoft IIS and Apache HTTP Server are common web servers.

- Application servers (or servlet containers) generally handle Java and non-traditional processing. In WebFOCUS documentation, the term application server refers to an application server, servlet container, servlet engine, or J2EE engine. Oracle® WebLogic®, Oracle Java® System Application Server, and Apache Tomcat™ are common application servers or servlet containers.

Some application servers have a robust web server (HTTP) component and do not require an external web server. For example, Apache Tomcat can be used both as a web server and application server. You use an application server for all WebFOCUS processing, but you can use a web server to forward requests through a firewall to the application server.

Web Applications

Some WebFOCUS functionality is provided in J2EE web applications (webapps). A J2EE web application is a packaged collection of Java, text, graphic, and other files that function as an application or service. A web application is organized as a set of directories that can be placed into a Web Archive (.war) file. A WAR file is similar to a ZIP or TAR file in that it contains other files and preserves their directory structure.

A web application must follow certain conventions and always contains a WEB-INF directory. The WEB-INF directory must contain a web.xml file. The web.xml file is known as the deployment descriptor and contains configuration information. The WEB-INF directory usually has lib or class subdirectories containing its main Java code.

Running Web Applications

A web application runs inside an application server or servlet container. To run a web application, you deploy it to an application server, either as a WAR file or an EAR file. Theoretically, any web application could run in any application server on any platform, provided it is written to the Java Servlet API 3.1 specification. However, application servers vary and you should ensure your application server is supported with WebFOCUS. For more information on supported application servers, see ibi WebFOCUS Installation Requirements.

Accessing Web Applications

After it is deployed, the web application context root is used to access the application in a web browser. The context root is the directory name used to access a web application and is normally specified when you deploy a web application. A context root is sometimes referred to as a context path or a context.

For example, the default WebFOCUS context root is /ibi_apps. Therefore, you can access the web application using:

```
http://hostname:port/ibi_apps/signin
```

where:

hostname:port

Are the host name and HTTP port of the web server or application server. If you require SSL, use https instead of http.

A valid user name and password are required to access the WebFOCUS web application.

If your application server is separate from your web server, you must ensure that the web server can route requests to the application server. For example, when a request comes to the web server for ibi_apps, the web server must know to send the request to the application server. For some web and application server combinations, this occurs automatically, but others must be configured.

Security and User IDs for ibi WebFOCUS

This section provides a brief overview of default WebFOCUS security and authentication issues. These defaults can be changed using security exits and other features. In addition, your enterprise may require additional security and authentication for the web server, mail server, data sources, or other third-party components. For a complete discussion of WebFOCUS security, see the *ibi™ WebFOCUS® Security and Administration* manual.

By default, WebFOCUS uses two completely independent user ID types, although it is possible to synchronize them:

- **WebFOCUS User IDs** (Front End)

All requests processed by the WebFOCUS Client require a user ID. For information on WebFOCUS security authentication and authorization, see the *ibi™ WebFOCUS® Security and Administration* manual.

- **WebFOCUS Reporting Server User IDs** (Back End)

  The WebFOCUS Reporting Server has both user IDs to run reports and procedures (Execution IDs) and user IDs to administer and start the server (Administrator IDs). In addition, the WebFOCUS Reporting Server can run with different security providers.

ibi WebFOCUS User ID

The WebFOCUS user ID determines which features, reports, and data are accessible through these products. By default, this ID is created and maintained by a WebFOCUS administrator using the WebFOCUS Security Center.

When WebFOCUS is first installed, the default WebFOCUS administrator ID and password are both *admin*. After completely installing WebFOCUS, an administrator should sign in as *admin*, update the password for the *admin* account, and create accounts for other users.

For information on integration with basic web server authentication or WebFOCUS Reporting Server security, see the *ibi™ WebFOCUS® Security and Administration* manual.

ibi WebFOCUS Reporting Server Security Providers

Necessary IDs for the WebFOCUS Reporting Server depend on which security provider the server uses. Each time you start the WebFOCUS Reporting Server, you can specify a security provider that determines how authentication occurs when running reports and accessing the WebFOCUS Reporting Server browser interface. The browser interface is a web-based tool for configuring and administering the WebFOCUS Reporting Server.

For more information, see the *ibi™ WebFOCUS® Reporting Server Installation* manual.

You can run the server with:

- **Security ON**
- **Security OFF**

The following are the most common security providers, which are set through the WebFOCUS Reporting Server browser interface:

- **OPSYS.** Authentication is performed by the operating system of the WebFOCUS Reporting Server machine. Users are authenticated when running reports and when accessing the WebFOCUS Reporting Server browser interface to configure the server.
- **PTH.** Authentication is internal. User IDs and encrypted passwords are stored in a file created by the server:

  For Windows:

  ```
  drive:\ibi\profiles\admin.cfg
  ```

  For UNIX:

  ```
  /install_directory/ibi/profiles/admin.cfg
  ```

  Users are authenticated only when accessing the WebFOCUS Reporting Server browser interface to configure the server. Authentication is not required to run reports.

Security providers DBMS and LDAP are other options. For more information, see the *ibi™ WebFOCUS® Reporting Server Administration* manual.

ibi WebFOCUS Reporting Server User IDs

Regardless of security provider, there is a distinction between WebFOCUS Client execution IDs and server administrator IDs.

- **Execution IDs** are user IDs needed to run reports or applications. With security OFF or ON with provider PTH, no authentication is needed for these tasks. With security provider OPSYS, the authentication is performed by the operating system of the WebFOCUS Reporting Server machine. Since authentication is performed by the operating system, these IDs are not created, stored, or maintained through WebFOCUS.

  With security provider OPSYS, when you run a report in a WebFOCUS application, the WebFOCUS Client must pass an execution ID to the server. End users can be prompted to provide this execution ID, or the WebFOCUS Client can automatically

send a predetermined execution ID. For more information on configuring how the WebFOCUS Client provides execution IDs to the server, see the following topic:

- For Windows: ibi WebFOCUS Client Postinstallation Tasks
- For UNIX: ibi WebFOCUS Postinstallation Tasks.

- **Server administrator IDs** are user IDs needed to start the server and access the WebFOCUS Reporting Server browser interface. During the server installation, you are prompted for a PTH user ID and password to administer the server. After installation, you can change and add security providers and administrators through the WebFOCUS Reporting Server browser interface. The server stores administrator IDs and encrypted passwords in the following file:
  For Windows

  ```
  drive:\ibi\profiles\admin.cfg
  ```

  For UNIX

  ```
  /install_directory/ibi/profiles/admin.cfg
  ```

  These server administrator user IDs and passwords are needed for the following:

  - **WebFOCUS Reporting Server browser interface authentication.** With security providers OPSYS and PTH, only user IDs stored in the `admin.cfg` file can sign in to the WebFOCUS Reporting Server browser interface as administrators. With security provider OPSYS, passwords are authenticated through the operating system. For security provider PTH, the server uses the passwords stored in the `admin.cfg` file.
  - **Starting the WebFOCUS Reporting Server.** With all security providers, only user IDs stored in the `admin.cfg` file have the authority to start the WebFOCUS Reporting Server. To start the WebFOCUS Reporting Server, a server administrator ID stored in `admin.cfg` must have the same name as an operating system user ID with full file permissions to the WebFOCUS Reporting Server directories.

    To run with security provider OPSYS, both the user ID and password stored in the `admin.cfg` file must match the user ID and password of the user starting the WebFOCUS Reporting Server. If your operating system password changes or you did not provide the correct password during installation, you must update the password stored by the server through the WebFOCUS Reporting Server

browser interface. The user ID and password stored by the server in the admin.cfg file must be kept in sync with the operating system (or domain).

Note: To access data sources needed for reports, the type of authentication is determined by how you configure the adapter for the data source, as explained in the *ibi™ WebFOCUS® Reporting Server Administration* manual.

ibi WebFOCUS Installation Requirements

This chapter lists requirements for installing and configuring WebFOCUS on Windows and UNIX systems.

Review the *ibi™ WebFOCUS® Release Notes* document for information on known issues and documentation updates.

ibi WebFOCUS Installation Requirements

Release 9.3.4 is a new feature release that supports new application development, includes incremental maintenance, and supports upgrade of content and applications.

Review the sections that follow to ensure that your machine or machines meet the necessary WebFOCUS requirements.

JVM and J2SE Support Information

Release 9.3.4 supports Java Virtual Machine (Java VM) 11 and 17 on the system that is hosting the application server where WebFOCUS and the ReportCaster Distribution Server are installed.

In addition, any supported portal server (for example, SAP Enterprise Portal Server) that is integrated with WebFOCUS Open Portal Services must be hosted on a system that is using Java VM 11 or 17.

Note: For information regarding WebFOCUS release support for the different Oracle JDK versions that WebFOCUS and ReportCaster web applications are deployed on, see the *ibi™ WebFOCUS® Release Notes*.

ibi WebFOCUS Machine Requirements

The following table lists the basic requirements for the machine or machines that run WebFOCUS. Where necessary, these requirements are described in more detail later in this chapter. The minimum recommendations listed here are provided as a general guidance. Based on your business requirements, number of concurrent users, and resources used by your applications, you may choose to perform vertical, horizontal, or auto scaling to improve performance and ensure reliability. Contact Customer Support for assistance with special configurations.

Item	Options or Requirements	Notes
Operating System	The WebFOCUS Client and ReportCaster are Java-based applications and supported on operating systems with Java 11 or Java 17 environments.	For information on the operating systems on which the WebFOCUS Client and ReportCaster are certified and on which the WebFOCUS Reporting Server is supported and certified, see the *ibi™ WebFOCUS® Release Notes*.
Application Server/Servlet Container (WebFOCUS Client Machine)	Must meet Java EE 7 specifications. This includes servlet API 3.1 specifications. The minimum heap size should be set to 2048. The maximum heap size can be set to 2048 or higher. The machine must have the available memory allocated through these settings.	In Release 9.3.4, Tomcat 9.0.x is supported.

Item	Options or Requirements	Notes
		Note: Apache Tomcat version 9.0.102 is provided as an optional component in the installation package.
Java (64-bit)	Java 11 or Java 17	**Note:** Java 11 and Java 17 are supported.
Shell	Korn Shell (ksh).	WebFOCUS is tested and documented using ksh as the default sign-in shell. WebFOCUS scripts require Korn Shell (ksh), which is not installed with Linux, by default.
Web Server (WebFOCUS Client Machine)	Must support aliasing.	See Web Server and Application Server Requirements for certified web servers. If your application

Item	Options or Requirements	Notes
		server has a robust HTTP component, the web server is optional.
WebFOCUS Repository	TCP/IP access to a Database Server. For JDBC drivers.	A WebFOCUS repository is required to store reports, scheduling, and all WebFOCUS data. You can use any supported database. For more information, see ibi WebFOCUS Repository Setup. **Note:** Apache Derby version 10.15.2.0 is provided as an optional component in the installation package.

Note:

- The installation program includes the following third-party components: Tomcat 9.0.102 and Derby 10.15.2.0.
  For Windows:
  - The latest version of Tomcat is available at https://tomcat.apache.org.
  - The latest version of Oracle JRE is available at https://www.oracle.com/java/technologies/downloads.
  - The latest version of Derby is available at https://db.apache.org/derby.

  For UNIX:
  - The latest version of Tomcat is available at https://tomcat.apache.org.
  - The latest version of Derby is available at https://db.apache.org/derby.

For more information on the third-party versions packaged with the product, see the *ibi™ WebFOCUS® Release Notes*.

Note: Solr Version 9.8.0 is included with each WebFOCUS installation. Solr is an open-source, high-performance, full-featured enterprise-search platform. Solr uses the Apache Lucene™ Java search library as its core for searching and indexing.

End User Machine Requirements

This section explains the desktop requirements for running WebFOCUS.

Desktop Requirements

The following table lists requirements for machines from which end users or administrators can access WebFOCUS reports and applications. Not all requirements apply to all users and in many situations, only a web browser is required.

Item	Options or Requirements	Notes
Web Browser	Google Chrome™, Mozilla Firefox®, and Microsoft Edge® are supported.	For more details on browser support, see the *ibi™ WebFOCUS® Release Notes*.
Adobe Acrobat Reader	WebFOCUS Release 9.3.4 is certified with Adobe® Reader® X and Adobe Reader XI.	Acrobat is needed to view PDF reports generated by WebFOCUS.
Adobe Flash Player	WebFOCUS Release 9.3.4 is certified with Adobe® Flash® Player 10 and higher.	Required for the Active PDF report output format.

Communication Requirements

WebFOCUS uses TCP/IP for communications between components. During the installation, you choose which ports are used. Ensure that communications are possible on those ports.

Component	Number of Ports	Default Ports	Notes
WebFOCUS Reporting Server	4 consecutive ports	8120 (TCP) 8121 (HTTP) 8122 8123	When you install the WebFOCUS Reporting Server, you are prompted for the HTTP and TCP ports. The HTTP port is the first of three consecutive ports that the server uses. The TCP port is normally one less than the HTTP port.
WebFOCUS Client	Runs through web and application servers		For most features, the WebFOCUS Client does not require its own dedicated port and runs through the web and application servers.

Component	Number of Ports	Default Ports	Notes
			For Tomcat, ports 8080, 8009, and 8005 are used, by default.
ReportCaster Distribution Server	1 port	8200	When you install ReportCaster, you are prompted for this port. Additional ports may be needed when Workload Manager and/or Failover options are configured.

Disk Space Requirements

The following are disk space requirements for WebFOCUS components.

- Installation directory requires 10GB of free space.
- Temp directory requires 10GB of free space.

  If the temp directory on the host does not meet the minimum size requirements, the InstallAnywhere environment variable IATEMPDIR can be set to use an alternate directory.

  You may specify an alternate /tmp location by setting the following environment variable:

  ```
  IATEMPDIR=/large_tmp

  export IATEMPDIR
  ```

  where:

  /large_tmp

  Is a user-defined path of a file system that has enough space.

For z/OS

WebFOCUS Component	Disk Space During Installation	Disk Space After Installation
WebFOCUS Client	3 GB	600 MB
ReportCaster Distribution Server	50 MB	15 MB

System Resource Limits

The operating system provides ways of limiting the amount of resources that can be used. These limits can affect the installation process.

Use the **ulimit** command to set process memory-related resource limits for your session.

The WebFOCUS installation program requires ulimit to be set to 8192.

Limits can be *hard* or *soft*. Hard limits are set by the root user. Only the root user can increase hard limits, although other users can decrease them. Soft limits can be set and changed by other users, but they cannot exceed the hard limits. To view the current limits, enter the following command:

```
ulimit -a
```

Use the /etc/security/limits.conf file to store ulimit settings. Changes to this file should be made by a system administrator.

Web Server and Application Server Requirements

The following are the most common web and application servers certified with WebFOCUS:

- Oracle WebLogic 14c
- Apache Tomcat 9.0.x (latest versions)

Additional web and application servers are supported that meet the specifications described in JVM and J2SE Support Information. For additional support information, contact Customer Support.

> **Note:** Depending on the level of usage, you may need to increase your application server Java memory options. See Java Memory Issues for more information.

Information on configuring web and application servers appears in Configuring Web and Application Servers. Some installation information for Tomcat is also provided. For installation information on other application servers, refer to your application server documentation.

User ID Requirements for the WebFOCUS Reporting Server

If the WebFOCUS Reporting Server is not on UNIX, see the documentation for its platform and skip to User ID Requirements for the WebFOCUS Reporting Server.

The operating system user ID you use when installing the server will own the files and is the default server administrator. Server administrators are users that have permission to start and configure the server. You can create a new user ID to install and administer the server, or you can use any ordinary (non-superuser) ID. However, you should not install the server as root. Throughout this documentation, the name *iadmin* is used to refer to the server administrator ID and group, but you may use any name for this ID.

When running the server with security provider OPSYS, end users and applications are authenticated through the operating system when they need access to the server. Therefore, in addition to the *iadmin* ID, operating system IDs must be available for end users and applications to access the server. Server data access agents will impersonate these IDs before performing any file access on their behalf. For security purposes, you should not allow end users and applications to use the *iadmin* ID. The *iadmin* ID should be available only to users who require administrative privileges to the server.

User ID Requirements for the WebFOCUS Client

The WebFOCUS Client user ID and file permission requirements depend on your security needs, web server configuration, application server configuration, and the preferences of the system administrator.

Be aware that most WebFOCUS Client processing is done through the web and application servers. In addition, an ID (WebFOCUS ID) should be available to browse the file system, edit text files, and run utilities. Therefore, you must determine which IDs are used for the following processes:

- **Web Server ID.** ID that the web server uses when accessing static WebFOCUS files.
- **WebFOCUS Client ID.** ID for installing WebFOCUS. This ID should not be root and is known as `wf_user`.
- **Servlet ID.** ID for starting the IBM WebSphere J2EE server region.
- **Application Server ID.** ID that the application server uses when running the WebFOCUS servlet. Often this is a single user ID.
- **WebFOCUS ID.** ID that you will use to install WebFOCUS, browse the file system, edit text files, and run utilities. This may be the same ID as the WebFOCUS Client ID (wf_user).

The simplest configuration uses the same ID for all of the above processes. To implement this, ensure web and application server processes use the same ID and then install the WebFOCUS Client using this ID. This ID should not be root.

In other configurations, multiple user IDs can be used. If you do not install using the same ID as the web and application server processes, after installation, you must set file permissions to ensure that these processes have access to the WebFOCUS Client directories. The easiest way to implement this is to create a group to own the WebFOCUS Client directories and add user IDs to this group. Then, after installation, change directory permissions to 775.

Note: Communication between the WebFOCUS Client and the WebFOCUS Reporting Server is through TCP/IP, not the file system. However, if the WebFOCUS Client and the WebFOCUS Reporting Server are installed on the same machine as the same user, they may share the same APPROOT directory, /*install_directory*/ibi/apps. If this is the case, both the WebFOCUS Client and WebFOCUS Reporting Server processes require access to this directory.

User ID Requirements for the ReportCaster Distribution Server

The ReportCaster Distribution Server communicates with other WebFOCUS components using TCP/IP. Therefore, if you install the Distribution Server separately, you can use the same ID as other WebFOCUS components or a different ID entirely. Do not install or run the Distribution Server as root.

ibi WebFOCUS Java Requirements

Java 11 and Java 17 are supported on the machine or machines that run the WebFOCUS Client and ReportCaster Distribution Server.

After the JDK is installed, the following directory must be in the PATH variable of any user IDs that run WebFOCUS components:

```
/java_home/bin
```

where:

java_home

Is the absolute path where the JDK is installed.

To test if Java is installed and in PATH, issue the following command:

```
java -version
```

Information on the Java build should appear. For example:

```
openjdk version "11.0.8" 2020-07-14

OpenJDK Runtime Environment AdoptOpenJDK (build 11.0.8+10)

OpenJDK 64-Bit Server VM AdoptOpenJDK (build 11.0.8+10, mixed mode)
```

To run the installation, the jar and javac commands must be in your search PATH. You can type the following to determine if they are found:

```
type jar
```

For IBM JDK, refer to your IBM documentation for additional information. The ReportCaster Distribution Server uses whichever Java VM is in its PATH variable. ReportCaster web components use the Java VM of the application server. Refer to your application server documentation if you need to update its Java VM.

Note: For most purposes, the terms JDK and SDK are synonymous. A JRE contains a subset of the JDK components.

ibi WebFOCUS ReportCaster Distribution Requirements

The following communication requirements are necessary to schedule and distribute reports:

- Email distribution requires TCP/IP communication to an SMTP-enabled mail server that supports base-64 encoding for MIME type attachments.
- FTP distribution requires TCP/IP communication to an FTP server.
- Printer distribution requires a networked printer accessible to the ReportCaster Distribution Server.

Note: The ReportCaster web components and the ReportCaster Distribution Server need a common time zone for proper operation. Therefore, if ReportCaster components run on different machines, all machines must be in the same time zone.

ibi WebFOCUS Repository Setup

The ReportCaster repository structure has changed from previous releases and is now a part of the WebFOCUS repository. Therefore, you cannot use a repository from an earlier release without migrating its contents or creating a new repository. The ReportCaster tables in WebFOCUS are part of the WebFOCUS repository, and a database repository must store ReportCaster scheduling data. If you want to use the Report Library, the database can be any supported database with an available JDBC driver.

Depending on the platform used, the WebFOCUS repository can be stored in a Derby, Microsoft SQL Server, Oracle, Db2, MySQL®, or PostgreSQL database. For more information, see the following topic:

For Windows: Installing the ibi WebFOCUS Client.

For UNIX: Installing the ibi WebFOCUS Client.

Repository Options

Review the information below and decide on the database server to use.

> **Note:** For certified versions of supported databases and drivers, see the *ibi™ WebFOCUS® Release Notes*.

- **Db2.** To use a Db2 repository, a Db2 JDBC driver must be on the machine or machines that run the WebFOCUS Client and the ReportCaster Distribution Server.

  > **Note:**
  > - The Db2 collation must be set to case-sensitive for the WebFOCUS database. Case-insensitive collation is not supported.
  > - If you are using Db2 as the WebFOCUS repository, the database needs to be created with a page size of 32K.

  For more information on using Db2 repository, see Additional ibi WebFOCUS Repository Topics and Tasks

- **Derby.** If you choose, Derby can be installed with WebFOCUS. If you are also installing Tomcat, the required JDBC driver (`derbytools.jar`) is added to the Tomcat

configuration file.

- **Microsoft SQL Server.** To use SQL Server, the appropriate SQL Server JDBC driver must be on the machine or machines that run the WebFOCUS Client and the ReportCaster Distribution Server. You can download and install the specific driver from the Microsoft website.

  If you are unfamiliar with the JDBC driver and its requirements, information is provided in Additional ibi WebFOCUS Repository Topics and Tasks.

  Requirements:

  - The repository database must be created by a DBA prior to installing and configuring WebFOCUS.
  - The database collation must be set to case-sensitive. Case-insensitive collation is not supported.
  - At installation, upgrade, or configuration time, the account used by the WebFOCUS installation process to connect to the repository database must be granted `db_datawriter`, `db_datareader`, and `db_ddladmin` roles on the repository database and schema. Alternatively, the object creation and initial data load may be run as a separate utility by a DBA.
  - For normal run-time activity, the account used by WebFOCUS to connect to the repository database must be granted `db_datawriter` and `db_datareader` roles on the repository database and schema.

- **MySQL.** To use a MySQL Server repository, the MySQL driver should be installed on the machine or machines that run the WebFOCUS Client and the ReportCaster Distribution Server. This is typically named mysql-connector-java-*nn*-bin.jar, where *nn* is the version number. MySQL Repository Set Up contains information on installing and configuring the MySQL database server and this driver.

Note:

- The collation for MySQL must be set to case-sensitive for the WebFOCUS database. Case-insensitive collation is not supported.
- The default character set and collation for MySQL is latin1 and latin1_swedish_ci, so non-binary string comparisons are case-insensitive, by default.
- For use with WebFOCUS, the collation needs to be set as `latin1_general_cs` or `latin1_swedish_cs`, depending on the character set required.
- WebFOCUS does not support the MySQL UTF-8 encoding character set. You can use the UCS-2 character set for the WebFOCUS repository, instead.

- **Oracle.** To use an Oracle repository, the Oracle JDBC Thin Client 9.0.1 driver must be on the machine or machines that run the WebFOCUS Client and the ReportCaster Distribution Server. This is typically named `ojdbc7.jar` depending on the Java release.

Note:

- The WebFOCUS repository requires character semantics. When creating a database for use with WebFOCUS, it needs to be done with CHAR semantics. This is applicable when using the following character sets:
  - UTF8
  - JA16SJISTILDE - Japanese
  - ZHS16CGB231280 - Simplified Chinese
  - ZHT16BIG5 - Traditional Chinese
  - KO16KSC5601 - Korean

  This is not needed when using the following character sets:
  - Western European: WE8ISO8859P15 or WE8MSWIN1252
  - Eastern European: WE8ISO8859P2 or EE8MSWIN1250
- Oracle database blocks (`db_block_size`) require 8K or higher.
- The maximum number of open cursors (`open_cursors`) must be set to 500 or higher when all tables are created and inserted.
- Tablespace requirements depend on customer usage.
- WebFOCUS requires case-sensitive collation. For Oracle, string comparisons are case-sensitive, by default.
- Comparison and sort can be configured through the sort system parameters `NLS_COMP` and `NLS_SORT`.
- The RDBMS user account privileges used by WebFOCUS need to have the ability to create tables, modify tables, run queries, and insert and delete records.

- **PostgreSQL.** Requires the JDBC 4.2 driver. In the WebFOCUS `install.cfg` file, the `IBI_REPOS_DB_URL` setting, which contains the JDBC connection path for the database, should be modified and the *currentSchema* parameter should be added to the URL.

  For example:

```
IBI_REPOS_DB_URL=jdbc:postgresql://localhost:5432/myDatabase
```

```
?currentSchema=mySchema
```

where:

mySchema

Is a string identifying the schema name for the specified database user.

The schema is used to resolve the fully qualified name of the table provided by the JDBC driver for the specific connection.

- **Other JDBC-Compliant Databases.** To use other JDBC-compliant databases, you need their JDBC drivers. You must also know the JDBC Path to connect to the database.

ibi WebFOCUS Repository Preinstallation Tasks

During the WebFOCUS installation, you are prompted for information that WebFOCUS and ReportCaster need to access your repository. After WebFOCUS receives this information, you can use the WebFOCUS utilities to create repository tables and perform other repository-related tasks.

Prepare for the ibi WebFOCUS Repository

Ask your DBA to perform the following tasks:

Procedure

1. Install the JDBC driver for your WebFOCUS repository database on the WebFOCUS Client and ReportCaster Distribution Server machine or machines. You are prompted for the path to the driver during the WebFOCUS and ReportCaster installation.
2. Create or assign a user ID and password that are owners of the repository. You are prompted for this information during the WebFOCUS and ReportCaster installation.

   In Windows, for SQL Server, the database must use SQL Server authentication rather than Windows authentication, and the user ID must have `db_owner` rights to the

repository database.

3. If applicable, create a database within your database server for the WebFOCUS repository and ensure the user ID you created is the database owner. You need the name of this database during the ReportCaster installation.

   In UNIX, you can optionally create tablespaces for the repository. For sizing guidelines, see Sizing Guidelines.

Result

Note: Database collation must be case-sensitive for WebFOCUS. The installation program and the database load utilities check for the database collation. For Microsoft SQL Server and MySQL, if a case-insensitive database is detected, the installation attempts to change the database collation to the best matched case-sensitive (CS) collation. If the collation change fails, a message displays and the database creation does not take place. You can do either of the following:

- Continue with the installation and correct the database collation postinstallation. Then, run the `WFReposUtilCMDLine` file.
- Exit the installation, correct the database collation, and rerun the installation.

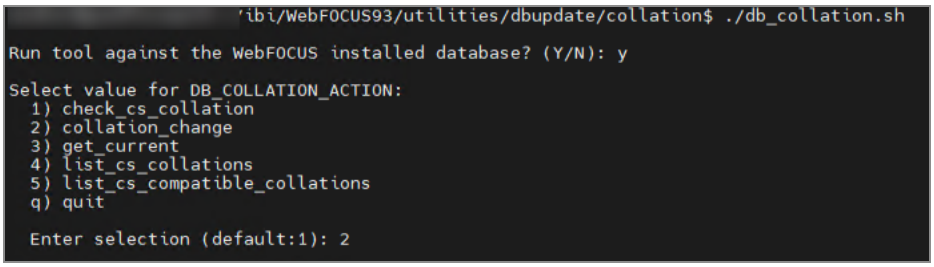
Database Collation Utility

The db_collation.sh script is available and located in the *install_directory*/ibi/WebFOCUS93/utilities/dbupdate/collation/ directory.

This utility is supported with Microsoft SQL Server and MySQL databases and enables you to change the database collation from case-insensitive to case-sensitive.

Note: Specify `DB_COLLATION_NAME` and the value of the new collation name when you run the `db_collation` script. If these two arguments are not set, the script is likely to fail.

Provide the value of the collation name when you run the script as shown in the following image.



The following is a list and description of the available utilities.

check_cs_collation

- Checks if the database collation is case-sensitive.
- Prompts the user to use the database configured in install.cfg (select *Y*) or use a different database instance (select *N*).
- Prompts for the database repository ID and password.
- Prompts for the connection information, if the database configured with the installation is not being used.

Output example:

```
[2021-11-21 17:08:53,729] INFO stdout - Starting collation_tool(check_
cs_collation) process ...

[2021-11-21 17:08:54,278] OFF stdout - Database collation is NOT case-
sensitive or does not meet WebFOCUS requirements

Or

[2021-12-13 12:41:11,117] INFO stdout - Starting collation_tool_install
(check_cs_collation) process ...

[2021-12-13 12:41:11,831] OFF  stdout - Database collation is case-
sensitive

[2021-12-13 12:41:11,831] INFO stdout - Done

Database IS case-sensitive
```

collation change

- Changes the database collation to the best matched CS collation.
- Prompts the user to use the database configured in install.cfg (select *Y*) or use a different database instance (select *N*).

- Prompts for the database repository ID and password.
- Prompts for the connection information, if the database configured with the installation is not being used.

Output example:

```
[2021-12-05 13:26:53,714] INFO stdout - Starting collation_tool_install
(collation_change) process ...

[2021-12-05 13:26:55,081] OFF stdout - Collation changed.
```

get_current

- Retrieves database collation.
- Prompts the user to use the database configured in install.cfg (select *Y*) or use a different database instance (select *N*).
- Prompts for the database repository ID and password.
- Prompts for the connection information, if the database configured with the installation is not being used.

Output example:

```
[2021-11-21 09:53:58,559] INFO stdout - Starting collation_tool_install
(get_current) process ...

[2021-11-21 09:53:59,403] OFF stdout - Database collation: 'Latin1_
General_CS_AS'
```

list_cs_collations

- Lists all case-sensitive collations supported by the database.
- Prompts the user to use the database configured in install.cfg (select *Y*) or use a different database instance (select *N*).
- Prompts for the database repository ID and password.
- Prompts for the connection information, if the database configured with the installation is not being used.

Output example:

```
…

"SQL_Latin1_General_CP1251_CS_AS","Latin1-General, case-sensitive,
accent-sensitive, kanatype-insensitive, width-insensitive for Unicode
Data, SQL Server Sort Order 105

on Code Page 1251 for non-Unicode Data","1251"

"SQL_Latin1_General_CP1253_CS_AS","Latin1-General, case-sensitive,
accent-sensitive, kanatype-insensitive, width-insensitive for Unicode
Data, SQL Server Sort Order 113

on Code Page 1253 for non-Unicode Data","1253"

"SQL_Latin1_General_CP1254_CS_AS","Turkish, case-sensitive, accent-
sensitive, kanatype-insensitive, width-insensitive for Unicode Data, SQL
Server Sort Order 129

on Code Page 1254 for non-Unicode Data","1254"

"SQL_Latin1_General_CP1255_CS_AS","Latin1-General, case-sensitive,
accent-sensitive, kanatype-insensitive, width-insensitive

…
```

list_cs_compatible_collations

- Retrieves the list of CS collations compatible with the specified collation.
- Prompts the user to use the database configured in install.cfg (select *Y*) or use a different database instance (select *N*).
- Prompts for the database repository ID and password.
- Prompts for the connection information, if the database configured with the installation is not being used.

Output example:

```
[2021-11-21 10:29:31,566] INFO stdout - Starting collation_tool_install
(list_cs_compatible_collations) process ...

COLLATION_NAME,COLLATION_DESCRIPTION,CHARACTER_SET/CODE_PAGE

------------------------------------------------------------

"Japanese_90_CS_AS_KS_WS_SC","Japanese-90, case-sensitive, accent-
```

```
sensitive, kanatype-sensitive, width-sensitive, supplementary
characters","932"
```

Note: To run the utility on UNIX, open a UNIX shell, navigate to the directory with the script, run db_collation.sh, and enter a selection to proceed.

Possible Errors When Running Scripts

- Connection failure due to bad credentials:

```
…

[2021-11-21 09:55:16,837] OFF stdout - Tool 'collation_tool_install
(check_cs_collation)' FAILED to connect to database : ERROR_
REPOSITORY_JDBC_AUTHENTICATION_FAILED .

…

Caused by: com.microsoft.sqlserver.jdbc.SQLServerException: Login
failed for user 'yyy'.

…
```

- Connection failure due to invalid JDBC driver info:

```
Caused by: com.ibi.dbtools.errors.DbException [FEATURE_NOT_
IMPLEMENTED]:

No collation tool available for provider C:\ibi\jdbc\sqljdbc42.jar
```

- Connection failure due to bad credentials or connection info:

```
Caused by: com.ibi.dbmigration.errors.DbMigrationException

[GENERIC]: Cannot connect to database [sqlserver://DP03423-
1:1433;DatabaseName=ci_test]

using provided credentials and jdbc driver
[C:\ibi\jdbc\sqljdbc42.jar]
```

Installing the ibi WebFOCUS Client

This section describes how to install the WebFOCUS Client on UNIX.

Installing the ibi WebFOCUS Reporting Server

Note: WebFOCUSrequires a WebFOCUS Reporting Server, which provides data access, translation, computation, formatting, and other back-end processes. For information on installing the WebFOCUS Reporting Server, see the *ibi™ WebFOCUS® Reporting Server Installation* manual.

Installing the ibi WebFOCUS Cluster Manager

Cluster Manager does not have a separate installation. Instead, the WebFOCUS Reporting Server installation is used to install a second instance of the WebFOCUS Reporting Server, which is then enabled for Cluster Manager. Follow the documented installation instructions in the *ibi™ WebFOCUS® Reporting Server Installation* manual to install both the WebFOCUS Reporting Server and Cluster Manager.

Installing the ibi WebFOCUS Client

The following procedure provides the steps for installing the WebFOCUS Client on UNIX.

Important: As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher. If you do not take this precaution, you will lose customized files stored in the *ibi_html* directory.

We recommend that you copy customized stylesheet files into the same workspace as the reports that call them, or in a common workspace if the stylesheets support content in multiple workspaces. You must also revise the links to these customized stylesheet files in existing procedures to identify their new location. For more information, see the *Uploading Files* topic in the *ibi™ WebFOCUS® User Guide* technical content.

Note: Before beginning the installation, verify that all prerequisites are met. In particular, this installation requires knowledge of the Primary ReportCaster Distribution Server machine name and port number.

Install the WebFOCUS Client (Console Installation Mode)

This section describes how to install the WebFOCUS Client on UNIX using the console installation mode. For demonstration purposes, a custom installation is performed using an Oracle 14c database for the repository. The application server being used is Apache Tomcat 9.0.102, which is packaged with the installation.

Important: As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher.

Before you begin

- Export the `JAVA_TOOL_OPTIONS` environmental variable for new installations on UNIX/Linux platforms. This is necessary if you need to install Tomcat or Derby.

  To export the `JAVA_TOOL_OPTIONS` environment:

  ```
  export JAVA_TOOL_OPTIONS="-
  Djdk.util.zip.disableZip64ExtraFieldValidation=true"
  ```

  > ⚠ **Caution:** Code snippets in the PDF can have undesired line breaks because of space constraints. Before directly copying and running them in your program, they must be verified.

- Before you run the WebFOCUS Client installation, set the ulimit on the user ID that is going to run the installation program as follows:

  ```
  ulimit=8192
  ```

Procedure

1. Download the WebFOCUS Client installation file (`.bin`).
2. Change the permissions of the installation file to read and execute with the following command:

   ```
   chmod 755 installation_file.bin
   ```

3. Execute the installation file with the following command:

   ```
   ./installation_file.bin -i console
   ```

   The Welcome to WebFOCUS message displays.

4. Press Enter to continue.

   The License Agreement displays.

5. Press Enter to move through the license information. You can enter 0 to move to the end of the license agreement.
6. At the DO YOU ACCEPT THE TERMS OF THIS LICENSE AGREEMENT prompt, type **Y** and

press Enter.

The Choose Install Type prompt displays.

7. Type one of the following:

   - **1** to update an existing Release Release 9.0.x, Release 9.1.x, or 9.2.x installation available on your machine. After entering a valid installation location, an important information message about using the minimum version of Java is displayed. Read it carefully, agree to it, and press Enter. You are then prompted to provide WebFOCUS Administrator credentials. This is used to import new roles and new portal page templates into the WebFOCUS repository. For this to be successful, the database must be running. The installation validates the connection to the database and the credentials to ensure that they have permission to perform the import of the Change Management packages that load the roles and templates.

     The Pre-Installation Summary displays. Continue to Step 22.

   - **2** for a full installation and press Enter.
     Continue to Step 9. The Choose Install Set prompt displays.

8. Type **1** for a Typical installation or **2** for a Custom installation and press Enter.

   The Choose Destination Locations prompt displays.

9. Press Enter to accept the default destination directory, or type a custom destination directory and then press Enter.

   > **Note:** Do not include spaces in the path.

   The Select Components to Install prompt displays.

10. To install a component, type **Y** or press Enter. To not install a component, type **N** and press Enter.

    a. Type **Y** to install WebFOCUS or **N** to cancel.

       The Destination Directory prompt displays.

    b. Press Enter to accept the default destination, or type a destination path and press Enter.

> **Note:** The directory path cannot contain spaces.

The Mail Server Host prompt displays.

c. Type the mail server host name and press Enter.

   The Install ReportCaster Distribution Server prompt displays.

d. Type **Y** to install the ReportCaster Distribution Server on the same machine, or **N** not to install it.

> **Note:** If you plan to install the Distribution Server on a different machine, type **N**.

   The Install and Configure Tomcat prompt displays.

e. Type **Y** to install Tomcat or **N** to skip it. If you install Tomcat, you will be prompted for a destination directory. Press Enter to accept the default destination, or type a destination path and press Enter.

   The Install Derby prompt displays.

11. Type **Y** to install Derby or **N** to configure an existing database.

    A list of supported databases displays.

Note:

- If you want to use an existing WebFOCUS repository that already has tables defined, clear the **Create WebFOCUS Repository** option. After the installation is completed, you must drop and recreate the existing tables in the repository if you plan on working with a new WebFOCUS repository. Alternatively, you can run the `WFReposUtilCMDLine.sh` file with the CREATE_INSERT mode to update your database and create the required tables and columns.
- If you select the **Create WebFOCUS Repository** option, you will be prompted for WebFOCUS administrator credentials. The credentials that you enter will become the WebFOCUS administrator credentials. During the database creation, the user name and password supports ASCII characters from 32 to 126 and cannot include the following characters: double quotation marks (") or dollar sign ($). Refer to the ASCII character table to determine the characters to use for the WebFOCUS administrator credentials.

  The password for the user name must be between four and 20 characters. Leading blanks and trailing blanks will be removed. You will not be prompted for credentials if the *Create WebFOCUS Repository* option is not selected.
- If you select the **Create WebFOCUS Repository** option, the installation checks the database to see if it contains existing tables. If it contains tables, the Create WebFOCUS Repository option will not be performed and a message displays. In this case, you can:
  - Provide information for a new empty database.
  - Post-installation, create the tables using the WFReposUtilCMDLine utility. For more information, see ibi WebFOCUS Repository Postinstallation Tasks.
  - If you are performing a new installation and pointing to a database created in an earlier Release 9.0.x, Release 9.1.x, or 9.2.x release, follow the postinstallation steps required to update the database to a Release 9.3.4 level. For more information, see Performing a New Release 9.3.4 Installation

Using an Existing ibi WebFOCUS Repository

- If you want to use a web or application server other than Apache Tomcat, then do not select the *Configure Apache Tomcat* option. The Configure WebFOCUS Client area will appear and you must enter the port number that is currently used by your web server in the corresponding field.

  The database choices are:

  - 1 - Apache Derby
  - 2 - DB2
  - 3 - MYSQL
  - 4 - Microsoft SQL Server
  - 5 - Oracle
  - 6 - Other DB

a. Type the option number for your database (for example, **5** for Oracle).

   The prompt to create a WebFOCUS Repository displays.

b. Type **N** and press Enter.

12. For example, for prompts using an Oracle database, type values for the following parameters and press Enter, or press Enter to accept the default.

    - **DB Server Node.** Type the name of the machine where the Oracle Database Server is running.
    - **Port.** Type the port number on which the Oracle Database Server is listening. The default is 1521.
    - **User ID.** Used to communicate to the UOA repository.
    - **Password.** Type the password for the user ID.
    - **ORASID.** Type the value for the Oracle SID.
    - **JDBC Driver.** Accept the default value, oracle.jdbc.OracleDriver.
    - **JDBC Path.** Type the fully qualified path to the Oracle JDBC driver, including the jar file name.

13. At the double colon prompt (::), press Enter to continue.

    The Advanced Configuration prompts display.

14. At the WebFOCUS Application Context prompt, type a context root and press Enter, or press Enter to accept the default (ibi_apps).
15. At the WebFOCUS Reporting Server Host prompt, type a host name and press Enter, or press Enter to accept the default.
16. At the WebFOCUS Reporting Server Port prompt, type a server port and press Enter, or press Enter to accept the default (8120).
17. At the Distribution Server Host prompt, type a host name and press Enter, or press Enter to accept the default.
18. At the Distribution Server Port prompt, type a server port and press Enter, or press Enter to accept the default (8200).
19. If you chose to install ReportCaster on this machine, the Start Distribution Server (Y/N): N prompt appears.
20. If you chose to install and configure Tomcat during installation, the Tomcat prompts appear.

    Tomcat HTTP Port: (DEFAULT: 8080):

    Tomcat Server Shutdown Port: (DEFAULT: 8009):

    Tomcat AJP Port: (DEFAULT: 8005):

    The Pre-Installation Summary prompt for the Distribution Server, WebFOCUS Reporting Server, Database, Tomcat, Context Roots and Alias, and Mail Host displays, as well as Disk Space information.

    > **Note:** If any of the Advanced Configuration parameters are incorrect, type *back* to reenter values for the settings.

21. Press Enter to complete the installation.

    The Installation Complete prompt displays once the installation has finished.

22. Press Enter to exit from the installation.

Note: Online Help is hosted by our servers and the WebFOCUS Help Context field has been removed from the Advanced Configuration prompts. This Help configuration is applied for new installations or when upgrading from an earlier release. The installation package no longer includes the help files, which greatly reduces the installation file size and time required to install and configure the software. If you want to confirm hosted help, you can check the Help Proxy fields on the Application Contexts page of the Administration Console Configuration tab, as shown in the following image.

If you are restricted from using Hosted Help, see Configuring WebFOCUS Help for instructions on how to install Online Help on your own internal application server.

Install the WebFOCUS Client Using the GUI Installation Mode

This section describes how to perform an installation for the WebFOCUS Client on UNIX using the GUI installation mode.

Before you begin

- Export the `JAVA_TOOL_OPTIONS` environmental variable for new installs on UNIX/Linux platforms. This is necessary if you need to install Tomcat or Derby.

```
export JAVA_TOOL_OPTIONS="-
```

```
Djdk.util.zip.disableZip64ExtraFieldValidation=true"
```

> **Caution:** Code snippets in the PDF can have undesired line breaks because of space constraints. Before directly copying and running them in your program, they must be verified.

- To use the GUI installation, ensure that the installation has access to an X Windows Server, through the DISPLAY variable. If an X Windows Server is available, you must set a DISPLAY environment variable before you start the installation. For example,

```
DISPLAY=xserver_host:0.0

export DISPLAY

TERM=xterm

export TERM
```

where:

xserver_host

Is the host name or IP Address of a machine that is running an X Server.

> **Important:**
> As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher.

Procedure

1. Download and open the installation file for UNIX (`.bin`).
2. Run the installation file using one of the following commands:

```
installation_file.bin -i gui
```

```
installation_file.bin -i swing
```

3. Follow the installation prompts presented in the installation program.

   Installation options presented through the graphical mode installation are the same as the steps documented in Install the WebFOCUS Client (Console Installation Mode).

Install a Stand-Alone ReportCaster Distribution Server

Note: The WebFOCUS Client must be installed before running the stand-alone ReportCaster Distribution Server installation.

To install a stand-alone ReportCaster Distribution Server on a separate machine from the WebFOCUS Client:

Procedure

1. Sign in to the machine from which the installation will be invoked.

   Note: The installation file (.bin) must be accessible from this machine.

2. Create a work directory and change to that directory.
3. Execute the installation file, using the following command:

   ```
   ./installation_file.bin -i console
   ```

   The installation will provide a series of command-line prompts.
4. Select the appropriate language for the installation.

   The License Agreement displays.
5. Press Enter to move through the license information.
6. At the DO YOU ACCEPT THE TERMS OF THIS LICENSE AGREEMENT prompt, type **Y** and press Enter.

The Choose Install Type prompt displays.

7. At the Choose Install Type prompt, type **2** for Full Install and press Enter.
8. At the Choose Install Set prompt, type **2** for a Custom installation and press Enter.
9. At the Choose Destination Locations prompt, type a destination folder for the installation and press Enter, or press Enter to accept the default.

   Note: Do not include spaces in the path.

10. At the Select Component to Install prompt, type **Y** or **N** and press Enter for each of the following components, or press Enter to accept the default (Y).

    - **Install WebFOCUS.** Type **N**.
    - **Install ReportCaster Distribution Server.** Type **Y**.

      The installation will display the message:

      You have chosen to install ReportCaster Distribution Server only, WebFOCUS will not be installed.

      Select an existing database from the list of databases provided. Select the same database which the WebFOCUS Client will be using.

      In the Database Configuration pane, provide the necessary information for the existing database.

11. Press Enter to continue the installation.

    The Advanced Configuration prompts display.

12. At the Distribution Server Host prompt, type a host name and press Enter, or press Enter to accept the default.
13. At the Distribution Server Port prompt, type a server port and press Enter, or press Enter to accept the default.
14. At the Start Distribution Server prompt, type **N** and press Enter.

    The configurations for the Distribution Server and Database display.

    Note: If any of the Advanced Configuration parameters are incorrect, type **back** to reenter values for the settings.

15. Press Enter to complete the installation.

> **Note:** Online Help is hosted by our servers and the WebFOCUS Help Context field has been removed from the Advanced Configuration prompts. This Help configuration is applied for new installations or when upgrading from an earlier release. The installation package no longer includes the help files, which greatly reduces the installation file size and time required to install and configure the software. If you want to confirm hosted help, you can check the Help Proxy fields on the Application Contexts page of the Administration Console Configuration tab, as shown in the following image.

If you are restricted from using Hosted Help, see Configuring WebFOCUS Help for instructions on how to install Online Help on your own internal application server.

Install WebFOCUS Client Using the Silent Install

> **Important:**
> As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher.

Before you begin

Export the JAVA_TOOL_OPTIONS environmental variable for new installs on UNIX/Linux platforms. This is necessary if you need to install Tomcat or Derby.

```
export JAVA_TOOL_OPTIONS="-
Djdk.util.zip.disableZip64ExtraFieldValidation=true"
```

Caution: Code snippets in the PDF can have undesired line breaks because of space constraints. Before directly copying and running them in your program, they must be verified.

1. X WINDOW DISPLAY must be exported, pointing to a valid X WINDOW machine.

   The installation GUI interface will open on the exported $DISPLAY machine. If $DISPLAY is not defined, the installation should default to Console mode.

2. Navigate to the location of the WebFOCUS installation file.
3. Run the following script:

   ```
   ./installation_file.bin -i swing -r absolute_path/name.properties
   ```

   For example:

   ```
   ./installation_file.bin -i swing -r /home/myid/silent_
   inst.properties
   ```

To record a UNIX silent installation in Console mode:

1. Navigate to the location of the WebFOCUS installation file.
2. Run the following script to enforce running in Console mode:

   ```
   ./installation_file.bin -i console -r absolute_path/name.properties
   ```

   For example:

   ```
   ./installation_file.bin -i console -r /home/myid/silent_
   inst.properties
   ```

To playback a UNIX silent installation:

1. Review the generated properties file before performing the silent installation to ensure that the properties are correct.
2. Navigate to the location of the WebFOCUS installation file.
3. Run the following script:

   ```
   ./installation_file.bin -i silent -f absolute_path/name.properties
   ```

   For example:

   ```
   ./installation_file.bin -i silent -f /home/myid/silent_
   install.properties
   ```

Troubleshooting the Installation

If you experience issues during the installation, due to Java memory resources:

1. Set the following environment variable from the command line, or optionally, set it globally in a profile:

   ```
   _JAVA_OPTIONS="-Xms1024m –Xmx2048m" ; export_JAVA_OPTIONS
   ```

   The memory allocated through this command must be available on your system.
2. Run the installation program.

Securing the ibi WebFOCUS Installation

After you have completed and tested the installation, you must secure it as required by your organization. For more information, see the *ibi™ WebFOCUS® Security Administration Best Practices* guide.

Running ibi WebFOCUS Reporting Servers Manually

If you installed the WebFOCUS Reporting Server and the WebFOCUS components included in the installation package on the same machine, you can use the following commands to manually start and stop the required WebFOCUS servers.

Note: The /home/user/ path depends on your installation.

Starting Servers

You must start the servers in the following order:

- Search Server
- Repository Server
- Application Server
- Distribution Server
- WebFOCUS Reporting Server

To start the WebFOCUS Search Server, run:

```
/home/user/ibi/WebFOCUS93/Solr/start_solr_linux.sh
```

To start the WebFOCUS Repository Server, run:

```
nohup /home/user/ibi/derby/bin/start.sh &
```

To start the WebFOCUS Application Server, run:

```
/home/user/ibi/tomcat/bin/startup.sh
```

To start the WebFOCUS Distribution Server, run:

```
nohup /home/user/ibi/WebFOCUS93/ReportCaster/bin/schbkr &
```

To start the WebFOCUS Reporting Server, run:

```
/home/user/ibi/srv93/wfs/bin/edastart -start
```

Stopping Servers

You must stop the servers in the following order:

- Search Server
- Application Server
- Distribution Server
- Repository Server
- WebFOCUS Reporting Server

To stop the WebFOCUS Search Server, run:

```
/home/user/ibi/WebFOCUS93/Solr/stop_solr_linux.sh
```

To stop the WebFOCUS Application Server, run:

```
/home/user/ibi/tomcat/bin/shutdown.sh
```

To stop the WebFOCUS Distribution Server, run:

```
/home/user/ibi/WebFOCUS93/ReportCaster/bin/stopit
```

To stop the WebFOCUS Repository Server, run:

```
/home/user/ibi/derby/bin/stop.sh
```

To stop the WebFOCUS Reporting Server, run:

```
/home/user/ibi/srv93/wfs/bin/edastart -stop
```

Creating Shell Scripts to Start and Stop Servers

You can create shell scripts that run the following commands to start and stop servers.

Start Servers

```
/home/user/ibi/WebFOCUS93/Solr/start_solr_linux.sh

nohup /home/user/ibi/derby/bin/start.sh &

sleep 5

/home/user/ibi/tomcat/bin/startup.sh

nohup /home/user/ibi/WebFOCUS93/ReportCaster/bin/schbkr &

/home/user/ibi/srv93/wfs/bin/edastart -start
```

Stop Servers

```
/home/user/ibi/WebFOCUS93/Solr/stop_solr_linux.sh

/home/user/ibi/tomcat/bin/shutdown.sh

/home/user/ibi/WebFOCUS93/ReportCaster/bin/stopit

/home/user/ibi/derby/bin/stop.sh

/home/user/ibi/srv93/wfs/bin/edastart -stop
```

Note:

- Adjust the paths based on your installation directories.
- The sleep 5 command adds a wait period to ensure Derby has started.

About Upgrading From Release 8207.28 or Earlier to Release 9.3.4

You cannot upgrade directly from Release 8206 or earlier to Release 9.3.4.

To upgrade from Release 8206 or earlier:

1. Upgrade from Release 8206 or earlier to Release 8207.28.
2. Upgrade from Release 8207.28 to Release 9.3.4.

To upgrade from Release 8207.27 or earlier:

1. Upgrade from Release 8207.27 or earlier to Release 9.2.x.
2. Upgrade from Release 9.2.x to Release 9.3.4.

To upgrade from Release 8207.28:

- Upgrade from Release 8207.28 to Release 9.3.4.

Upgrading from an Earlier Release to Release 9.3.4

A database update is required to enable you to use an existing Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x database with Release 9.3.4.

Important: As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher.

This release includes several updates to search capabilities in WebFOCUS.

- For an upgrade installation from Release 9.0.1 or earlier, the repository must be reindexed to use these search capabilities.

- For a new installation, the repository must be reindexed if you are using a pre-existing repository from a previous release.

For more information on how to reindex, see the *Indexing Content and Data* topic in the ibi™ WebFOCUS® User Guide or in the WebFOCUS Online Help system.

Upgrade Installation Steps

The database update is performed during the upgrade installation. The installation checks the database version used for the WebFOCUS repository to determine if a database update is required.

- If a database update is required, the `db_lb_update.sh` utility runs, using the credentials configured with the installation.

  If the database update is successful, the following information is entered in the installation log:

  ```
  Update process SUCCEEDED
  ```

  Note: Credentials used for the database update utility need privileges to allow table changes.

- If the database update fails, the WebFOCUS web application does not start and you are not able to connect to WebFOCUS. This can occur if the connection to the database is not available. In this case, you need to review the installation log and the WebFOCUS event log for more information, and manually run the `db_lb_update` utility postinstallation.

  The following are examples of failures captured in the installation log file:

  ```
  Version checker process FAILED to connect to database

  ERROR:connecting to DB, DBCHECK:connect_error-not going to execute:

  /home/user/ibi/WebFOCUS93/utilities/dbupdate/db_lb_update.sh
  ```

  The following is an example of a failure captured in the WebFOCUS event.log file:

```
ERROR_DB_NOT_UP_TO_DATE Database is not up to date. Please run the
update utility first.
```

For more information on how to manually run the `db_lb_update.sh` utility postinstallation, see Manually Run the Database Utility Postinstallation.

- The update_repos utility runs automatically. This utility imports the following Change Management packages:
  - managers_group_and_rules.zip
  - bip_page_templates_V*nn*.zip, where *nn* is the version of the package.
  - roles.zip
  - pgx_page_templates_V*nn*.zip, where *nn* is the version of the package.
  - themes_V*nn*.zip, where *nn* is the version of the package.

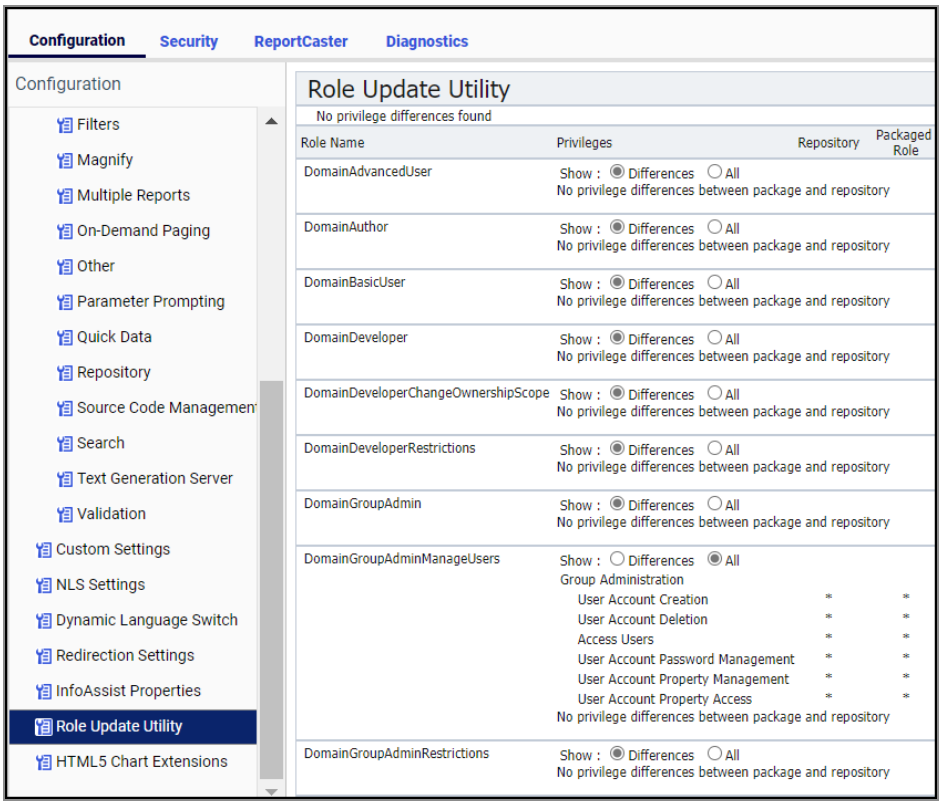
  You are prompted for WebFOCUS Administrator credentials during the installation. If communication to the database is not available, or the provided credentials do not have permissions to import Change Management packages, you must manually run the update_repos utility postinstallation. See Manually Run the Database Utility Postinstallation.

  Note: This step is required for Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x upgrades to Release 9.3.4.

- Use the Role Update Utility available in the WebFOCUS Administration Console to update repository roles and privileges. The utility enables you to identify differences between roles and privileges available in your existing repository and the new roles and privileges provided with the new installation.

  It is recommended that you replace your repository with new roles and privileges to use new functionality and features.

  The following is an example of the Role Update Utility upgrading to Release 9.3.4. The *Run Procedures with Insight* and *Designer* privileges are required to use new functionality, run Insight content, and access ibi™ WebFOCUS® Designer.



1. Sign in to WebFOCUS as an administrator.
2. On the Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.
3. In the Configuration panel, click **Role Update Utility**.

   At the top of the table, you will see a message that identifies new roles and high-level differences between your existing roles.
4. Examine the differences between the Repository and Packaged roles and privileges and apply the new roles and privileges to enable new functionality and features.

Manually Run the Database Utility Postinstallation

Procedure

1. Ensure that the database is running.
2. Run the `db_lb_update.sh` utility. The `db_lb_update.sh` database utility is stored in the `/home/user/ibi/WebFOCUS93/utilities/dbupdate` folder.

   Note: The application server should not be running when running the database update utility.

   A Command window opens and is used to run the database update utility.
3. Type the database repository user name and password, when prompted.

   Note: Credentials used for the database update utility need privileges to allow table changes.
4. Press **Enter** to accept the default database update.
5. After a successful database update, clear the application server cache and then start the application server.
6. Confirm that the connection to WebFOCUS is functional and that the content is correct.
7. Run the following utility to update roles and user groups, and include new templates that are available for portal development:

   ```
   /home/user/ibi/WebFOCUS93/utilities/WFReposUtil/update_repos.sh
   ```

   You will get prompted to provide WebFOCUS Administrator credentials.

   This utility imports the following Change Management packages:

   - `/home/user/ibi/WebFOCUS93/features/bip/managers_group_and_rules.zip`
   - `/home/user/ibi/WebFOCUS93/features/bip/bip_page_templates_Vnn.zip`, where *nn* is the version of the package.
   - `/home/user/ibi/WebFOCUS93/features/bip/pgx_page_templates_Vnn.zip`, where *nn* is the version of the package.
   - `/home/user/ibi/WebFOCUS93/features/bip/themes_Vnn.zip`, where *nn* is the version of the package.
   - `/home/user/ibi/WebFOCUS93/features/roles/roles.zip`.

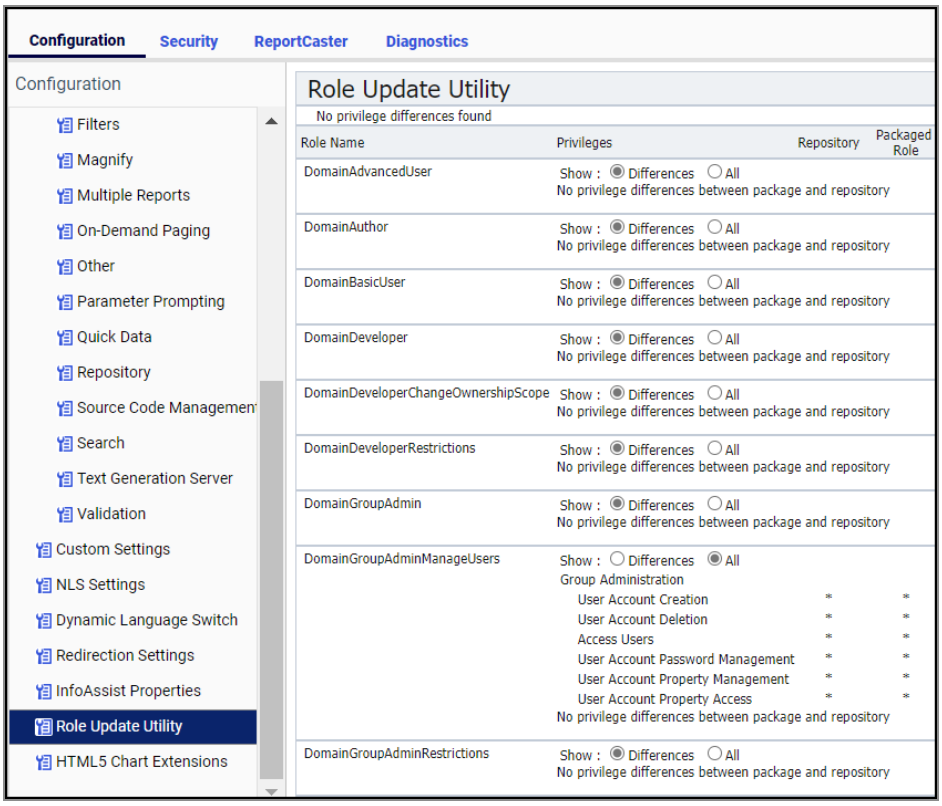
Logs are created in the `/home/user/ibi/WebFOCUS93/application_logs` folder under the following names:

- `cm_import_bip_page_templates_<date_time>.log`
- `cm_import_managers_group_and_rules_<date_time>.log`
- `cm_import_themes_Vnn_<date_time>.log`
- `cm_import_pgx_page_templates_Vnn_<date_time>.log`
- `cm_import_roles_<date_time>.log`
- `cm_import_managers_group_and_rules_<date_time>.log`

8. Use the Role Update Utility available in the WebFOCUS Administration Console to update repository roles and privileges. The utility enables you to identify differences between roles and privileges available in your existing repository and the new roles and privileges provided with the new installation.

   It is recommended that you replace your repository with new roles and privileges to use new functionality and features.

   The following is an example Role Update Utility upgrading to Release 9.3.4. The *Run Procedures with Insight* and *Designer* privileges are required to use new functionality, run Insight content, and access WebFOCUS® Designer.



a. Sign in to WebFOCUS as an administrator.

b. On the Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.

c. In the Configuration panel, click **Role Update Utility**.

   At the top of the table, you will see a message that identifies new roles and high-level differences between your existing roles.

d. Examine the differences between the Repository and Packaged roles and privileges and apply the new roles and privileges to enable new functionality and features.

Note: After you run the `db_lb_update.sh` utility, an `lbupdate.log` file is generated under the `application_logs` directory.

Restoring Favorites and Recents After Upgrading

After you upgrade from WebFOCUS Release 9.2.x and earlier to Release 9.3.2 and later, you need to run the `db_convertfr.sh` utility to restore your Favorites and Recents contents.

Log in as an administrator and run the `db_convertfr.sh` utility from the `utilities\dbupdate` folder in the WebFOCUS application.

Administrators can run the `db_convertfr.sh` file from the `utilities\dbupdate` folder in the WebFOCUS application. They can choose whether to restore only the Favorites, only the Recents, or both by running `db_convertfr.sh` from the command line and specifying a parameter. If you do not specify any parameter, Favorites and Recents, both are restored.

Parameter	Description
f	For restoring only Favorites
r	For restoring only Recents
all	For restoring Favorites and Recents

The following code snippet restores only Favorites.

```
/home/user/ibi/WebFOCUS92/utilities/dbupdate/db_convertfr.sh f
```

Troubleshooting the Upgrade Installation

- If the database update fails, you must ensure that the database is running and that the db owner is allowed to make changes to the database tables.
- Run the `/home/user/ibi/WebFOCUS93/utilities/dbupdate/db_check_version.sh` utility to verify if the database was updated.
- In case the application server cannot load the WebFOCUS web application, review the application server logs and WebFOCUS logs, such as the `event.log` for errors.
    - WebFOCUS system event logs are created in the `/home/user/ibi/WebFOCUS93/logs` folder.

    - Log names for the dbupdate and dbcheck utilities are named `lb_update_<timestamp>.log` and `db_check_version_<timestamp>.log` and are created in the `/home/user/ibi/WebFOCUS93/application_logs` folder.

- If the database update was successful, and the application server fails to start and the db_check_version indicates that the database is not up to date, ensure that the application server cache is cleared and attempt to restart the application server and connect to WebFOCUS.

Note:

- Upgrades backup the entire existing installation in the following folder:

  `/home/user/ibi/WebFOCUS93/backup_files/`

  If multiple upgrades are performed, the latest existing backup is renamed, with the current date/time stamp appended to the folder name, for example:

  `/home/user/ibi/WebFOCUS93/backup_files_06.22.2021.13.46/`

- During the upgrade installation, configuration changes are applied to the new installation while restoring files from the backup location or by merging configuration changes from the backup files to the files created by the new installation.
- If you made custom changes to files that are not restored during upgrades, restore the required files manually.

ibi WebFOCUS Search Feature

Solr is used by the WebFOCUS Search feature.

When performing an upgrade to Release 9.3.4 from an earlier release, the installation program installs and configures Solr as done for new installations.

1. Stop the Search Server, using the `/home/user/ibi/WebFOCUS93/Solr/stop_solr_linux.sh` command.
2. Edit the `/home/user/ibi/WebFOCUS93/Solr/ibi_solr_service_cfg.ps1` file and change the port number by modifying the $solrPort = '8983' line. Ensure the new port number is available and not used by another application.
3. Start the Search Server, using the `/home/user/ibi/WebFOCUS93/Solr/start_solr_`

`linux.sh` command.

4. If you changed the Solr Server port, you should also apply it in the Solr URL setting of the WebFOCUS Administration Console. This setting is available under Configuration, Application Settings, Search. For example:

```
https://host_name:8983/solr
```

Note: If you want to use a different Solr server instance, update the Search Server information from the WebFOCUS Administration Console.

Securing the ibi WebFOCUS Upgrade Installation

After you have completed and tested the upgrade installation, you must confirm that your security configuration conforms to the requirements of your organization. For more information, see the *ibi™ WebFOCUS® Security Administration Best Practices* guide.

Upgrading In Place to Release 9.3.4

The following topic describes how to perform an upgrade in place of content from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x to Release 9.3.4 while using the existing WebFOCUS Release 8207.28, WebFOCUS Release 9.0.x, WebFOCUS Release 9.1.x, or WebFOCUS Release 9.2.x installation directory.

Important: As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or later.

This release includes several updates to search capabilities in WebFOCUS.

- For an upgrade installation from Release 9.0.1 or earlier, the repository must be reindexed to use these search capabilities.
- For a new installation, the repository must be reindexed if you are using a pre-existing repository from a previous release.

For more information on how to reindex, see the *Indexing Content and Data* topic in the *ibi™ WebFOCUS® User Guide* or in the WebFOCUS Online Help system.

Prerequisites for Upgrading In Place

The following are prerequisites for upgrading in place from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x to Release 9.3.4:

- Ensure the database used for the WebFOCUS repository is backed up prior to proceeding with the upgrade installation.

  This is required as the installation program performs database changes and a restore may be required in case of failures.

- For the installation that is upgraded, it is recommended to back up the existing installation folder and files on disk.

  The installation program backs up the entire directory prior to upgrading and restores all files in case there are failures that do not allow the installation to proceed. This is a safety measure in case there are installation failures.

- Ensure the application server used by the installation meets the WebFOCUS Release 9.3.4 requirements:

  - WebFOCUS is configured for a supported version of Java.
  - Application server supports the servlet API 3.1 specifications.
  - If using Tomcat, it is recommended that you use the latest 9.0.*x* version. Tomcat 9.0.*x* is supported.
  - You are using a supported database.

- Prior to running the upgrade installation, ensure the application server used by the existing WebFOCUS installation is stopped to ensure files are not locked and there is no product usage.

  If Tomcat is used, the installation program attempts to stop the Apache Tomcat

service.

- Ensure the ReportCaster service for the existing installation is stopped.

  The installation program attempts to stop the ReportCaster service.

- To avoid files being locked, ensure files from the existing installation are not opened by the File Explorer or the CMD Window (in Windows), UNIX Shell or another application, such as an editor or browser.
- Ensure the connection to the database hosting the WebFOCUS repository is running.

The following are tasks performed by the installation after selecting to upgrade an existing Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x to Release 9.3.4:

1. Check for existence of a supported version of Java.
2. Check for Tomcat and stop service.
3. Check for ReportCaster service and attempt to stop it.
4. Check database connection to run required database scripts.

   This is done based on connection information available in the `install.cfg` file.
5. On successful connection, you are prompted to provide WebFOCUS administrator credentials to be used when the installation runs the update_repos script.
6. User authentication and authorization are performed to ensure the provided WebFOCUS account is valid and has privileges to perform import of Change Management packages.
7. For an upgrade from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x, backup all files to the version folder of the respective release.
   For example, for an upgrade from Release 9.2.x, backup the files in Windows to:

   ```
   ..\ibi\WebFOCUS92\backup_files\
   ```

   and in UNIX to:

   ```
   /install_directory/ibi/WebFOCUS92/backup_files/
   ```

   If the backup fails, for example, due to locked files, a message displays. The installation restores all backed up files and exits.
8. The new Release 9.3.4 installation is performed in the same Release 8207.28, Release

9.0.x, Release 9.1.x, or Release 9.2.x folder and the installation properly applies required edits to configuration files, in addition to restoring files as specified in Step 9.

9. For an upgrade from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x, files updated by the installation get backed up in the version folder of the earlier release. For example, for upgrade from Release 9.2.x files are backed up to:

   ```
   /install_directory/ibi/WebFOCUS92/update_files/
   ```

   The following files are restored and updated during installation:

   - **web.xml.** Updated during installation, using default values.
   - **odin.cfg.** Restored from backup.
   - **site.wfs.** Restored from backup.
   - **license.cfg.** Restored from backup.
   - **wflicense.key.** Restored from backup.
   - **olapdefaults.js.** Restored from backup.
   - **nls.txt.** Restored from backup.
   - **security_metadatasource.xml.** Restored from backup.
   - **multidrill.css.** Restored from backup.
   - **config/caster/ApplicationPreferences.xml.** Restored from backup.
   - **/config/was/.** Restored from backup.
   - **/config/web_resource/map/.** Restored from backup.
   - **nlscfg.err.** Language and code page is updated, based on configuration of the existing installation. If the WebFOCUS Client code page in the installation was configured as 137 or 437, the code page gets changed to 1252.

10. Migration of configuration files is performed.

    For an upgrade from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x, files updated by the migration utility are backed up in the version folder of the earlier release. For example, for an upgrade from Release 9.2.x, the files are updated to:

    ```
    /install_directory/ibi/WebFOCUS92/merge_files/
    ```

- **webconfig.xml and install.cfg**

  The `install.cfg` file in Release 9.3.4 is updated. The following settings are added while moving entries from the `install.cfg` and `webconfig.xml` files from the earlier Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x installation:

  ```
  IBI_APPROOT_DIRECTORY

  IBI_WEBAPP_CONTEXT_DEFAULT

  IBI_WEBFOCUS_CONTEXT

  IBI_STATIC_CONTENT_CONTEXT

  IBI_HELP_CONTEXT

  IBI_REPORTCASTER_CONTEXT

  IBI_REPOS_DB_USER

  IBI_REPOS_DB_PASSWORD

  IBI_REPOS_DB_DRIVER

  IBI_REPOS_DB_URL
  ```

  Note:
  - Any additional updated settings found in the `webconfig.xml` file is moved to the `webfocus.cfg` file.
  - File types specified in the Administration Console for inclusion in the Change Management export packages are preserved during upgrades and an entry with these values is added to the `webfocus.cfg` file. By default, the following file types are supported for exports created by the change management feature: acx, bmp, css, fex, gif, htm, html, ico, jpe, jpeg, jpg, js, mas, mnt, png, sty, and svg. The file type list can be adjusted from the Administration Console.

  The configuration file migration utility does not move the following settings.

The Release 9.3.4 defaults are used for the following:

```
IBI_CSRF_ENFORCE

IBI_CM_RETAIN_HANDLES

IBI_CUSTOM_SECURITY_PARAMETER

IBI_CUSTOM_SECURITY_DRIVER

IBI_ENCRYPTION_PROVIDER

IBI_MOVE_CONFIRMATION_MESSAGE

IBI_REPOSITORY_SYNC_INTERVAL

IBI_REST_METHOD_ENFORCE
```

The IBI_WEBAPP_DEFAULT_URL setting is created in the `install.cfg` file and is used by the InfoSearch Dimension Index Loader. The default value is:

```
http://<hostname>:80
```

This can be configured through the Administration Console to provide the proper WebFOCUS protocol, host name, and port.

- **mime.wfs.** Entries in this file for earlier releases Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x is combined with the entries in the Release 9.3.4 version of the file.
- **Security files:**
  - `securitysettings.xml`
  - `securitysettings-mobile.xml`
  - `securitysettings-portlet.xml`
  - `securitysettings-zone.xml`

  These security files are copied from the earlier releases Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x to Release 9.3.4.
- **languages.xml.** Entries in this file for earlier releases Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x, are combined with the entries in the

Release 9.3.4 version of the file.

- **cgivars.wfs.** Settings stored in `/client/wfc/etc/cgivars.wfs` file, such as Default Server Node, OLAP, and Parameter Prompting settings are not maintained during the migration process. These settings should be reapplied through the Administration Console. Settings changed through the Administration Console are written to the /config/webfocus.cfg file.

11. Check database collation.
12. If the database is Microsoft SQL Server or MySQL and collation is CI, the installation program changes the database collation to the best matched CS collation.
13. (In Windows) The upgrade updates the Program group, ReportCaster service, and registry entries.

    If the WebFOCUS ReportCaster service was configured using a domain user account as a service logon account, the service needs to be reconfigured with this option after the upgrade completes.
14. Tomcat cache is cleared.
15. Tomcat is restarted.
16. Installation completes by running the verification page.

Note:

- If you are using another application server, redeploy the WebFOCUS web application WAR or EAR file, clear cache manually, and restart the application server.
- If any of the database update tasks fail, for example, due to connectivity issues or not having database or WebFOCUS account credentials, the database update tasks can be performed postinstallation. For more information, see Postinstallation Review for Upgrading In Place.

Postinstallation Review for Upgrading In Place

1. For an upgrade in place from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x, run `db_lb_update.sh`.

   For example, for release Release 9.2.x, run *install_*

directory/ibi/WebFOCUS92/utilities/dbupdate/db_lb_update.sh.

2. For an upgrade in place from Release 9.2.x, in Windows, run update_repos.bat and in UNIX, run update_repos.sh.

   For example, for release Release 9.2.x, in Windows, run ..\ibi\WebFOCUS92\utilities\WFReposUtil\update_repos.bat and in UNIX, run *install_directory*/ibi/WebFOCUS92/utilities/dbupdate/update_repos.sh.

3. Restart the application server.
4. Ensure all required services are running (application server, WebFOCUS ReportCaster service, WebFOCUS Search Server).
5. Ensure the connection to the database is working.
6. Connect to WebFOCUS to ensure the product is working and content is accessible.

   WebFOCUS uses the web application context that was configured in the earlier Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x version.

7. If the web application fails to load, check the application logs and WebFOCUS event.log file.
8. For an upgrade in place from Release 9.2.x, ensure that the configuration file migration is successful by checking the existence of the version folder of the earlier release. For example, for an upgrade from Release 9.2.x check the following folder exists.

   In Windows

   ```
   ..\ibi\WebFOCUS92\merge_files\
   ```

   In UNIX

   ```
   /install_directory/ibi/WebFOCUS92/merge_files/
   ```

9. For an upgrade in place from an earlier release, verify the contents of the install.cfg and webfocus.cfg files in the release version folder of the earlier release. For example, for an upgrade in place from Release 9.2.x verify the contents of install.cfg and webfocus.cfg in the following folder.
   In Windows:

   ```
   ..\ibi\WebFOCUS92\config\
   ```

In UNIX:

```
/install_directory/ibi/WebFOCUS92/config/
```

10. For an upgrade in place from an earlier release, ensure the JDBC driver set in the release version folder of the earlier release is correct, based on the database used as the repository. For example, for an upgrade from Release 9.2.x check the JDBC driver set in the following folder.
    In Windows:

    ```
    ..\ibi\WebFOCUS92\utilities\setenv\utiluservars.bat
    ```

    In UNIX:

    ```
    /install_directory/ibi/WebFOCUS92/utilities/setenv/utiluservars.sh
    ```

11. If collation check or change failed during the installation, the following needs to be performed postinstallation:

    a. Stop the application server.

    b. Ensure connection to the database is accessible and you have credentials that allow database changes (create or edit tables).

    c. For an upgrade in place from an earlier release, change database collation manually or using the tools available with the updated installation in the release version folder of the earlier release. For example, for an upgrade from Release 9.2.x do the changes in the following folder.
    In Windows:

    ```
    ..\ibi\WebFOCUS92\utilities\dbupdate\collation\
    ```

    In UNIX:

    ```
    /install_
    directory/ibi/WebFOCUS92/utilities/dbupdate/collation/
    ```

    d. For an upgrade in place from an earlier release, run the database update by opening a Command Window (or a UNIX shell) and navigating to the release version folder. For example, for an upgrade in place from Release 9.2.x, navigate to the following folder.
    In Windows:

```
..\ibi\WebFOCUS92\utilities\dbupdate\
```

In UNIX:

```
/install_directory/ibi/WebFOCUS92/utilities/dbupdate/
```

e. From this location, in Windows run, `db_lb_update.bat`. In UNIX, run `db_lb_update.sh`.

For example, for an upgrade in place from Release 9.2.x, in Windows run:

```
C:\ibi\WebFOCUS92\utilities\dbupdate\db_lb_update.bat
```

In UNIX, run:

```
/install_directory/ibi/WebFOCUS92/utilities/dbupdate/db_lb_
update.sh
```

f. For an upgrade in place from an earlier release, run the command to import the required Change Management packages.
For example, for an upgrade in place for Release 9.2.x run the command in Windows from:

```
..\ibi\WebFOCUS92\utilities\WFReposUtil\update_repos.bat
```

In UNIX, run the following command:

```
/install_
directory/ibi/WebFOCUS92/utilities/WFReposUtil/update_repos.sh
```

g. Clear the application server cache.

h. Restart the application server.

Securing the ibi WebFOCUS Upgrade in Place Installation

After you have completed and tested the upgrade in place installation, you must confirm that your security configuration conforms to the requirements of your organization. For

more information, see the *ibi™ WebFOCUS® Security Administration Best Practices* guide.

Performing a New Release 9.3.4 Installation Using an Existing ibi WebFOCUS Repository

The following procedure describes how to perform a new Release 9.3.4 installation while using a WebFOCUS repository from an earlier Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x installation.

Important: As of Release 9.0.0, the WebFOCUS system file configuration no longer includes the *ibi_html* directory, located at *drive*:\ibi\WebFOCUS*release*\WebFOCUS, where *release* is the number of your installed release. If you store customized stylesheet files or other files in the *ibi_html* directory, you must upload them from this directory to the WebFOCUS Repository before installing or upgrading to WebFOCUS Release 9.0.0 or higher.

This release includes several updates to search capabilities in WebFOCUS.

- For an upgrade installation from Release 9.0.1 or earlier, the repository must be reindexed to use these search capabilities.
- For a new installation, the repository must be reindexed if you are using a pre-existing repository from a previous release.

For more information on how to reindex, see the *Indexing Content and Data* topic in the ibi™ WebFOCUS® User Guide or in the WebFOCUS Online Help system.

Procedure

1. Make a copy of your Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x database to be used by the new Release 9.3.4 installation.
2. Ensure the collation of the database, including all tables and columns, is case-sensitive.
3. Ensure the database is running.
4. Perform a new full installation of Release 9.3.4.

> **Note:**
> During the installation, you will point to the copy of the Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x database that you made in Step 1.

5. During the installation of Release 9.3.4, specify the type of database repository, as well as the database repository information for the earlier database repository that you are using. Specifically, under the Select Components to install prompt for Configure pre-existing Database, select the type of database repository that you are using, such as Microsoft SQL Server or Oracle. In addition, ensure the **Create WebFOCUS Repository** option is not indicated.
6. For the Database Configuration prompt, type the database repository name, connection, and configuration information.

   > **Note:**
   > The credentials you provide need privileges to create and edit database tables.
   >
   > Once completed, the installation of Release 9.3.4 is available in the */install_directory*/ibi/WebFOCUS93 directory.

7. Stop your application server, for example, Apache Tomcat.
8. Ensure that your database repository, for example Microsoft SQL Server, where your Release 8207.28, Release 9.0.x, Release 9.1.x, or 9.2.x database repository is stored, is running.
9. **Important:**

   When using a WebFOCUS repository created in an earlier release:

   - For example, existing Release 9.2.x installation location, copy `\ibi\WebFOCUS92\utilities\lib\webfocus-applications.jar` to `\ibi\WebFOCUS92\utilities\lib\versions\prior\` of the new 9.3.4 installation location.

10. Run the `/install_directory/ibi/WebFOCUS92/utilities/dbupdate/db_lb_update` utility.

Note:

- You will be prompted for database credentials. Ensure the user name provided is allowed to create and edit database tables.
- After the script completes, you should receive an Update process SUCCEEDED message.

11. After a successful database update, clear the application server cache and then start the application server.
12. Confirm that the connection to WebFOCUS is functional and that the content is correct.
13. Run the following utility to load new roles and BI Portal page templates into the WebFOCUS repository:

    /*install_directory*/ibi/WebFOCUS92/utilities/WFReposUtil/update_repos.sh

    You will be prompted to provide WebFOCUS administrator credentials.

    This utility imports the following Change Management packages:

    - /install_directory/ibi/WebFOCUS92/features/bip/managers_group_and_rules.zip
    - /install_directory/ibi/WebFOCUS92/features/bip/bip_page_templates_Vnn.zip, where *nn* is the version of the package.
    - /install_directory/ibi/WebFOCUS92/features/bip/pgx_page_templates_Vnn.zip, where *nn* is the version of the package.
    - /install_directory/ibi/WebFOCUS92/features/bip/themes_Vnn.zip, where *nn* is the version of the package.
    - /install_directory/ibi/WebFOCUS92/features/roles/roles.zip.

    Logs are created in the install_directory/ibi/WebFOCUS92/application_logs folder under the following names:

    - cm_import_bip_page_templates_<date_time>.log
    - cm_import_managers_group_and_rules_<date_time>.log
    - cm_import_themes_Vnn<date_time>.log
    - cm_import_pgx_page_templates_Vnn<date_time>.log

- cm_import_roles_<date_time>.log
- cm_import_managers_group_and_rules_<date_time>.log

14. Use the Role Update Utility available in the WebFOCUS Administration Console to update repository roles and privileges. The utility enables you to identify differences between roles and privileges available in your existing repository and the new roles and privileges provided with the new installation.

    It is recommended that you replace your repository with new roles and privileges to use new functionality and features.

    The following is an example using the Role Update Utility upgrading to Release 9.3.4. The *Run Procedures with Insight* and *Designer* privileges are required to use new functionality, run Insight content, and access WebFOCUS Designer.

    a. Sign in to WebFOCUS as an administrator.

    b. On the Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.

    c. In the Configuration panel, click **Role Update Utility**.

       At the top of the table, you will see a message that identifies new roles and high-level differences between your existing roles.

    d. Examine the differences between the Repository and Packaged roles and privileges and apply the new roles and privileges to enable new functionality and features.

Securing the ibi WebFOCUS Installation From an Existing ibi WebFOCUS Repository

After you have completed and tested the installation, you must confirm that your security configuration conforms to the requirements of your organization. For more information, see the *ibi™ WebFOCUS® Security Administration Best Practices* guide.

Creating the ibi WebFOCUS UOA Repository

All WebFOCUS web-tier content is stored in an RDBMS database. This database is referred to as the WebFOCUS UOA repository.

Create the ibi WebFOCUS UOA Repository

Note:
To override the default tablespace when creating the Oracle UOA repository, follow these steps after the WebFOCUS Client and ReportCaster installations are complete.

Procedure

1. Generate the Oracle DDL file as follows:
   a. Run *install_directory*/utilities/WFReposUtil/WFReposUtilCreateDDL.sh.
      This creates a file called ddl-generation.sql in the *install_directory*/utilities/WFReposUtil directory.
2. Update the ddl-generation.sql file:
   a. For appropriate SQL statements, specify the Oracle tablespace in which the UOA repository tables are to be created and loaded.
3. Using an external tool, load the UOA repository tables to input SQL statements from the updated ddl-generation.sql file.
4. Run /*install_directory*/utilities/WFReposUtil/WFReposUtilLoad.sh to load the required WebFOCUS UOA information into the UOA repository.
5. Verify that the UOA repository tables were created and loaded in the Oracle tablespace specified in the ddl-generation.sql file.

Configuring Web and Application Servers

The WebFOCUS environment will comprise a WebSphere Network Deployment that has a WebSphere cluster with two members. This means that when the WebFOCUS web applications are installed, they must be installed to the WebSphere cluster, not to the individual WebSphere application server instances.

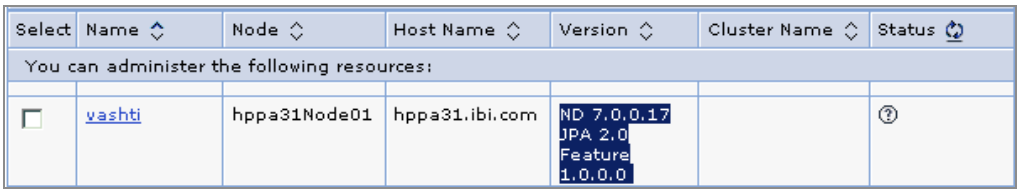
Configure Web and Application Servers

To configure web and application servers:

Procedure

1. Verify that the WebSphere JPA 2.0 Feature Pack is installed from the WebSphere Admin Console for each of the two WebSphere application servers in the WebSphere cluster.

   In the list of application servers, the version for each of the WebSphere application servers to be used for WebFOCUS should reflect that JPA 2.0 is installed, as shown in the following image.



Select	Name	Node	Host Name	Version	Cluster Name	Status
You can administer the following resources:						
☐	vashti	hppa31Node01	hppa31.ibi.com	ND 7.0.0.17 JPA 2.0 Feature 1.0.0.0		?

2. From the WebSphere Admin Console, add the Oracle JDBC driver to the Java Setting of the WebSphere Application Server instance.

   a. Navigate to **Application Servers**, **{Server Instance}**, **Server Infrastructure**, **Java and Process Management**, **Process Definition**, and then **Java Virtual Machine**.

   b. Under **General Properties**, add the fully qualified path to the Oracle JDBC driver to Classpath, as shown in the following image.

3. Install the WebFOCUS web application packaged with WebFOCUS Release 9.3.4 to the WebSphere Network Deployment Cluster Node:

```
/install_directory/webapps/webfocus.war (context root /ibi_apps)
```

4. Generate and propagate the web server plug-in.
5. Start the WebFOCUS web applications and application server.

ibi WebFOCUS Client and ibi WebFOCUS ReportCaster Directory Structures

After installation, the WebFOCUS Client and ReportCaster directory structures are created. The default location for WebFOCUS products is `$HOME/ibi`.

ibi WebFOCUS Client Directories

The following directory is installed in the ibi directory, by default:

apps

Contains applications and data files. By default, this is the APPROOT directory where WebFOCUS looks for application files.

The default location for other directories is in the WebFOCUS93 directory. For example:

```
install_directory/ibi/WebFOCUS93
```

The WebFOCUS93 directory contains the following subdirectories:

application_logs

Contains log files generated from application utilities, such as change management imports or database updates.

backup_files

Upgrades backup the entire existing installation in the following folder:

```
/WebFOCUS93/backup_files/
```

If multiple upgrades are performed, the latest existing backup is renamed, with the current date/time stamp appended to the folder name, for example:

The restore of configuration files and changes to configuration files are performed at the end of the installation upgrade process and information is written to the following log file:

```
WebFOCUS93_<date_time>.log
```

client

Contains configuration files.

cm

Default location for Change Management import and export packages.

config

Contains additional configuration files and files for optional security configurations.

features

Contains templates for new portals and resources related to security configuration.

licenses

Contains licenses for WebFOCUS and third-party software components.

logs

Contains space for log files of system events.

magnify

Contains Magnify product files.

maptiles

Legacy folder that contains local map tiles, which were used when rendering maps using OpenStreetMap® data.

migration_import

Location for migration packages created from an earlier release.

ReportCaster

Contains the ReportCaster Distribution Server directories and files.

samples

Contains sample WebFOCUS API applications and demos.

scm

Specifies the location where files are transferred during source control operations.

Solr

Contains installation files for the Solr engine used by WebFOCUS.

temp

Contains space used during internal processing.

Uninstall_WebFOCUS93

Contains files used by the uninstall program.

utilities

Contains tools for configuration, migration, and other tasks.

webapps

Contains the WebFOCUS and ReportCaster web applications.

ibi WebFOCUS ReportCaster Distribution Server Directories

The default directory for the Distribution Server is:

```
install_directory/ibi/WebFOCUS93/ReportCaster
```

The directory contains the following subdirectories:

bin

Contains application and other executable files.

cfg

Contains configuration and NLS resource files.

lib

Contains ReportCaster libraries.

log

Contains configuration and error messages.

resources

Contains resources.

samples

Contains sample API files.

temp

Contains space for internal processing.

trc

Contains the trace files.

Note: ReportCaster web components are installed with the WebFOCUS Client.

File Permissions for WebFOCUS Client Directories

WebFOCUS sometimes runs as part of your web server and application server. Therefore, the web and application servers require full access to WebFOCUS directories.

If you install the WebFOCUS Client and start your application server using the ID, you may skip this section. If your application server is started using a different ID, you must grant that ID authority to the WebFOCUS folders.

Configure File Permissions for WebFOCUS Client Directories

Procedure

1. Determine which user IDs run web server and application server processes.
    - If you installed using the same ID that runs the web and application server processes, then file permissions should default correctly.
    - If web and application servers run as different user IDs, determine which user IDs run your web and application server processes.
2. Grant those IDs full access to WebFOCUS Client directories and their subdirectories:

```
/install_directory/ibi/apps

/install_directory/ibi/WebFOCUS93
```

    - If WebFOCUS Client directories are owned by a group whose only member is the owner of the files, then add the other IDs to this group and change permissions to 775.
    - If WebFOCUS Client directories are owned by a general group that has many members, change group ownership to a group containing only the necessary IDs and change permissions to 775.

Result

Permissions can be further restricted to 770 for sensitive directories, like config.

Note: Communication between the WebFOCUS Client and the WebFOCUS Reporting Server is through TCP/IP, not the file system. However, if the WebFOCUS Client and the WebFOCUS Reporting Server are installed on the same machine as the same user, they may share the same approot directory, */install_directory*/ibi/apps, by default. If this is the case, both the WebFOCUS Client and WebFOCUS Reporting Server processes require access to this directory.

Uninstalling the ibi WebFOCUS Client

Prior to uninstalling the WebFOCUS Client software, ensure that all related servers are stopped (for example, application server, HTTP server, and ReportCaster). You can use the following options to uninstall the WebFOCUS Client:

- Delete the WebFOCUS*nn* folder from the disk. This is the preferred method for uninstalling the software.
- The uninstall script, Uninstall_WebFOCUS93, located in the usr/ibi/WebFOCUS93/Uninstall_WebFOCUS93/ directory. Note that this process is slower.
- A silent uninstall, using the command line, by adding the option **-i silent** after the uninstall executable file. For example:

```
usr/ibi/WebFOCUS93/Uninstall_WebFOCUS93/Uninstall_WebFOCUS93.sh -i
silent
```

Configuring Web and Application Servers

This chapter explains how to configure your web and/or application server for WebFOCUS.

The following abbreviation is used for the path to the ibi directory where you install WebFOCUS components on your system:

```
/install_directory/
```

Substitute the actual directory on your system when reviewing procedures and examples in this document.

The configuration is not difficult, but there are many options, so be sure to read this chapter carefully. Only subsections will apply to your environment, so you should be careful to determine which sections apply.

Note: The terms web server and HTTP server are used somewhat interchangeably in this section because Apache HTTP Server and IBM HTTP Server are web servers.

Configuration Overview

You have several configuration options for WebFOCUS. This section addresses web server and application server deployment. When using file and folder names that use NLS characters, the application server and the operating system must be configured with the same language encoding.

- **Web Server and Application Server.** (Aliases and web applications). In a standard configuration, you create aliases to traditional static web content in the WebFOCUS ibi/apps directory and deploy a web application on your application server (webfocus.war). This is supported when both a web (HTTP) server and an application server are used for WebFOCUS processing. It is also supported when using an application server like Apache Tomcat that can behave like a web server and serve content outside of web applications.

- **Application Server Only.** (All web applications). In an application server only configuration, you deploy all WebFOCUS content through web applications (WAR files). In this configuration, you deploy approot.war in addition to webfocus.war and you do not create web server aliases.

Configure a Web Server and an Application Server for WebFOCUS

The following is an overview of the steps needed to configure the web or application server for WebFOCUS.

Procedure

1. Ensure application server and web server components are installed and properly functioning. Refer to third-party documentation, if necessary.

   If you do not have an application server, the WebFOCUS Client installation can install and configure Apache Tomcat for you.

2. Configure the application server to support WebFOCUS graphics. To do this, you must either set the DISPLAY variable to an X Windows Server or set the Java VM headless option (-Djava.awt.headless=true).

3. Add the WebFOCUS repository JDBC driver to your application server CLASSPATH.

4. Deploy the WebFOCUS web application on the application server.
   WebFOCUS components are packaged as a J2EE web application. The web application is provided as the following war file:

   ```
   install_directory/ibi/WebFOCUS93/webapps/webfocus.war
   ```

   It is also provided as the following expanded directory:

   ```
   install_directory/ibi/WebFOCUS93/webapps/webfocus
   ```

   You can deploy either the WAR files or expanded directories, depending on your preference and the capabilities of your application server. Be aware that when applying a service pack, any changes made to the web applications must be in the expanded directories to be maintained.

The default deployment parameters for WebFOCUS are:

Context Root/Path	Doc base or location
/ibi_apps	install_directory/ibi/WebFOCUS93/webapps/webfocus.war
/approot	install_directory/ibi/WebFOCUS93/webapps/approot.war

5. Ensure your web server routes requests for the /ibi_apps and /approot web application context roots to the application server.
6. Verify the configuration using the tools in the Administration Console, as explained in ibi WebFOCUS Postinstallation Tasks.

> **Note:** If you are installing multiple instances, completely install and configure a single instance, and then refer to Additional ibi WebFOCUS Repository Topics and Tasks for instructions on configuring the second instance.

Documented Configurations

The following configurations are explained in this chapter:

- IBM WebShpere Application Server with or without IBM HTTP Server, see Configuring IBM WebSphere.
- **Oracle WebLogic 14cOracle WebLogic 12c** with or without Apache HTTP Server, see Configuring Oracle WebLogic.
- **Apache Tomcat** with or without Apache HTTP Server, see Manually Configuring Apache Tomcat With or Without Apache HTTP Server.

For other web and/or application servers, review the information for the servers above and consult your third-party documentation for the corresponding steps.

Note: If you changed the default names for the WebFOCUS context root (/ibi_apps), substitute accordingly.

Configuring Oracle WebLogic

This section describes the pre-requisites and post-requisites for configuring the Oracle WebLogic® Application Server for use with WebFOCUS and ReportCaster. It is assumed that WebLogic components are installed and configured. For additional information, see the WebLogic documentation.

Java Version Requirement

The WebLogic server used to run the WebFOCUS Client must be configured to use a release of Java 11 that is supported by the WebLogic version being used. Consult the WebLogic server documentation for supported Java releases and how to modify your Java version, if required.

Update Java Settings

Consult the WebLogic server documentation for instructions on where to place the updated settings in your environment.

- Java minimum memory settings: –Xms1024m –Xmx1024m
- Classpath: Add the full path and name of the JDBC driver jar files required to access the WebFOCUS Repository database.
- UNIX/Linux graphics: In order to display graphics, your DISPLAY variable must point to an available X Server, or you can set the JAVA variable –Djava.awt.headless=true.
- Temp directory: To avoid potential conflicts, your Java temporary directory should point to a unique location. Create an empty directory on a local filesystem that is writeable to the user that the WebLogic Server is running as, and then set the following Java variable.

```
-Djava.io.tmpdir=/fullpath/yourprivatetmpdir
```

For example, if you are on a Linux system using a standalone WebLogic domain and the startWebLogic.sh script to start it, you could insert the following into the bin/setDomainEnv.sh script beginning on the second line:

```
USER_MEM_ARGS=”-Xms1024m -Xmx1024m”

PRE_CLASSPATH=”/path/ibi/derby/lib/derbyclient.jar”

DISPLAY=yourxserver:0.0

JAVA_OPTIONS=”-Djava.io.tmpdir=/fullpath/yourprivatetmpdir”
```

WebLogic Postinstallation Step

This section describes the pre-requisites and post-requisites for configuring the Oracle WebLogic® Application Server for use with WebFOCUS and ReportCaster. It is assumed that WebLogic components are installed and configured. For additional information, see the WebLogic documentation.

Prior to deploying the webfocus.war web archive to WebLogic, you must perform the following steps.

1. Create a file called weblogic.xml in the ../ibi/WebFOCUS93/webapps/webfocus/WEB-INF directory with the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<wls:weblogic-web-app
xmlns:wls="http://xmlns.oracle.com/weblogic/weblogic-web-app"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/ejb-jar_3_0.xsd
http://xmlns.oracle.com/weblogic/weblogic-web-app
http://xmlns.oracle.com/weblogic/weblogic-web-app/1.4/weblogic-web-app.xsd">
```

```
 <wls:container-descriptor>
```

```
  <wls:prefer-application-packages>
   <wls:package-name>org.apache.commons</wls:package-name>
  </wls:prefer-application-packages>
 </wls:container-descriptor>
</wls:weblogic-web-app>
```

2. Recreate the webfocus.war web archive and call the new archive ibi_apps.war. The following assumes the jar command is in your path and that you want to use /ibi_apps as your WebFOCUS context root:
   a. cd ../ibi/WebFOCUS93/webapps/webfocus
   b. jar cf ../ibi_apps.war .
3. Deploy the ibi_apps.war archive in place of the webfocus.war.

Manually Configuring Apache Tomcat With or Without Apache HTTP Server

Note: If you chose the option for the WebFOCUS installation to install Tomcat, you can skip this section.

This section explains how to install and configure Apache Tomcat, with or without an Apache HTTP web server. There are two configurations available when using Apache Tomcat:

- Tomcat can be used as both a web server and application server where all processing is done by Tomcat. This is referred to as a Tomcat stand-alone configuration.
- Tomcat can be used as an application server for Java processing, while Apache HTTP Server can handle the traditional static web content.

Note: You can also use Tomcat for all WebFOCUS processing and use the HTTP Sever only to forward requests through a firewall. This is the recommended configuration.

This section contains information for installing and configuring Tomcat and setting up the connection between the HTTP and Tomcat Servers. If you are using the HTTP Server, it should already be installed. Apache HTTP Server 2 is recommended, but 1.3 should work.

The following are the steps:

1. If it is not installed, install Tomcat.
2. Set environment variables and create contexts to deploy WebFOCUS web applications, as explained in Preparing Tomcat for WebFOCUS Configuration.
3. If you are using Apache HTTP Server to serve WebFOCUS content, create aliases, as explained in Configuring Apache HTTP Server.
4. If you are using Apache HTTP Server, configure communications between Tomcat and the HTTP Server, as explained in Connecting Apache HTTP and Apache Servers.
5. Verify the configuration, as explained in Verifying the WebFOCUS Configuration With Tomcat and Apache HTTP Server.
6. When Apache Tomcat is configured to use Secure Sockets Layer (SSL), it is recommended for security reasons to allow communication only over the Transport Layer Security (TLS) 1.2 protocol.

   To enable TLS 1.2 only, perform the following:

   a. Edit the `$CATALINA_BASE/conf/server.xml` file.
   b. In the Connector port section, add the following attribute:

      ```
      sslEnabledProtocols="TLSv1.2"
      ```

   c. Save and close the file.
   d. Restart Apache Tomcat.

Preparing Tomcat for WebFOCUS Configuration

To prepare Tomcat for WebFOCUS, you need to choose how to create WebFOCUS graphs and add the ReportCaster JDBC driver.

Configure Tomcat for WebFOCUS Graphs

To generate graphs, WebFOCUS Servlets either need access to an X Server or they can use the Java VM headless option. You can set either by editing the catalina.sh file.

- **DISPLAY.** If an X Windows Server is available, you should set a DISPLAY environment variable.

  Open the following file in a text editor:

  ```
  /tomcat_home/bin/catalina.sh
  ```

  Near the beginning of the file just after the commented section, add the appropriate DISPLAY definition. For example:

  ```
  DISPLAY=xserver_host:0.0

  export DISPLAY

  TERM=xterm

  export TERM
  ```

  where:

  xserver_host

  Is the host name or IP Address of a machine that is running an X server.

  > **Note:** Graphs are not actually displayed on the machine you set to DISPLAY, but WebFOCUS Servlets must access this X Server to generate graphs. After finishing this chapter, be sure to review the tests to verify graphs in Verifying and Troubleshooting Server Side Graphics (PCHOLD).

- **Headless.** If an X Windows Server is not available, you can set the headless Java VM option. However, be aware that headless does not support GIF files or the older WebFOCUS graph engine (GRAPH32). Open the following file in a text editor:

  ```
  /tomcat_home/bin/catalina.sh
  ```

  You can add the headless option by setting the $JAVA_OPTS variable. Near the beginning of the file, just after the commented section, add the following line:

  ```
  export JAVA_OPTS="${JAVA_OPTS} -Djava.awt.headless=true"
  ```

Set the Tomcat CLASSPATH for the WebFOCUS Repository

Before a WebFOCUS application can connect to the WebFOCUS repository, you must first add the location of a JDBC driver to the CLASSPATH in setclasspath.sh.

Procedure

1. Open the following file in a text editor:

   ```
   /tomcat_home/bin/catalina.sh
   ```

2. Find the line that sets CLASSPATH. For example:

   ```
   CLASSPATH=/home/oracle/oracle/ojdbc6.jar
   ```

   Note: If there is more than one jar file, it should be appended, separated by a colon (:).

3. Append a colon (:) followed by the path to the JDBC drivers for your repository. Include any ZIP or JAR files. For example:

   ```
   CLASSPATH="$JAVA_HOME"/lib/tools.jar:/home/oracle/oracle/ojdbc6.jar
   ```

   Note: You must include the full path including the file name. Specifying a directory is not sufficient.

4. Save and close the editor.

Deploying WebFOCUS Applications With Tomcat

Configuring Tomcat mainly requires telling Tomcat where WebFOCUS files are located and the context roots in which to use them. For example, you must tell Tomcat to serve files

from the WebFOCUS web application:

```
/install_directory/ibi/WebFOCUS93/webapps/webfocus
```

When it receives a request for the WebFOCUS context root:

```
http://TomcatHost:tomcatHTTPport/ibi_apps
```

By creating this context, you deploy the WebFOCUS web application.

- When using Tomcat as the application server and Apache HTTP Server as the web server, create only the following context on Tomcat:

  Context (path):`/ibi_apps`

  Directory (DocumentBase):`/install_directory/ibi/WebFOCUS93/webapps/webfocus`

  The approot context is then created as aliases on the HTTP Server. The HTTP Server is then configured to send requests for ibi_apps to Tomcat. However, this assumes the HTTP Server handles some WebFOCUS content directly. If you want the HTTP Server to only forward requests through a firewall, do not create aliases on the HTTP Server, but instead configure Tomcat to handle all WebFOCUS content.

- When using Tomcat as both web and application server, the following contexts must be created:

Context (path)	Directory (DocumentBase)
`/ibi_apps`	`/install_directory/ibi/WebFOCUS93/webapps/webfocus`
`/approot`	`/install_directory/ibi/apps`

  Tomcat can be used as both a web server and application server, so Tomcat can also serve files outside of a web application after it knows their location and context. On a traditional web server, you create aliases. With Tomcat, a traditional web server alias is treated like a context root, even when serving files outside of a web application.

Create Contexts

There are several ways to create contexts:

- You can manually create individual XML files for each web application or context under the /*tomcat_home*/conf/Catalina/localhost directory.
- You can edit the server.xml file to define contexts.
- You can copy webfocus.war to /*tomcat_home*/webapps and then rename it to ibi_apps.war.
- You can use the Tomcat web-based tools.

This procedure explains how to create contexts using the web-based tools. When you create a context for a web application, the web application is deployed.

To create contexts for Tomcat, it is recommended to create or edit XML files in the following directory to define the contexts:

```
/tomcat_home/conf/Catalina/localhost
```

Reloading Web Applications

This is not a consideration if you just installed WebFOCUS for the first time, but you should be aware of it for when you install a service pack or new release. When you upgrade WebFOCUS or install a service pack, Tomcat must use the new web applications rather than cached copies of the old version.

- If you install a service pack in the same location and you had deployed the expanded directories, the new web applications should be used automatically, but you should remove the following work directory and then restart Tomcat.

  ```
  /tomcat_home/work/Catalina/localhost/ibi_apps
  ```

> **Note:** The redirect.war file is available for redirecting custom applications with URLs containing *rcaster* as the ReportCaster context root. If you are planning to deploy this file, you should also remove the following work directory and then restart Tomcat.

```
/tomcat_home/work/Catalina/localhost/rcaster
```

- If you are installing in a different location or you deployed WAR files, you need to completely remove the existing WebFOCUS contexts and then recreate them. To remove contexts, you can use the Tomcat Manager Tool or remove the corresponding files and directories of the context. For example:

```
/tomcat_home/conf/Catalina/localhost/ibi_apps.xml
```

```
/tomcat_home/work/Catalina/localhost/ibi_apps
```

```
/tomcat_home/webapps/ibi_apps
```

> **Note:** When you deploy WAR files, Tomcat expands them into its own directory structure and does not always know the original location.

Configuring Apache HTTP Server

Tomcat can be used with or without Apache HTTP Server.

- If you are using Tomcat without the HTTP Server, you should have created the approot alias as a Tomcat context. If you are not using the HTTP Server, proceed to Manually Configuring Apache Tomcat With or Without Apache HTTP Server.
- If you are using Tomcat with the HTTP Server, you need to create aliases and configure communications between the HTTP Server and Tomcat.

To create aliases, edit the httpd.conf configuration file as explained below making sure to replace *install_directory* with the correct path on your machine. If you changed the default names for the WebFOCUS aliases and context root (/ibi_apps), substitute accordingly.

Modify the Apache httpd.conf File

Procedure

1. Using a text editor, open the `httpd.conf` file located in the `/apache_home/conf` directory.
2. Add the following lines in the Alias section making sure to use the correct *install_directory* on your machine.
   - Point an alias to the apps directory.

     ```
     Alias /approot/ "/install_directory/ibi/apps/"
     ```

   For example:

   ```
   Alias /approot/ "/home/iadmin/ibi/apps/"

   Alias /icons/ "/usr/apache2/icons/"
   ```

3. Save and close the file.
4. Restart the HTTP Server.

Connecting Apache HTTP and Apache Servers

There are many different ways to connect from Apache HTTP Server to Tomcat. This section addresses JK1.2, mod_jk. If you wish to use another approach, such as ProxyPass or JK2, refer to Apache and Tomcat documentation.

The following files are needed for Apache to connect to Tomcat when using JK1.2:

mod_jk.so

Provides binary instructions for Apache to connect to Tomcat. See Download or Build the mod_jk.so File.

workers.properties

Provides configuration information needed by the mod_jk.so binary. See Create the mod_jk.conf File.

mod_jk.conf

Tells Apache to load the mod_jk.so binary and use settings in the workers.properties file. See Create the workers.properties File.

httpd.conf

Tells Apache to Include mod_jk.conf. See Edit httpd.conf to Use JK1.2.

Additional documentation on using the JK1.2 connector is available at:

```
http://tomcat.apache.org/connectors-doc/index.html
```

Download or Build the mod_jk.so File

The mod_jk.so binary must be compiled specifically for your platform and Apache HTTP Server release (1.3 or 2.0).

Binaries and source code can be downloaded from:

```
http://jakarta.apache.org/tomcat/connectors-doc/index.html
```

Procedure

1. Test the WebFOCUS web application by going to the following URL in a browser:

   ```
   http://TomcatHost:TomcatHTTPport/ibi_apps/diagnostics/about.jsp
   ```

   A page should appear displaying information about the current build. For example:

   ```
   Version:WEB93
   ```

   If the page fails to load, restart Tomcat, and ensure it can compile JSP files. In some environments, the first time a JSP file is compiled you might receive an error.

2. If you are using Tomcat as both web and application server, proceed to Verifying the WebFOCUS Configuration With Tomcat and Apache HTTP Server.

Result

The binaries you download will have a long name indicating the platform and Apache release. You should rename this file to `mod_jk.so`.

If a binary is not available for your platform, you can download the source code and compile it. If you do an online search, you should be able to find information on compiling `mod_jk.so`. The compiled file may have a different name, such as `libmod_jk.so`.

The mod_jk.so file should be placed on your system in a directory to which the HTTP Server has at least read permissions.

Create the workers.properties File

Procedure

1. If the file does not exist, create the following file in a directory to which Apache HTTP Server has at least read permissions:

   ```
   workers.properties
   ```

   For example:

   ```
   /apache_home/conf/tomcat/workers.properties
   ```

2. Open the file in a text editor to edit or add the following text to the file, replacing text in italics with absolute paths:

   ```
   workers.tomcat_home=tomcat_home

   workers.java_home=java_homeps=/

   worker.list=ajp13

   worker.ajp13.port=8009

   worker.ajp13.host=localhost

   worker.ajp13.type=ajp13
   ```

   where:

tomcat_home

Is the installation directory for Apache Tomcat. Use an absolute path.

java_home

Is the installation directory for the Java JDK. Use an absolute path.

8009

Is the Ajp13 port defined in server.xml. 8009 is the default, but if you changed this, provide the new value.

Create the mod_jk.conf File

Procedure

1. If the file does not exist, create the following file in a directory to which Apache HTTP Server has read access:

   ```
   mod_jk.conf
   ```

   For example:

   ```
   /apache_home/conf/tomcat/mod_jk.conf
   ```

2. Open the file using a text editor to edit or add the following text to the file, replacing the instances of /*PATH_TO*/ with absolute paths to the file in question:

   ```
   <IfModule !mod_jk.c>

     LoadModule jk_module /PATH_TO/mod_jk.so

   </IfModule>

   JkWorkersFile "/PATH_TO/workers.properties"

   JkLogFile "/PATH_TO/tomcatjk1.2/mod_jk.log"

   JkLogLevel emerg
   ```

```
JkMount /ibi_apps ajp13

JkMount /ibi_apps/* ajp13
```

Note: If you changed the default context roots, substitute accordingly.

Edit httpd.conf to Use JK1.2

Procedure

1. Using a text editor, open the httpd.conf file located in the */apache_home*/conf directory.
2. Add the following line to the end of the file specifying where the mod_jk.conf file is located on your system:

```
Include /PATH_TO/mod_jk.conf
```

Verifying the WebFOCUS Configuration With Tomcat and Apache HTTP Server

After finishing the configuration, run test calls to verify operability.

Verify the WebFOCUS Configuration

Procedure

1. If they are not started, start the following:
   - Apache Tomcat

- WebFOCUS Reporting Server

2. Enter the following URL in your browser:

```
http://hostname:port/ibi_apps
```

where:

hostname:port

Are the host name and port of the web server. However, if you use an application server only configuration, then these are the host name and HTTP port of the application server. If you require SSL, use https instead of http.

The WebFOCUS Sign in page opens.

3. Sign in as an administrator. The default user name and password are *admin* and *admin*.

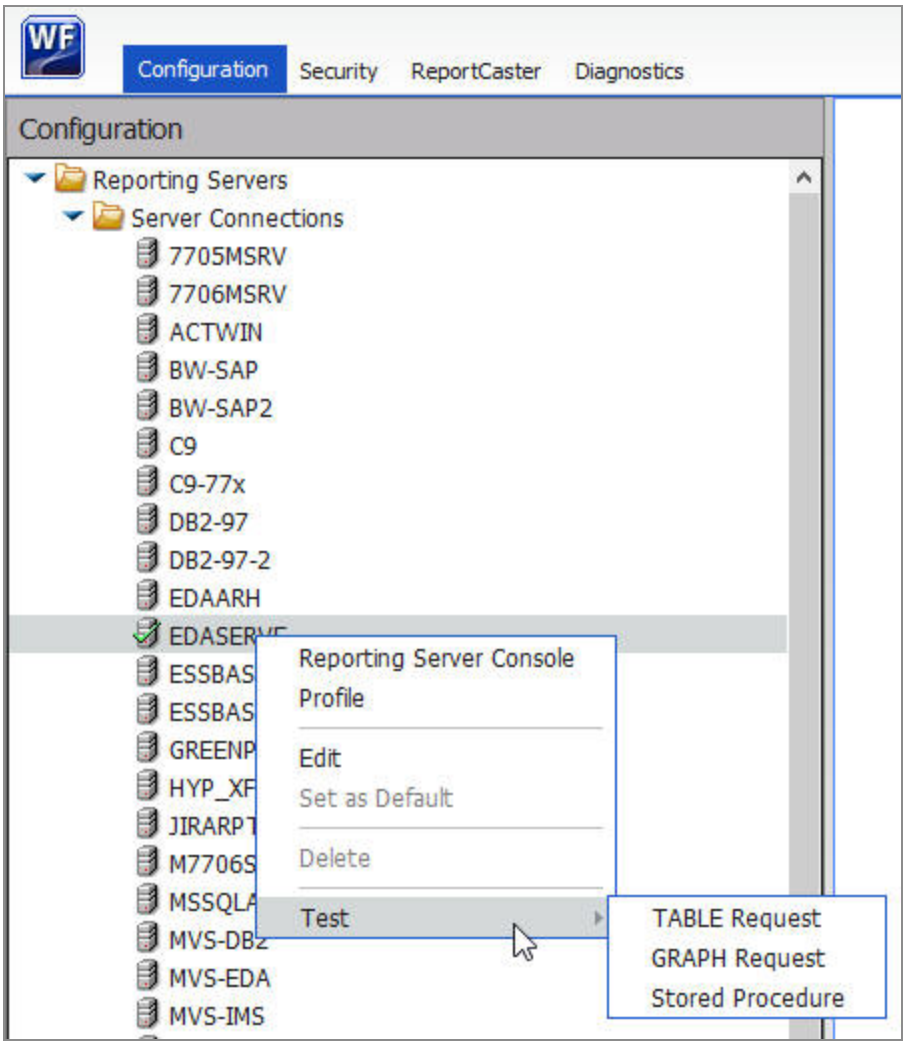
The Hub opens in your web browser.

4. On the Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.

The WebFOCUS Administration Console opens.

5. Select the **Configuration** tab, expand **Reporting Servers**, and then expand **Server Connections**.

6. Right-click a node, select **Test**, and then select **TABLE Request**, **GRAPH Request**, or **Stored Procedure**, as shown in the following image.



7. Click **Run** to run the test procedure.

   A procedure is normally opened using the WebFOCUS Servlet and a sample report should display. You can manually use a servlet to run a procedure, such as carinst.fex, using:

   ```
   http://host:[port]/ibi_apps/WFServlet?IBIF_ex=carinst
   ```

8. If you are using Tomcat stand-alone, proceed to Postinstallation Verification and Configuration.

Postinstallation Verification and Configuration

This chapter explains verification and common configuration procedures.

ibi WebFOCUS Postinstallation Tasks

This chapter explains verification and common configuration procedures for the WebFOCUS Client.

ibi WebFOCUS Client Verification and Configuration

To configure the WebFOCUS Client, edit files either through a text editor or the WebFOCUS Administration Console. The WebFOCUS Administration Console also provides tools to verify the installation.

For NLS configuration information, see the *ibi™ WebFOCUS® Security and Administration* manual.

Accessing the ibi WebFOCUS Hub

You can access WebFOCUS interfaces, such as the WebFOCUS Administration Console from the WebFOCUS Hub.

Procedure

1. Ensure that the web or application servers are started and configured.
2. Using a browser, navigate to the following page:

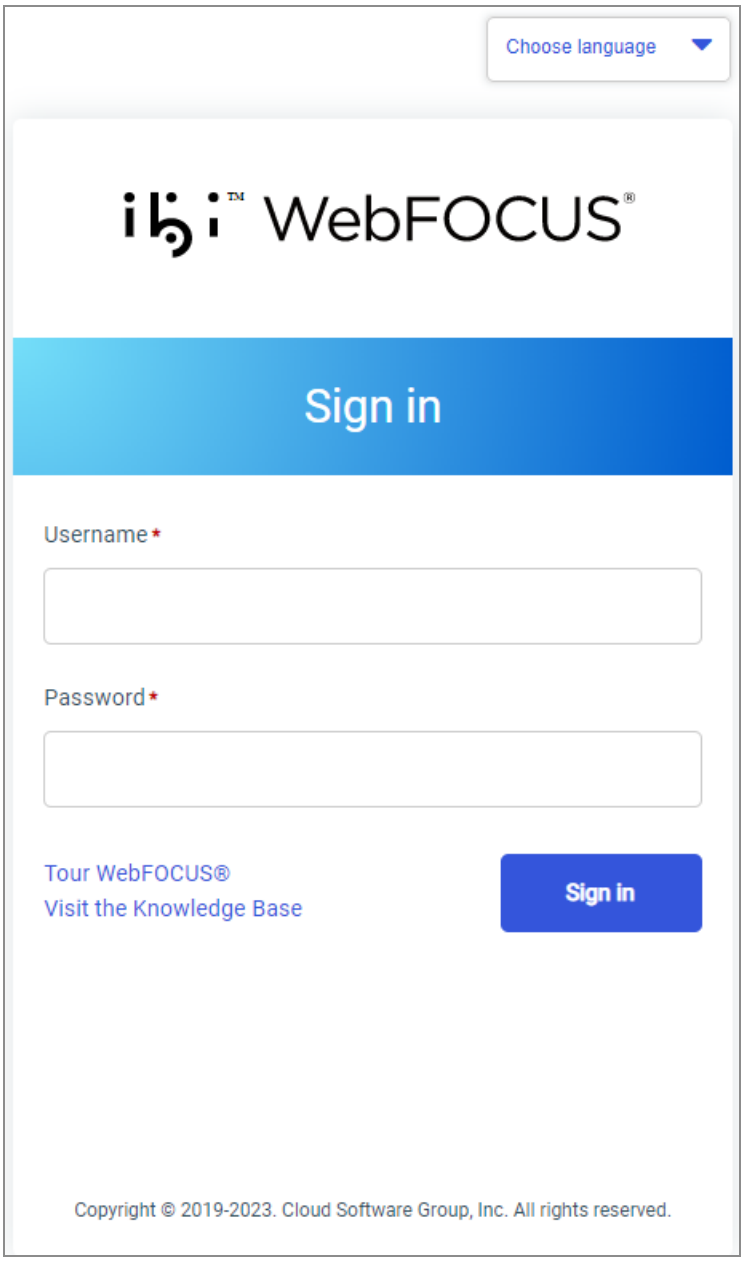
```
http://hostname:port/ibi_apps/
```

where:

hostname:port

Are the host name and HTTP port of the web server or application server. If you require SSL, use *https* instead of *http*.

The Sign in page opens, as shown in the following image.



Note: If you receive a *page not found* error, ensure that your application server is started and that you have deployed the WebFOCUS application. For more information on configuring your application server, see Installing the ibi WebFOCUS Client.

3. Enter the following default credentials:

- User Name: *admin*
- Password: *admin*

> **Note:** If you receive an *invalid user name or password* error, ensure that the WebFOCUS repository has been created and contains initial table data.

4. Click **Sign in**.

   The WebFOCUS Hub opens in your web browser.

   You can change the default credentials using the Security Center facility. On the WebFOCUS Hub, from the side navigation pane, select **Management Center** and then **Security Center**. For more information, see the *ibi™ WebFOCUS® Security and Administration* manual.

Accessing the ibi WebFOCUS Administration Console

You can access the WebFOCUS Administration Console from the WebFOCUS Hub, or directly from the browser by supplying its URL.

Access the ibi WebFOCUS Administration Console

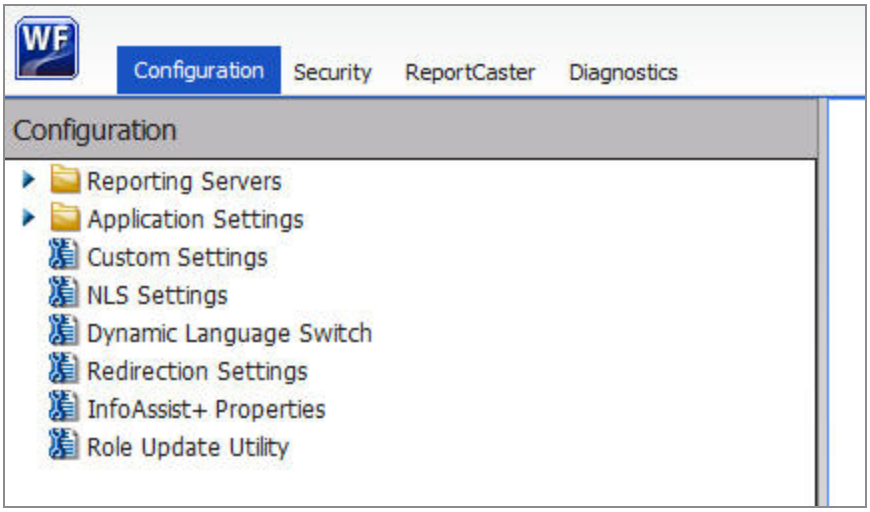
Procedure

1. Ensure that the web server and application server are started and configured.
2. Sign in to WebFOCUS using an administrator user ID. By default, *admin* is a valid administrator ID, and the password is *admin*.

   The WebFOCUS Hub opens in your web browser.
3. On the WebFOCUS Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.

4. After you have verified the WebFOCUS Client configuration, change the password of the default administrator user ID, which is *admin*. For more information on WebFOCUS Client security, see the *ibi™ WebFOCUS® Security and Administration* manual.

   The WebFOCUS Administration Console opens, as shown in the following image.



Result

Using this console, you can edit the WebFOCUS Client communication and security settings. This console is documented in the *ibi™ WebFOCUS® Security and Administration* manual and relevant sections are available by clicking **Help**.

Running the Verification Tool

The WebFOCUS Administration Console contains a verification tool to further test the configuration.

Procedure

1. Select the **Diagnostics** tab.
2. Click **Client Verification.**
3. Review the test results and troubleshoot accordingly.

   For troubleshooting assistance, see Troubleshooting ibi WebFOCUS and ReportCaster.

Setting ibi WebFOCUS Administration Console Authentication

It is a good idea to set authentication for the WebFOCUS Administration Console. The WebFOCUS Administration Console does not have its own authentication mechanism and by default, none is used.

If you wish to set authentication for the console, you can choose to do this through the WebFOCUS Reporting Server or the web server. For more information, see the *ibi™ WebFOCUS® Security and Administration* manual.

Defining Communications to ibi WebFOCUS Reporting Servers

WebFOCUS Client communication settings are stored in the following file:

```
/install_directory/ibi/WebFOCUS93/client/wfc/etc/odin.cfg
```

This file contains node blocks defining WebFOCUS Reporting Servers that the client accesses. A node block is a set of parameters that define a server, listener, or other communication component.

When you installed the WebFOCUS Client, you specified a default WebFOCUS Reporting Server that the client accesses.

To change connection information for the default server or define additional servers, use the procedures that follow.

Define ibi WebFOCUS Reporting Servers

Procedure

1. On the left pane of the WebFOCUS Administration Console, expand **Reporting Servers**.

2. Expand **Server Connections**.

   The left pane displays all defined WebFOCUS Reporting Servers. To edit parameters of a defined WebFOCUS Reporting Server, right-click the node and select **Edit**.

3. To define an additional node, right-click **Server Connections** and select **New**.

4. Enter a unique name for the new node. Use this name when you wish to access the server.

   This page lets you choose to define a single server (**Client**), **Cluster Manager Processing**, or a **Cluster** node. A cluster node is a node that consists of multiple servers. When the client accesses the cluster, it chooses one of the servers in that cluster. This is used for load balancing and failover. The best way to use clusters is through the Cluster Manager component that you can optionally add to your WebFOCUS environment.

5. Click **Next**.

6. Complete the HOST and PORT fields.

   The remaining fields are optional in most environments.

   > **Note:** Setting the User ID and Password here is not recommended and may not have the desired result.

7. Click **Save**.

8. On the top of the page, click **Clear Cache** so your changes take effect.

Set the Default ibi WebFOCUS Reporting Server

When you make a connection from client to server without specifying a server, the default server is used. The default server and many other settings are set in the following file:

```
/install_directory/ibi/WebFOCUS93/client/wfc/etc/cgivars.wfs
```

Procedure

1. From the Administration Console, select the **Configuration** tab, expand **Reporting Servers**, and then expand **Server Connections**.

2. Right-click the node name and select **Set as Default**.
3. On the Administration Console menu bar, click **Clear Cache**.

Setting Tomcat HTTP POST Maximum Size

As a default, Apache Tomcat sets the maximum size limit to 2097152 (2MB) for accepting HTTP POST requests. Since EXL07 MIME files can easily reach this limit, ExcelServlet will fail with an HTTP 400 error or produce a corrupted .XLSX file. To fix this problem, Tomcat needs to be configured by setting an attribute in the server.xml file.

In the */tomcat_home*/conf/server.xml file, confirm or add the maxPostSize attribute and set it to -1 to remove the limit check. The following example demonstrates this with the <Connector port> element block:

```
<Connector port="8080" protocol="HTTP/1.1"

connectionTimeout="20000"

redirectPort="8443" maxPostSize="-1" />
```

Verifying and Troubleshooting Server Side Graphics (PCHOLD)

This section explains how to verify and troubleshoot the most common type of graphs. By default, WebFOCUS graphs are generated through the web or application server using a Java-based graph engine installed with the WebFOCUS Client. This is known as Server Side Graphics or PCHOLD. Using this approach, a complete graph file is created on the web or application server and then sent to a browser.

For the graph engine to create Server Side Graphics, you must configure your application server, as explained in Configuring Web and Application Servers. To do this, you either set the DISPLAY environment variable or use the headless Java VM option:

- **DISPLAY**

If an X Windows Server is available, set a DISPLAY variable to the X Windows Server and ensure the X Server accepts the connection. This supports all WebFOCUS graph options. For more information, see Use Server Side Graphics by Settings DISPLAY.

- **Headless Java VM Option** - GIF files are not supported.

  See Use Server Side Graphics With the Headless Java Option for more information.

Use Server Side Graphics by Settings DISPLAY

The DISPLAY variable of your application server must be set to an X Server. See Configuring Web and Application Servers for information on setting DISPLAY. This can be set in the .profile of the user ID that runs the application server or the application server startup script.

For example:

```
export DISPLAY=xserverHostname:0.0

export TERM=xterm
```

If your UNIX machine does not have an X Server, you can install an X Server on a Windows machine and set DISPLAY to that Windows machine.

In addition, the X Server must accept requests from the web and/or application server. On some UNIX platforms, the X Server is set by default to refuse connections, even when DISPLAY is set to localhost:0. On these machines, one solution is to sign in to the physical machine and start an X session. Then, open a shell and use the xhost command to specify hosts that will connect to the X Server. For example:

```
xhost +localhost
```

Result

The xhost command is installed with your X Windows environment and may not be in your PATH, by default. After issuing the xhost command, leave this user logged on so that an X session remains running. To protect the machine, lock the display instead of logging off. If a different user needs to sign in to the physical machine or the machine is rebooted, the xhost command should be reissued on sign in and an X session left running.

Use Server Side Graphics With the Headless Java Option

If an X Server is not available, the headless option can be set. This is a Java VM option and not a WebFOCUS specific feature. It is set at the application server level:

```
-Djava.awt.headless=true
```

Review your application server documentation and see Configuring Web and Application Servers. After setting Java options, completely restart your application server.

Note: If you change the default WebFOCUS Graph settings to use SSG_EXTERNAL=YES, then it should also be set through the WebFOCUS Administration Console under **Configuration** and **Graph** in the **IBIJAVACMD** field.

Configuring a Reverse Proxy for Apache Tomcat

If you are planning to use a reverse proxy configuration with an Apache Tomcat application server, you must configure a setting in the server.xml file to ensure that all URL calls use the address of the web-facing proxy server as opposed to the internal server.

Modify the Apache Tomcat Server.xml File

To modify the server.xml file:

Procedure

1. Navigate to the following directory:

   ```
   /tomcat_home/conf
   ```

   where:

tomcat_home

Is the location on your system where Apache Tomcat is installed.

2. Edit the server.xml file.
3. Search for the Coyote/JK2 AJP 1.3 connector block.
4. Add the proxyName and proxyPort parameters, as shown in the following example:

```
<!-- Define a Coyote/JK2 AJP 1.3 Connector on port 8009 -->

<Connector port="8009" enableLookups="false" redirectPort="8443"

    debug="0" protocol="AJP/1.3" proxyName="WEB-FACING PROXY_
SERVER"

    proxyPort="WEB FACING PROXY_PORT"/>
```

5. For the proxyName parameter value, specify the host name of the web-facing proxy server.
6. For the proxyPort parameter value, specify the port number of the web-facing proxy server.
7. Save the changes to the server.xml file.
8. Restart the Apache Tomcat application server.

ibi WebFOCUS Repository Postinstallation Tasks

This section explains how to create the WebFOCUS Repository and verify the WebFOCUS Client configuration.

For NLS configuration information, review this section and consult the *ibi™ WebFOCUS® Security and Administration* manual.

ibi WebFOCUS Repository Table Creation

This section explains how to create the WebFOCUS Repository.

The table creation utility creates or drops and creates all Repository tables. To drop and re-create only specific table groups, you can use utilities available with your database software. This is useful if you wish to remove all library data, but keep your schedules and address books.

Create the ibi WebFOCUS Repository Tables

To create the Repository tables:

Procedure

1. Ensure that the database server is available and/or started.
2. From the UNIX shell, navigate to the following WebFOCUS Utilities directory:

   ```
   install_directory/ibi/WebFOCUS93/utilities/WFReposUtil
   ```

3. Run the following command:

   ```
   WFReposUtilCMDLine.sh
   ```

   The following prompt displays:

   ```
   Please select mode option for WFReposUtil:

   1\) create            - create non-existing tables

   2\) create_or_extend  - create tables or add missing columns to
   tables

   3\) insert            - insert data into tables

   4\) create_insert     - combo of above

   5\) update            - update table data

   6\) drop              - drop tables

   7\) extract           - export database data to xml files

   8\) create_ddl        - generate SQL scripts but not execute them
   ```

```
Q\) Quit

    Enter selection [default=4] :
```

4. If this is a new installation and you need to create a new WebFOCUS Repository, press Enter to use the default option, 4 create_insert.

   This option will create tables and load initial values into the WebFOCUS Repository, which are required to begin using the product.

5. If you typed option 3, insert, or option 4, create_insert:

   a. When you receive a prompt to enter the Database Repository Username, type the name of a valid user that has permission to create and alter tables in your Database Repository, and then press Enter.

   b. When you receive a prompt to enter the Database Repository Password, type the Password associated with the valid Database Repository user that you typed in sub-step a, and then press Enter.

      These values give the utility the authority to open the Database Repository and run the insert or create insert commands.

   c. When you receive a prompt to enter the WebFOCUS Administrator ID, type a new User ID, and then press Enter.

   d. When you receive a prompt to enter a Password for the ID entered, type a new Password, and then press Enter.

      These values become the new WebFOCUS Administrator User ID and Password. Be sure to type a User Name and Password that you can refer to in future operations.

      > **Note:** The special characters " and $ are not permitted in the WebFOCUS Administrator User ID and Password during the create process.

6. If you typed any other option:

   a. When you receive a prompt to enter the Database Repository Username, type the name of a valid Database Repository user that has permission to create and

alter tables in your database, and then press Enter.

b. When you receive a prompt to enter the Database Repository Password, type the Password associated with the valid Database Repository user that you typed in sub-step a, and then press Enter.

These values give the utility the authority to open the Database Repository and run the command you selected in step 3. Therefore, the User ID you type must have permission to create and alter tables in your database.

7. You are prompted to choose a logging level for the utility.

```
Please select logging level option for WFReposUtil:

1) off

2) severe

3) warning

4) info

5) config

6) fine

7) finer

8) finest

Q) To Quit
```

If selected, the log file named WFReposUtilCmdLine.log will be created in the following directory:

```
/install_directory/ibi/WebFOCUS93/application_logs
```

This utility uses the connection and sign-in information provided during the installation of WebFOCUS.

8. If you receive a message listing an error and stating that the creation of the WebFOCUS Repository failed, open the WFReposUtilCMDLine.log file and review the log to identify the specific error messages that occurred at the time the utility terminated.

Error messages can be generated by connection failures, the presentation of invalid database credentials, or failed attempts to connect to an inaccessible database.

9. If you receive a message stating that the creation of the WebFOCUS Repository completed successfully, you can type **Exit** to close the UNIX shell.

Note:

- If the utility cannot connect to the database, ensure that the proper path to the JDBC driver appears in the following CLASSPATH value:

  ```
  /install_directory/ibi/WebFOCUS93/ReportCaster/bin/classpath
  ```

- If the WebFOCUS installation program installed and configured Derby, this driver may be located as follows:

  ```
  /install_directory/ibi/derby/lib/derbyclient.jar
  ```

  If you are using a Db2 Repository, then an appropriate driver may be located as follows:

  ```
  /QIBM/ProdData/HTTP/Public/jt400/lib/jt400.jar
  ```

  Consult your database documentation for additional information.

- If you can connect to the database, but cannot create tables, ensure that the ID you typed for the database during the WebFOCUS installation has create permissions. You can change this User ID, as explained in Postinstallation Verification and Configuration.

WebFOCUS® ReportCaster Postinstallation Tasks

This section explains ReportCaster postinstallation tasks.

ibi WebFOCUS ReportCaster Verification

After the repository is created, you should test the WebFOCUS Client and the ReportCaster configuration.

If you have problems with the verification, see Troubleshooting ibi WebFOCUS and ReportCaster.

Make sure you have carried out the procedures in the preceding chapters before starting the Distribution Server.

Before starting or testing the Distribution Server, the components it communicates with must be started. These include the following:

- Web server
- Application server where the WebFOCUS web application is deployed
- WebFOCUS Reporting Server
- Database Server containing WebFOCUS Repository tables
- Mail Server
- FTP Server (if using FTP)

Testing the ibi WebFOCUS Client

This section describes how to test the WebFOCUS Client.

Procedure

1. Ensure the web and application servers are started and configured.
2. Go to the following page using a browser:

   ```
   http://hostname:host/ibi_apps/
   ```

   where:

   hostname:host

   Are the host name and HTTP port of the web server or application server. If you require SSL, use *https* instead of *http*.

   The WebFOCUS Sign in page opens.

   Note: If you receive a *page not found* error, ensure that your application server is started and that you have deployed the WebFOCUS application. For more information on configuring your application server, see Installing the ibi WebFOCUS Client.

3. Enter the following default credentials:
   - User Name: *admin*
   - Password: *admin*

   Note: If you receive an *invalid user name or password* error, ensure that the WebFOCUS repository has been created and contains initial table data.

4. Click **Sign in**.

   The WebFOCUS Hub opens.

   You can change the default credentials using the Security Center facility. On the WebFOCUS Hub, from the side navigation pane, select **Management Center** and then **Security Center**. For more information, see the *ibi™ WebFOCUS® Security and Administration* manual.

Starting and Stopping the ibi WebFOCUS ReportCaster Distribution Server

This section describes how to start and stop the ReportCaster Distribution Server.

Start the Distribution Server From the OMVS Shell

To start the Distribution Server, use the following procedure:

There are two ways to start the Distribution Server. One way is to use the OMVS shell. The other is to start the server as a batch job. To start the Distribution Server using the OMVS shell, perform the following steps:

Procedure

1. From QSH, navigate Navigate to the following directory:

   ```
   /install_directory/ibi/WebFOCUS93/ReportCaster/bin
   ```

2. Type the following command and press Enter:

   ```
   ./schbkr &
   ```

   ```
   sh./schbkr &
   ```

   When the Distribution Server starts, you receive output similar to the following, depending on which components you installed:

   ```
   Console is listening on port: 8200

   Reader ready

   Dispatcher ready
   ```

```
Console ready
```

When the Console ready line appears, the Distribution Server is started.

> **Note:** The Distribution Server will start in Console mode if it cannot connect to the repository, or if your repository is for an earlier release. ReportCaster must use a valid Release 9.3.4 Repository.

3. Proceed to Confirm the Distribution Server is Started.

Stop the Distribution Server From the OMVS Shell

To stop the Distribution Server, do the following:

There are two ways to stop the Distribution Server. One way is to use the OMVS shell. The other is to stop the server as a batch job. To stop the Distribution Server using the OMVS shell, do the following:

Procedure

1. Navigate to the following directory:

```
/install_directory/ibi/WebFOCUS93/ReportCaster/bin
```

2. Type the following command and press Enter:

```
./stopit
```

```
sh./stopit
```

3. Wait a few minutes. It may take some time for the Distribution Server to stop.
4. Wait a few minutes. It may take some time for the Distribution Server to stop. Then, issue the following to confirm the Distribution Server has stopped:

```
netstat -a | grep 8200
```

where:

8200

Is the port for the Distribution Server.

If you receive a response that says LISTEN:

```
tcp        0      0 *:8200        *:*             LISTEN
```

Then the Distribution Server has not yet stopped. Wait a few minutes and try again. If it still has not stopped, you can manually stop the process. To do this, sign in as root and issue the following command:

```
netstat -nlp | grep 8200
```

Then, stop the process that appears at the end of the line.

Start the Distribution Server for Production

When running the Distribution Server in production, you should start it using the nohup command. This ensures that the Distribution Server remains running if you close telnet or SSH sessions. To do this:

Procedure

1. Navigate to the following directory:

   ```
   /install_directory/ibi/WebFOCUS93/ReportCaster/bin
   ```

2. Type the following command and press Enter:

   ```
   nohup ./schbkr &
   ```

   Output is written to a nohup.out file.

Verifying ibi WebFOCUS WebFOCUS ReportCaster

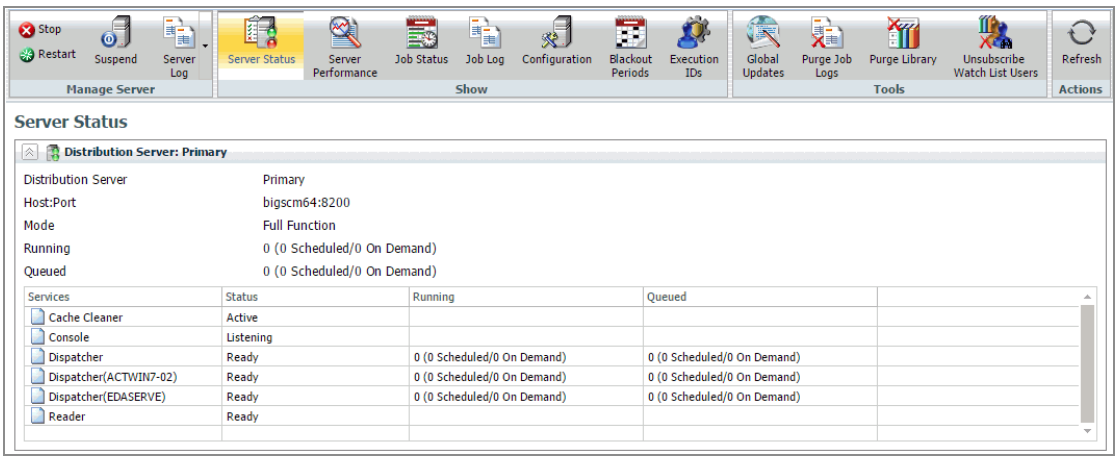
After the WebFOCUS ReportCaster Distribution Server is started, test the WebFOCUS ReportCaster configuration by accessing WebFOCUS ReportCaster interfaces.

Verify ibi WebFOCUS WebFOCUS ReportCaster Distribution Server Startup

Procedure

1. Start the WebFOCUS ReportCaster Distribution Server and all related components, if they are not started.
2. On the WebFOCUS Hub, select **Main Menu** on the banner, and then under Quick Access, select **ReportCaster Status**.

   The ReportCaster Console opens, as shown in the following image.



3. Verify that the Distribution Server is started on the host and port specified in your configuration.

Importing and Exporting the ReportCaster Configuration File

It is important to note that if you are installing a later version of WebFOCUS, but intend to use an existing repository from any earlier version of WebFOCUS, you may need to run the following utilities in order to update the dserver.xml, rc_preference.xml, and sendmodes.xml files:

- exportcfg and importcfg
- exportrcpref and importrcpref
- exportsndmode and importsndmode

> **Note:** Each utility will create a **utility_name**.log file in the ...ibi/WebFOCUS93/ReportCaster/log directory, where **utility_name** is the name of the utility.

dserver.xml

The ReportCaster configuration file (dserver.xml) is placed in a WebFOCUS repository table during installation. Changes to this file can be made using the ReportCaster Configuration tool and the WebFOCUS Administration Console. You can export the dserver.xml file from the WebFOCUS repository to your file system or import the dserver.xml file from your file system to the WebFOCUS repository.

To export the dserver.xml file to your file system, run the **exportcfg** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

The dserver.xml file will be exported to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

To import the dserver.xml file from your file system, copy the dserver.xml file to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

Run the **importcfg** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

rc_preference.xml

The ReportCaster user interface control file (rc_preference.xml) is placed in a WebFOCUS repository table during installation. You can export the rc_preference.xml file from the WebFOCUS repository to your file system or import the rc_preference.xml file from your file system to the WebFOCUS repository.

To export the rc_preference.xml file to your file system, run the **exportrcpref** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

The rc_preference.xml file will be exported to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

To import the rc_preference.xml file from your file system, copy the rc_preference.xml file to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

Run the **importrcpref** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

sendmodes.xml

The file that contains the list of ReportCaster formats and mime types (sendmodes.xml) is placed in a WebFOCUS repository table during installation. You can export the sendmodes.xml file from the WebFOCUS repository to your file system or import the sendmodes.xml file from your file system to the WebFOCUS repository.

To export the sendmodes.xml file to your file system, run the **exportsendmode** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

The sendmodes.xml file will be exported to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

To import the sendmodes.xml file from your file system, copy the sendmodes.xml file to the following directory:

```
ibi/WebFOCUS93/ReportCaster/cfg
```

Run the **importsendmode** utility, which is located in the following directory:

```
ibi/WebFOCUS93/ReportCaster/bin
```

ibi WebFOCUS WebFOCUS ReportCaster Configuration

WebFOCUS ReportCaster configuration parameters are managed within the WebFOCUS ReportCasterConsole Configuration tab. For additional WebFOCUS ReportCaster configuration information, see the *ibi™ WebFOCUS® ReportCaster Guide*.

Configuring the Memory Available for the ibi WebFOCUS WebFOCUS ReportCaster Log Report

The size of the WebFOCUS ReportCaster log report is limited by the amount of memory available to the Java VM. When the memory of the Java VM is exceeded, a Java `OutOfMemoryException` error occurs.

To control the size of the log report, you can set the following WebFOCUS ReportCaster Server Configuration tool parameters:

- In the Distribution Servers folder, `Max Messages per Task from Data Server` limits

the number of messages written to the log file. The default value is 1000.

- In the Log Settings folder, the `Log Purge Period` designates the number of days in which the logs are purged. The default value is every 30 days.

Configuring the Heap Size for the ibi WebFOCUS WebFOCUS ReportCaster Distribution Server

If the WebFOCUS ReportCaster Distribution Server experiences a Java out of memory error, increase the amount of memory (heap size) available to Java on the Distribution Server. This is done by passing parameters on the Java command line, as follows:

```
java -Xms<initial heap size> -Xmx<maximum heap size>
```

For example,

```
java -Xms1024m -Xmx2048m
```

Restart the Distribution Server to enable this change.

Configuring the Heap Size for the ibi WebFOCUS WebFOCUS ReportCaster Distribution Server

If the WebFOCUS ReportCaster Distribution Server experiences a Java out of memory error, you must increase the amount of memory (heap size) available to Java on the Distribution Server. This is done by passing parameters on the Java command line in your WebFOCUS ReportCaster startup script located at:

```
/install-dir/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/schbkr
```

Include the following text on the Java command line:

```
-DXms256m -DXmx512m
```

Configuring ibi WebFOCUS WebFOCUS ReportCaster Failover and Workload Distribution

You can use the Distribution Server Failover feature to configure a back-up Distribution Server that can resume WebFOCUS ReportCaster operations when there is an interruption (planned or unplanned) in the primary Distribution Server service. The primary Distribution Server is monitored to verify that it is operational. If there is an interruption in service, the failover Distribution Server is triggered to take over the role of the primary server.

The Workload Distribution feature allows WebFOCUS ReportCaster to distribute scheduled jobs across multiple Distribution Servers, providing an efficient and fast way to process large numbers of WebFOCUS ReportCaster schedules. Multiple Distribution Servers can be installed on one or more hosts. One instance is designated as the Workload Manager, while the others are designated as Workers. The WebFOCUS Repository is shared by the Workload Manager and the Workers. Workload Distribution is set up through the WebFOCUS ReportCaster Configuration tool. All servers share one set of configuration information, and the Workload Manager pushes any configuration changes to the Workers.

For your WebFOCUS ReportCaster application, you can configure either Failover or Workload Distribution, or both at the same time. The following procedure includes instructions to configure both, but notes when to skip to the appropriate steps if you are only configuring one or the other.

Configure Distribution Server Failover

To configure distribution server failover:

Procedure

1. Open the WebFOCUS ReportCaster Console and click **Configuration** in the top pane.
2. Click the **Distribution Servers** folder in the left pane.

3. Click the button to the right of the **Secondary Distribution Server** field.

   The Secondary Distribution Server dialog opens.

4. Select the **Enabled** checkbox.
5. Enter the host name and port number of the Secondary server.
6. Click **OK**.
7. Click **Save** and then **OK** when you are prompted to save.
8. Install the Distribution Server on the specified host with the specified port number for that host.

Configure Workload Distribution

To configure workload distribution:

Procedure

1. Open the WebFOCUS ReportCaster Console and click **Configuration** in the top pane.
2. Click the **Distribution Servers** folder in the left pane.
3. Click the button to the right of the **Workload Distribution** field.

   The Workload Distribution dialog opens.

4. Select the **Enabled** check box.
5. Click **Add**.
6. Double-click the **Worker Name**, **Worker Distribution Server Host**, and **Worker Distribution Server Port** fields to add the new Worker Distribution Server.

   Repeat this step for each Worker Distribution Server instance that you want to add.

7. Click **OK**.
8. Click **Save** and then **OK** when you are prompted to save.
9. Install the Distribution Server on each of the specified hosts with the specified port number for that host.

Adding Support for UTF-8 to the Distribution Server

Support for UTF-8 can be added to the Distribution Server by adding –Dfile.encoding=UTF8 to the Distribution Server Java command. If the Distribution Server is being run from the command line, modify the schbkr script file and add –Dfile.encoding=UTF8 to the Java command.

```
\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software
Foundation\Procrun 2.0\WF93\Parameters\Java
```

Configuration Considerations When the Distribution Server is Installed Separately From the ibi WebFOCUS Client

When the WebFOCUS ReportCaster Distribution Server is installed as a stand-alone server, on a machine that is separate from the WebFOCUS Client, you must perform additional manual steps to ensure that configuration changes made through the WebFOCUS Administration Console are available to WebFOCUS ReportCaster. This is because the stand-alone Distribution Server does not have access to the WebFOCUS configuration files being updated by the console. This is especially important when configuring external security for WebFOCUS, since your WebFOCUS ReportCaster jobs may not run properly if the Distribution Server is not using the same security settings as the WebFOCUS Client.

The recommended procedure is to make changes to WebFOCUS, as per the documentation, and then test them with a web browser. When the settings are verified, perform the following steps to ensure that the configuration is available to WebFOCUS ReportCaster:

1. Copy the WebFOCUS.cfg file and the install.cfg file from the /ibi/WebFOCUS93/config directory to the /ibi/WebFOCUS93/config directory on the stand-alone Distribution Server machine.
2. Copy the odin.cfg file from the /ibi/WebFOCUS93/client/wfc/etc directory to the /ibi/WebFOCUS93/client/wfc/etc directory on the stand-alone Distribution Server

machine.

3. Copy the `cgivars1.wfs` file from the `/ibi/WebFOCUS93/client/wfc/etc` directory to the `/ibi/WebFOCUS93/client/wfc/etc` directory on the stand-alone Distribution Server machine.
4. Restart the Distribution Server and test the scheduled job behavior.

Configuring Secure Communications to the ibi WebFOCUS WebFOCUS ReportCaster Distribution Server

WebFOCUS ReportCaster encryption can be enabled to secure communications between the WebFOCUS ReportCaster application and the WebFOCUS ReportCaster Distribution Server. For more information, see the *ibi™ WebFOCUS® ReportCaster Guide*.

Configuring ibi WebFOCUS WebFOCUS ReportCaster Web Services in an SSL Environment

By default, the Axis Servlet only accepts HTTP requests. If you use WebFOCUS ReportCaster Web Services in an SSL environment, manually configure the Axis Servlet to accept HTTPS requests. To do so, add a second AxisServletListener with the name https to the `axis2.xml` file and specify the port parameter for both listeners. The `axis2.xml` file is located in the `ibi/WebFOCUS93/webapps/WebFOCUS/WEB-INF/conf` folder.

The following code is an example of a second `AxisServletListener`.

```
<transportReceiver name="https"

class="org.apache_1_6_2.axis2.transport.http.AxisServletListener">

<parameter name="port">8443</parameter>
```

```
</transportReceiver>
```

For more information, see

http://axis.apache.org/axis2/java/core/docs/servlet-transport.html

Configuring ibi WebFOCUS WebFOCUS ReportCaster for Graphs

In order for WebFOCUS ReportCaster to distribute graphs, you must either set DISPLAY or use the headless option. This is similar to the Server Side Graphics configuration discussed in Verifying and Troubleshooting Server Side Graphics (PCHOLD)Verifying and Troubleshooting Server Side Graphics (PCHOLD).

If you want to use graphics, you must update the schbkr file to include the Java headless option. This is similar to the Server Side Graphics configuration discussed in Enabling Server Side Graphics.

Configure ibi WebFOCUS WebFOCUS ReportCaster for Graphs

The procedure for distributing graphs depends on whether you have an X Windows Server.

To distribute graphs, do one of the following:

- If you have an X Windows Server, you can set the DISPLAY variable to the X Server host name. Ensure that the X Server accepts the connection. You can set this by editing the following file:

  ```
  /install_directory/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/schbkr
  ```

  Add a line to export the DISPLAY variable.

  For example:

```
#!/bin/ksh

 export DISPLAY=localhost:0

CLASSPATH=/usr/local/drivers/ojdbc15.jar:

  /home/wf93/ibi/WebFOCUS93/WebFOCUS
ReportCaster/lib/SCHScheduler.jar

export CLASSPATH

java ibi.broker.SCHScheduler /home/wf93/ibi/WebFOCUS93/WebFOCUS
ReportCaster
```

- If you do not have an X server, you can set the headless Java option when the Distribution Server starts. However, this does not support GIF graphs or the older GRAPH32 engine. To set this, edit the following file:

  ```
  /install_directory/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/schbkr
  ```

  This is the current file.

  ```
  #!/bin/ksh

  . /opt/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/classpath

  "/opt/jvm/Java 11.0.26/jre/bin/java"

  -DWebFOCUS ReportCaster.home=$DSINSTALL -Dcaster.service=false

  -DDSINSTALL_PROD=$DSINSTALL_PROD ibi.broker.SCHScheduler $DSINSTALL
  $CMD_LINE_ARGS
  ```

  Place the headless option after the java command, as shown in the following example.

  ```
  #!/bin/ksh

  . /opt/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/classpath

  "/opt/jvm/Java 11.0.26/jre/bin/java"
  ```

```
-Djava.awt.headless=true -Dreportcaster.home=$DSINSTALL

-Dcaster.service=false -DDSINSTALL_PROD=$DSINSTALL_PROD

ibi.broker.SCHScheduler $DSINSTALL $CMD_LINE_ARGS
```

Configure ibi WebFOCUS WebFOCUS ReportCaster for Graphs

The procedure for distributing graphs depends on whether you have an X Windows Server.

To distribute graphs, do one of the following:

- If you have an X Windows Server, you can set the DISPLAY variable to the X Server host name.

  1. Ensure that the X Server accepts the connection. You can set this by editing the following file:

     ```
     /install_directory/ibi/WebFOCUS93/WebFOCUS
     ReportCaster/bin/schbkr
     ```

     Add a line to export the DISPLAY variable. For example:

     ```
     #!/bin/ksh

      export DISPLAY=localhost:0

     CLASSPATH=/usr/local/drivers/ojdbc15.jar:

       /home/wf93/ibi/WebFOCUS93/WebFOCUS
     ReportCaster/lib/SCHScheduler.jar

     export CLASSPATH

     java ibi.broker.SCHScheduler /home/wf82/ibi/WebFOCUS93/WebFOCUS
     ReportCaster
     ```

  2. If your database is DB2, add the jdbc driver to `/installation_directory/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/classpath`:

```
/QIBM/ProdData/HTTP/Public/jt400/lib/jt400.jar
```

For example:

```
CLASSPATH=.:/
QIBM/ProdData/HTTP/Public/jt400/lib/jt400.jar:/ install_
directory/ibi/WebFOCUS93/

WebFOCUS ReportCaster/lib/WebFOCUS ReportCaster.jar:
```

- If you do not have an X server, you can set the headless Java option when the Distribution Server starts. However, this does not support GIF graphs or the older GRAPH32 engine. To set this, edit the following file:

  ```
  /install_directory/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/schbkr
  ```

  Place the headless option after the java command. For example:

  ```
  java -Djava.awt.headless=true ibi.broker.SCHScheduler

  /home/wf93/ibi/WebFOCUS93/WebFOCUS ReportCaster
  ```

Configure ibi WebFOCUS WebFOCUS ReportCaster for Graphics

Open the schbkr file found in:

```
/install_directory/ibi/WebFOCUS93/WebFOCUS ReportCaster/bin/schbkr
```

Add the Java headless option statement, as shown in the following example: install_directory

```
#!/bin/ksh -Djava.awt.headless=true//ibi/WebFOCUS93/WebFOCUS
ReportCaster/bin/classpath

java ibi.broker.SCHScheduler $DSINSTALL
```

where:

$DSINSTALL

Is the full path to the WebFOCUS ReportCaster installation.

Troubleshooting ibi WebFOCUS and ReportCaster

This chapter contains information for tracking errors and debugging problems.

Since much of WebFOCUS Client processing is done through your web and application servers, their configuration is a common cause of problems. If you run into any problems, carefully review the configuration information in Configuring Web and Application ServersConfiguring Web and Application Servers.

If you encounter any problems with ReportCaster, see ReportCaster Troubleshooting Tips to determine if your system is configured properly.

ibi WebFOCUS Troubleshooting Tips

Troubleshooting WebFOCUS requires considering all the places where a problem can occur. These include the following:

- Web Browser and its Java Plug-In
- Web Server
- Application Server and its Java VM
- WebFOCUS Client Configuration Files
- X Windows Server when creating graphics by setting DISPLAY
- WebFOCUS Reporting Server
- ReportCaster Context Root

General Tips

Try some of these solutions when troubleshooting WebFOCUS problems:

1. Clear your web browser cache and close all browser instances. Often, even after you have taken steps to correct a problem, the page or pages that contained the original problem still reside in cache.
2. Ensure all components are started and listening on their expected ports. The WebFOCUS web application may take some time to load.
3. Ensure you typed the correct URL. WebFOCUS URLs are case-sensitive.
4. If your web server is not listening on port 80, make sure you are calling with the correct port in the URL.
5. Ensure that the correct application names are listed in your WebFOCUS Reporting Server APP PATH. This is defined in:

   ```
   /install_directory/ibi/srv93/wfs/etc/edasprof.prf
   ```

   This may be the problem if you receive a *Resource not found* message.
6. Turn on tracing through the WebFOCUS Administration Console.
7. Clear the cache in your application server after completing the upgrade installation. For example, if you are using Apache Tomcat, the cache can be cleared by manually deleting any subdirectories that correspond to the context roots that you deployed (for example, /ibi_apps), which is located in the following directory:

   ```
   /tomcat_home/work/Catalina/localhost
   ```

   ```
   /install_directory/Tomcat/work/Catalina/localhost
   ```
8. In the WebFOCUS Administration Console, click **Diagnostics** on the left and use the available options to troubleshoot.
9. Restart all components, especially your web and/or application servers.

Web Browser Issues

If you are planning to use WebFOCUS products, note that browsers released after the production date of a WebFOCUS version are subject to certification. Certification is done with the current release level of WebFOCUS and ibi™ WebFOCUS® App Studio.

Note: Some browsers may function differently depending on the operating system. See the *ibi™ WebFOCUS® Release Notes* for detailed information on known issues related to browser version or configuration.

Verify the JVM Version

There are two methods for verifying the Java VM version installed on the machine where the WebFOCUS Client is deployed.

- From the WebFOCUS Administration Console:
  1. Sign in to WebFOCUS.
  2. On the WebFOCUS Hub, from the side navigation pane, select **Management Center** and then **Administration Console**.
  3. Select the **Diagnostics** tab.
  4. Select **JVM Property Info**.

  The version is listed under java.runtime.version.
- From a browser, type the following URL:

  ```
  http://hostname:host/ibi_apps/diagnostics/properties.jsp
  ```

  The version is listed under java.vm.version.

Web and Application Server Debugging

Ensure your web and application servers are configured as explained in Configuring Web and Application ServersConfiguring Web and Application Servers.

Since WebFOCUS relies on processing by the Java VM, web server, and application server (or servlet container), their debugging tools and log files can help troubleshoot common WebFOCUS issues. Review the documentation for your web and application servers for information on their tracing and log files.

Java Memory Issues

Setting some Java VM options can improve performance and correct problems with the application server. The most common settings involve the size of the Java heap and stack, which determine memory availability for Java programs and the Java VM. Errors can occur if not enough memory is available, and the heap size impacts performance, since it determines how often garbage collection occurs.

If you run into performance problems or receive out of memory exceptions, you can adjust these sizes. The following are the most common Java VM options related to memory settings. Replace the ### with the size you wish to set:

-Xss####M

Sets the Java thread stack size.

-Xmx####M

Sets the maximum Java heap size.

-Xms####M

Sets the initial Java heap size. This should be at least 1024 MB (1 GB).

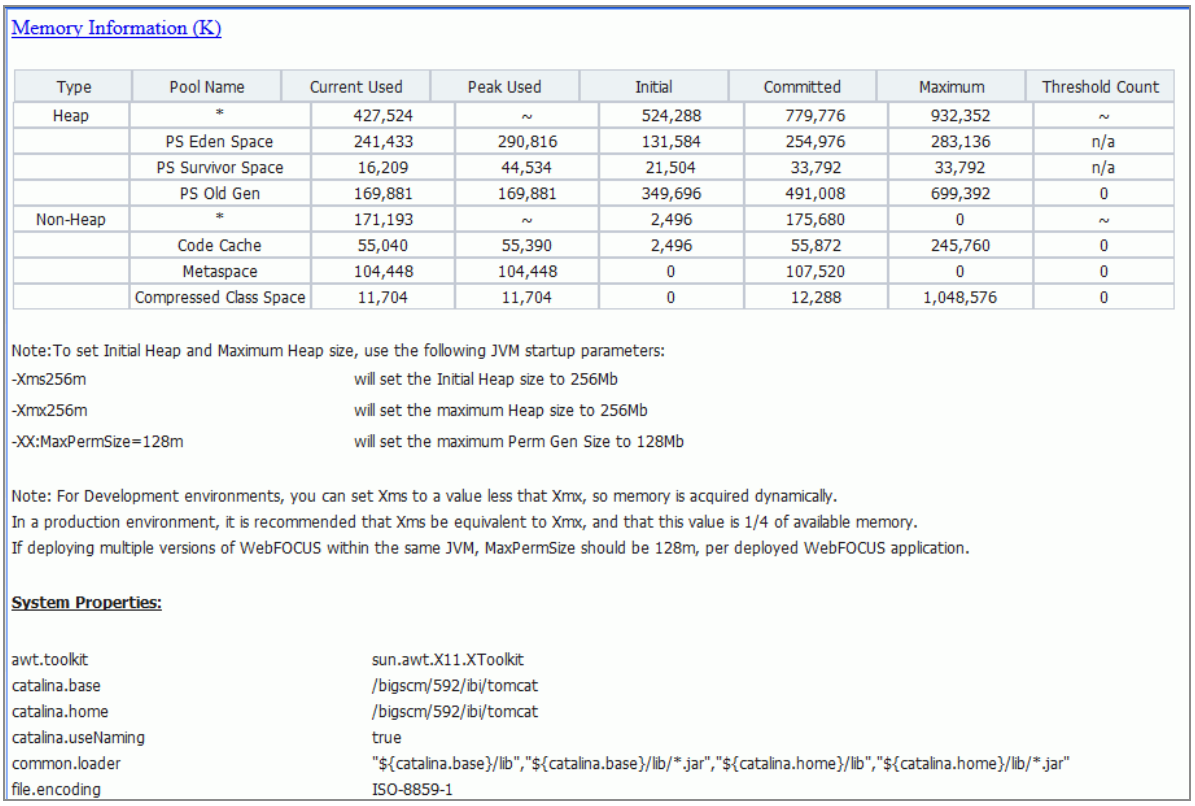
The size is normally set in Megabytes, for example:

```
-Xms1024M

-Xmx2048M
```

To view your current Java VM memory settings, access the WebFOCUS Administration Console. In the left pane of the console, select the **Diagnostics** tab and then select **JVM Property Info**.

The Java VM memory settings for your environment display in the right pane, as shown in the following image.



Memory Information (K)

Type	Pool Name	Current Used	Peak Used	Initial	Committed	Maximum	Threshold Count
Heap	*	427,524	~	524,288	779,776	932,352	~
	PS Eden Space	241,433	290,816	131,584	254,976	283,136	n/a
	PS Survivor Space	16,209	44,534	21,504	33,792	33,792	n/a
	PS Old Gen	169,881	169,881	349,696	491,008	699,392	0
Non-Heap	*	171,193	~	2,496	175,680	0	~
	Code Cache	55,040	55,390	2,496	55,872	245,760	0
	Metaspace	104,448	104,448	0	107,520	0	0
	Compressed Class Space	11,704	11,704	0	12,288	1,048,576	0

Note:To set Initial Heap and Maximum Heap size, use the following JVM startup parameters:

-Xms256m will set the Initial Heap size to 256Mb

-Xmx256m will set the maximum Heap size to 256Mb

-XX:MaxPermSize=128m will set the maximum Perm Gen Size to 128Mb

Note: For Development environments, you can set Xms to a value less that Xmx, so memory is acquired dynamically.
In a production environment, it is recommended that Xms be equivalent to Xmx, and that this value is 1/4 of available memory.
If deploying multiple versions of WebFOCUS within the same JVM, MaxPermSize should be 128m, per deployed WebFOCUS application.

System Properties:

awt.toolkit	sun.awt.X11.XToolkit
catalina.base	/bigscm/592/ibi/tomcat
catalina.home	/bigscm/592/ibi/tomcat
catalina.useNaming	true
common.loader	"${catalina.base}/lib","${catalina.base}/lib/*.jar","${catalina.home}/lib","${catalina.home}/lib/*.jar"
file.encoding	ISO-8859-1

Optimum sizes vary depending on your total memory, the needs of your application, how many other processes require memory, the type of Java VM, and other considerations. A good starting place is to set the minimum to 1/8 of the total RAM and set the maximum to 1/4 of total RAM.

Where to set these and other Java VM options, depend on your application server.

Character Set Issues

WebFOCUS and ReportCaster expect an ISO8859-1 based character set. However, some systems may default to using Unicode (ISO 10646/UTF-8) instead. If this is the case, some characters, such as subscripts, may appear as a question mark (?) or other unexpected symbols in your reports. To correct this, set the LANG environment variable to specify the correct ISO8859-1 character set for your language. On Solaris systems, also set the LC_ALL environment variable to specify the correct ISO8859-1 character set. For example, English on Solaris is:See the IBM documentation for the settings.

```
export LANG=en_US.ISO8859-1

export LC_ALL=en_US.ISO8859-1
```

Set the LANG and LC_ALL variables so they are available to the Java VM running your application server and Distribution Server. Where to set this varies depending on your application server, but you can normally export and set the variables in the application server startup script. For the Distribution Server, you can export and set this in schbkr script.

Using the jar Utility

A jar utility is installed with the Java JDK. It lets you create, extract, and edit the contents of JAR, WAR, EAR, ZIP, RAR, and other archive files. If you deploy the WebFOCUS web application as a WAR file, the jar utility lets you change the webfocus.war file contents.

Edit the WebFOCUS Web Application

The WebFOCUS web application is provided as both an expanded directory and a WAR file:

```
/install_directory/ibi/WebFOCUS93/webapps/webfocus.war

/install_directory/ibi/WebFOCUS93/webapps/webfocus
```

The easiest way to edit the web application is the following:

Procedure

1. Undeploy the webfocus.war file from your application server.
2. Rename the webfocus.war file to webfocus-old.war. This ensures you have a back up and can keep track of where the latest version resides.
3. Edit or add files to the expanded WebFOCUS directory and subdirectories. You should do this even if you deploy the WAR file instead of the expanded directories. This ensures that service packs maintain your changes. When you apply a service pack, any changes must be in the expanded directories to be maintained.

4. Navigate to the webfocus directory. For example:

   ```
   /install_directory/ibi/WebFOCUS93/webapps/webfocus
   ```

5. Use the jar command to create a new webfocus.war file that contains the contents of the webfocus directory and subdirectories.

   For example:

   ```
   jar cvf ../webfocus.war *
   ```

   This creates a webfocus.war file containing all files and subdirectories in your current directory. The webfocus.war file will be located one directory above your current location because you prefaced it with "../".

6. Redeploy the WebFOCUS web application to your application server.

Result
You can edit the ReportCaster web application in the same fashion.

Execute the jar Utility

The options for using the jar commands are useful to know.

- To create a new jar file:

  ```
  jar cvf FileToCreate.war FileToAdd1 FileToAdd2
  ```

  You can add all files and subdirectories using an *:

  ```
  jar cvf FileToCreate.war *
  ```

- To extract the contents of an existing jar file:

  ```
  jar xvf ExistingFile.war FileToExtract1 FileToExtract2
  ```

  Files are extracted to your current location.

  You can extract all files and subdirectories by not specifying any files to extract:

```
jar xvf ExistingFile.war
```

- To add or replace a file in an existing jar file:

```
jar uvf ExistingFile.war FileToAdd1
```

Silent Installation Path Issues

A path issue can generate an error during the silent installation of a distribution server.

When running the silent parameter file, you may see the following message:

```
./install[924]: var_asgn_file: not found.
```

To solve this problem, you must add a dot (.) to your UNIX PATH statement.

This is an example of the syntax:

```
export PATH=.:$PATH
```

Verifying the setting should show the new path as:

```
.: /usr/java8/jre/bin:/usr/bin
```

You should then be able to run the silent installation.

ReportCaster Troubleshooting Tips

ReportCaster relies on communications between the following components:

- Web browser (for user interfaces)
- ReportCaster Web components
- ReportCaster Distribution Server
- Database server

- WebFOCUS Reporting Server
- Mail server
- FTP server (for FTP distribution)

If ReportCaster fails to perform properly, confirm that all components are installed, started, and listening on their expected ports. All components can run on one machine or components can be distributed across different machines running different operating systems. If components are distributed, ensure all machines are running and can communicate using the expected protocols.

The ReportCaster Distribution Server starts in Console mode if it cannot connect to the repository. The ReportCaster Distribution Server will also start in Console mode if it can connect to the repository but the tables are not created. The Scheduler log file indicates why the Distribution Server started in Console mode. If you need to change repository parameters, refer to ibi WebFOCUS Postinstallation TasksWebFOCUS ReportCaster Post-Installation Tasks.

Note: The ReportCaster web components, WebFOCUS Reporting Server, and ReportCaster Distribution Server must all be the same release number.

Distribution Server Traces

Normally, you should turn the Distribution Server traces on and off using the ReportCaster Server Configuration interface. However, if the interface is not available, you can execute the following utility:

```
/install_directory/ibi/WebFOCUS93/ReportCaster/bin/traces
```

The trace files appear in */install_directory*/ibi/WebFOCUS93/ReportCaster/trc. In addition, check the log files in */install_directory*/ibi/WebFOCUS93/ReportCaster/log for more information.

Remember to turn traces off after solving problems.

Troubleshooting Web Browser Errors

To use the ReportCaster interface, end users must have Java 11 or Java 17 installed on their machines. The web browser of the user must be configured to use this Java VM to process applets.

Troubleshooting ReportCaster Servlet Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client and Configuring Web and Application Servers.

- Ensure your web and application servers are running.
- Ensure the WebFOCUS web application is installed and configured. The ReportCaster components are part of the WebFOCUS web application installed with the WebFOCUS Client.

```
/install_directory/ibi/WebFOCUS93/webapps/webfocus
```

Troubleshooting ReportCaster Distribution Server Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client, Postinstallation Verification and Configuration, and WebFOCUS® ReportCaster Postinstallation Tasks.

- Ensure the ReportCaster Distribution Server is running.
- Ensure the WebFOCUS web application knows where the Distribution Server is. The AGENT_NODE and AGENT_PORT parameters specify the host name and TCP Port for the Distribution Server in files installed with the WebFOCUS Client:

```
/install_directory/ibi/WebFOCUS93/client/wfc/etc/cgivars.wfs
```

```
/install_directory/ibi/WebFOCUS93/webapps/webfocus/WEB-INF/web.xml
```

If the parameters are incorrect in these files, correct them. If you deployed the expanded webfocus directory, redeploy the directory. If you deployed the webfocus.war file, use the jar command to place this web.xml file into the WEB-INF directory inside the webfocus.war file, and then redeploy the webfocus.war file. See Using the jar Utility for more information.

- Ensure that a supported version of Java is properly installed and configured.
- Check the settings in the following file:

  ```
  /install_directory/ibi/WebFOCUS93/ReportCaster/install.cfg
  ```

  This file records the information provided when you installed the Distribution Server. To change this information, use the ReportCaster Server Configuration interface or the scripts described in ibi WebFOCUS WebFOCUS ReportCaster Configuration.

Troubleshooting Repository Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client and WebFOCUS® ReportCaster Postinstallation Tasks.

- Ensure the database server is running.
- Ensure the database and tables exist.
- Ensure that the Distribution Server machine contains the correct information to connect to the database. You can set this information using the ReportCaster Server Configuration interface.
- Ensure the JDBC driver is installed on the WebFOCUS Client and ReportCaster Distribution Server machines.
- Ensure your application server has the correct CLASSPATH to the JDBC driver. You can also add the driver files to the WEB-INF/lib directory for the ReportCaster web application. To do this, copy the files into:

  ```
  /install_directory/ibi/WebFOCUS93/webapps/webfocus/WEB-INF/lib
  ```

  If you deployed the expanded directory, redeploy it. If you deployed the webfocus.war file, use the jar command to insert the driver files or create a new web application as explained in Using the jar Utility. Then, redeploy the WAR file.

- Ensure the Distribution Server has the correct CLASSPATH to the JDBC driver in:

```
/install_directory/ibi/WebFOCUS93/ReportCaster/bin/classpath
```

Troubleshooting ReportCaster Context Root

Applications containing a hardcoded reference to rcaster or a ReportCaster specific context root will encounter an error. There is a war file for customers that will redirect to the new ibi_apps without having to change their code.

Redirecting Web Applications With the ReportCaster Context Root

The WebFOCUS and ReportCaster web applications have been combined into one web application. In prior releases, the two applications were deployed separately with unique context roots whose default values were ibi_apps and rcaster. In WebFOCUS, there is only one context root for WebFOCUS and ReportCaster with a default value of ibi_apps.

However, customers who have web applications that contain hardcoded references to rcaster in the URL or a ReportCaster specific context root will be affected. To resolve this, deploy the redirect.war file to redirect URLs that reference rcaster or a ReportCaster specific context root to the single context root.

Troubleshooting Reporting or Delivery Errors

Review the WebFOCUS and ReportCaster documentation and the documentation for your Mail or FTP server.

- Ensure the WebFOCUS Reporting Server is running.
- Ensure the report, file, or URL is valid.
- Ensure the Mail or FTP server is running.
- Check the settings in the ReportCaster Server Configuration interface.

Installing and Configuring ibi WebFOCUS DSML Services for UNIX

This topic describes the installation and configuration of ibi™ WebFOCUS® DSML Services.

ibi WebFOCUS DSML Services Installation Requirements

Important:

- You can run DSML Services on Intel x86_64 Linux Ubuntu system, Release 20.04 or higher, or Red Hat Enterprise Linux release 9.x.
- The Ubuntu libraries must be installed. Run the following command to install the libraries:

```
sudo apt-get install libxrender1 libxtst6 libxi6 unzip
```

- For RedHat Enterprise Linux, run the following command to install the libraries:

```
sudo yum install unzip
```

- The DSML Services installation is available only for the English language.

Hardware Requirements

The following are hardware requirements for DSML Services in Linux:

- **Memory.** Minimum of 32 GB physical memory (RAM) on the system, with most of it free for DSML usage.

- **CPU.** Minimum 8-core processor.
- **Disk space.** Minimum of 100 GB free space on the disk where DSML is being installed.

Note:

- The installer detects the hardware requirements and does not allow the installation to continue if the requirements are below minimum requirements.
- It is recommended to use GPUs to enhance the user experience for optimal performance when deploying the NLQ service. Deploying NLQ on a CPU-only system might result in significantly longer query processing times.

ibi WebFOCUS DSML Services Installation Components and Steps

ibi™ offers two ways to install DSML:

- Using binary components.
- Using scripts that ibi™ provides to create the Docker container. For more information, see the *ibi™ WebFOCUS® Container Edition Installation and Deployment Guide*.

Start DSML Services by Using Binary Components

Procedure

1. From the eDelivery site at https://edelivery.tibco.com/storefront/index.ep, download the installer for DSML Services.
2. If the LANG environmental variable is not already set to `en_US.UTF-8`, issue the following command:

```
export LANG=en_US.UTF-8
```

3. Start the installer.

   ```
   IBI_dsml_release_number_linux548_x64.bin
   ```

   The installation procedure creates the following binary components of DSML, under the *install_root*`/ibi/dsml/bin/` directory:

   - instant-insights
   - metadata
   - ml-functions
   - dsml-nlq
   - dsml-chart

4. DSML Services run under HTTP listeners. One HTTP listener is included each of the binary components.

   You can customize the *install_root*`/ibi/dsml/conf/run_dsml_services.sh` shell script to change the all the ports and worker counts (except for NLQ), as necessary. All the HTTP listener end points are hidden from the end user and the WebFOCUS Reporting Server software.

   Note: The NLQ listener is dependent on the following:

   - The Ollama server is running on port 11434

5. Configure the NGINX Reverse Proxy to hide all but one HTTP listener. If you change the port numbers in the shell script, make the corresponding changes to the port numbers in the *install_root*`/ibi/dsml/conf/dsml.conf` file. Make any other necessary changes for configuring NGINX in the `dsml.conf` file, or accept the default values.

   - To install and configure NGINX on the system, you need the sudo or root privilege. If NGINX is not installed, then NGINX needs to be installed as sudo or root. Typically, you can find NGINX under the `/etc/ngnix` directory.

     Provided there is Internet access on the system, and you have the sudo or root privilege, run the following command to install NGINX:

For Ubuntu Linux:

```
sudo apt install nginx
```

For RedHat Enterprise Linux:

```
sudo yum install nginx
```

For more information on installing NGINX, see:

https://www.nginx.com/resources/wiki/start/topics/tutorials/install/

- If you do not have the root or sudo privilege, or internet access, then assistance is required from the IT department to get NGINX installed on the system. After NGINX is available on the system, do the following as root or with the sudo privilege:

  a. If you already have processes running for the five components: instant-insights, metadata, ml-functions, dsml-nlq, and dsml-chart find them using the `ps` command, and stop them.

  b. To customize ports, edit the `nginx.conf` file located in the `nginx/conf` directory.

  c. To remove the `/etc/nginx/site-enabled/default` file, if it exists, issue the following command:

  ```
  sudo rm -f /etc/nginx/sites-enabled/default
  ```

  d. For RHEL 9, create the sites-enabled folder using the following command:

  ```
  sudo mkdir /etc/nginx/sites-enabled
  ```

  Note: sites-enabled folder is automatically created for Ubuntu.

  e. To copy the `dsml.conf` file to the `/etc/nginx/site-enabled/` file, issue the following command:

```
sudo cp -f install_root/ibi/dsml/conf/dsml.conf
/etc/nginx/sites-enabled
```

f. For RedHat Enterprise Linux (RHEL 9), navigate to /etc/nginx/nginx.conf and add the following line in the `http` in the `nginx.conf` file:

```
include /etc/nginx/sites-enabled/*;
```

g. To restart NGINX, issue the following command:

```
sudo systemctl restart nginx
```

h. To change to the full path of the `conf` directory, issue the following command:

```
cd install_root/ibi/dsml/conf
```

i. To run DSML Services, issue the following command:

```
./run_dsml_services.sh
```

Start NLQ and Chart Services by Using Binary Components

Issue the following command to run NLQ and Chart Services:

```
./run_nlq_services.sh
```

Note: Running the `./run_nlq_services.sh` script starts the Ollama server on port 11434 included in the product. Ollama loads the model shipped with the DSML package. Then it starts NLQ service and points to Ollama server.

Stop DSML and NLQ Services

To stop the DSML and NLQ services give the following commands:

To stop DSML services:

```
./stop_dsml_services.sh
```

To stop NLQ services:

```
./stop_nlq_services.sh
```

ibi WebFOCUS DSML Services Directory Structure

The following table describes the DSML directories created by the installation. These directories are created in the *install_root* directory, where *install_root* can be any writable path for the user, with at least 100 GB of free disk space. The default directory is `$HOME/ibi/dsml/`.

Directory	Description
install_root`/ibi/dsml/Uninstall/`	Contains the files used by the DSML uninstall program.
install_root`/ibi/dsml/bin/`	Contains the following binary components: • instant-insights • metadata • ml-functions • dsml-nlq • dsml-chart
install_root`/ibi/dsml/conf/`	Contains the DSML script files:

Directory	Description
	• run_dsml_services.sh • start_nlq_services.sh • stop_dsml_services.sh • stop_nlq_services.sh
install_root/ibi/dsml/doc/	Contains the readme file, readme.txt.
install_root/ibi/dsml/lib/	Contains the Ollama binary and model phi-3-mini-4k-instruct-text-to-sql.Q4_K.gguf
install_root/ibi/dsml/logs/	Contains the DSML log files.

Connecting to the ibi WebFOCUS DSML Microservice

Assuming NGINX is running under port 80, there should be one HTTP URL that goes to the WebFOCUS Reporting Server configuration for it to connect to the DSML microservice.

To test whether all the DSML components are accessible, issue the following command:

```
http://hostname/machinelearning/v1/system
```

Machine learning sample response:

```
{"data":{"buildDate":"2025-01-
16T13:57:55Z","gitCommit":"a02590ae31a","version":"1.3.1"}}
```

```
http://hostname/metadata/v1/system
```

Metadata sample response:

```
{"data":{"buildDate":"2025-01-
16T04:20:10Z","gitCommit":"bf11ac2cc67","version":"1.0.1"}}
```

```
http://hostname/autoanalytics/v1/system
```

Autoanalytics sample response:

```
{"data":{"buildDate":"2024-10-
07T15:17:47Z","gitCommit":"ca164a20597","version":"1.8.0"}}
```

```
http://hostname/nlq/v1/system
```

NLQ sample response:

```
{"data":{"buildDate":"2025-01-
16T08:55:13Z","gitCommit":"c5c9ee56966","version":"2.0.1"}}
```

```
http://hostname/chart/v1/system
```

Chart sample response:

```
{"data":{"buildDate":"2025-01-
16T04:27:23Z","gitCommit":"73fd18e8017","version":"1.0.1"}}
```

The py_serv URL is the URL for all services. Add the following `pyserv_url` command under `[Workspace]` to the server configuration file (`edaserv.cfg`). The format is:

```
pyserv_url=http://hostname
```

Result

The installation setup is finished and you should now be able to use DSML Services.

Configuring ibi WebFOCUS Help

WebFOCUS Help is configured, by default, to use Online Help that is hosted by ibi™. This Help configuration is applied for new installations or when upgrading from an earlier release. The installation package no longer includes the help files, which greatly reduces the installation file size and time required to install and configure the software.

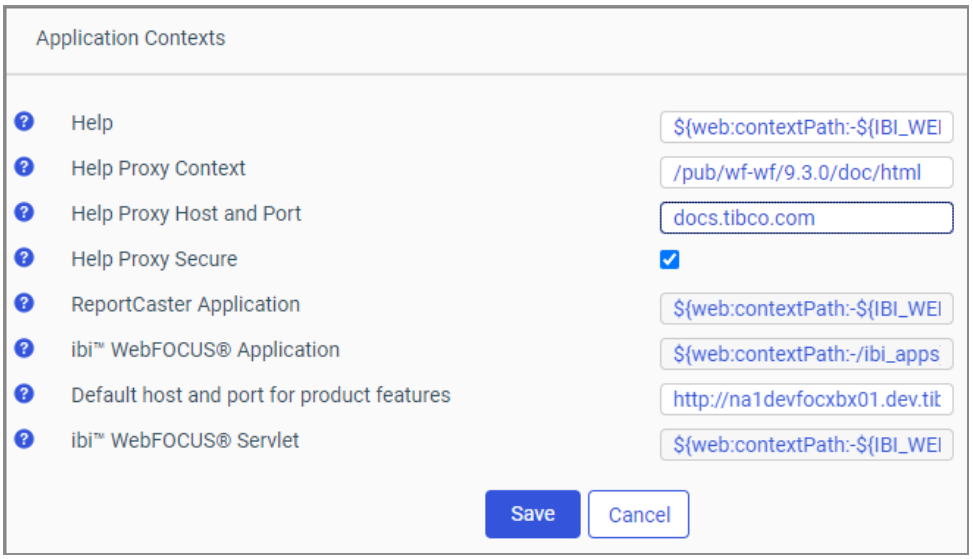
Benefits include:

- Access to the most current Online Help content through a Hosted Help model.
- Upgraded delivery model that reduces the size of the product software package, and simplifies installation and configuration.
- Online Help access using a secure connection to the ibi™ server hosting the Online Help system (HTTPS).

Configuring ibi WebFOCUS Client Help to Point to Downloaded Help on an Alternate Remote Server

When you install WebFOCUS, the client is already configured for the ibi™ hosted help site for you. However, if you want to configure a proxy server of your choice instead, you can configure it as follows:

1. Start WebFOCUS.
2. On the WebFOCUS Hub, from the side navigation pane, select **Management Center** > **Administration Console** > **Application Contexts**.
3. On the Application Contexts page of the **Administration Console Configuration** tab, the **Help Proxy Host and Port** and the **Help Proxy Context** fields have the configured values as shown in the following image. However, if you want to configure a proxy server of your choice, enter the appropriate values in the **Help Proxy Host and Port** and **Help Proxy Context** fields.



4. The **Help Proxy Secure** checkbox is selected by default because the default remote proxy server configured uses SSL. If you have configured help on your hosted environment and it is secured, ensure that the **Help Proxy Secure** checkbox remains selected. Otherwise, clear it for an unsecured connection. Click **Save**. All the calls are directed from WebFOCUS Client to the remote Help host from where you can access help.

   To open the help, click the Help icon at the top right and select Help. From the context menu that opens, select either Web Client Help or Reporting Server Help. The corresponding help is displayed in a new browser window.

Configuring ibi WebFOCUS Client Help to Point to Downloaded Help on a Local Tomcat Server

1. Stop Tomcat.
2. Visit docs.tibco.com and download the documentation `.zip` file from the WebFOCUS help page.
3. Extract the documentation `.zip` file to the `tomcat\webapps` folder for the Tomcat version that you use for WebFOCUS. For example, `C:\ibi\tomcat\webapps`.
4. You should now have the `Default.htm` file in the `html` folder under the WebFOCUS client help folder for the release you downloaded in Tomcat webapps. For example, for the Release 9.3.0 help, at `C:\ibi\tomcat\webapps\ibi-webfocus-client-9-3-0\html`

5. Start Tomcat.
6. Check that the `Default.htm` is accessible by using the URL. For example, for the release 9.3.0 help `http://localhost:8080/ibi-webfocus-client-9-3-0/html/Default.htm` and confirm it loads.
7. To configure the Client help to point to this location, open WebFOCUS Hub, select the Management Center, and open the Application Contexts page of the Admin Console.
8. Delete the contents of the **Help Proxy Context** and **Help Proxy Host and Port** fields.
9. Clear the **Help Proxy Secure** checkbox if your Tomcat uses HTTP, and not HTTPS.
10. In the **Help** field, delete the current value and paste the URL that points to `Default.htm`, but without `Default.htm` included. For example, for the release 9.3.0 help, at `http://localhost:8080/ibi-webfocus-client-9-3-0/html`
11. Save your changes.
12. To test that the help works, open the Help menu at the top in WebFOCUS Hub and click Web Client Help. It should open the client help at the specified URL.

Additional Graph Configuration Options

This appendix explains how to configure WebFOCUS graph options. For WebFOCUS ReportCaster to distribute graphics in a PDF, you must review the HOLD options.

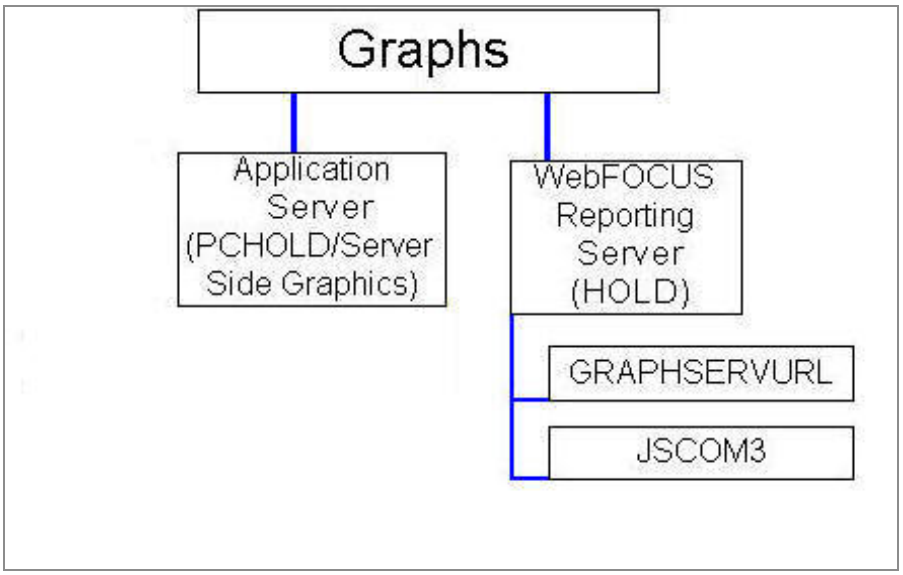
Graph Options

Server-side WebFOCUS graphs are generated by a Java-based graph engine installed with WebFOCUS components. GRAPH53 is the server-side WebFOCUS graph engine. It contains support for many different graph types and advanced 3D graph options. HTML5 graphs are also available. HTML5 graphs are created as Java code that runs directly in the browser.

Graph Invocation and Generation Options

There are several ways to create WebFOCUS graphs.

- Using FORMAT JSCHART to generate HTML5 graphs. HTML5 graphs are delivered to the browser as Java code and run in the browser.
- On the web or application server (Server Side Graphics/PCHOLD), as explained in PCHOLD (Server Side) Graphics Overview.
- On the WebFOCUS Reporting Server (HOLD), as explained in PCHOLD (Server Side) Graphics Overview.



PCHOLD (Server Side) Graphics Overview

With Server Side Graphics, a servlet generates graphs on the web or application server and delivers them to the browser as bitmap images (such as .png, .gif, or .jpg) or in a vector format embedded in a PDF document.

In order for the application server to generate the graphs, you must configure the application server environment. You can set the DISPLAY environment variable to an X Windows Server or you can use the Java VM headless option.

For information on DISPLAY versus headless and their configuration steps, see Configuring Web and Application Servers and Verifying and Troubleshooting Server Side Graphics (PCHOLD).

HOLD Graphs Overview

With HOLD graphs, the WebFOCUS Reporting Server uses the graph engine to create the graphs either locally or through an HTTP call to the application server. Graphs are then stored on the WebFOCUS Reporting Server. This is required when ReportCaster must distribute graphs in a PDF, but you may find other reasons to use it. The following options are available for HOLD graphs.

- **GRAPHSERVURL**

The WebFOCUS Reporting Server makes an HTTP call to the application server in order to generate the graphs. When the graph is created, it is stored in a directory on the WebFOCUS Reporting Server machine.

GRAPHSERVURL is enabled by default and normally requires no configuration.

- **JSCOM3** (thread-based)

  The WebFOCUS Reporting Server uses its JSCOM3 service to generate graphs. JSCOM3 is a listener installed with the WebFOCUS Reporting Server and it handles the Java code needed to generate server-side graphs. Procedures run as threads of the JSCOM3 process.

  JSCOM3 is used if GRAPHSERVURL is not set in cgivars.wfs or a procedure. It can also be used if GRAPHSERVURL is overridden in a procedure. It is not used if you set an IBIJAVAPATH environment variable.

Configurations for HOLD Graphics

When using PCHOLD, a procedure is invoked on the WebFOCUS Reporting Server and the server accesses data sources to determine values. These values are usually passed back to the WebFOCUS Client on the web or application server and the client uses the graph engine to create graphics.

When using HOLD, after a procedure is invoked and the values determined, the WebFOCUS Reporting Server uses the graph engine to create the graphics itself or makes an HTTP call to the web server.

Using a HOLD can be specified in a procedure, as shown in the following example.

Creating a Sample Procedure for HOLD

To test whether HOLD works in your environment, create a procedure like the following:

```
APP HOLD BASEAPP

GRAPH FILE CAR

SUM SALES

BY COUNTRY
```

```
ON GRAPH HOLD AS HOLDTEST FORMAT PNG

END
```

Save this procedure in the `ibisamp` directory on the WebFOCUS Reporting Server machine. For example:

```
/install_directory/ibi/apps/ibisamp/cargrsrv.fex
```

This procedure creates a file called `holdtest.png` in baseapp. You can use the procedure to test the HOLD configurations that follow. If GRAPHSERVURL is set in `cgivars.wfs`, you can override it and use JSCOM3 or IBIJAVAPATH, by adding the following as the second line of the sample procedure.

```
SET GRAPHSERVURL=""
```

Configuring GRAPHSERVURL

No special configuration is needed to use GRAPHSERVURL, provided you have deployed the WebFOCUS web application to your application server. GRAPHSERVURL is set as the IBIF_ graphservurl value in `cgivars.wfs` The value in `cgivars.wfs` is passed to the WebFOCUS Reporting Server when you open a procedure through a servlet call. The value can also be set or overridden in a procedure using:

```
SET GRAPHSERVURL=http://hostname:port/ibi_apps/IBIGraphServlet
```

where:

hostname:port

Are the host name and port of the web server or application server.

GRAPHSERVURL is not supported when used against a secured web server (SSL, Basic Authentication, or other third-party security), because there is no mechanism for supplying credentials.

If you are using a secured web server in front of your application server, you can reset this value to directly call the application server host and port instead of the web server. You can do this in cgivars.wfs through the WebFOCUS Administration Console.

For ReportCaster, this must be set in a procedure, since it is not inherited from `cgivars.wfs`. Otherwise, a procedure opened by ReportCaster makes use of JSCOM3 or IBIJAVAPATH.

To use JSCOM3 or IBIJAVAPATH, instead of GRAPHSERVURL for a specific procedure, set GRAPHSERVURL to nothing:

```
SET GRAPHSERVURL=""
```

Configuring for JSCOM3 HOLD

JSCOM3 is a listener installed with the WebFOCUS Reporting Server. It normally uses the fourth port used by the server. By default, this is port 8123. It is only used for HOLD graphics if GRAPHSERVURL and IBIJAVAPATH are not set.

To use JSCOM3, you must set the $JDK_HOME variable to your Java JDK installation directory. JSCOM3 is configured to automatically use headless. If you wish to use DISPLAY, do not set headless for JSCOM3 and set the DISPLAY variable.

For more information, see the *ibi™ WebFOCUS® Installation* guide.

Be aware that if you create graphs that use templates, JSCOM3 uses a different copy of the templates than the WebFOCUS Client. If you modify templates, be sure to modify both. One is installed with the server for JSCOM3 and one is installed with the WebFOCUS Client.

Note: If the server is not on Windows, see the documentation for your server for information on starting the JSCOM3 listener. On most UNIX platforms, this requires that you set and export a JDK_HOME variable to the location of the Java JDK.

Additional ibi WebFOCUS Repository Topics and Tasks

This appendix contains optional repository topics and tasks related to WebFOCUS and ReportCaster. It contains the following information for Windows and UNIX:

- Reference information about repositories (Repository JDBC Concepts and Repository Connection Information).
- Sizing information for creating tablespaces (Sizing Guidelines).
- MySQL database installation and configuration information (MySQL Repository Set Up).

Information only for Windows:

- Lesser used tasks and configuration information (Other WebFOCUS Repository Utilities and Tasks).
- SQL Server configuration information for those less familiar with SQL Server (SQL Server Preinstallation Steps).

Repository JDBC Concepts

This section provides a brief overview of repository concepts related to the WebFOCUS Client and WebFOCUS ReportCaster.

Repositories should be stored in a certified relational database management system (RDBMS), such as Derby, SQL Server, Oracle, MySQL, or Db2. WebFOCUS and WebFOCUS ReportCaster communicates with an RDBMS using Java Database Connectivity (JDBC).

JDBC Overview

JDBC provides a way for Java programs to access databases and other data sources. Using JDBC, WebFOCUS and WebFOCUS ReportCaster connects to your repository. It then creates

and runs SQL statements to access and write repository information. In theory, JDBC provides a level of abstraction so that most SQL statements work on most databases. However, in practice, differences occur and you should ensure you choose a database and driver that are supported by WebFOCUS.

In order for the WebFOCUS Client to connect to a repository using JDBC, the following is required:

- User ID and Password
- JDBC Driver
- JDBC Path

User ID and Password

The credentials you provide to the database are critical, as they determine how you access the repository. Depending on the type of database, if you wish to maintain separate repositories for separate instances of the WebFOCUS Client, you may need separate user IDs.

During the WebFOCUS Client installation, the credentials are set in the WebFOCUS configuration file, install.cfg. If you need to change these values, you can edit this file. The WebFOCUS Administration Console allows you to change the password.

JDBC Driver

The JDBC driver is a class name used to access the driver. This varies depending on the driver.

During the Distribution Server installation, this is determined and set.

- For Derby, Oracle, SQL Server, MySQL, and Db2, the installation automatically writes the JDBC driver class name for the standard driver.
- For other databases and drivers, you are prompted to provide the JDBC driver class name. This value is stored in the WebFOCUS configuration file, install.cfg. If you need to change this value, you can edit this file.

JDBC Path

A JDBC driver is usually packaged as one or more JAR or ZIP files. Each target data source has its own JDBC driver, so you would use the Oracle JDBC driver to access Oracle and the SQL Server JDBC driver to access SQL Server. Some vendors may also require different drivers for different database releases.

WebFOCUS uses a JDBC type 4 driver to connect to the database.

The JDBC driver must be installed on the machine or machines that run the WebFOCUS Client and ReportCaster Distribution Server.

The JDBC driver is used by both the Distribution Server and the application server. For ReportCaster to find the driver, the JDBC driver must be included in their CLASSPATH variables.

- For the Distribution Server, you provide the location of the driver during the Distribution Server installation. The installation uses this information to add the location of the driver to the CLASSPATH variable used by ReportCaster scripts and utilities. This is set in the following file:

  ```
  /install_directory/ibi/WebFOCUS93/ReportCaster/bin/classpath
  ```

  ```
  drive:\ibi\WebFOCUS93\ReportCaster\bin\classpath.bat
  ```

  ```
  \HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software
  Foundation\Procrun 2.0\WF93\Parameters\Java\Classpath
  ```

- For the application server, you set your application server CLASSPATH variable to include the driver file or files.

  Note: You can also copy driver files into the `WEB-INF/lib` directory located inside the `webfocus.war` file or WebFOCUS93 directory before you deploy the web application.

You must always specify the driver file or files, not just the directory containing the driver. You enter the JDBC driver file name in the **JDBC Path** field.

During the WebFOCUS and Distribution Server installation, this is created and set.

- Depending on the database selected, Oracle, SQL Server, and so on, you are prompted to provide the full path to the JDBC driver.
- For the WebFOCUS installation, the value for the JDBC path is set in the `../utilities/setenv/utiluservars.sh` file and is used when running WebFOCUS utilities, such as create database tables, update a database, and so on. If you need to change the value, you can edit this file.

JDBC Class

The JDBC class is a value used to access the JDBC driver. The JDBC class value varies depending on the driver.

During the WebFOCUS Client installation, the JDBC class value is determined and set based on the database selection.

- For Oracle, SQL Server, MySQL, and Db2, the installation automatically writes the JDBC CLASS for the standard driver.
- For other databases and drivers, you are prompted to provide the JDBC CLASS.

The JDBC class value is stored in the WebFOCUS configuration file, `install.cfg`. You can edit this file if you need to alter the JDBC driver information and provide a different JDBC class value.

JDBC URL

The JDBC URL is a value used to access the driver and repository. This varies depending on the driver and other connection information.

During the WebFOCUS Client installation, the JDBC URL is set based on the selected database.

- For Oracle, SQL Server, MySQL, and Db2, you are prompted for specific information needed to access your repository. This varies depending on the type of database and may include the host name or port where your database resides. The installation uses this information to create the JDBC URL.
- For other databases and drivers, you must provide the JDBC URL.

The JDBC URL value is stored in the WebFOCUS configuration file, `install.cfg`. You can edit this file if you need to alter the JDBC driver information and provide a different JDBC URL value.

Repository Connection Information

The connection information varies depending on the type of driver and database.

- For Db2, see Db2 Connection Information.
- For Derby, see Derby Connection Information.
- For MySQL, see MySQL Connection Information.
- For Oracle, see Oracle Connection Information.
- For SQL Server, see SQL Server Connection Information.
- For other repositories, refer to the documentation for your JDBC driver.

Db2 Connection Information

When using a Db2 repository, the connection information varies depending on the operating systems and the driver. The most common Db2 JDBC driver is the Db2 Universal JDBC driver.

During the WebFOCUS Client installation, you are prompted for:

- Database Name.
- Database Server Node (host name).
- Location Name.
- Port (50000 by default).
- Credentials for the account that will own the repository.
- JDBC Driver (com.ibm.db2.jcc.DB2Driver).
- JDBC Path (db2jcc.jar and db2jcc_license_cisuz.jar).

Based on this information, the installation creates the connection information:

- CLASS:

```
com.ibm.db2.jcc.DB2Driver
```

- URL
  - For Universal Db2 JDBC (UDB) Type 4 Driver:

    ```
    jdbc:db2://hostname:port/DBName
    ```

    where:

    DBName

    Is the database name for the repository.

    LOCName

    Is the Db2 location name.

    hostname

    Is the host name for the Db2 server.

    port

    Is the port for the Db2 server. The default is 324.
  - For Universal Db2 JDBC (UDB) Type 2 Driver:

    ```
    jdbc:db2:DBName
    ```

Derby Connection Information

In Derby, you create a database and user ID within a Derby Database Server.

During the WebFOCUS Client installation, you are prompted for:

- Database name for the repository (WebFOCUS93, by default).
- Database Server Node (*hostname*, by default).
- Port (1527, by default).

- Account to access the repository (webfocus, by default).
- Database password to access the repository (webfocus, by default).
- JDBC Driver (org.apache.derby.jdbc.ClientDriver).
- JDBC Path (`derbytools.jar`).
- ClassName: org.apache.derby.jdbc.ClientDriverConnection URL:

```
jdbc:derby://<host>:<port>/<database>
```

Based on this information, the installation creates the connection information:

- CLASS:

```
org.apache.derby.jdbc.ClientDriver
```

- URL:

```
jdbc:derby://<host>:<port>/<database>
```

If you install multiple instances of the WebFOCUS Client, you need multiple repositories. To maintain multiple repositories in the same Derby Database Server, create a unique database for each instance.

MySQL Connection Information

In MySQL, you create a database and user ID within a MySQL Database Server. These steps are described in MySQL Repository Set Up.

During the WebFOCUS Client installation, you are prompted for:

- Database name for the repository.
- Database Server Node (host name).
- Port (3306, by default).
- Account and password to access the repository.
- JDBC Driver (`com.mysql.jdbc.Driver`).
- JDBC Path (`mysql-connector-java-nn-bin.jar` where **nn** is the version number).

Based on this information, the installation creates the connection information:

- CLASS:

```
com.mysql.jdbc.Driver
```

- URL:

```
jdbc:mysql://<server>:<port3306>/<database>
```

If you install multiple instances of the WebFOCUS Client, you need multiple repositories. To maintain multiple repositories in the same MySQL Database Server, create a unique database for each instance.

Oracle Connection Information

In Oracle, the account determines which tables and tablespaces are accessible within an Oracle Instance (ORASID). Your DBA should set up access to Oracle for you.

During the WebFOCUS Client installation, you are prompted for:

- Database Server Node (host name).
- Port (1521, by default).
- Credentials for the account that will own the repository.
- Oracle Instance (ORASID) for the repository.
- JDBC Driver `(Oracle.jdbc.OracleDriver)`.
- JDBC Path `(ojdbc8.jar)`.

Based on this information, the installation creates the connection information:

- CLASS (Oracle 12c or higher):

```
oracle.jdbc.OracleDriver
```

- URL:

```
jdbc:oracle:thin:@hostname:port:orasid
```

If you install multiple instances of the WebFOCUS Client, you need multiple repositories. To maintain multiple repositories in the same Oracle Instance (ORASID), each repository must have a unique account (owner).

SQL Server Connection Information

In Microsoft SQL Server, you create a database and user ID within a SQL Server Database Server.

During the WebFOCUS Client installation, you are prompted for:

- Database name for the repository.
- Database Server Node (host name).
- Port (1433, by default).
- Account and password to access the repository. At installation, upgrade, or configuration time, the account used by the WebFOCUS installation process to connect to the repository database must be granted db_datawriter, db_datareader, and db_ddladmin roles on the repository database and schema. Alternatively, the object creation and initial data load may be run as a separate utility by a DBA.
- JDBC Driver (`com.microsoft.sqlserver.jdbc.SQLServerDriver`).
- JDBC Path (type the full path to the JDBC driver). See the *ibi™ WebFOCUS® Release Notes* for supported versions of JDBC drivers.

Based on this information, the installation creates the connection information:

- CLASS:

  ```
  com.microsoft.sqlserver.jdbc.SQLServerDriver
  ```

- URL:

  ```
  jdbc:sqlserver://hostname:port;DatabaseName=databasename
  ```

If you install multiple instances of the WebFOCUS Client, you need multiple repositories. To maintain multiple repositories in the same SQL Server Database Server, create a unique database for each instance. You can use the same user ID for each instance or create a new user ID for each instance.

Sizing Guidelines

You can optionally use the following information to set up your repository. The numbers below assume a maximum of 10,000 schedules will be created at this site. In addition, review the logic below to be sure it applies to your environment.

ReportCaster Guidelines for Sizing the Relational Tablespaces

Table Name	Rows	Max Rows Width (bytes)	Notes
BOTACCES (Report Library only)	2,000	292	One record per access list and 1:m with BOTLIST.
BOTADDR	2,000	101	One record per address list and 1:m with BOTDEST.
BOTCAT (Report Library only)	20,000	751	One record for each schedule in the library. If the schedule is burst, each burst report is a record.
BOTCDATE	20,000	807	Could have multiple records per record in the BOTSCIT file (an average number might be 20). Added for the custom scheduling interval feature.
BOTDEST	20,000	210	One record per destination.
BOTDIST			
BOTJOURN			
BOTLDATA	10,000	NA	One record per report in the library (blob).

Table Name	Rows	Max Rows Width (bytes)	Notes
(Report Library only)			
BOTLIB (Report Library only)	10,000	713	One record per report in the library (blob).
BOTLIST (Report Library only)	20,000	298	One record per destination.
BOTLOG	10,000	228	One record per job run and a 1:m with BOTLOG2.
BOTLOG2	100,000	361	One record per job message.
BOTPACK	10,000	124	One record per schedule.
BOTPARMS	5,000	369	One record per parameter per task.
BOTSBDS	500	625	One record per designated blackout day per group.
BOTSCHED	10,000	2252	One record per schedule.
BOTSCIT	10,000	590	Could have one record per record in the BOTSCHED file. Added for the custom scheduling interval feature.
BOTSIT			
BOTSTATE	1	256	Contains one record. Added for the Failover feature.
BOTTASK	15,000	928	One task per schedule (can have multiple tasks

Table Name	Rows	Max Rows Width (bytes)	Notes
			per schedule so 1:m relationship with BOTSCHED).
BOTTELL			
BOTTSKEX	15,000	324	One per task.
BOTWATCH	20,000	330	One record per record in the BOTCAT file. Added for the Library Watch List feature.

The following formula for allocating table space sizes is recommended:

```
Storage needed = number of bytes of user data x overhead factor
```

For simple tables (one per table space), an overhead factor of 1.75 is recommended.

Note: The BOTLDATA table uses the BLOB data type, so you should size accordingly.

MySQL Repository Set Up

MySQL is a free open-source database server that you can use for the WebFOCUS Repository. Official information on MySQL is available at:

http://www.mysql.com/

This section is provided to help those less familiar with MySQL with the installation and configuration of MySQL for use with WebFOCUS.

Installing MySQL

You can install MySQL as follows:

1. Download the MySQL installation program from:

   http://www.mysql.com/

   The following page contains links to download MySQL:

   http://dev.mysql.com/downloads/mysql/5.0.html

   The standard download is sufficient.

   The following page includes documentation on installing, configuring, administering, and using MySQL:

   http://dev.mysql.com/doc/mysql/en/index.html

2. For most platforms, you can download a .tar.gz file and then decompress and extract it to a directory on your system. Then, you need to navigate to the MySQL directory you extracted and run:

   ```
   scripts/mysql_install_db --user=mysql
   ```

   Be sure to set a password for the root account.

   Refer to the MySQL documentation for assistance.

Increasing the max_allowed_packet Parameter Value

When you configure or migrate a MySQL repository for WebFOCUS Release 9.3.4, increase the size of the `max_allowed_packet` parameter. MySQL recommends that the value of the `max_allowed_packet` parameter for MySQL Client and MySQL Server should be increased for applications that use binary large objects (BLOBs) and character large objects (CLOBs), such as WebFOCUS.

For more information on this topic and how to change the value of the `max_allowed_packet` parameter for MySQL Client and MySQL Server, see the following website:

http://dev.mysql.com/doc/refman/5.1/en/packet-too-large.html

Running MySQL

You can start the MySQL daemon as follows:

1. Navigate to the directory where you installed MySQL.
2. Type the following:

   ```
   ./bin/mysqld_safe &
   ```

   You can stop MySQL by running the following:

   ```
   ./bin/mysqladmin -p -u root shutdown
   ```

Administering MySQL

You administer MySQL using a tool that you can open from the shell:

1. Navigate to the MySQL bin directory.
2. Type the following:

   ```
   mysql -h localhost -u root -p
   ```

3. Provide the password when prompted.

The following prompt should appear:

```
mysql>
```

From this prompt, you can run SQL commands and administer the database server.

MySQL documentation is available online at the following website:

http://dev.mysql.com/doc/mysql/en/index.html

Creating the ibi WebFOCUS Reporting Database and User

You can use the MySQL command line tool to create a database and user for ReportCaster.

Create a MySQL Database and User

Procedure

1. Open and sign in to the MySQL Command Line Tool.
2. At the mysql> prompt, type the following to create a new empty database for WebFOCUS:

   ```
   CREATE DATABASE webfocus;
   ```

   where:

   webfocus

   Is the name of the database you plan to use for the WebFOCUS repository. This is case-sensitive.

   You should receive a response like the following:

   ```
   Query OK, 1 row affected (0.03 sec)
   ```

3. Optionally, confirm that the database was created by typing the following command at the mysql> prompt:

   ```
   show databases;
   ```

   You should receive a response that includes your new database. For example:

   ```
   +----------+
   | Database |
   +----------+
   | mysql    |
   | webfocus|
   | test     |
   +----------+
   ```

```
3 rows in set (0.00 sec)
```

4. At the mysql> prompt, type the following to create a new MySQL user ID and grant it access to the WebFOCUS database:

```
GRANT ALL PRIVILEGES ON

  wf.* TO 'wfuser'@'%'

    IDENTIFIED BY 'wfpass';
```

where:

webfocus

Is the name of the database you will use for WebFOCUS. This is case-sensitive in some environments.

%

Indicates that the database is accessible from any host. To limit which hosts can access the database, provide the host name or IP address of the machine running the WebFOCUS Client and the ReportCaster Distribution Server in place of %. If the application server is on a different machine, you will need to type the command twice to grant access from both hosts.

webfocus

Is the user ID you are creating. This is case-sensitive in some environments. The user ID and password are part of MySQL and not the operating system.

rcpass

Is the password for the user ID. This is case-sensitive.

If you need to change your password, you can retype the GRANT command to provide the new password. The new values will overwrite any existing password.

5. Optionally, confirm that the user ID was added to the MySQL user table by typing the following command at the mysql> prompt:

```
use mysql
```

This selects the default mysql database within the MySQL Database Server.

Ensure that the user ID you created exists and is associated with your database by typing the following command at the mysql> prompt:

```
select user,host,db from db;
```

This query returns all user IDs and associated host names with the databases they can access.

For example:

```
+--------+------+---------+

| user   | host | db      |

+--------+------+---------+

| wfuser |%     | wf

+--------+------+---------+
```

After making user ID changes, you can ensure they are refreshed by typing the following command at the mysql> prompt:

```
FLUSH PRIVILEGES;
```

6. Optionally, specify the database you created for the repository by typing the following command at the mysql> prompt:

```
use wf
```

where:

wf

Is the name of the database you will use for WebFOCUS. This is case-sensitive in some environments.

7. Optionally, confirm there are no tables in the database by typing the following

command at the mysql> prompt:

```
show tables;
```

If you have not yet created tables, you should receive the following:

```
Empty set (0.00 sec)
```

After creating the repository tables, you can use this to confirm that the tables exist.

Installing the MySQL JDBC Driver

The MySQL JDBC driver is known as MySQL Connector/J 3.1.

1. Download the latest MySQL Connector/J 3.1 from:

   http://www.mysql.com/

   The following page contains links to download MySQL Connector/J 3.1:

   http://dev.mysql.com/downloads/connector/j/3.1.html

   Download the latest `.zip` or .tar.gz file containing the source code and Java binary. For example:

   ```
   mysql-connector-java-3.1.14.zip
   ```

   MySQL has an aggressive release cycle, so the number in this file name may vary.

2. Place the .tar.gz or ZIP file on your UNIX system. If you use FTP, use binary mode.

3. Extract the MySQL JDBC driver JAR file. This file is located in the archive as:

   ```
   mysql-connector-java-3.1.14/mysql-connector-java-3.1.14-bin.jar
   ```

   The number in the directory and file name will match the number in the name of the ZIP file you download. MySQL has an aggressive release cycle, so the number in this file name may vary.

   If you downloaded a ZIP file, you can use the jar command to extract the JAR file. For example:

```
jar xvf mysql-connector-java-3.1.14.zip

  mysql-connector-java-3.1.14/mysql-connector-java-3.1.14-bin.jar
```

4. Specify the path to and including this JAR file when prompted during the WebFOCUS Client and WebFOCUS ReportCaster Distribution Server installation. The path to and including this JAR file must be in the CLASSPATH variable used by the WebFOCUS Client application server and by the WebFOCUS ReportCaster Distribution Server. Specifying the directory containing the JAR file is not sufficient.

ibi Documentation and Support Services

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