ibi™ WebFOCUS®

Installation and Configuration for Windows

Version 9.3.5 | July 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.

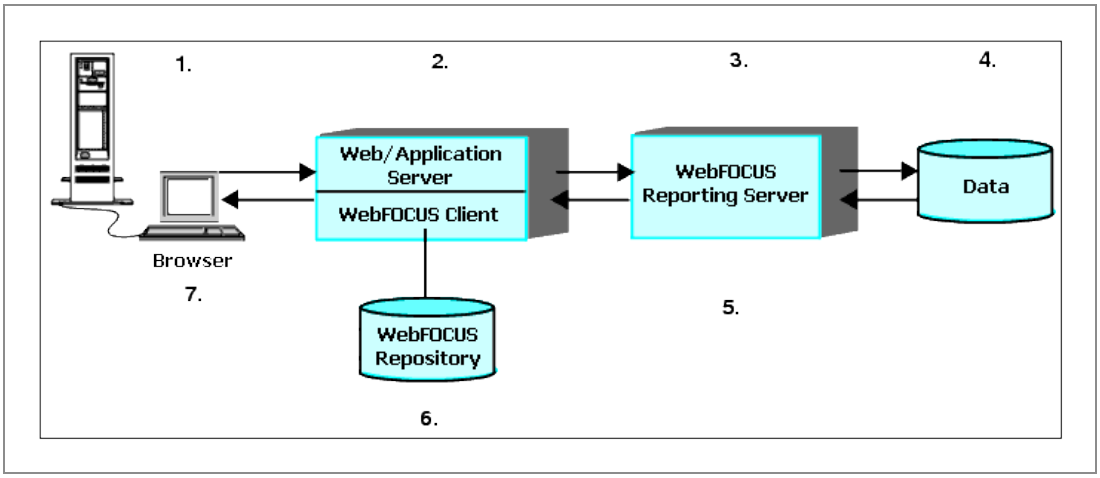
- **WebFOCUS® Reporting Server.** The WebFOCUS Reporting Server resides on machines that can access your data. The WebFOCUS Reporting Server provides data access, number crunching, and report generation functionality using WebFOCUS integration technology.

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.

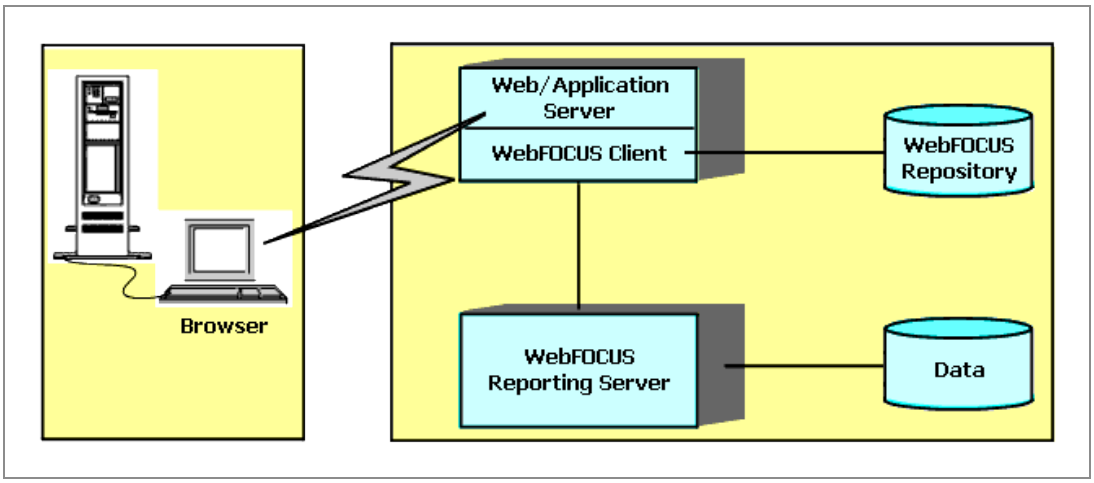
The configuration requirements are:

- 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.

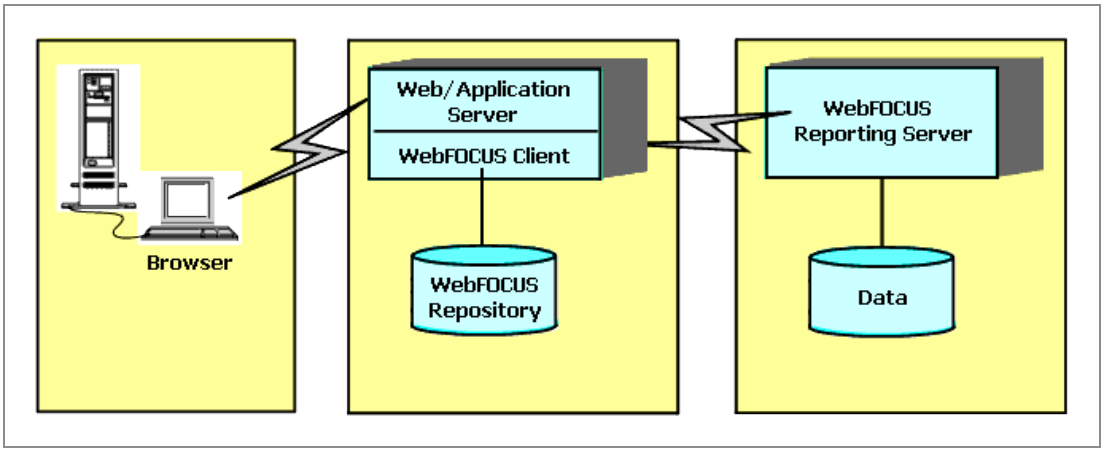
Note: All WebFOCUS components must be of the same release to communicate properly.

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

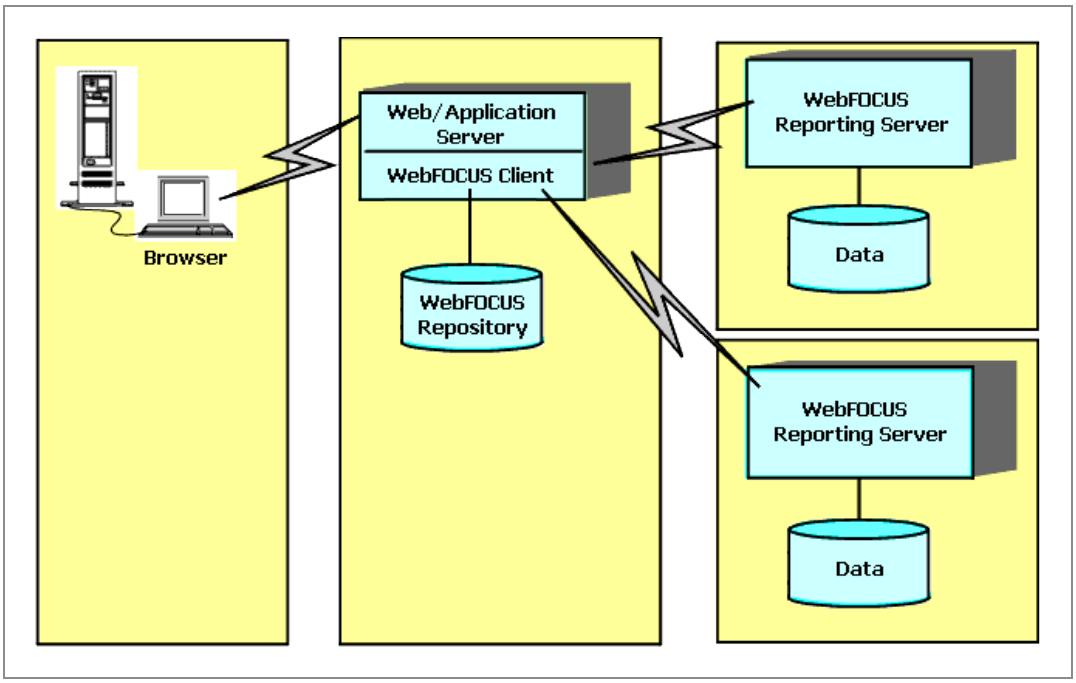
- **Stand-alone Configuration.** In a stand-alone configuration, the application server, WebFOCUS Client, WebFOCUS Reporting Server, and source data are all on the same machine.



- **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.

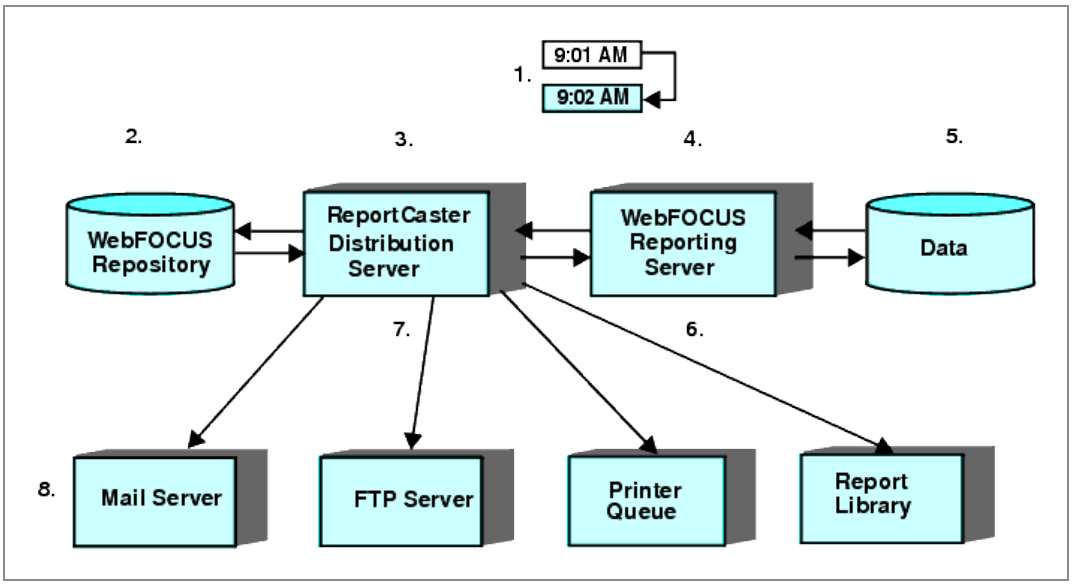
- **ReportCaster Tables.** The ReportCaster tables are part of the WebFOCUS repository, which ReportCaster uses for schedule, distribution, Report Library, and log information. You can store the WebFOCUS repository in a Derby™, Oracle, SQL Server, Db2, or any other supported JDBC™-compliant database.

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 TasksFor 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 9.3.5 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 9.3.5 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	Microsoft® Windows® Server 2022, 2019, and 2016. 64-bit (x64)	Microsoft Windows 11 and Windows 10 can be used in development environments only.
Memory (RAM)	16 GB or higher.	Refer to any requirements for your application server.
Processor Speed	4 cores, 2.5 GHz or faster.	Refer to any requirements for your application server.
Disk Space	10 GB	Approximately, double this space should be available during the installation process. Additional space is needed for your application servers.
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.	In Release 9.3.5, Tomcat 9.0.x is supported. **Note:** Apache Tomcat version 9.0.105 is provided as an optional component in the installation package.

Item	Options or Requirements	Notes
	The maximum heap size can be set to 2048 or higher. The machine must have the available memory allocated through these settings.	
Java (64-bit)	Java 11 or Java 17	In Release 9.3.5, Java 11 and Java 17 are supported. **Note:** Java 11.0.27 is provided and automatically installs with Release 9.3.5.
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.
Web Server (WebFOCUS Client Machine)	Must support aliasing.	If you choose to use a web server, you have two ways to use it: • For WebFOCUS processing of aliases. • Only for forwarding requests through a firewall to an application server. Apache Tomcat is provided and can be used as both

Item	Options or Requirements	Notes
		a web server and application server. Microsoft IIS and other web servers can be used along with Tomcat or other application servers, if you require. For more information, see ibi WebFOCUS Installation Requirements.
Microsoft .NET Framework	Version 2.0 or higher.	On Windows AMD 64-bit machines, the Microsoft .NET Framework is required for the Tomcat Connector plug-in to function correctly. It can be downloaded from the Microsoft website and must exist on the machine prior to the WebFOCUS installation. If the Tomcat Connector plug-in is not be configured, Microsoft .NET is not required.
User ID	You must install as an administrator to the Windows machine.	

Note:

- The installation program includes the following third-party components: Tomcat 9.0.105, Java 11.0.27, 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 9.8.1 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 9.3.5 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 9.3.5 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.

The following are disk space requirements for WebFOCUS components.

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

Web Server and Application Server Requirements

Apache Tomcat is provided and can be installed with WebFOCUS, so you do not have to install and configure your own web server or application server for WebFOCUS. There are two supported Tomcat options that the WebFOCUS installation can configure for you:

- Tomcat can be used as both an application server and a web server. This is referred to as a Tomcat stand-alone configuration. All processing is done by Tomcat.

- Microsoft IIS can be used as the web server and Tomcat can be used as the application server. This is referred to as a Tomcat with IIS configuration. Static content is served by IIS and dynamic Java content is served by Tomcat.

> **Note:** It is also possible to have Tomcat perform all processing and use IIS on a separate machine only to forward requests through a firewall to Tomcat. For that environment, you use a Tomcat stand-alone configuration for WebFOCUS and then configure IIS manually on a separate machine.

Using Apache Tomcat is not required. You can use any application server, servlet container, or servlet engine that meets the specifications described in JVM and J2SE Support Information. Another application server that is commonly used for WebFOCUS is Oracle WebLogic. For additional application server support, contact Customer Support. For background information about web and application servers, see Application Server and Web Application Overview.

In this document, the term application server refers to J2EE-compliant application servers, servlet containers, or servlet engines. Technically, Tomcat is a servlet container, but the term application server is used for simplicity.

> **Note:** Depending on the level of usage, you may need to increase your application server Java memory options. This is done for you if the WebFOCUS installation configures Tomcat. For other application servers, see Java Memory Issues.

ibi WebFOCUS Java Requirements

In Release 9.3.5, Java 11 and Java 17 are supported. Java 11 is the minimum version required for the WebFOCUS and ReportCaster application servers, as well as the Distribution Server. The WebFOCUS Client installation installs Java 11.0.27 with Release 9.3.5. We recommend installing the JDK on a WebFOCUS Reporting Server machine.

A JRE contains a subset of JDK features and both the JRE and JDK are needed. When you install the JDK, a JRE is also installed, by default. Accept default settings when you install the JDK.

Note:

- Java SDK and JDK are synonymous.
- Some application servers require a specific release of the JDK. If you are not using Tomcat, review the documentation for your application server to determine the JDK requirements.

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 Utilities

WebFOCUS includes utilities that enable you to check and change the database collation to ensure it meets WebFOCUS requirements. Databases used as the WebFOCUS repository must be case-sensitive.

These utilities are supported with Microsoft SQL Server and MySQL databases and enable you to change the database collation from case-insensitive to case-sensitive.

The following is a list and description of the available utilities. The utilities are located in the *drive:*`\ibi\WebFOCUS93\utilities\dbupdate\collation\` folder.

check_db_collation.bat

- 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
```

check_install_db_collation.bat

- Checks if the database collation is case-sensitive.
- Prompts for the database repository ID and password.

Output example:

```
[2021-11-21 09:54:23,996] INFO stdout - Starting collation_tool_install
(check_cs_collation) process ...

[2021-11-21 09:54:24,384] OFF stdout - Database collation is case-
sensitive
```

change_db_collation.bat

- 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.
```

change_install_db_collation.bat

- Changes the database collation to the best matched CS collation.
- Prompts for the database repository ID and password.

Output example:

```
[2021-11-21 09:56:18,174] INFO stdout - Starting collation_tool_install
(collation_change) process ...

[2021-11-21 09:56:19,616] OFF stdout - Collation changed.
```

get_db_collation.bat

- 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'
```

get_install_db_collation.bat

- Retrieves database collation.

- Prompts for the database repository ID and password.

Output example:

```
[2021-12-05 13:24:41,121] INFO stdout - Starting collation_tool_install
(get_current) process ...

[2021-12-05 13:24:41,481] OFF stdout - Database collation: 'Japanese_90_
CI_AS_WS_SC'
```

list_db_CS_collations.bat

- 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_install_db_CS_collations.bat

- Lists all case-sensitive collations supported by the database.
- Prompts for the database repository ID and password.

Output example:

```
"Japanese_CS_AI","Japanese, case-sensitive, accent-insensitive,
kanatype-insensitive,

width-insensitive","932"

"Japanese_CS_AI_WS","Japanese, case-sensitive, accent-insensitive,
kanatype-insensitive,

width-sensitive","932"

"Japanese_CS_AI_KS","Japanese, case-sensitive, accent-insensitive,
kanatype-sensitive,

width-insensitive","932"

"Japanese_CS_AI_KS_WS","Japanese, case-sensitive, accent-insensitive,
kanatype-sensitive,

width-sensitive","932"
```

list_db_CS_compatible_collations.bat

- 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"
```

list_install_db_CS_compatible_collations.bat

- Retrieves the list of CS collations compatible with the specified collation.
- Prompts for the database repository ID and password.

Output example:

```
[2021-12-05 13:42:14,867] 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"
```

db_collation.bat

Called by all collation scripts.

> **Note:** To run the utilities on Windows, open the Command Prompt with the Run as administrator option and enter the name of the script.

Scripts generate logs in the ..\WebFOCUS93\application_logs folder, using the naming convention script name followed by date/time, for example, `check_db_collation_2021-12-13_12-41-07.log`.

When running the scripts against a new database (not using the database specified in `install.cfg`), the tools prompt for:

1. Database connection URL, for example:

   ```
   jdbc:sqlserver://host_machine_name:1433;DatabaseName=WebFOCUSnnnn
   ```

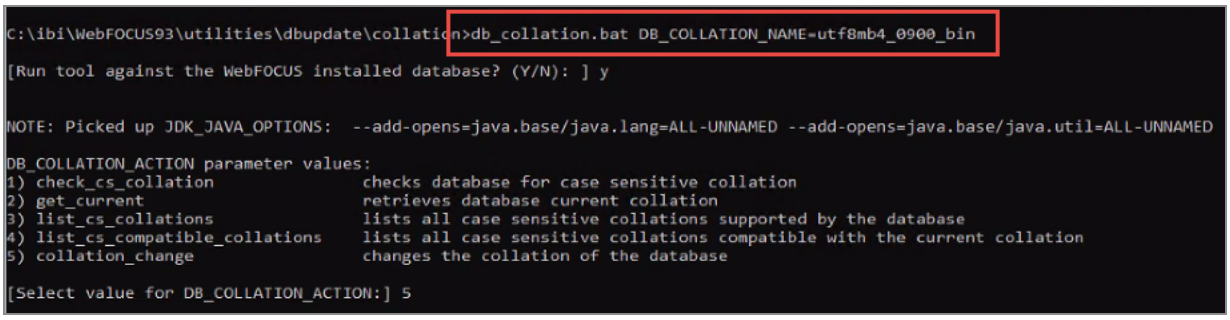
2. JDBC driver class, for example:

   ```
   com.microsoft.sqlserver.jdbc.SQLServerDriver
   ```

3. Database Repository User Name
4. Database Password

> **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.



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 topic provides details about installing the WebFOCUS Client.

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. If you do not take this precaution, you might 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*.

Installing the ibi WebFOCUS Client

The following procedures describe how to install the WebFOCUS Client.

Note: WebFOCUS requires 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* guide.

Install Using the Typical Installation Option

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.

Procedure

1. Download the WebFOCUS Client installation file from the eDelivery site at:

   https://edelivery.tibco.com/storefront/index.ep

2. Double-click the executable application file (`.exe`).
3. Choose the appropriate language from the dropdown list and click **OK**.

   The Welcome to WebFOCUS window opens, recommending that you quit all programs before continuing with the installation.

4. Click **Next** to continue the installation.

   The License Agreement dialog box opens.

5. Select **I accept the terms of the License Agreement**, and click **Next** to continue the installation.

   A message ia displayed indicating that this release includes several updates to search capabilities in WebFOCUS.

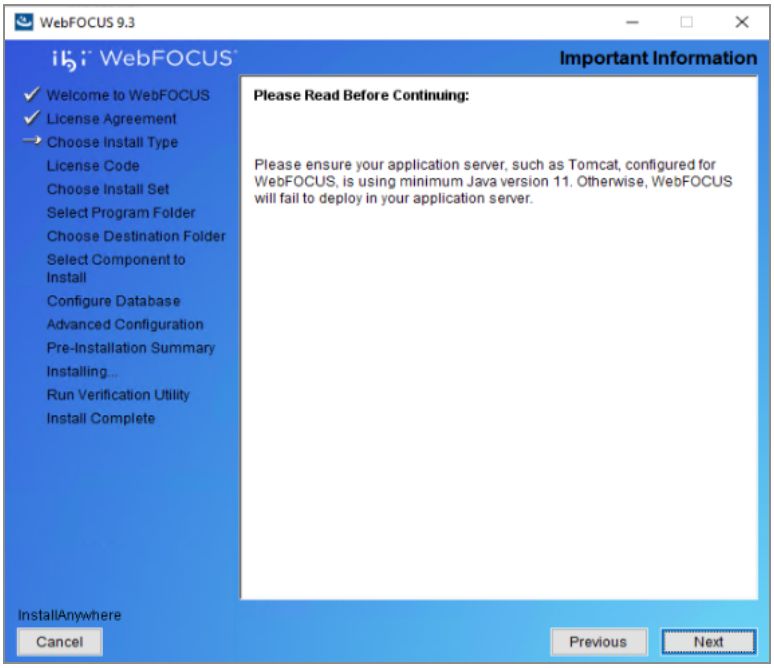
   Note:
   - For an upgrade installation from Release 9.0.1 or earlier, the repository must be reindexed to use these search capabilities.
   - For a new installation, the repository must be reindexed if you are using a pre-existing repository from a previous release.

   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.

   If you have an earlier release of WebFOCUS installed on your machine, the Choose

Install Type window opens.

- To update your existing release installation to a later version, select **Update** and the existing instance you want to update. An important message about using the minimum version of Java is displayed as shown in the following image:



- Click **Next**, a dialog opens with a prompt 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 permission to perform the import of the Change Management packages that load the roles and templates.
- To install all available features of WebFOCUS, select **Full Install**. Continue to step 6.

6. Click **Next** to continue the installation.

   The Choose Install Set dialog opens.

7. Select **Typical** and click **Next** to continue the installation.

   The Select Program Folder dialog box opens.

8. Accept the default program folder (WebFOCUS93) or specify a different program

folder name by adding a suffix to the Program Folder name. Then, click **Next**.

> **Note:** A message is displayed if the provided folder name already exists. The folder name must be unique in order to proceed.

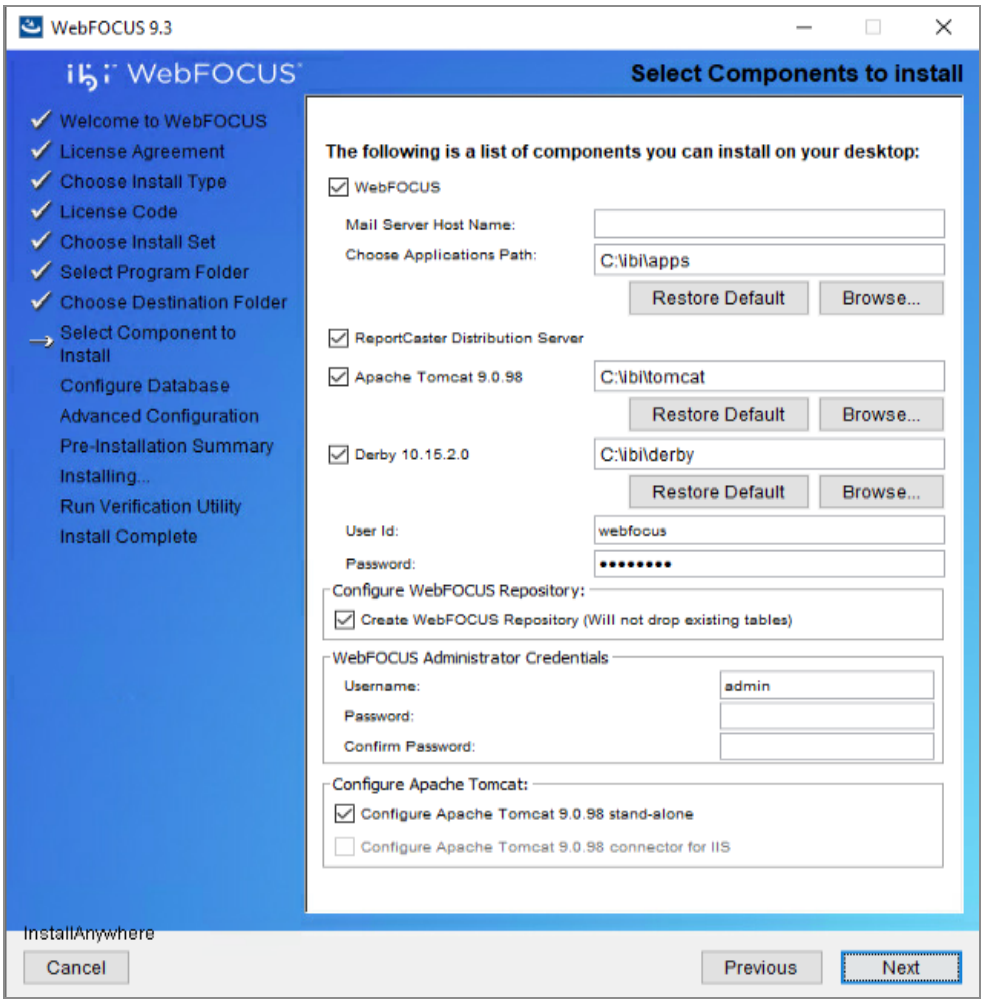
The Choose Destination Locations dialog box opens.

9. Perform the following steps:
   a. Specify a path for the WebFOCUS application folder. The default is `C:\ibi`.

      > **Note:** You can specify any path on the local machine or use a Universal Naming Convention (UNC) path.

   b. Choose the appropriate disk from the Disk Space Information dropdown list.
   c. Click **Next**.

The Select Components to install dialog opens, as shown in the following image.



Note: If you specified a UNC path for the WebFOCUS application folder, then the ReportCaster Distribution Server must be installed separately. In the Select Components to install dialog, the ReportCaster Distribution Server checkbox is not available. In the Advanced Configuration dialog, you must provide the ReportCaster Distribution Server host and port values that correspond to the system where you are going to install the ReportCaster Distribution Server.

10. Perform the following steps:

    a. In the WebFOCUS component area, in the **Mail Server Host Name** field, type the host name or IP address for your mail server.

    b. In the **Choose Applications Path** field, type a path where WebFOCUS

applications are saved or accept the default location (`C:\ibi\apps`).

Options to install Tomcat and Derby are enabled if these components are not preinstalled on your system. Allow these options to be installed and configured with WebFOCUS if you want to use default configuration options.

- If you clear the options to install and configure Tomcat, an application server needs to be configured postinstallation.
- If you clear the option to install Derby, or Derby is preinstalled, continue to the next substep.

c. Select a database (for example, Apache Derby or Microsoft SQL Server) from the Configure pre-existing Database dropdown list.

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 re-create the existing tables in the repository if you plan on working with a new WebFOCUS repository. Alternatively, you can run the `WFReposUtilCMDLine.bat` 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 are prompted for WebFOCUS administrator credentials. The credentials that you enter 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: caret (^), ampersand (&), percent (%), or double quotation mark ("). Refer to the ASCII character table to determine the characters to use for the WebFOCUS administrator credentials.

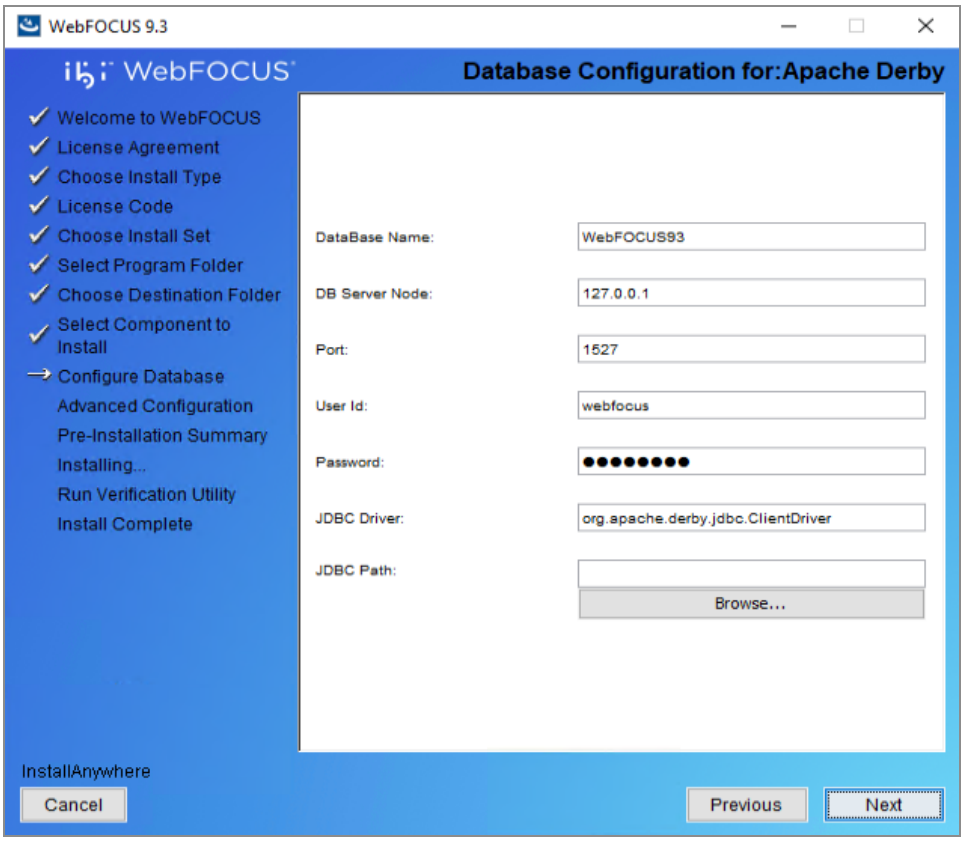
  The password for the user name must be between four and 20 characters. Leading blanks and trailing blanks are removed. You are not prompted for credentials if the *Create WebFOCUS Repository* option is not selected.
- If you select the **Create WebFOCUS Repository** option, the installation checks the database to see if it contains existing tables. If it contains tables, the Create WebFOCUS Repository option is not performed and a message is displayed. In this case, you can:
  - Provide information for a new empty database.
  - Post-installation, create the tables using the WFReposUtilCMDLine WebFOCUS 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 8206 or 8207 releaserelease prior to Release 9.3.5, follow the postinstallation steps required to update the database to Release 9.3.5 level. For more information, see Performing a New Release 9.3.5 Installation Using an Existing ibi WebFOCUS Repository.

- If you want to use a web or application server other than Apache Tomcat, then clear the Configure Apache Tomcat option. The Configure WebFOCUS Client area appear and you must enter the port number that is currently used by your web server in the corresponding field.

d. Click **Next** to accept the remaining default installation components and configuration settings.

The Database Configuration dialog opens, as shown in the following image. In this example, Apache Derby is being configured, since it was the pre-existing database that was selected.


WebFOCUS 9.3
WebFOCUS
Database Configuration for:Apache Derby
Welcome to WebFOCUS
License Agreement
Choose Install Type
License Code
Choose Install Set
Select Program Folder
Choose Destination Folder
Select Component to Install
Configure Database
Advanced Configuration
Pre-Installation Summary
Installing...
Run Verification Utility
Install Complete
DataBase Name:
WebFOCUS93
DB Server Node:
127.0.0.1
Port:
1527
User Id:
webfocus
Password:
JDBC Driver:
org.apache.derby.jdbc.ClientDriver
JDBC Path:
Browse...
InstallAnywhere
Cancel
Previous
Next

Note:

- The Database Configuration for Apache Derby dialog opens if you have an existing version of Derby installed on your system. In this case, the Derby 10.15.2.0 checkbox is not available in the Select Components to install dialog. The Database Configuration for Apache Derby dialog also opens if you clear the Derby 10.15.2.0 checkbox and select the option to use an existing Derby installation.

  If the installer detects an existing Derby installation on the machine, the JDBC Path is populated automatically. Otherwise, the JDBC Path text box is blank, and the user has to enter the full path to the jar files.

- For security reasons, Derby is restricted to localhost by commenting line - `#derby.drda.host=0.0.0.0`. If you want to open up derby to your network, outside of your localhost, then uncomment as follows: `derby.drda.host=0.0.0.0`
- If outside resources such as your application server or report caster are on different machines than the derby server, then derby needs to be opened up to the network. You can do this by uncommenting `#derby.drda.host=0.0.0.0`. Consult your security team or system administrator for this.

11. Click **Next** to continue the installation.

    The Pre-Installation Summary window opens.

12. Verify that all of the information is correct and click **Install** to continue with the configuration and installation.

    As WebFOCUS is being configured on your system, the Please Wait window is displayed.

    After WebFOCUS is configured, the Installing WebFOCUS dialog opens. As WebFOCUS is being installed, the installation dialog informs you about the installation tasks that are being performed.

    When the installation is complete, the Run Verification Utility dialog appears.

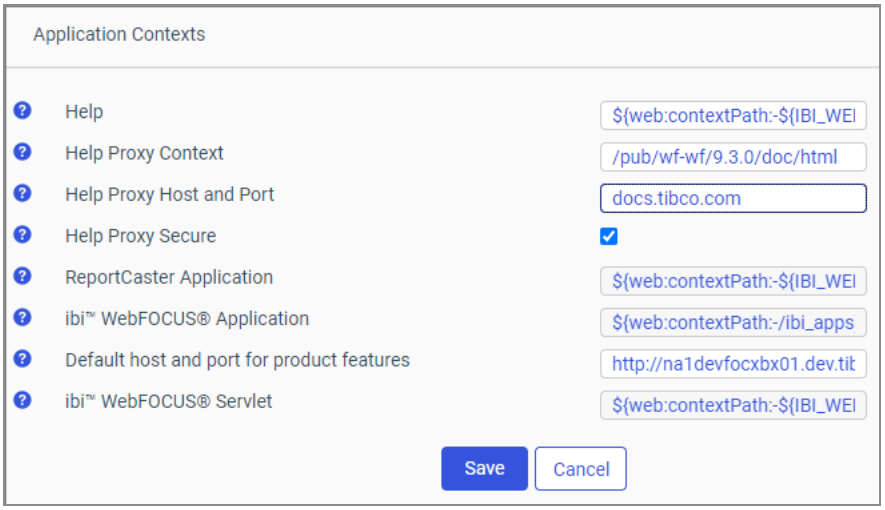
13. Select the verification utilities you would like to run and click **Next**. The available utilities are:

    - The WebFOCUS Console Verification Utility

- WebFOCUS Online Documentation

The Install Complete window opens, listing the installation directory.

Note:
Online Help is hosted by our servers. 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.

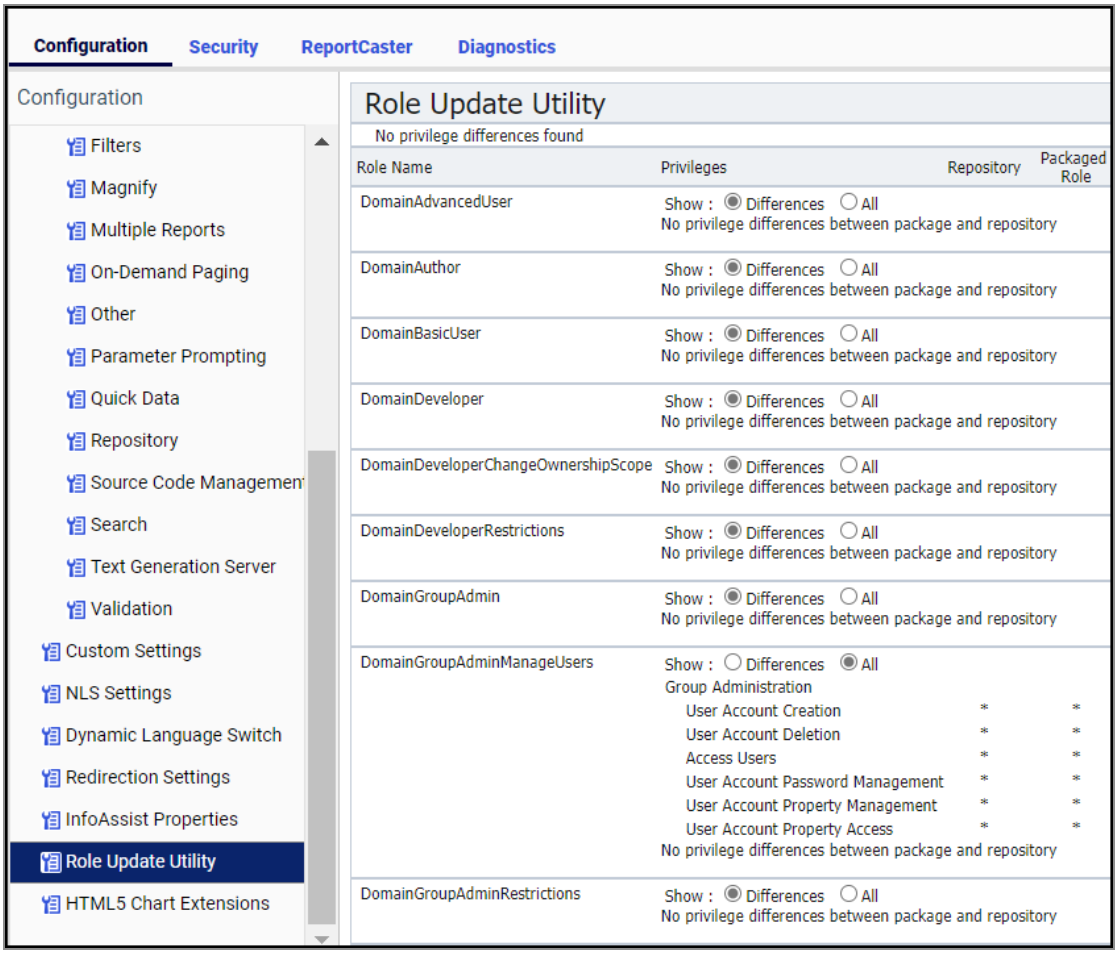
14. If you performed an upgrade installation, ensure that the application server cache is cleared prior to using the new installation.

    In addition, use the Role Update Utility available in the 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 9.3.5.

The *Run Procedures with Insight* and *Designer* privileges are required to use new functionality, run Insight content, and access ibi™ WebFOCUS® Designer.



a. Sign in to WebFOCUS as an administrator.

b. On the ibi™ WebFOCUS® 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 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.

Install Using the Custom Installation Option

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.

Procedure

1. Download the WebFOCUS Client installation file from the eDelivery site at:

   https://edelivery.tibco.com/storefront/index.ep

2. Double-click the executable application file (.exe).
3. Choose the appropriate language from the dropdown list and click **OK**.

   The Welcome to WebFOCUS window opens, recommending that you quit all programs before continuing with the installation.

4. Click **Next** to continue the installation.
5. Select **I accept the terms of the License Agreement**, and click **Next** to continue the installation.

   A message displays indicating that this release includes several updates to search capabilities in WebFOCUS.

   Note:
   - 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.

   The Choose Install Type dialog box opens. Select one of the following:

   - To update your existing installation to a later version, select **Update** and the

existing instance you want to update.

If you select **Update**, a dialog opens with a prompt 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, connection to the database must be available (database must be running). The installation validates the connection to the database and the credentials to ensure permission to perform the import of the Change Management packages.

The Pre-Installation Summary dialog opens. Continue to step 13.

- To install all available features of WebFOCUS, select **Full Install**. Continue to step 6.

6. Click **Next**.

   The Choose Install Set dialog opens.

7. Select **Custom** and click **Next** to continue the installation.

   The Select Program Folder dialog opens.

8. Accept the default program folder (WebFOCUS93) or specify a different program folder name by adding a suffix to the Program Group name. Then, click **Next**.

   > **Note:** A message is displayed if the provided folder name already exists. The folder name must be unique in order to proceed.

   The Choose Destination Locations dialog opens.

9. Perform the following steps:

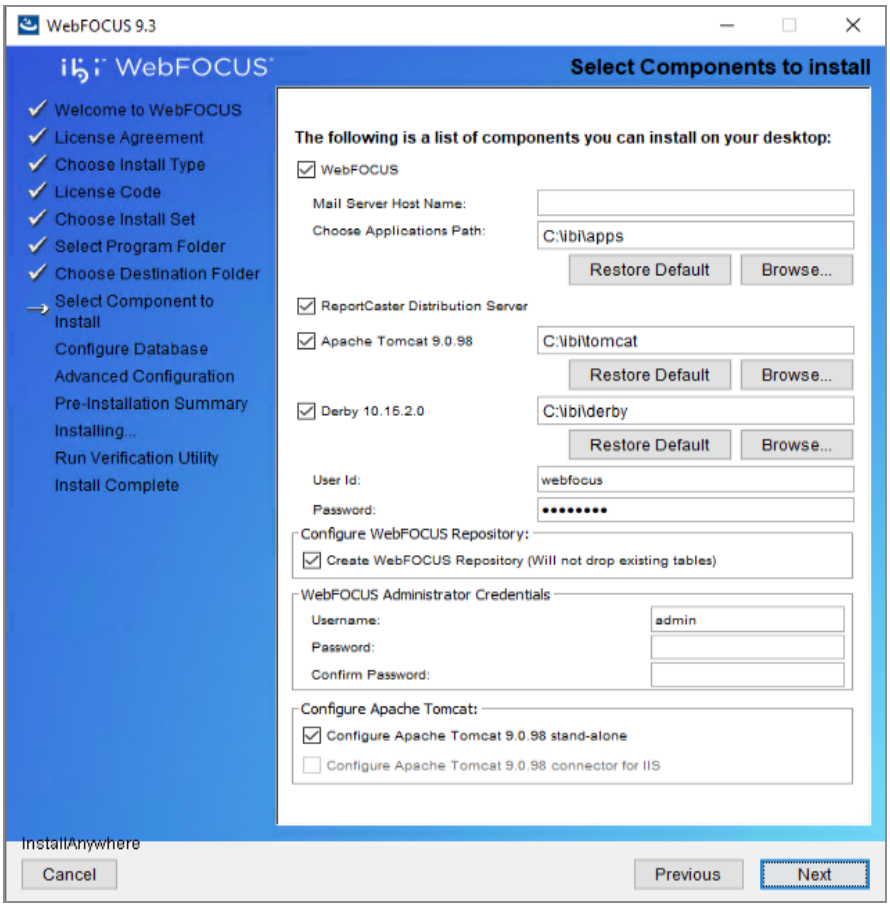
   a. Specify a path for the WebFOCUS application folder. The default is C:\ibi.

      > **Note:** You can specify any path on the local machine or use a Universal Naming Convention (UNC) path.

   b. Choose the appropriate disk from the Disk Space Information dropdown list.

   c. Click **Next**.

   The Select Components to install dialog opens, as shown in the following image.



> **Note:** If you specified a UNC path for the WebFOCUS application folder, then the ReportCaster Distribution Server must be installed separately. In the Select Components to install dialog, the ReportCaster Distribution Server checkbox is not available. In the Advanced Configuration dialog, you must provide the ReportCaster Distribution Server host and port values that correspond to the system where you are going to install the ReportCaster Distribution Server.

10. Perform the following steps:

    a. In the WebFOCUS component area, in the **Mail Server Host Name** field, type the host name or IP address for your mail server.

    b. In the **Choose Applications Path** field, type a path where WebFOCUS applications are saved or accept the default location (`C:\ibi\apps`).

Options to install Tomcat and Derby are enabled if these components are not preinstalled on your system. Allow these options to be installed and configured with WebFOCUS if you want to use default configuration options.

- If you clear the options to install and configure Tomcat, an application server needs to be configured postinstallation.
- If you clear the option to install Derby, or Derby is preinstalled, continue to the next substep.

c. Select a database (for example, Apache Derby or Microsoft SQL Server) from the Configure pre-existing Database dropdown list.

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 re-create the existing tables in the repository if you plan on working with a new WebFOCUS repository. Alternatively, you can run the WFReposUtilCMDLine.bat 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 are prompted for WebFOCUS administrator credentials. The credentials that you enter 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: caret (^), ampersand (&), percent (%), or double quotation mark ("). Refer to the ASCII character table to determine the characters to use for the WebFOCUS administrator credentials.

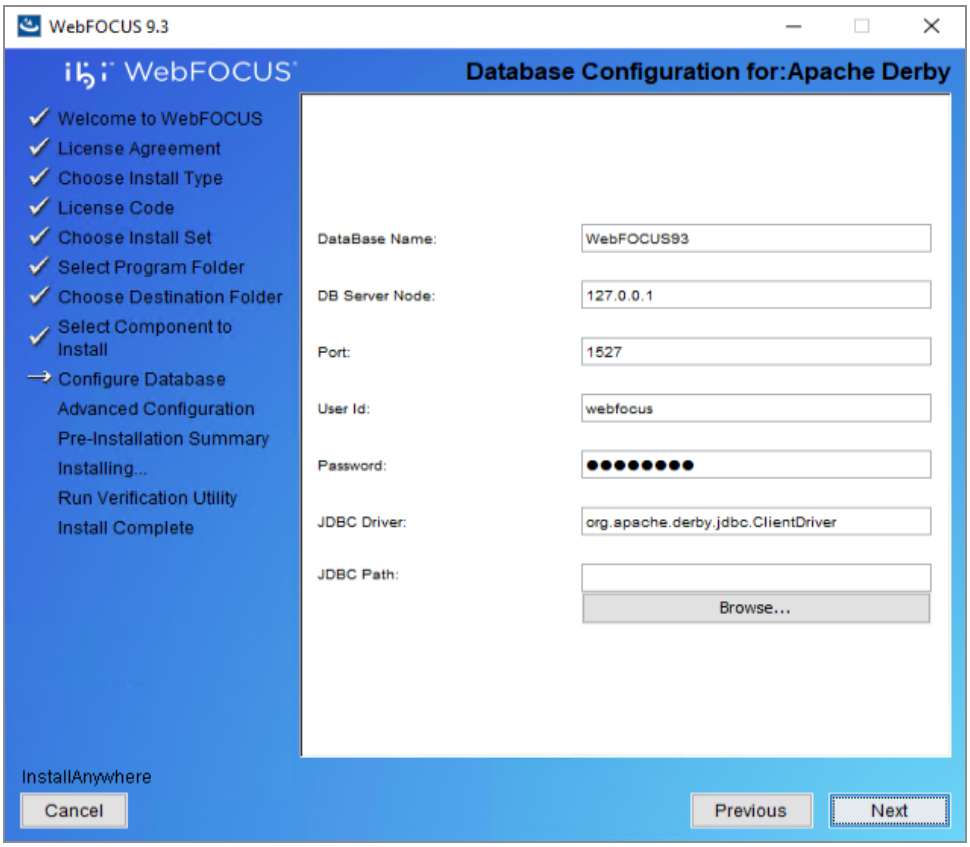
  The password for the user name must be between four and 20 characters. Leading blanks and trailing blanks are removed. You are not prompted for credentials if the *Create WebFOCUS Repository* option is not selected.
- If you select the **Create WebFOCUS Repository** option, the installation checks the database to see if it contains existing tables. If it contains tables, the Create WebFOCUS Repository option is not performed and a message is displayed. In this case, you can:
  - Provide information for a new empty database.
  - Post-installation, create the tables using the WFReposUtilCMDLine WebFOCUS utility. For more information, see ibi WebFOCUS Repository Postinstallation Tasks.

- If you are performing a new installation and pointing to a database created an earlier 8206 or 8207 releaserelease prior to Release 9.3.5, follow the postinstallation steps required to update the database to a Release 9.3.5 level. For more information see, Performing a New Release 9.3.5 Installation Using an Existing ibi WebFOCUS Repository.

- If you want to use a web or application server other than Apache Tomcat, then clear the Configure Apache Tomcat option. The Configure WebFOCUS Client area appear and you must enter the port number that is currently used by your web server in the corresponding field.

d. Click **Next** to accept the remaining default installation components and configuration settings.

The Database Configuration dialog opens, as shown in the following image. In this example, Apache Derby is being configured, since it was the pre-existing database that was selected.


WebFOCUS 9.3
WebFOCUS
Database Configuration for:Apache Derby
Welcome to WebFOCUS
License Agreement
Choose Install Type
License Code
Choose Install Set
Select Program Folder
Choose Destination Folder
Select Component to Install
Configure Database
Advanced Configuration
Pre-Installation Summary
Installing...
Run Verification Utility
Install Complete
DataBase Name:
WebFOCUS93
DB Server Node:
127.0.0.1
Port:
1527
User Id:
webfocus
Password:
JDBC Driver:
org.apache.derby.jdbc.ClientDriver
JDBC Path:
Browse...
InstallAnywhere
Cancel
Previous
Next

Note:

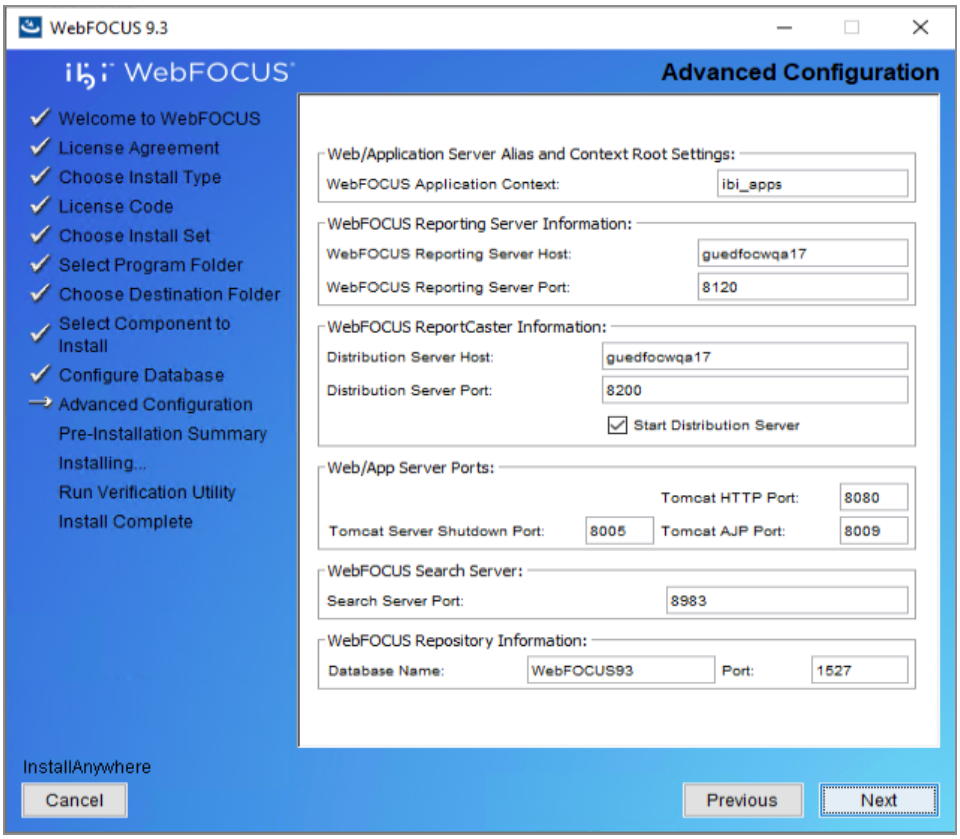
- The Database Configuration for Apache Derby dialog opens if you have an existing version of Derby installed on your system. In this case, the Derby 10.15.2.0 checkbox is not available in the Select Components to install dialog. The Database Configuration for Apache Derby dialog also opens if you clear the Derby 10.15.2.0 checkbox and select the option to use an existing Derby installation.

  If the installer detects an existing Derby installation on the machine, the JDBC Path is populated automatically. Otherwise, the JDBC Path text box is blank, and the user has to enter the full path to the jar files.

- For security reasons, Derby is restricted to localhost by commenting line - `#derby.drda.host=0.0.0.0`. If you want to open up derby to your network, outside of your localhost, then uncomment as follows: `derby.drda.host=0.0.0.0`
- If outside resources such as your application server or report caster are on different machines than the derby server, then derby needs to be opened up to the network. You can do this by uncommenting `#derby.drda.host=0.0.0.0`

11. Click **Next**.

    The Advanced Configuration dialog is displayed as shown in the following image.



12. Perform the following steps:

    a. In the WebFOCUS **Application Context** field, type a context root or accept the default (ibi_apps).

    b. In the WebFOCUS Reporting Server **Host** field, type a host name or accept the default. The default WebFOCUS Reporting Server host is the name of the machine where WebFOCUS is being installed.

    c. In the **WebFOCUS Reporting Server Port** field, type a server port or accept the default (8120).

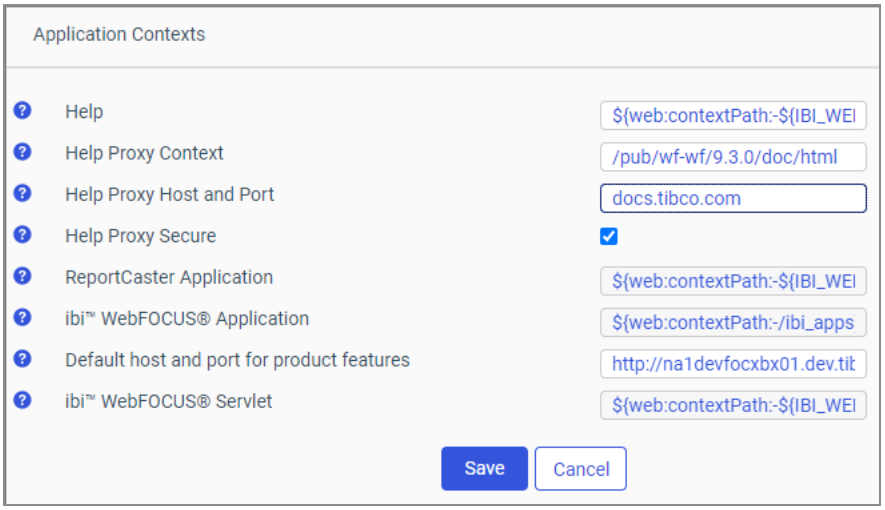
    d. In the **Distribution Server Host** field, type a host name. The default Distribution Server host is the name of the machine where WebFOCUS is being installed.

    e. In the **Distribution Server Port** field, type a server port or accept the default (8200).

    f. In the Web/App Server Ports area, specify the port values that are being used by your application server.

g. In the WebFOCUS Search Server area, the installation checks if default port 8983 is open and available to use. If the port is in use (busy), the installation program checks for another port and allows you to change and specify a custom port.

Note: Online Help is hosted by our servers and the WebFOCUS Help Context field has been removed from the Advanced Configuration dialog. 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.

13. Click **Next** to continue the installation.

    The Pre-Installation Summary window opens.

14. Verify that all of the information is correct and click **Install** to continue with the configuration and installation.

    As WebFOCUS is being configured on your system, the Please Wait window is

displayed.

After WebFOCUS is configured, the Installing WebFOCUS dialog opens. As WebFOCUS is being installed, the Installing WebFOCUS dialog informs you about the installation tasks that are being performed.

When the installation is complete, the Run Verification Utility dialog appears.

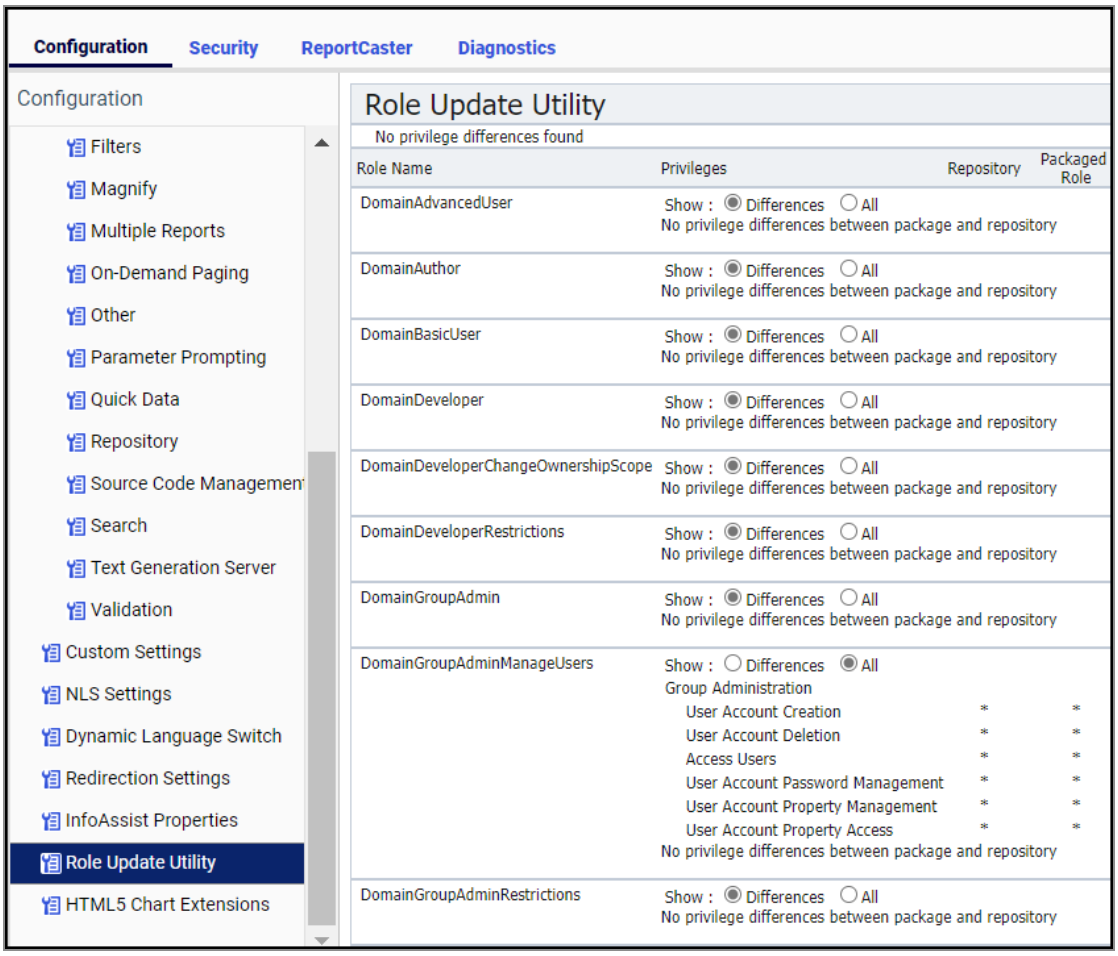
15. Select the verification utilities you would like to run and click **Next**. The available utilities are:
    - The WebFOCUS Console Verification Utility
    - WebFOCUS Online Documentation

    The Install Complete window opens, listing the installation directory.
16. If you performed an upgrade installation, ensure that the application server cache is cleared prior to using the new installation.

    In addition, use the Role Update Utility available in the 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 9.3.5. 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 WebFOCUS® 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 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.

Install ibi 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.

Procedure

1. To generate the silent install properties file from the command prompt, navigate to the directory where the `IBI_wf-wf_release_win_x86_64.exe` file resides.
2. Enter the following command:

   ```
   IBI_wf-wf_release_win_x86_64.exe -r drive:\fullpath\name.properties
   ```

   Note:
   - Replace *release* with the specific WebFOCUS release, for example, `IBI_wf-wf_93_win_x86_64.exe`.
   - Always generate the properties file before performing the silent install to ensure that the properties are correct.
   - The properties file has the extension `.properties`.
   - You need to specify the full path to where the properties file are created.

3. To install in silent mode, navigate to the directory where the `IBI_wf-wf_93_win_x86_64.exe` file resides and enter the following command:

   ```
   IBI_wf-wf_93_win_x86_64.exe -i silent -f
   drive:\fullpath\name.properties
   ```

Troubleshooting the Installation

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

  1. Start the Command Window with the option **Run as administrator** and either of the following commands:

     ```
     set _JAVA_OPTIONS=-Xmx1024m

     set _JAVA_OPTIONS=-Xmx2048m
     ```

     > **Note:** The set `_JAVA_OPTIONS=-Xmx2048m` command is recommended.

     The memory allocated through this command must be available on your system.

     This is a temporary variable applicable for the duration of the Command Window session.

  2. From the same Command Window, navigate to the location of the WebFOCUS installation program and run the installation program.

- The following are the main trace files for the installation. The names are generated with a date and random number, where *userprofile* is the user ID logged on during the installation.

  ```
  C:\Users\userprofile\WebFOCUS93_inst_date_######.log

  C:\Users\userprofile\WebFOCUS93_Install_inst_date_######.log
  ```

  If the server cannot find the Java VM, the JSCOM Listener is not able to start and the messages are written to the server log file (`edaprint.log`), stating that the Java VM cannot be found. To resolve this issue, specify the location of the Java VM in `JDK_HOME` or `IBI_JNIPATH`. For more information, see the *ibi™ WebFOCUS® Reporting Server Installation* guide.

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.

About Upgrading From Release 8207.28 or Earlier to Release 9.3.5

You cannot upgrade directly from Release 8206 or earlier to Release 9.3.5.

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 9.3.5.

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 9.3.5.

To upgrade from Release 8207.28:

- Upgrade from Release 8207.28 to Release 9.3.5.

Upgrading from an Earlier Release to Release 9.3.5

A database update is required to enable you to use an existing Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x database with Release 9.3.5.

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. Database updates are performed when upgrading from Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x.

- If a database update is required, the `db_lb_update.bat` 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:

C:\ibi\WebFOCUS93\utilities\dbupdate\db_lb_update.bat
```

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` 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_Vnn.zip`, where *nn* is the version of the package.
  - `roles.zip`
  - `pgx_page_templates_Vnn.zip`, where *nn* is the version of the package.
  - `themes_Vnn.zip`, where *nn* is the version of the package.

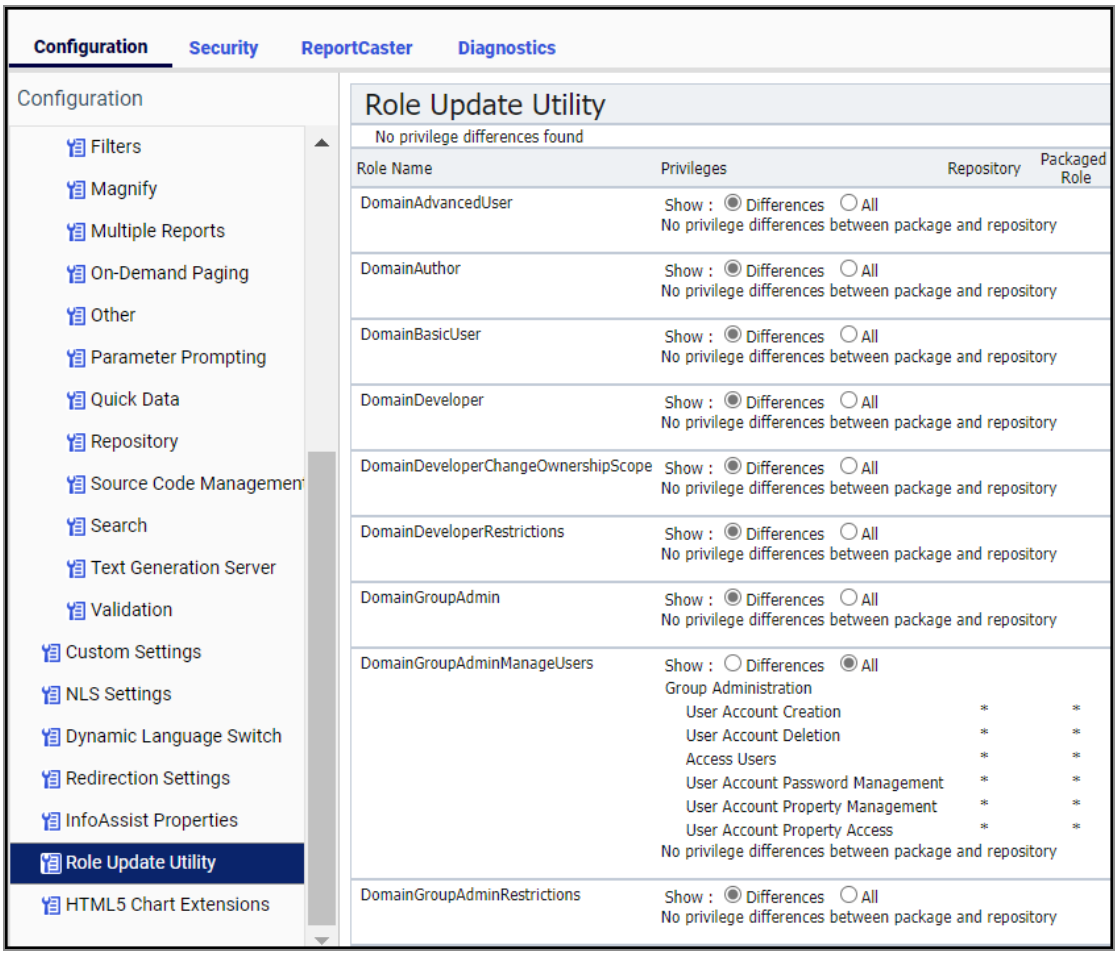
  You are prompted for WebFOCUS Administrator credentials during the installation. If communication to the database is not available, or the provided credentials do not have permissions to import Change Management packages, you must manually run the `update_repos` utility postinstallation. See Manually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

  Note: This step is required for all Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x upgrades to Release 9.3.5.

- Use the Role Update Utility available in the 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 9.3.5. The *Run Procedures with Insight* and *Designer* privileges are required to use new functionality, run Insight content, and access WebFOCUS Designer.



1. Sign in to WebFOCUS as an administrator.
2. On the WebFOCUS 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 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. **Important:**
   When using a WebFOCUS repository created in Release 9.1:
   From your existing Release 9.2.x installation location, copy `\ibi\WebFOCUS92\utilities\lib\webfocus-applications.jar` to `\ibi\WebFOCUS91\utilities\lib\versions\prior\` of the new 9.3.5 installation location.
3. Run the `db_lb_update.bat` utility. The `db_lb_update` database utility is stored in the *drive*:\ibi\WebFOCUS93\utilities\dbupdate folder.

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

4. Type the database repository user name and password, when prompted.

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

5. Press **Enter** to accept the default database update.
6. After a successful database update, clear the application server cache and then start the application server.
7. Confirm that the connection to WebFOCUS is functional and that the content is correct.

8. Run the following utility to load new roles and BI Portal page templates into the WebFOCUS repository:

   `drive:\ibi\WebFOCUS93\utilities\WFReposUtil\update_repos.bat`

   You are prompted to provide WebFOCUS administrator credentials.

   This utility imports the following Change Management packages:

   - *drive*`:\ibi\WebFOCUS93\features\bip\managers_group_and_rules.zip`
   - *drive*`:\ibi\WebFOCUS93\features\bip\bip_page_templates_V`*nn*`.zip`, where *nn* is the version of the package.
   - *drive*`:\ibi\WebFOCUS93\features\bip\pgx_page_templates_V`*nn*`.zip`, where *nn* is the version of the package.
   - *drive*`:\ibi\WebFOCUS93\features\bip\themes_V`*nn*`.zip`, where *nn* is the version of the package.
   - *drive*`:\ibi\WebFOCUS93\features\roles\roles.zip`.

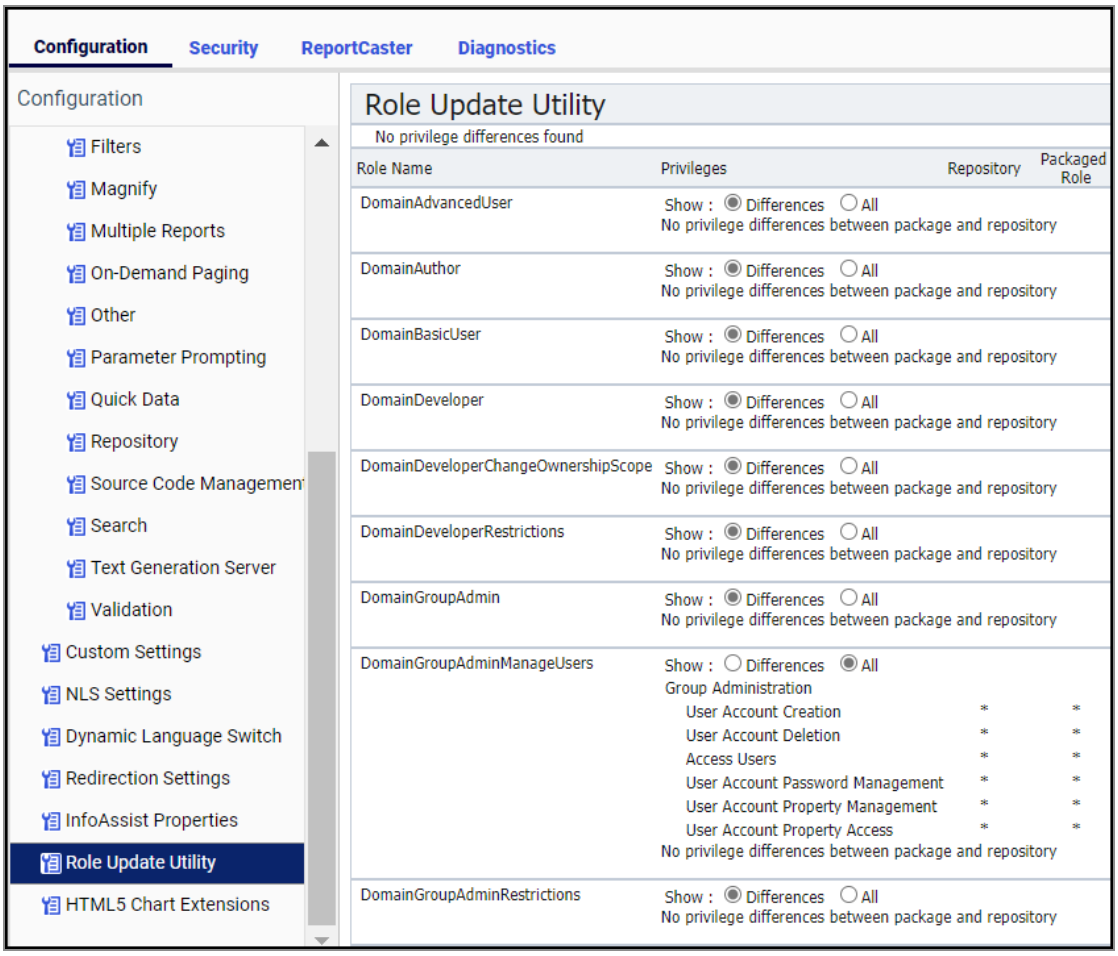
   Logs are created in the `drive:\ibi\WebFOCUS93\application_logs` folder under the following names:

   - `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`

9. Use the Role Update Utility available in the 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 9.3.5. 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 WebFOCUS 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 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.bat` 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, you need to run the `db_convertfr.bat` utility to restore your Favorites and Recents contents.

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

Administrators can run the `db_convertfr.bat` 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.bat` from the command line and specifying a parameter.

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.

```
cd /d C:\ibi\WebFOCUS93\utilities\dbupdate
db_convertfr.bat 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 *drive*`:\ibi\WebFOCUS93\utilities\dbupdate\db_check_version.bat` 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 *drive*`:\ibi\WebFOCUS93\logs` folder.

    - Log names for the dbupdate and dbcheck utilities are named lbupdate_<*timestamp*>.log and db_check_version__<*timestamp*>.log and are created in the *drive*:\ibi\WebFOCUS93\application_logs folder.

- If the database update was successful, and the application server fails to start and 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.
- **ReportCaster configuration postinstallation:**
    - Upgrades remove and recreate the WebFOCUS ReportCaster service.
    - 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.

Note:

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

  drive:\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:

  drive:\ibi\WebFOCUS93\backup_files_02.22.2021.13.46\

- 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 9.3.5 from an earlier release, the installation program installs and configures Solr as done for new installations and creates a Windows Service named *WebFOCUS Search Server WF93*.

The Solr software is installed under the WebFOCUS installation directory, for example, `\ibi\WebFOCUS93\Solr\` and the software is configured to use default port 8983.

Perform the following steps if you want to modify the port number used by the Search Server.

1. Stop the *WebFOCUS Search Server WF93* service.
2. Remove the service, using the `\ibi\WebFOCUS93\Solr\remove_solr_service.bat` command.
3. Edit the `\ibi\WebFOCUS93\Solr\ibi_solr_service_cfg.ps1` file and change the port number by modifying the `$solrPort = '8983'` line. Ensure that the new port number is available and not used by another application.
4. Install the new service, using the `\ibi\WebFOCUS93\Solr\install_solr_service.bat` command.
5. Update the service startup type and set it to *Automatic*.
6. If you changed the Solr Server port, you should also apply it in the Solr URL setting of the 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 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 9.3.5

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 9.3.5 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 9.3.5:

- 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 9.3.5 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 9.3.5:

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 9.3.5 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:

   ```
   ..\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:

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

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

      The `install.cfg` file in Release 9.3.5 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 9.3.5 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 9.3.5

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 9.3.5.
- **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 9.3.5 version of the file.
- **cgivars.wfs.** Settings stored in the `..\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. Changes to settings applied 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.bat`.

   For example, for release Release 9.2.x, run `..\ibi\WebFOCUS92\utilities\dbupdate\db_lb_update.bat`.

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 9.3.5 Installation Using an Existing ibi WebFOCUS Repository

The following procedure describes how to perform a new Release 9.3.5 installation while using a WebFOCUS repository from an earlier Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 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 the database from an earlier release Release 8207.28, Release 9.0.x, Release 9.1.x, or Release 9.2.x that is to be used by the new Release 9.3.5 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 9.3.5.

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

5. During the installation of Release 9.3.5, specify the type of database repository, as well as the database repository information for the earlier database repository that you are using. Specifically, in the Select Components to install dialog, under 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 selected.

6. Next, type the database repository name, connection, and configuration information.

   > **Note:** The credentials you provide need privileges to create and edit database tables.

   After completion, the new installation of Release 9.3.5 is available in the *drive*:\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 Release 9.2.x database repository from the earlier release is stored, is running.
9. Run the `drive:\ibi\WebFOCUS93\utilities\dbupdate\db_lb_update` utility.

   > **Note:**
   > - You are 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.

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

    `drive:\ibi\WebFOCUS93\utilities\WFReposUtil\update_repos.bat`

    You are prompted to provide WebFOCUS administrator credentials.

    This utility imports the following Change Management packages:

    - `drive:\ibi\WebFOCUS93\features\bip\managers_group_and_rules.zip`
    - `drive:\ibi\WebFOCUS93\features\bip\bip_page_templates_V`*nn*`.zip`, where *nn* is the version of the package.

- *drive*:\ibi\WebFOCUS93\features\bip\pgx_page_templates_V*nn*.zip, where *nn* is the version of the package.
- *drive*:\ibi\WebFOCUS93\features\bip\themes_V*nn*.zip, where *nn* is the version of the package.
- *drive*:\ibi\WebFOCUS93\features\roles\roles.zip.

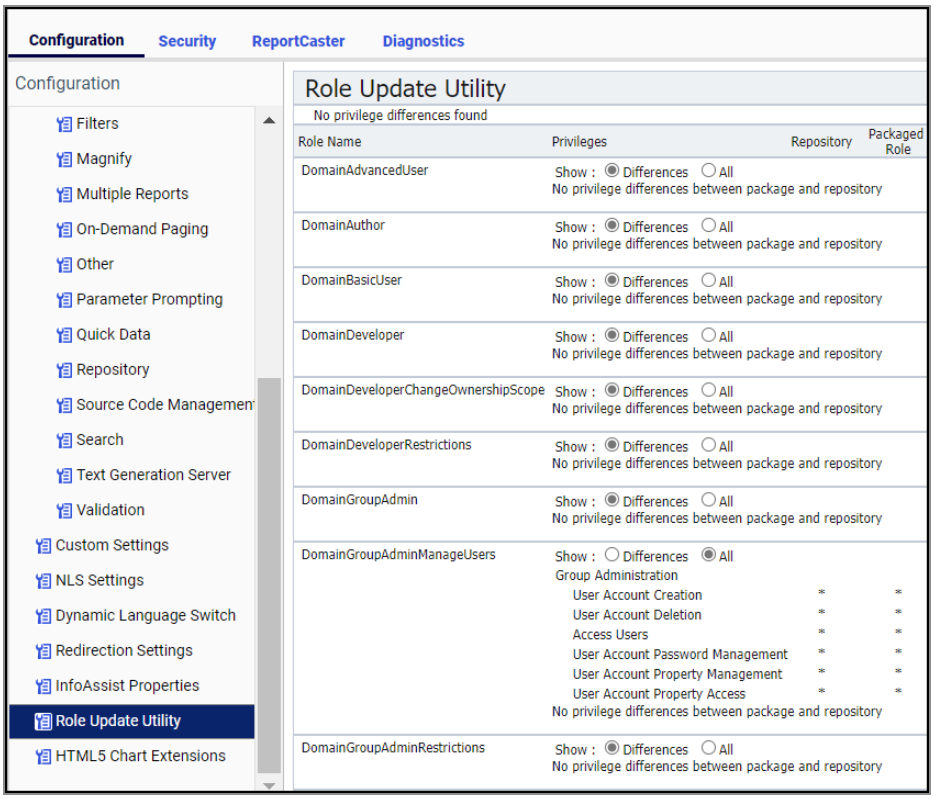
Logs are created in the drive:\ibi\WebFOCUS93\application_logs folder under the following names:

- 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

13. Use the Role Update Utility available in the 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 9.3.5. 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 WebFOCUS 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 see a message that identifies new roles and high-level differences between your existing roles.

d. E xamine 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.

ibi WebFOCUS Client and ibi WebFOCUS ReportCaster Directory Structures

After installation, the WebFOCUS Client and ReportCaster directory structures are created.

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:

```
drive:\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:

```
/WebFOCUS93/backup_files_05.22.2021.13.46/
```

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:

```
drive:\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.

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.

File Permissions for ibi WebFOCUS Client Directories

Since the WebFOCUS Client runs as part of your web and application servers, the user IDs that run web and application server processes require access to the WebFOCUS Client directories. For Windows, default NTFS permissions are usually sufficient. However, the necessary steps depend on your web and application server.

- **For Tomcat,** there is normally no need to set NTFS permissions. When Tomcat runs as a service, it runs as the Local System account which has sufficient permissions, by default.

  You can optionally enhance security by changing the user ID under which Tomcat runs to an ID with less authority on the machine, and then setting NTFS permissions

for this user ID. For more information, see Additional ibi WebFOCUS Configuration Options.

- **For other web and application servers,** consult your web and application server documentation to determine the user IDs under which your servers run. If your servers do not run as Windows services, the default file system permissions are probably sufficient.

For additional information about permissions and security, see the *ibi™ WebFOCUS® Security and Administration* guide.

Uninstalling the ibi WebFOCUS Client

Prior to uninstalling the WebFOCUS Client software, ensure that the application server and HTTP server used by WebFOCUS are stopped, and that the WebFOCUS ReportCaster WF93 service is also stopped. You can use the following options to uninstall the WebFOCUS Client:

- The Information Builders app from the Start menu. You can uninstall the software by selecting the release version folder. For example, WebFOCUS 93. Then double-click the shortcut. `WebFOCUS 93`.
- The command line by executing the uninstall program. For example, run the command `Uninstall_WebFOCUS93.exe`. For example:

  ```
  C:\ibi\Uninstall_WebFOCUS\Uninstall_WebFOCUS93.exe
  ```

- A silent uninstall, using the command line, by adding the option `-i silent` after the uninstall executable file. For example:

  ```
  C:\ibi\WebFOCUS93\Uninstall_WebFOCUS93\Uninstall_WebFOCUS93.exe -i
  silent
  ```

Configuring Web and Application Servers

This chapter explains how to configure web and application servers to run WebFOCUS. If the WebFOCUS installation configured them for you and the verification tool ran successfully, then this chapter is optional. However, you should review it if you need to troubleshoot. In addition, if you are new to Apache Tomcat or WebFOCUS, it is a good idea to review this chapter to understand what was configured.

The term application server is used in this section to refer to a servlet container, J2EE Engine, or application server.

The following abbreviation is used for the drive letter of the ibi directory where you install WebFOCUS components on your system:

```
drive:\
```

Substitute the actual letter on your system when reviewing procedures and examples in this document. Procedures and examples assume default locations and directory names. If you change defaults, substitute accordingly.

Configuration Overview and Options

WebFOCUS Client components run as part of web servers and application servers. Configuration steps vary depending on which web servers or application servers you use. 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.

- **Apache Tomcat Stand-alone**

  Tomcat can be used as both the web server and application server. If you choose this option, be aware that the default HTTP port for Tomcat is 8080, not 80. Therefore, when calling web server pages in a browser, you must use:

  ```
  http://hostname:8080
  ```

  instead of

```
http://hostname
```

Manual configuration is described in Configuring Apache Tomcat.

- **Microsoft IIS and Apache Tomcat**

  Tomcat can be used as the application server while Microsoft IIS is used as the web server. This requires two servers and the configuration of their communications.

  Manual configuration is described in Configuring Apache Tomcat.

- **Other**

  Other web servers or application servers can be manually configured. Review your server documentation and perform steps that correspond to the information that follows.

  If no web server is available, an application server can be used to handle all processing if the application server has robust HTTP capabilities.

Configuration Steps Overview

The following is an overview of the steps needed to configure web or application servers for WebFOCUS. For Apache Tomcat, you can review this overview or proceed directly to Configuring Apache Tomcat.

The steps vary depending on the type of configuration you use:

- **Web Server and Application Server Configuration** (aliases and web applications). In a standard configuration, you can create aliases to traditional static web content in a WebFOCUS directory (ibi\apps) and you deploy the webfocus.war web application on your application server. This is supported when both a web 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.

  You can also use the web server to only pass requests to Tomcat through a firewall. In that case, you must deploy all three web applications on your application server.

- **Application Server Only Configuration** (all web applications). For application servers like IBM WebSphere, Oracle WebLogic, Oracle Application Server, SAP NetWeaver, and Oracle Java System Application Server, you can 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 ibi 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. Add the WebFOCUS repository JDBC driver to your application server CLASSPATH.

   For information on JDBC drivers, see Additional ibi WebFOCUS Repository Topics and Tasks.

3. 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:

   ```
   drive:\ibi\WebFOCUS93\webapps\webfocus.war
   ```

   It is also provided as the following expanded directory:

   ```
   drive:\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. For Tomcat stand-alone, using the expanded directories is recommended. 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	drive:\ibi\WebFOCUS93\webapps\webfocus.war
/approot	drive:\ibi\WebFOCUS93\webapps\approot.war

If you are using a web server, you can create aliases for the static content. This maps directories containing WebFOCUS data to directories the web server can reference. The default setting is:

Default Alias	Path	Access
approot	drive:\ibi\apps	Read Only

On some Windows Servers, you may need to grant Scripts only executable permissions, as well.

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

Configuring Apache Tomcat

This section explains how to manually configure Apache Tomcat for use with WebFOCUS. The WebFOCUS installation provided the option to install and configure Apache Tomcat for you. If you chose this option and the verification tool ran successfully, you do not need to

manually configure Tomcat. However, if you are new to Tomcat or receive errors, you should review this section to understand the configuration process.

There are two configurations available when using Apache Tomcat:

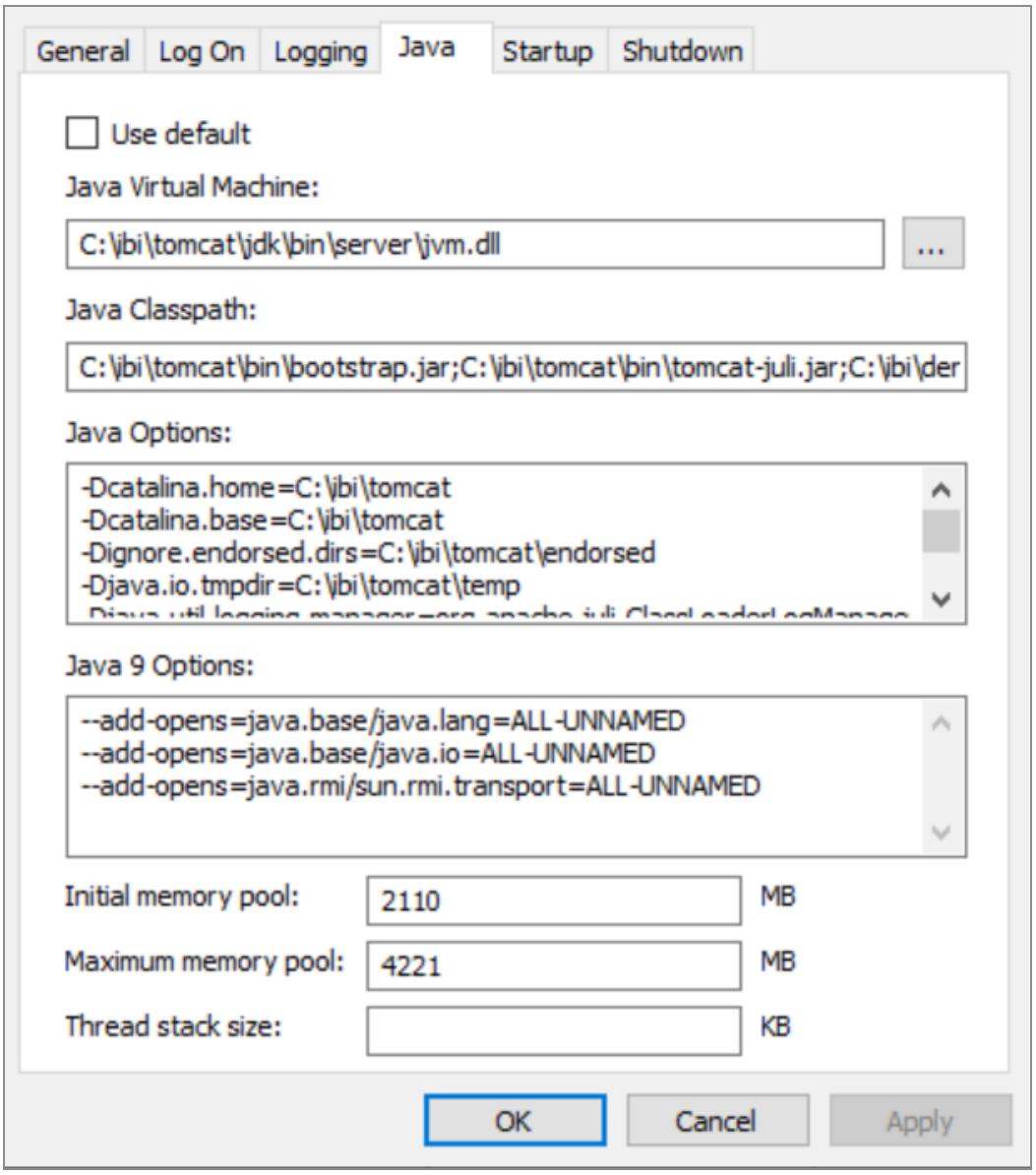
- Tomcat can be used as both a web server and application server. This is referred to as a Tomcat stand-alone configuration and all WebFOCUS processing is done by Tomcat.
- Microsoft IIS can be used as the web server and Tomcat can be used as the application server. This requires configuring two servers and their communications. Processing is then split between Tomcat and IIS.

> **Note:** To use IIS to only forward requests to Tomcat through a firewall, configure a Tomcat stand-alone configuration, as explained in this section, and then manually configure the Tomcat Connector.

Java Memory Requirement

You may need to adjust the Java VM memory options if you run into performance issues.

Open the Tomcat Configuration Utility and select the **Java** tab, as shown in the following image.



Ensure that the Initial memory pool size is at least 1024 MB and that the Maximum memory pool size is at least 2048 MB.

Preparing Tomcat for ibi WebFOCUS

It is assumed that Tomcat is installed at this time. If Tomcat is not installed, you can install it from the WebFOCUS Client installation or by downloading the installation utility from:

http://tomcat.apache.org/

If you chose to have WebFOCUS configure Tomcat for you, the following steps were performed:

- The default Java memory options were increased. Manually increasing the memory options is explained in Java Memory Issues.
- If you use ReportCaster, CLASSPATH was set. Manually setting CLASSPATH is explained in Configuring Apache Tomcat.
- Contexts were created to deploy or set up aliases for WebFOCUS content. Manually creating contexts is explained in Configuring Apache Tomcat.

The following steps can be performed to further configure Tomcat:

- You can secure the web administration tools installed with Tomcat.
- You can change the default ports that Tomcat uses. This is not normally required, but can be changed, as explained in Configuring Apache Tomcat.
- 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:

  1. Edit the $CATALINA_BASE/conf/server.xml file.
  2. In the Connector port section, add the following attribute:

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

  3. Save and close the file.
  4. Restart Apache Tomcat.

Set CLASSPATH for the Repository Tables

The JDBC driver location must be in the Tomcat CLASSPATH. Tomcat runs as a Windows service, so CLASSPATH is set in the registry. If you chose to configure Tomcat when you installed WebFOCUS, the installation should have set this for you.

To manually set Java Classpath or troubleshoot, check your Classpath field and be sure to include the JDBC driver.

Note: If the driver does not appear, add a semicolon (;) to the end of the **Java Classpath** field. Then, add the absolute path to the JDBC driver for your repository. If more than one file is needed, separate each path with a semicolon (;). Spaces can occur in directory names, but not between the paths and the semicolons (;). Be sure to include the file name and not just the directory containing the file. For example:

```
C:\ibi\tomcat\bin\bootstrap.jar;C:\drivers\sqljdbc.jar
```

For information on JDBC drivers, see Additional ibi WebFOCUS Repository Topics and Tasks.

Tomcat Ports

By default, Tomcat uses the three TCP ports listed below.

Default Port	Name	Use
8080	HTTP Listener Port	You access Tomcat in a web browser using this port. For example: `http://hostname:8080`
8009	Connector Port	Web servers route requests to Tomcat on this port. The Tomcat connector (plug-in) for IIS uses this port. If you change this port and use the connector, change the port in the workers.properties file of the connector.
8005	Shutdown Port	Tomcat uses this port for internal operations and for stopping.

You normally do not need to change these ports. However, if these ports are not available or you want to change them, do the following:

1. Open the following file in a text editor:

   ```
   C:\ibi\tomcat\conf\server.xml
   ```

2. Search for the port numbers you want to replace (8080, 8009, 8005) and replace them with the ports you want to use.
3. Save and exit the file.

If you change defaults, substitute accordingly in procedures and examples.

Creating ibi WebFOCUS Contexts for 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:

```
drive:\ibi\WebFOCUS93\webapps\webfocus
```

when it receives a request for the WebFOCUS context root:

```
http://hostname:8080/ibi_apps/
```

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

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

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

Context (path)	Directory (DocumentBase)
`/ibi_apps`	`drive:\ibi\WebFOCUS93\webapps\webfocus.war`

Context (path)	Directory (DocumentBase)
`/approot`	`drive:\ibi\WebFOCUS93\webapps\approot.war`

- When using Tomcat as the application server and IIS as the web server, create the following context on Tomcat:

Context (path)	Directory (DocumentBase)
`/ibi_apps`	`drive:\ibi\WebFOCUS93\webapps\webfocus.war`

The approot context is then created as an alias (Virtual Directories) on IIS. IIS is then configured to send requests for ibi_apps to Tomcat.

Configure Apache Tomcat

Procedure

1. Stop Tomcat from the Windows Services window by right-clicking **Apache Tomcat** and choosing **Stop**.
2. Navigate to the following directory in File Explorer:

```
<catalina_home>\conf\Catalina\localhost
```

> **Note:** If you have an existing version of Tomcat, not installed by a version of WebFOCUS, the directory will be under:
>
> ```
> <catalina_home>\conf\Catalina\localhost
> ```

This directory can contain XML files that define contexts. If the WebFOCUS installation installed and configured Tomcat for you, the following file should appear

to define the ibi_apps context that deploys the WebFOCUS directory:

```
ibi_apps.xml
```

If you are using Tomcat stand-alone, the following should appear, as well:

```
approot.xml
```

The XML files are named for the context root you would use to access the web application and should have the following syntax:

```
<?xml version='1.0' encoding='utf-8'?>

<Context docBase="path_To_WebApplication" path="/contextRoot">

</Context>
```

where:

path_To_WebApplication

Is the absolute path to the WAR file or directory you are deploying.

contextRoot

Is the context root.

> **Note:** They can optionally contain additional information, as explained in the Tomcat documentation.

You can create or edit the files in a text editor, such as Notepad.

3. If the `ibi_apps.xml` file does not exist, create it. For example:

```
<?xml version='1.0' encoding='utf-8'?>

<Context docBase="C:\ibi\WebFOCUS93\webapps\webfocus" path="/ibi_
apps" useHttpOnly="true">

</Context>
```

Be sure to specify the correct directory on your machine and change the context root

if you are not using the default (ibi_apps).

4. If you are using Tomcat stand-alone, create an `approot.xml` file if it does not exist. For example:

```
<?xml version='1.0' encoding='utf-8'?>

<Context docBase="C:\ibi\apps" path="/approot">

</Context>
```

   Be sure to specify the correct directory on your machine.

5. Restart Tomcat from the Services window.

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 a new installation. When you upgrade WebFOCUS, 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 previously deployed the expanded directories, the new web applications should be used automatically, but you should remove the following work directory and then restart Tomcat:

```
<catalina_home>\work\Catalina\localhost\ibi_apps
```

  `<catalina_home>\work\Catalina\localhost\approot` (if previously deployed)

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

```
<catalina_home>\conf\Catalina\localhost\ibi_apps.xml
```

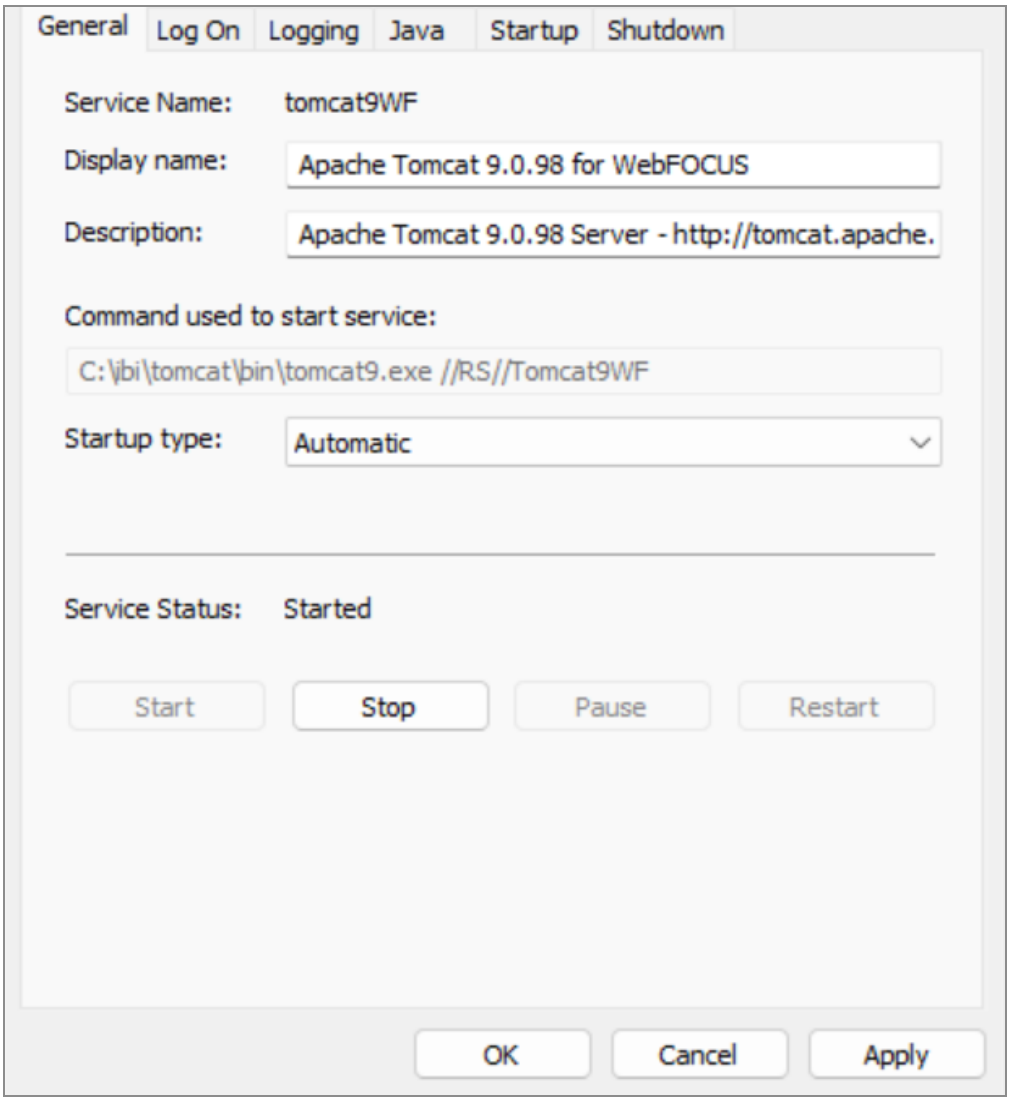
```
<catalina_home>\work\Catalina\localhost\ibi_apps
```

```
<catalina_home>\webapps\ibi_apps
```

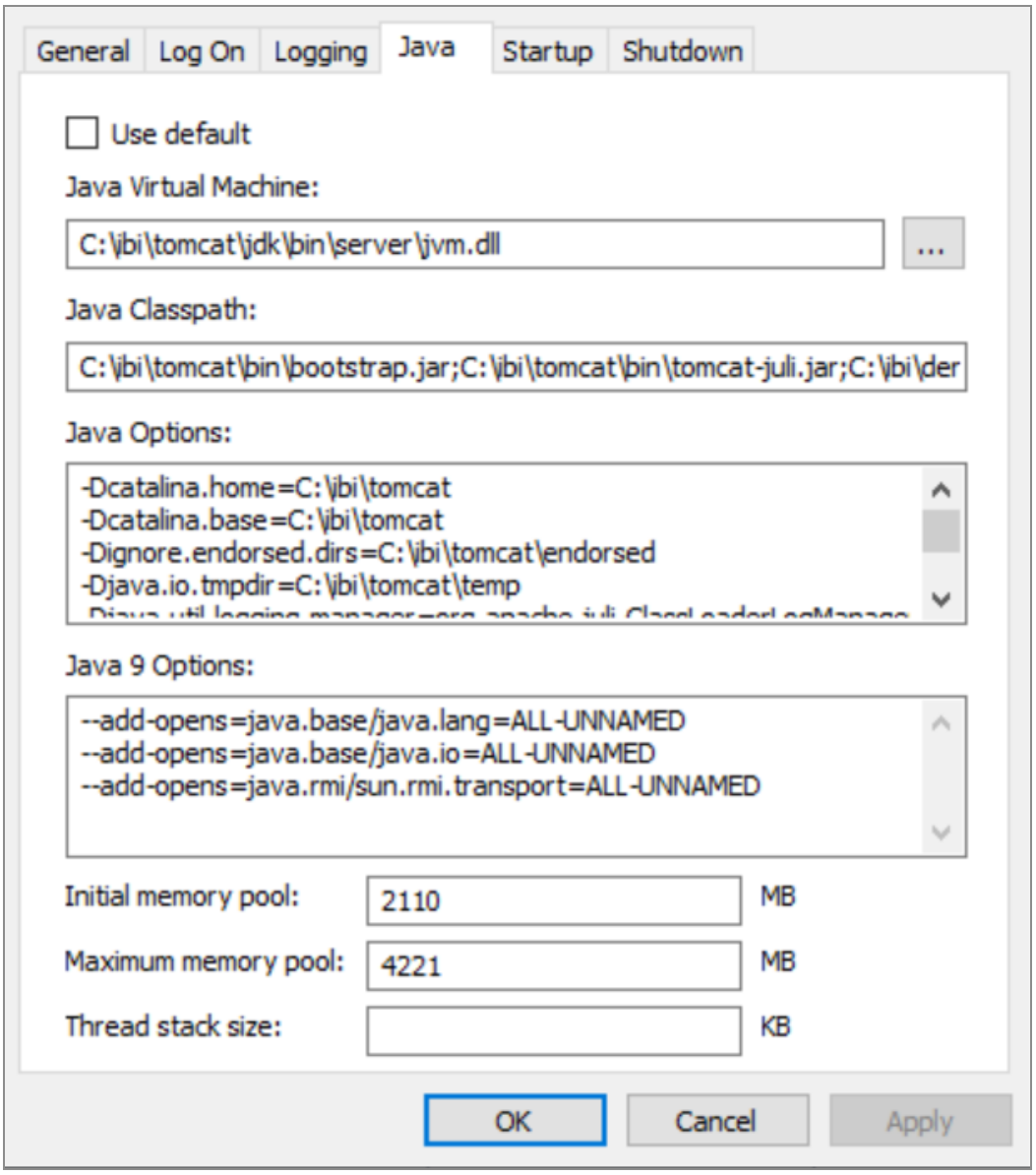
Note: When you deploy WAR files, Tomcat expands them into its own directory structure and does not always know the original location.

Accessing the Shortcut to the Apache Tomcat Properties Window

You can access the Apache Tomcat Properties window by selecting **Programs**, **Information Builders**, **Tomcat**, and then **Tomcat Configuration Utility**. The following image shows the Apache Tomcat 9.0.105 for WebFOCUS Properties window.



To change Java memory settings, click the **Java** tab.



If required, you can use this tab to modify the Java memory settings after installation.

Accessing the Tomcat Manager Application

The Tomcat Manager application is packaged with Apache Tomcat. It provides basic functionality to manage web applications that are deployed to Apache Tomcat. It can be used to troubleshoot issues with the deployment or to manually deploy .war files, if required. The Tomcat Manager application is not deployed automatically.

Verifying the ibi WebFOCUS Configuration With Apache Tomcat

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

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
   ```

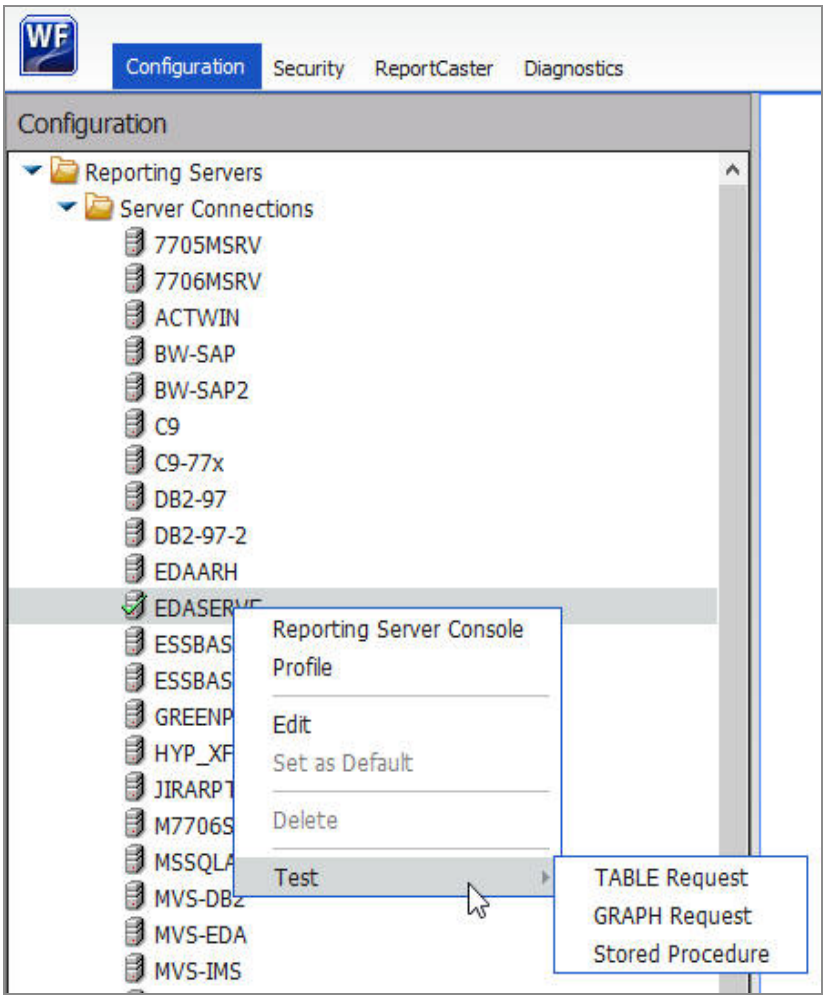
   where:

   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. For Tomcat stand-alone configurations, the default port is 8080. 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**.
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:

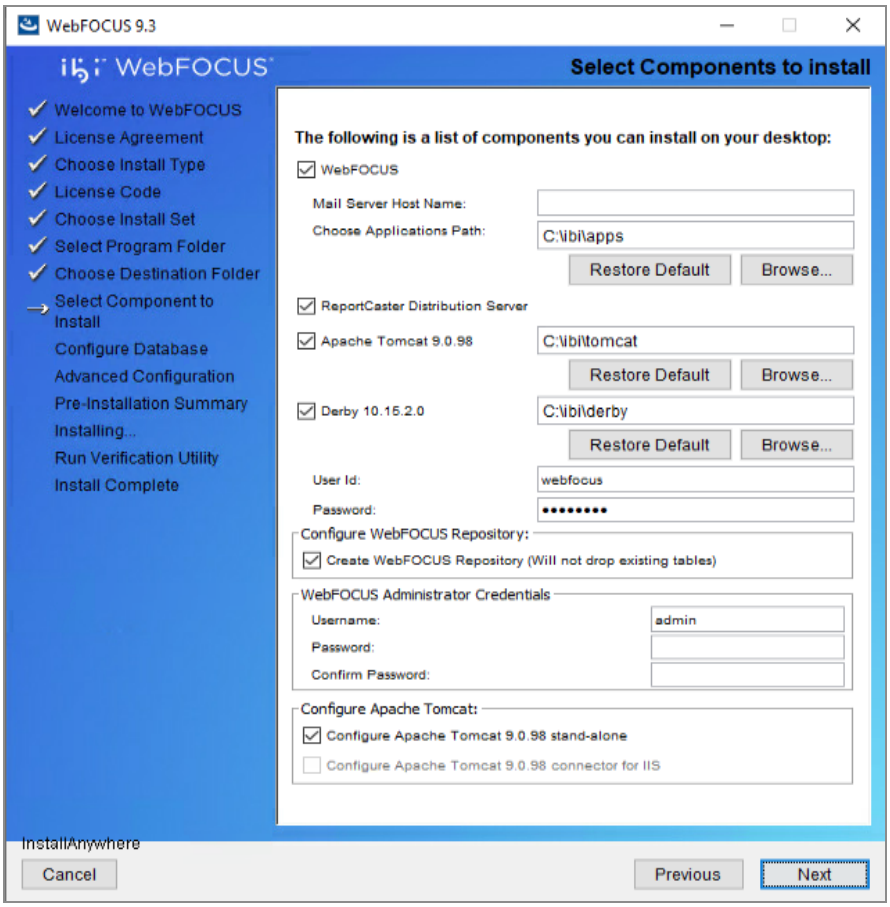
   ```
   http://host:[port]/ibi_apps/WFServlet?IBIF_ex=carinst
   ```

8. If you are using Tomcat stand-alone, proceed to ibi WebFOCUS Client Postinstallation Tasks.

Configuring Microsoft IIS

This section describes how to configure WebFOCUS on a Windows machine that is using Microsoft IIS version 10. As a prerequisite, ensure that the Microsoft IIS web server is already installed, along with the ISAPI Extension and ISAPI Filters components.

During the WebFOCUS installation, the Select Components to install screen opens, as shown in the following image.



Select **Configure Apache Tomcat** and click **Next** to continue with the installation.

The installation configures WebFOCUS by using the Microsoft IIS web server and Tomcat as the application server.

WebFOCUS installs the IIS Tomcat plugin, `isapi_redirect.dll`, in the following location:

```
C:\Program Files\Apache Software Foundation\Jakarta Isapi
Redirector\bin\
```

Manually Configuring Microsoft IIS Version 10

When installing the WebFOCUS Client, if you have **Configure Apache Tomcat connector for IIS** selected, and you receive a message that you must configure the IIS Tomcat plug-in, finish the installation, and then perform the following procedures.

Manually Configure Microsoft IIS Version 10

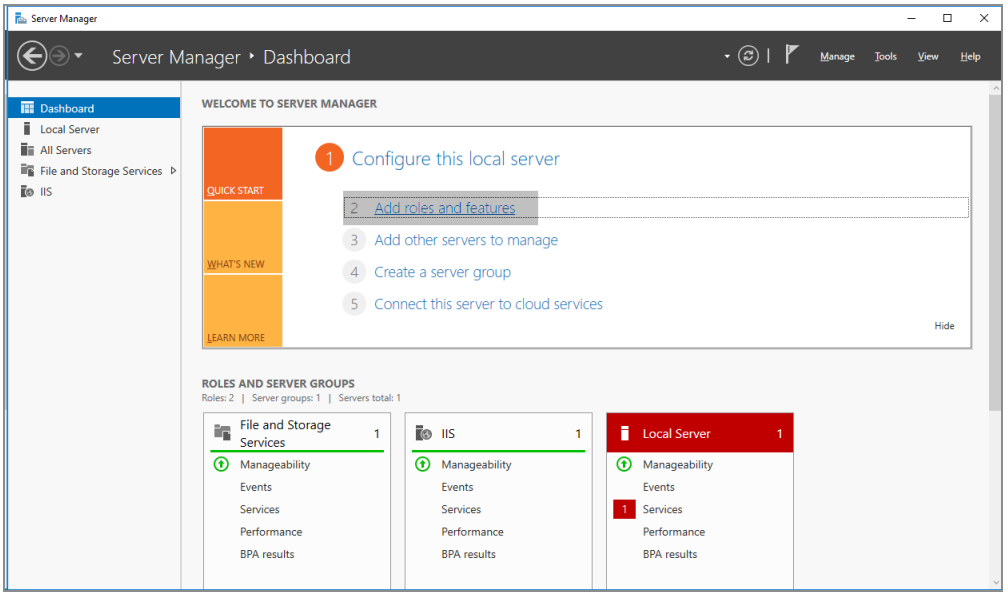
Note: The following procedure describes how to manually configure Microsoft IIS version 10 on a Windows server. Depending on the version of Windows you use, the steps and images may vary.

To manually configure Microsoft IIS version 10 on a Windows server:

Procedure

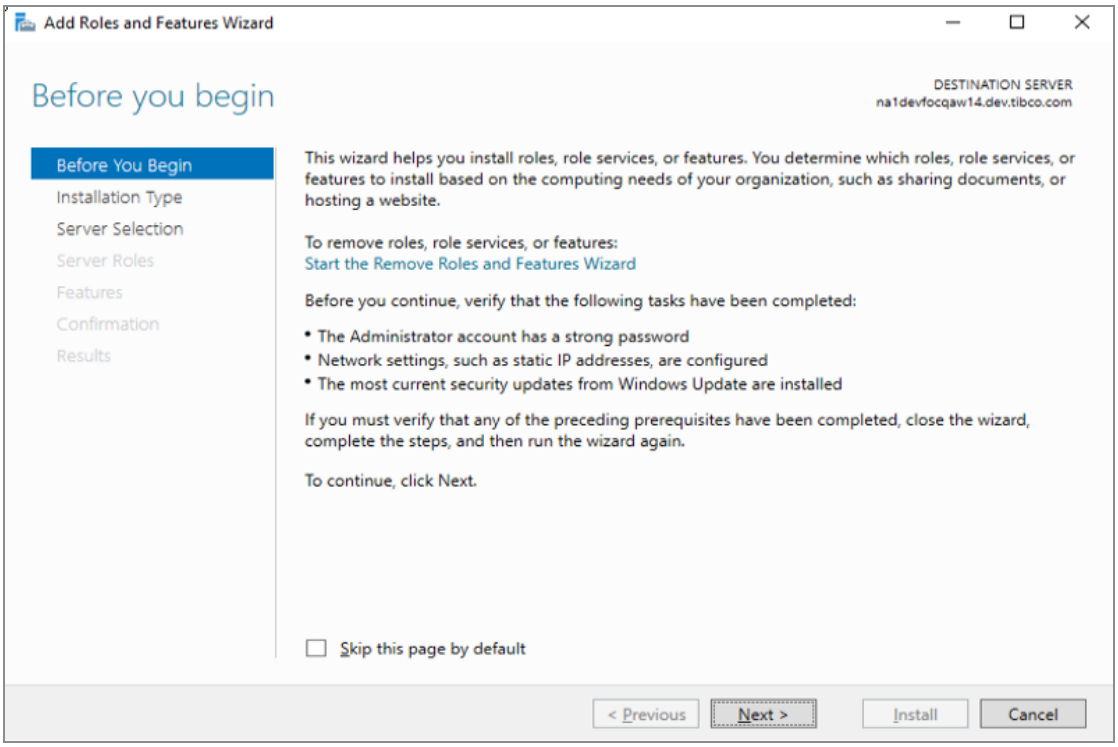
1. Open the Windows Server Manager on your system.

   The Server Manager Dashboard opens, as shown in the following image.



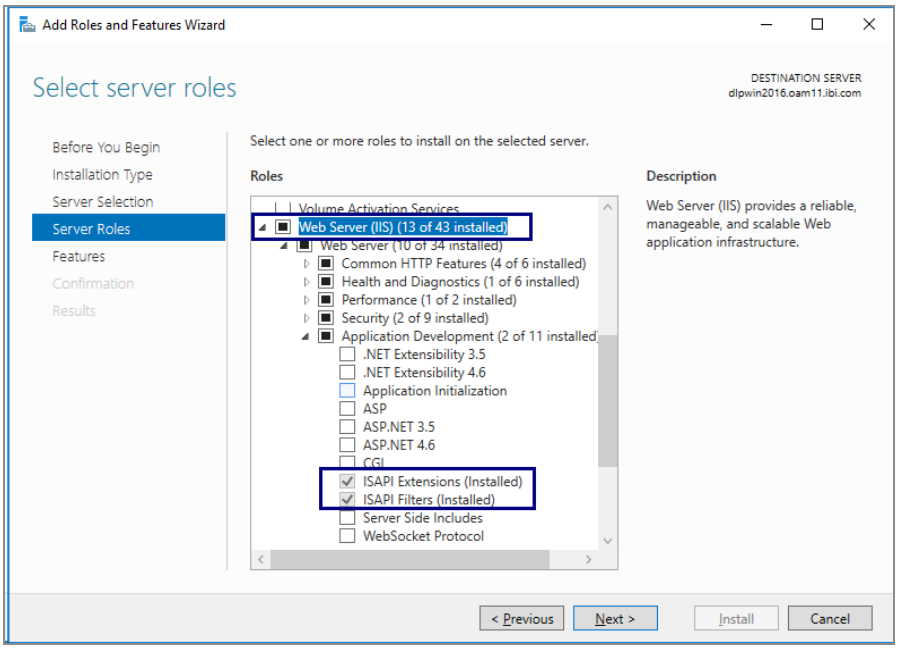
2. In the upper right on the banner, click **Manage** and then select **Add Roles and Features**.

The Add Roles and Features Wizard opens, as shown in the following image.

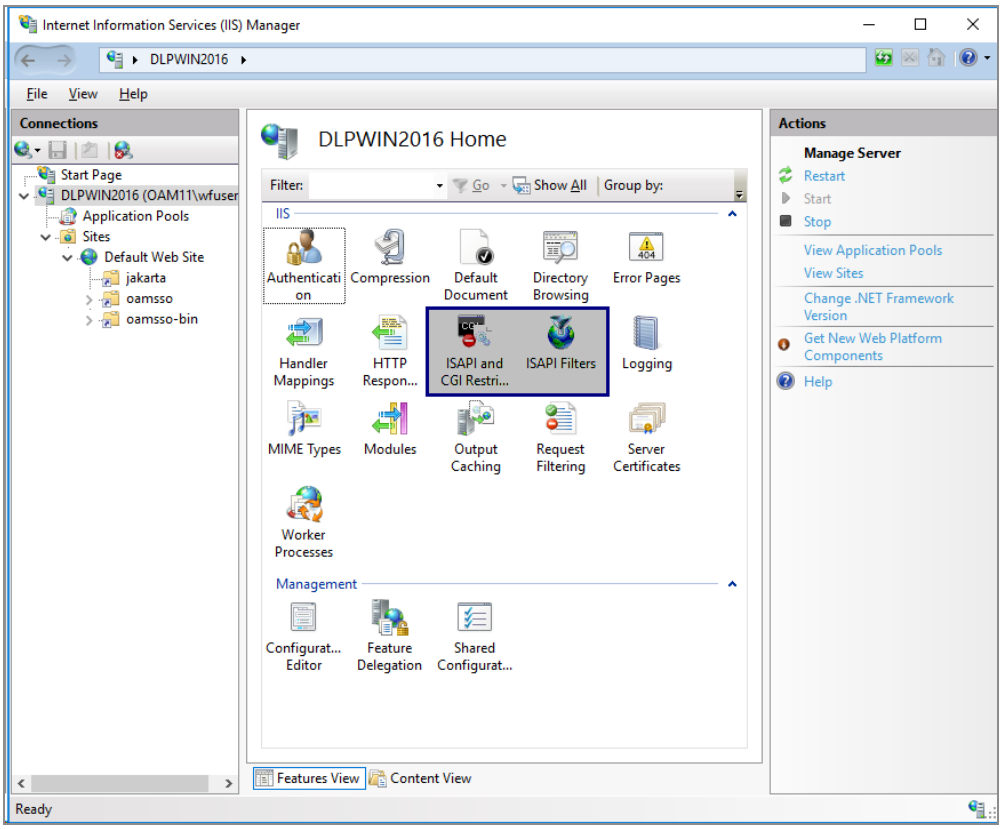


3. Continue clicking **Next**, until you get to the Server Roles page.
4. On the Select server roles dialog, ensure that the following components are installed:
    - Web Server (IIS)
    - Under the Web Server/Application Development section:
        - ISAPI Extensions
        - ISAPI Filters

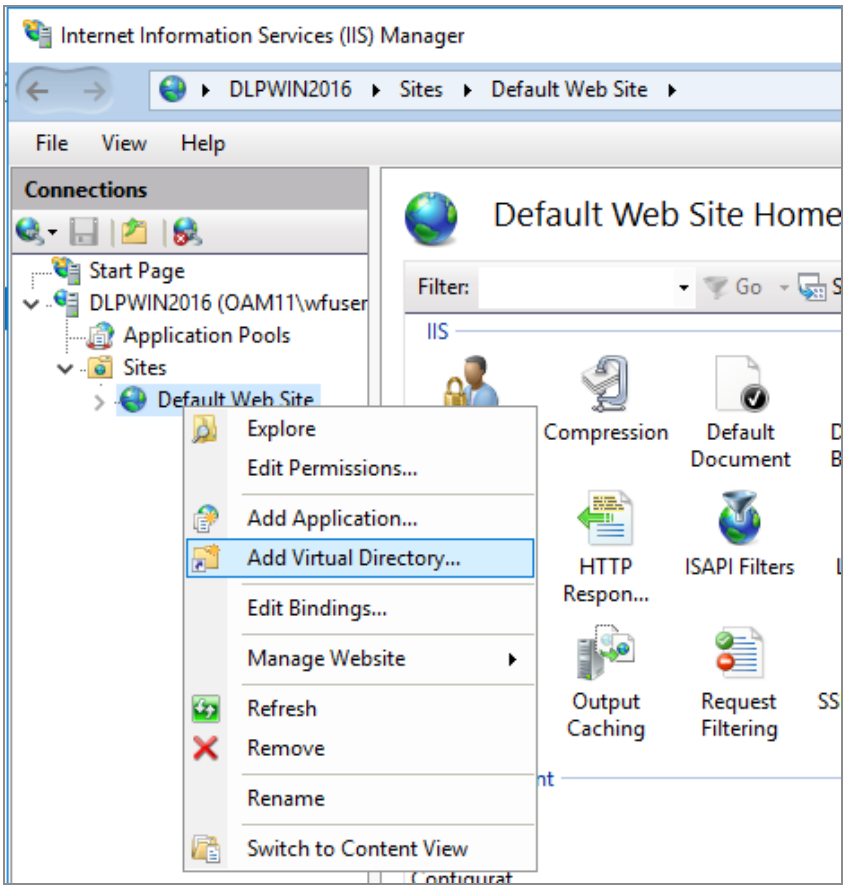
The Select server roles dialog is shown in the following image.



5. After the selected services are installed, open the Internet Information Services (IIS) Manager.

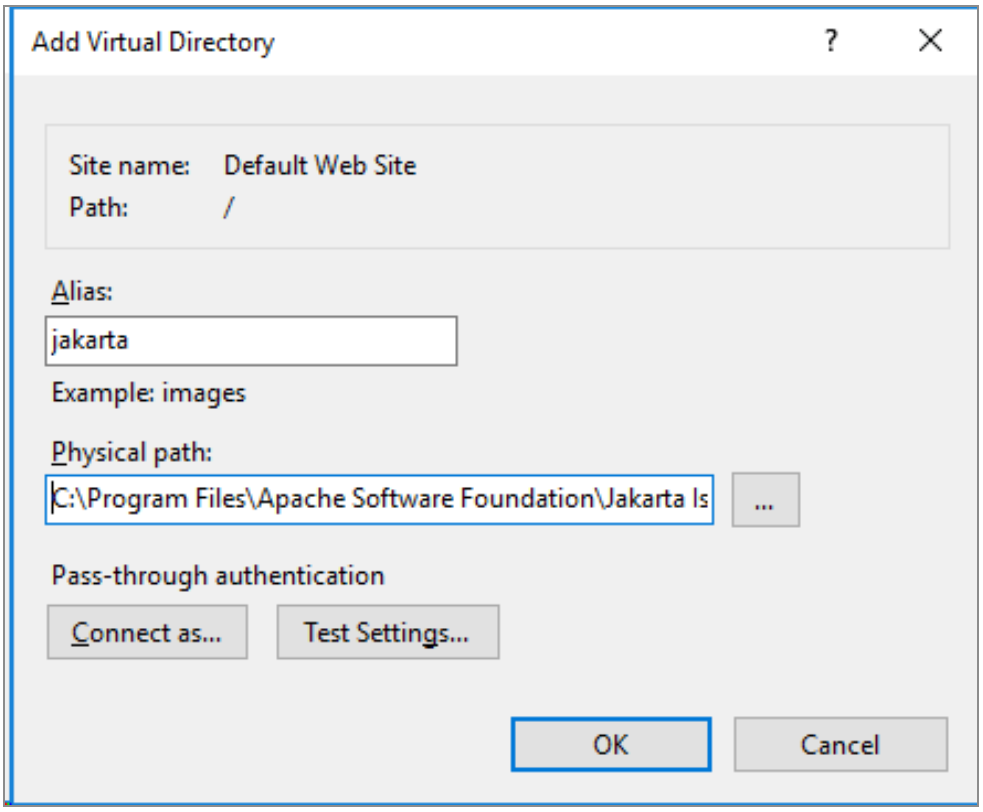


6. Ensure that the following services are available:
    - ISAPI and CGI Restrictions
    - ISAPI Filters
7. In the left pane, expand the **Sites** node, as shown in the following image.



8. Right-click **Default Web Site** and select **Add Virtual Directory** from the context menu.

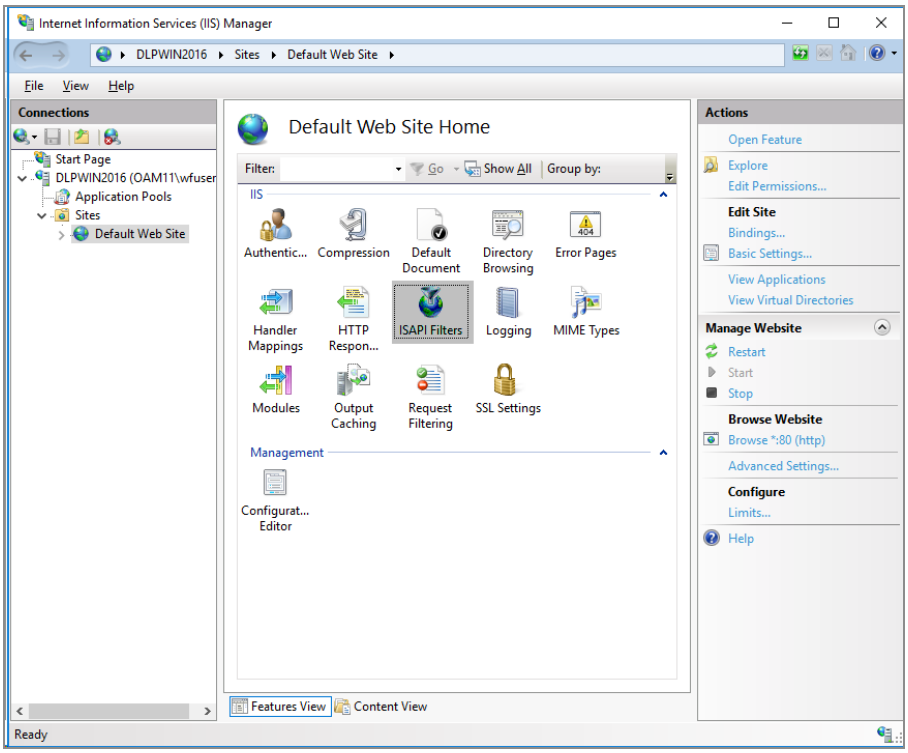
   The Add Virtual Directory dialog opens, as shown in the following image.



9. In the Alias field, type **jakarta**.
10. In the Physical path field, navigate to the location of the isapi_redirect.dll file. WebFOCUS installs this file in the following directory:

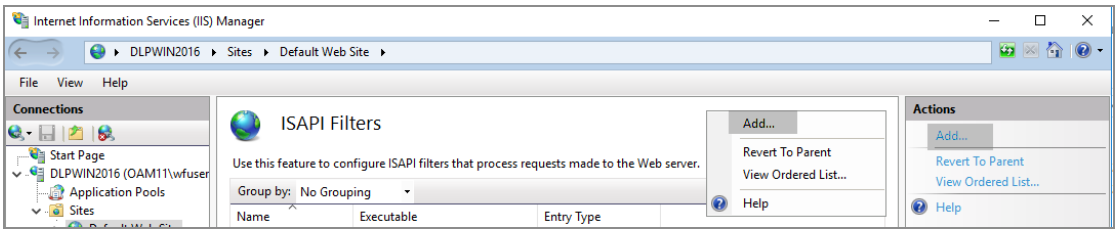
```
C:\Program Files\Apache Software Foundation\Jakarta Isapi
Redirector\bin
```

11. Click **OK**.
12. In the left pane, select the **Site** node that will be used to access WebFOCUS, as shown in the following image.



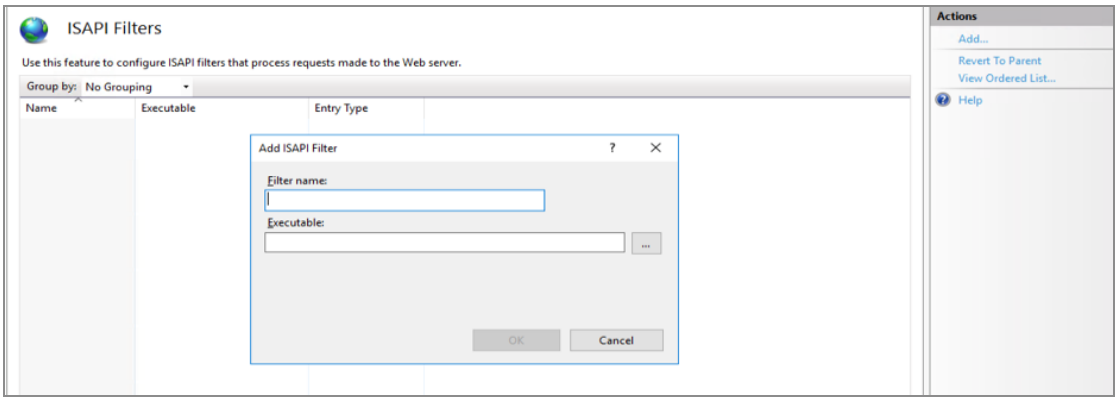
13. Double-click **ISAPI Filters**.

    The ISAPI Filters pane opens, as shown in the following image.



14. Click **Add** in the Actions pane. You can also right-click the ISAPI Filters pane and select **Add** from the context menu.

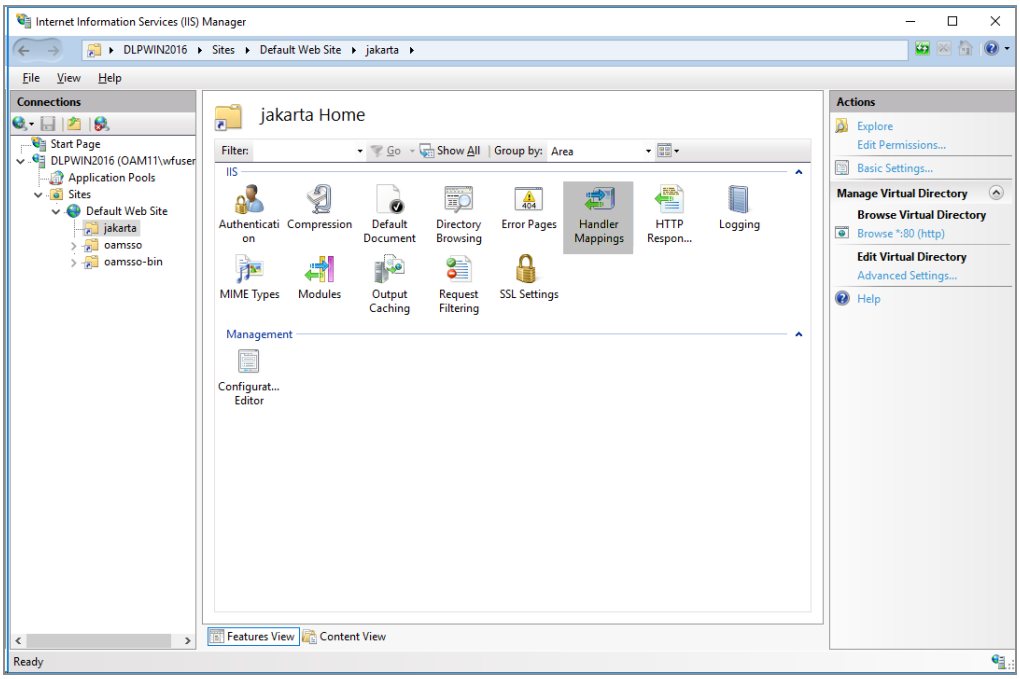
    The Add ISAPI Filters dialog opens, as shown in the following image.



15. In the Filter name field, type the name of the ISAPI filter.
16. In the Executable field, navigate to the location of the isapi_redirect.dll file. WebFOCUS installs this file in the following directory:

```
C:\Program Files\Apache Software Foundation\Jakarta Isapi
Redirector\bin
```

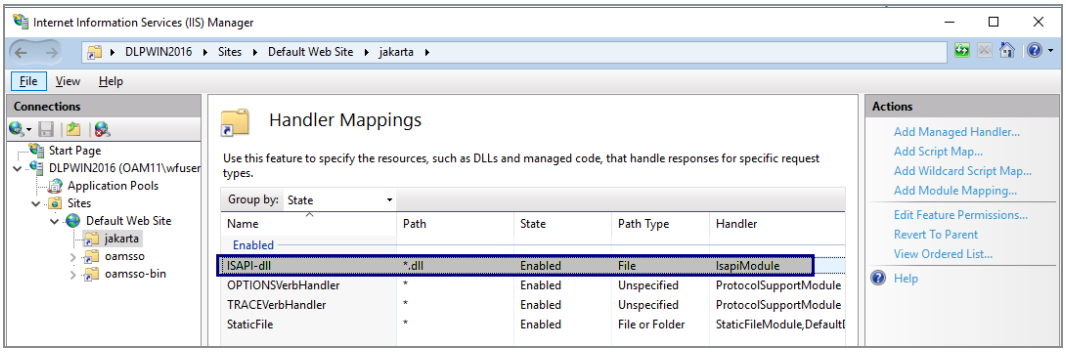
17. Click **OK**.
18. In the left pane, expand the **Web Site** node used for WebFOCUS and select the **jakarta** node, as shown in the following image.



19. Double-click **Handler Mappings**.

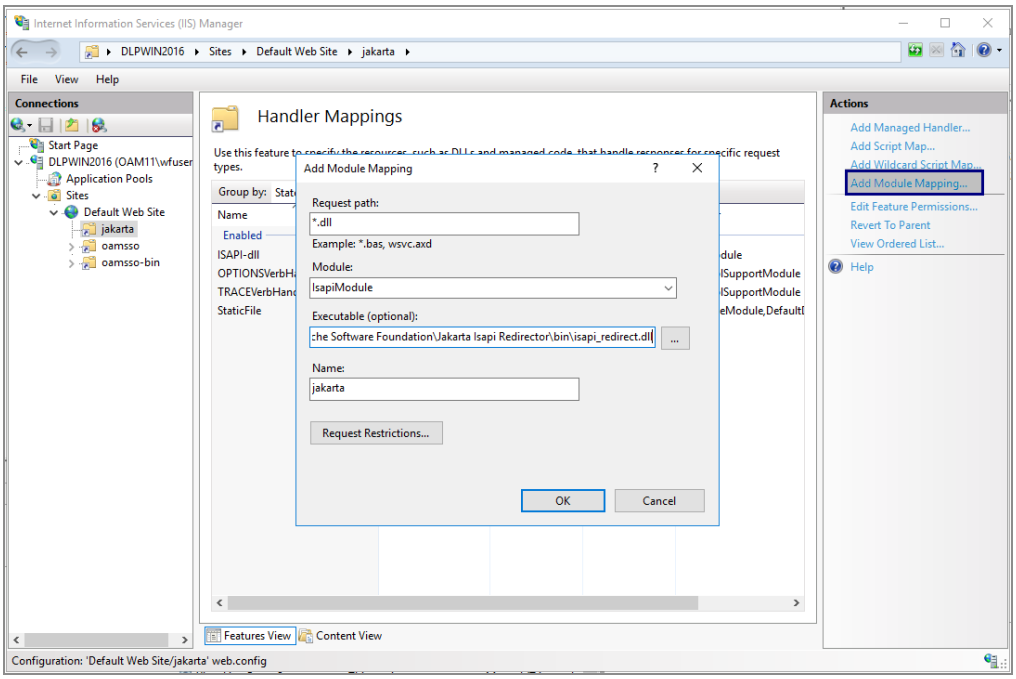
    The Handler Mappings pane opens, as shown in the following image.

    If the ISAPI module is not already available, then perform steps 20 through 28.



20. Click **Add Module Mapping** in the right pane.

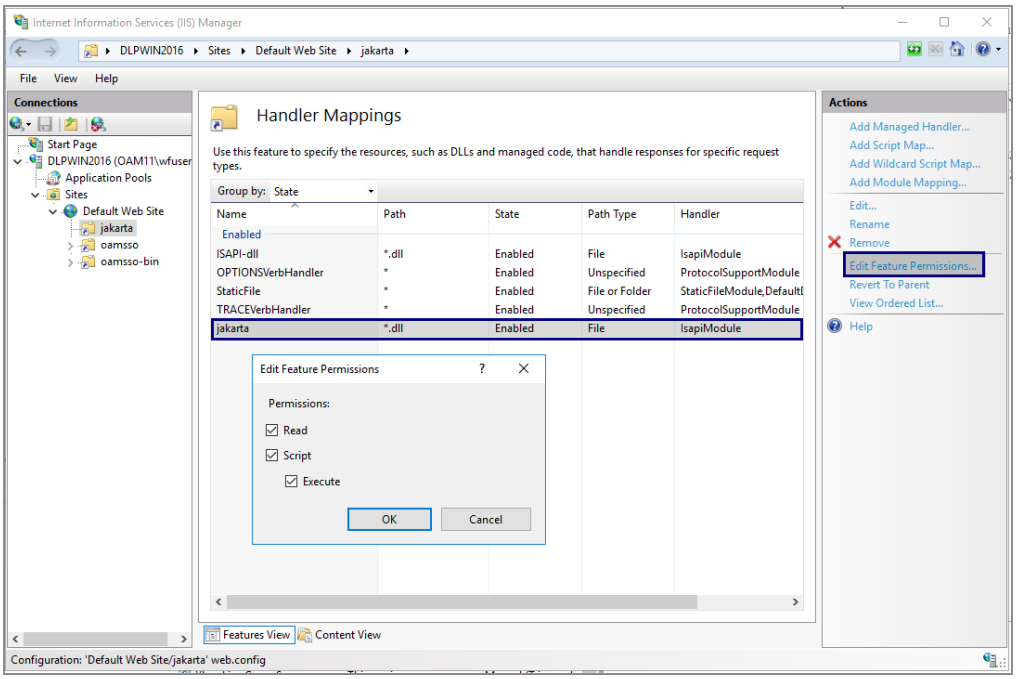
    The Add Module Mapping dialog opens, as shown in the following image.



21. In the Request path field, enter ***.dll**.
22. From the Module dropdown list, select **IsapiModule**.
23. In the Executable (optional) field, navigate to the location of the isapi_redirect.dll file, which is located in the following directory:

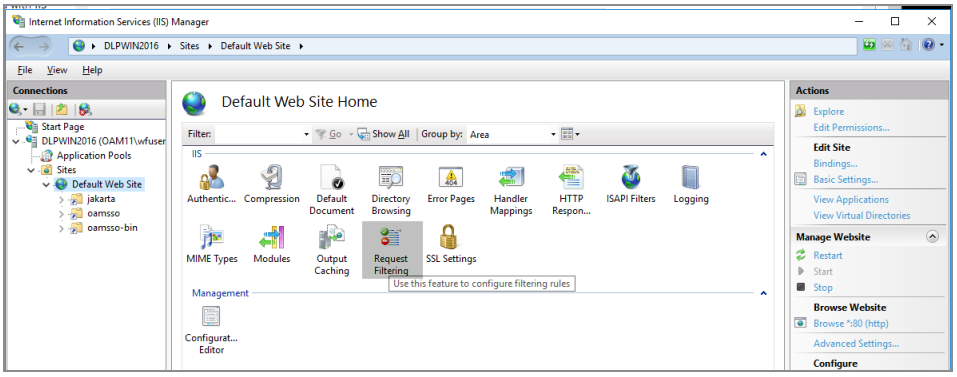
```
C:\Program Files\Apache Software Foundation\Jakarta Isapi
Redirector\bin
```

24. In the Name field, type **jakarta**.
25. Click **OK**.
26. When prompted, click **Yes** to allow this ISAPI Extension.
27. Click **Edit Feature Permissions** in the right pane, as shown in the following image.



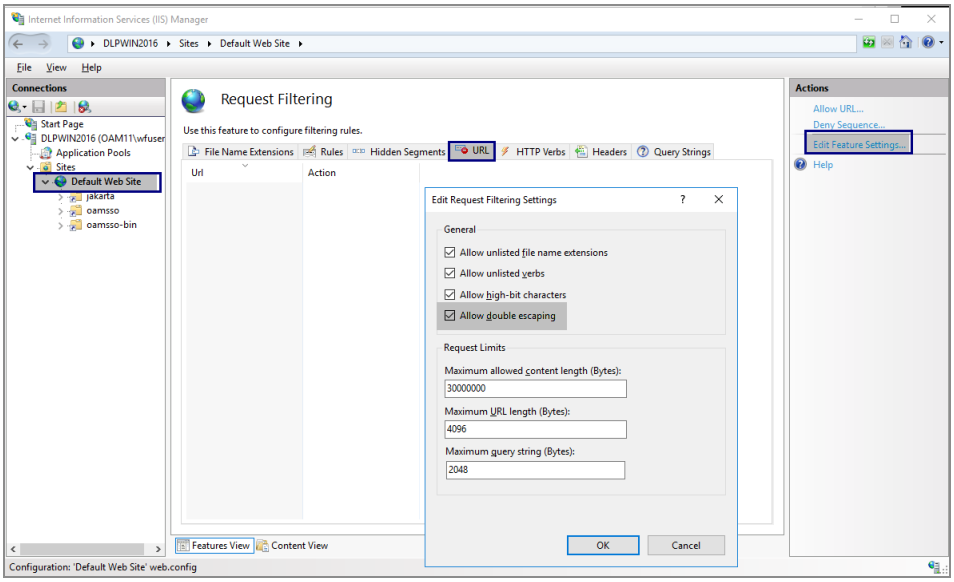
The Edit Feature Permissions dialog opens.

28. Enable the Read, Script, and Execute permissions.
29. Click **OK**.
30. In the left pane, select the main host name node.
31. WebFOCUS uses double escaping to run URLs. As a result, you need to configure the Allow double escaping setting in IIS.
    a. Select your web site.
    b. Double-click the **Request Filtering** icon, as shown in the following image.

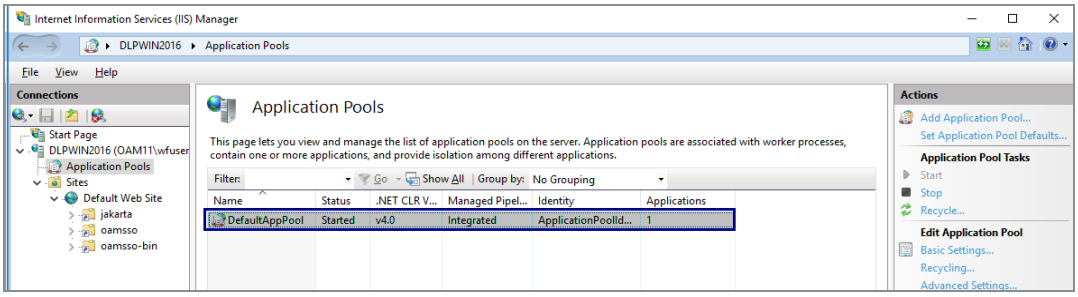


c. Select the URL.

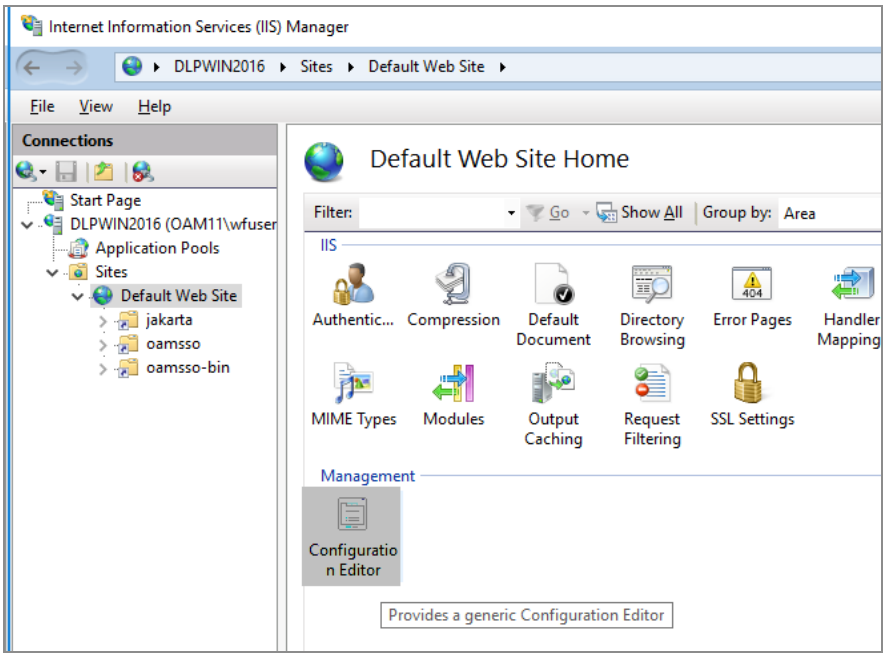
d. Select **Edit Features Settings** and in the dialog that opens enable the option to Allow double escaping, as shown in the following image.



32. For IIS configurations using Applications Pools .NET CLR Version v.4.0, there are restrictions enabled, by default, to not allow processing of requests with special characters, such as <, >, &, %, \, and ?. This prevents requests with special characters from being processed, as shown in the following image.



a. To remove this restriction, perform the following steps. For your default web site, click **Configuration Editor**, as shown in the following image.



b. From the Section dropdown list, select **System.web/httpRuntime** for requestPathInvalidcharacters under Deep Path, add a space as the value, and **Save**.

33. Recycle Apache Tomcat and Microsoft IIS.
34. Start Apache Tomcat and Microsoft IIS.
35. Open the WebFOCUS Hub in a web browser by entering the following URL:

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

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.
- 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 -DUseSunHttpHandler=true
  ```

For example, if you are on a Windows system using a standalone WebLogic domain and the startWebLogic.cmd script to start it, you could insert the following into the *domain-directory*`\bin\setDomainEnv.cmd` script beginning on the second line:

```
set USER_MEM_ARGS="-Xms1024m -Xmx1024m"
set PRE_CLASSPATH="C:\ibi\derby\lib\derbytools.jar"
set JAVA_OPTIONS="-Djava.io.tmpdir=C:\yourprivatetmpdir -
DUseSunHttpHandler=true"
```

WebLogic Postinstallation Step

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_2.xsd
http://xmlns.oracle.com/weblogic/weblogic-web-app
http://xmlns.oracle.com/weblogic/weblogic-web-app/1.9/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. Re-create 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

Postinstallation Verification and Configuration

This chapter explains how to verify that WebFOCUS and ReportCaster are installed properly. It also includes basic configuration procedures.

ibi WebFOCUS Client 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:

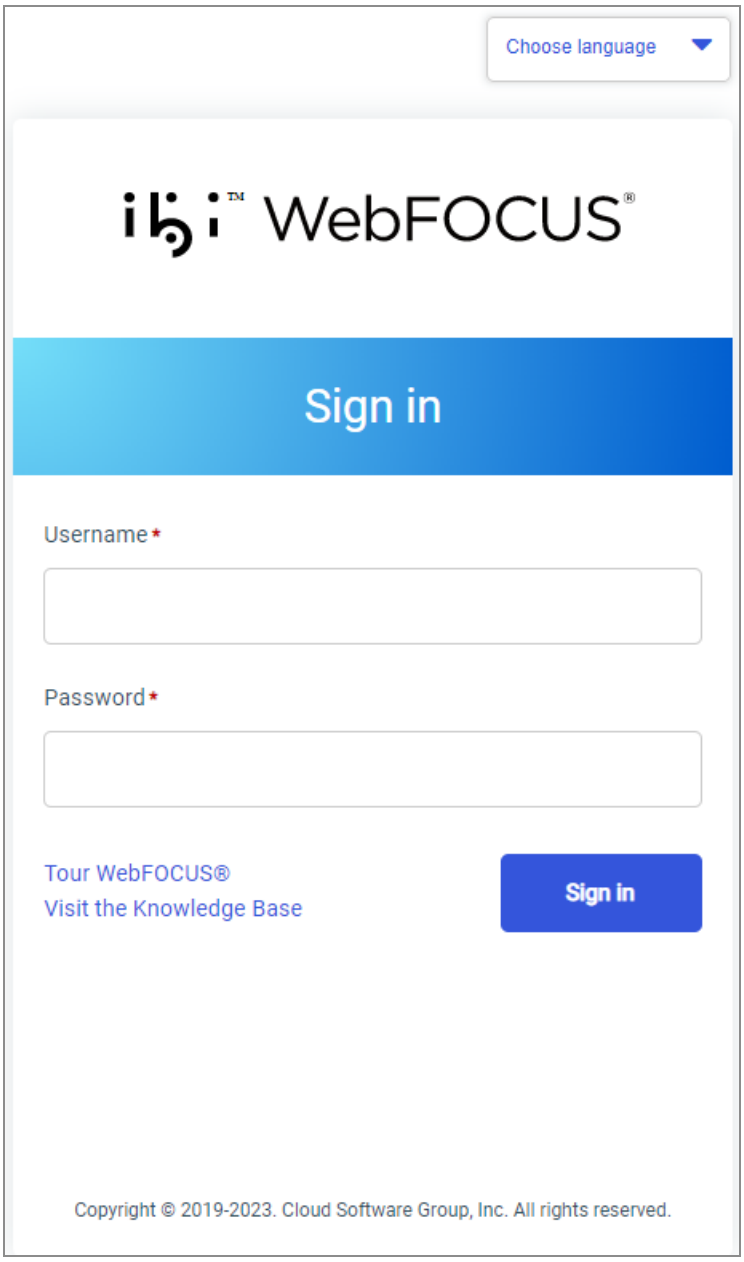
   ```
   http://hostname:port/ibi_apps/
   ```

   where:

   hostname:port

   Are the host name and HTTP port of the web server or application server. For Tomcat stand-alone configurations, the default is **hostname**:8080. 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**.

If you are using Windows, you can also select **WebFOCUS Administration Console** from the WebFOCUS93 folder, under the Information Builders app.

You can also manually enter the following URL in your browser:

```
http(s)://machine:port/context/admin
```

where:

machine

Is the network ID of your computer.

port

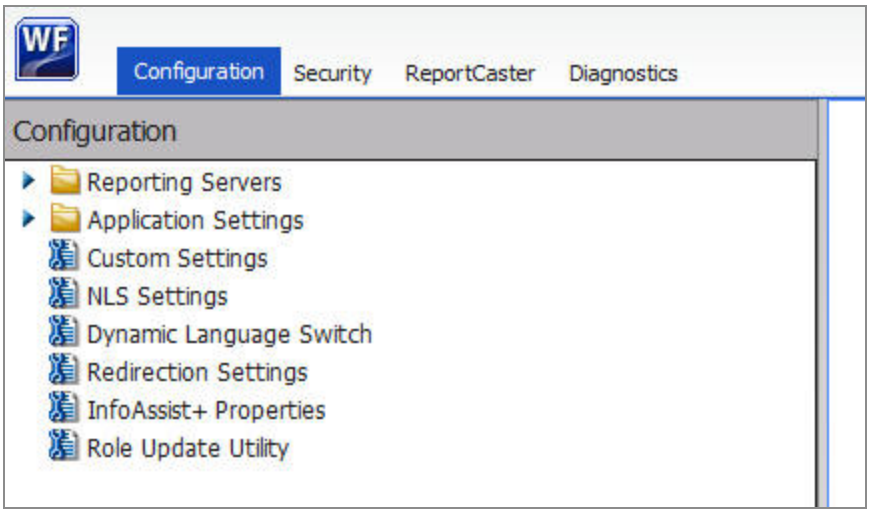
Is the number of the port that connects your computer to the server hosting WebFOCUS.

context

Is the local address for WebFOCUS. For example, *ibi_apps*.

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. You may have already run the verification tool if you chose the option to configure Tomcat during the WebFOCUS Client installation.

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 ibi WebFOCUS 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:

```
drive:\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:

```
drive:\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" />
```

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

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 Repository Tables

To create the Repository tables:

Procedure

1. Navigate to the following directory:

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

> **Note:** During installation, if the Create WebFOCUS Repository checkbox is selected, then the installer will run the WFReposUtilCMDLine.bat file in CREATE_INSERT mode. If any errors occur during this process, you can view the WFReposUtilCMDLine.log file for details. If the Create WebFOCUS Repository checkbox is not selected during installation (in the case of an existing Repository), then you must manually run the WFReposUtilGUI.bat file in DROP_CREATE_INSERT mode. Alternatively, you can run the WFReposUtilCMDLine.bat file in DROP_CREATE_INSERT mode.

2. Run the **WFReposUtilCMDLine.bat** file by right-clicking the file and selecting the **Run as Administrator** option.

   This utility creates a .log file with the same name under the application_logs directory after running it.

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

   A Command Window opens, which allows you to create tables or to drop and re-create tables.

3. Enter a selection from the list of available options:
   - create
   - create_or_extend
   - insert
   - create_insert
   - update
   - drop
   - extract
   - create_ddl
   - quit
4. Press Enter to continue.

A prompt for credentials displays. These are credentials for the database connection.

Note:

- If updates are performed, the User ID needs to have permissions to create and alter tables.
- Depending on the option selected, you may be prompted for WebFOCUS Administrator credentials.

A message appears if any errors occur during the Repository creation or re-creation process.

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 ibi WebFOCUS 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. For Tomcat stand-alone configurations, the default is **hostname**:8080. 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.

Test the ibi WebFOCUS Repository Connectivity Settings

To verify, change, or test the Repository connectivity settings:

1. Sign in to the WebFOCUS Administration Console.
2. On the Configuration tab, confirm that the Repository configuration settings are correct, as follows:
    a. Under the Configuration tab, expand **Application Settings**, and then click **Repository**.

       The right pane displays the Repository database parameters.

    b. Review the settings and make changes, if needed.

    c. Click **Save**.
3. Restart ReportCaster and the Distribution Server, as follows:
    a. On the ReportCaster tab, click **Restart**.

       A confirmation window opens.

    b. Click **Yes**.
4. On the Server Status pane, verify that ReportCaster is running in full function mode.

Verifying ibi WebFOCUS WebFOCUS ReportCaster

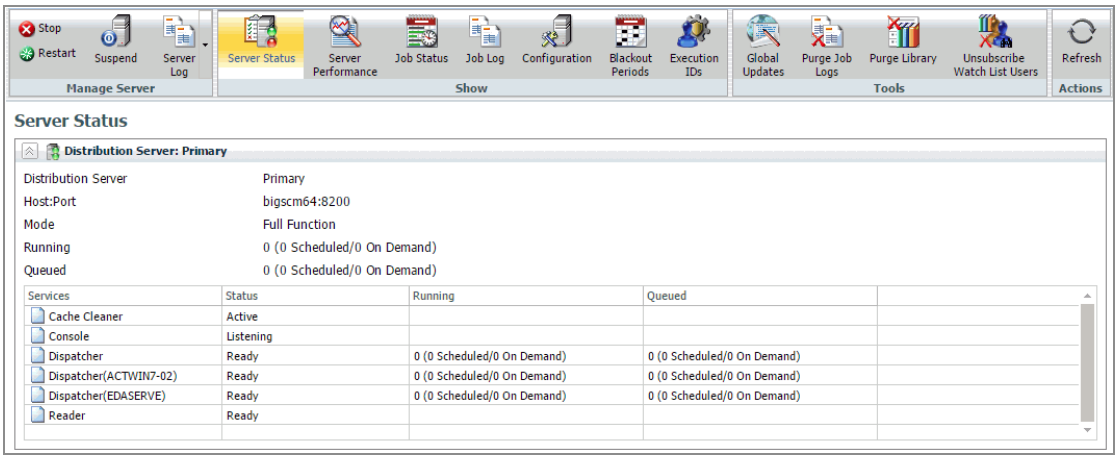
After the WebFOCUS ReportCaster Distribution Server is started, test the WebFOCUS ReportCaster configuration by accessing WebFOCUS ReportCaster interfaces.

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 WebFOCUS 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 to update the `dserver.xml`, `rc_preference.xml`, and `sendmodes.xml` files:

- exportcfg and importcfg

- exportrcpref and importrcpref
- exportsndmode and importsndmode

Note: Each utility creates a `utility_name.log` file in the `...ibi\WebFOCUS93\ReportCaster\log` directory, where `utility_name` is the name of the utility.

`dserver.xml`

The WebFOCUS 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 WebFOCUS 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 is 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 WebFOCUS 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
```

In addition:

- If the Distribution Server is running on Windows from the command line, then edit the `schbkr` file located in the `WebFOCUS ReportCaster/bin` directory.
- If the Distribution Server is running as a Windows service, then use the Registry Editor to change the value of the JvmMs and JvmMx registry keys.

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 bat or script file and add –`Dfile.encoding=UTF8` to the Java command. If the Distribution Server is being run as a Windows Service, modify the Windows registry by accessing

```
\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 *drive*`:\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

Using the ibi WebFOCUS WebFOCUS ReportCaster SFTP Key Generation Utility

WebFOCUS ReportCaster includes a configuration utility for SFTP public and private keys.

Procedure

1. Navigate to the `drive:\ibi\WebFOCUS93\WebFOCUS ReportCaster\bin` directory and double-click `sshkeygen.bat`.

   The ssh-keygen dialog opens.

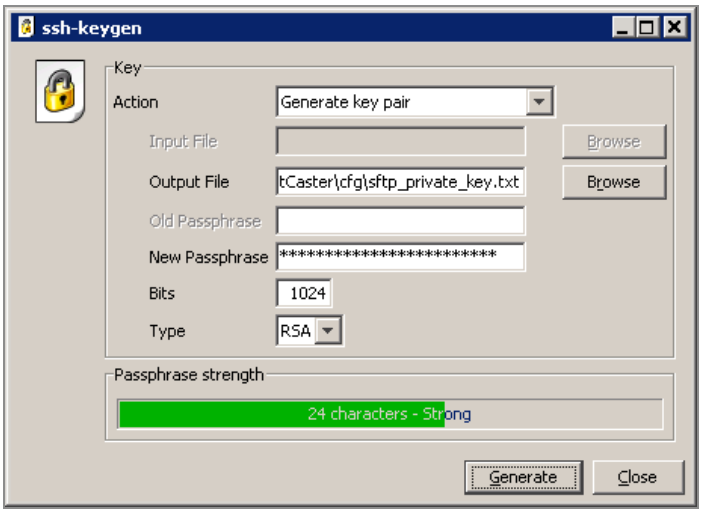
2. Set the output file to `ibi\WebFOCUS93\WebFOCUS ReportCaster\cfg\sftp_private_key.txt`.

3. Enter a passphrase in the **New Passphrase** field.

   The **Passphrase strength** field indicates the strength of the password entered.

4. Select the type of key.

   The following image displays an example of a dialog with all necessary changes made.



5. Click **Generate.**

   WebFOCUS writes two files to the `drive:\ibi\WebFOCUS93\WebFOCUS ReportCaster\cfg` directory. These are `sftp_private_key.txt` and `sftp_private_key.txt.pub`. The file `sftp_private_key.txt.pub` contains the public key.

6. Install the public key (`sftp_private_key.txt.pub`) on your SFTP server.

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.

  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 ibi WebFOCUS ReportCaster

This chapter contains information for tracking errors and debugging problems.

Much of the WebFOCUS Client processing is done through your web and application servers. If you run into any problems, carefully review the configuration information in Configuring Web and Application Servers. You should also be aware of the trace files generated by the installation.

If you encounter any problems with ReportCaster, review ibi WebFOCUS WebFOCUS ReportCaster Troubleshooting Tips to determine if your system is configured properly.

ibi WebFOCUS Troubleshooting Tips

Troubleshooting WebFOCUS considers 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
- WebFOCUS Reporting Server

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 that all components are started and are listening on their expected ports. The WebFOCUS web application may take some time to load.
3. Ensure that 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:

   ```
   drive:\ibi\srv93\wfs\etc\edasprof.prf
   ```

   If you receive a **Resource not found** message, then this may be the problem.
6. During testing, be sure to call pages using HTTP or HTTPS requests and not by selecting **Open** from the File menu in the web browser.
7. Turn on tracing through the WebFOCUS Administration Console.
8. 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 root that you deployed (for example, /ibi_apps), which is located in the following directory:

   ```
   <catalina_home>\work\Catalina\localhost
   ```

   Note: If installed by the WebFOCUS Client, Tomcat will be installed in the root directory of the WebFOCUS installation which, by default, is C:\ibi\tomcat.
9. In the WebFOCUS Administration Console, select the **Diagnostics** tab and use the available options to troubleshoot.
10. Restart all components, especially your web or application servers.

HTTP 500 Internal Server Message

If you receive an HTTP 500 server message on the Configuration Verification Utility page after installation, clear your browser cache and access the Diagnostics page again from

either the Program Menu option or by copying the URL into another browser window. This may occur on a full installation or on an upgrade.

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 that your web and application servers are configured, as explained in Configuring Web and Application Servers.

WebFOCUS relies on processing by the Java VM, web server, and application server. 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.

For Apache Tomcat, review the log information generated in the following directory:

```
C:\ibi\tomcat\logs
```

Note: You can safely ignore the following error:

```
org.apache.catalina.core.AprLifecycleListener lifecycleEvent -
INFO:

The Apache Tomcat Native library which allows optimal
performance in production environments was not found on the
java.library.path.
```

Java Memory Issues

Depending on your application server default settings, you may need to adjust the Java VM memory options if you run into performance issues. If the WebFOCUS installation configured Tomcat for you, this is done automatically.

The most common Java VM options you need to set 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.

The following are the most common Java VM options related to memory settings. Replace the #### with the size you wish to set:

-Xmx####M

Sets the maximum Java heap size. It is common to make this 1/4 of the system RAM, but it must be at least 1536 MB (1.5 GB).

-Xms####M

Sets the initial Java heap size. It is common to make this 1/8 of the system RAM, but it must be at least 1536 MB (1.5 GB).

-Xss####M

Sets the Java thread stack size. You do not need to set this unless you are fine tuning your environment.

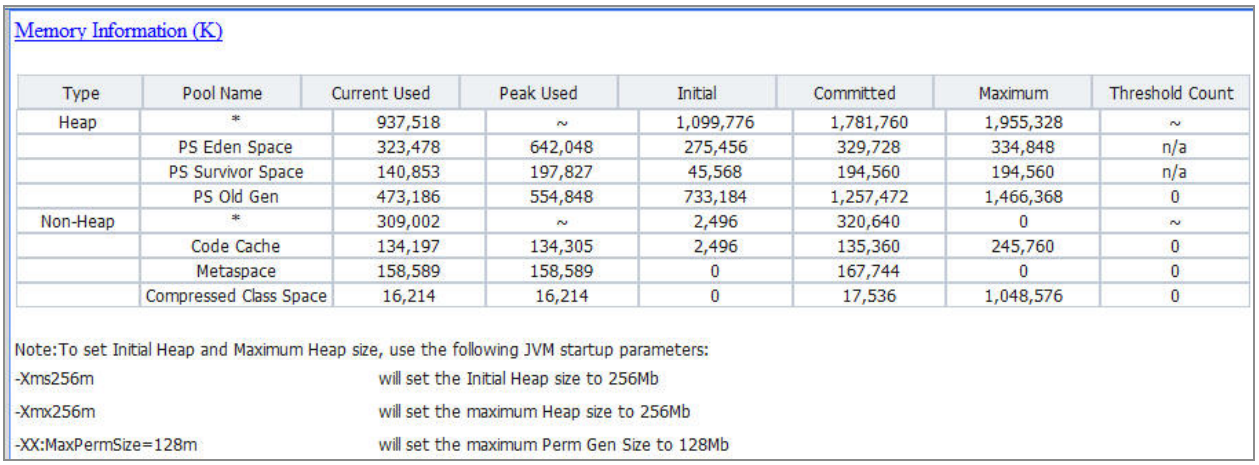
The size is normally set in Megabytes. For example:

```
-Xms1536M

-Xmx2048M
```

To view your current Java VM memory settings, access the WebFOCUS Administration Console. Select the **Diagnostics** tab and select **JVM Property Info**.

The Java VM memory settings for your environment are displayed 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	*	937,518	~	1,099,776	1,781,760	1,955,328	~
	PS Eden Space	323,478	642,048	275,456	329,728	334,848	n/a
	PS Survivor Space	140,853	197,827	45,568	194,560	194,560	n/a
	PS Old Gen	473,186	554,848	733,184	1,257,472	1,466,368	0
Non-Heap	*	309,002	~	2,496	320,640	0	~
	Code Cache	134,197	134,305	2,496	135,360	245,760	0
	Metaspace	158,589	158,589	0	167,744	0	0
	Compressed Class Space	16,214	16,214	0	17,536	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

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.

- For Tomcat, these are set automatically if the WebFOCUS installation configured Tomcat.
- For other application servers, refer to your application server documentation.

Graphics Issues

You can test basic graph functionality by running the sample `cargraph.fex` procedure installed with the WebFOCUS Reporting Server:

```
http://hostname:port/ibi_apps/WFServlet?IBIF_ex=cargraph&FORMAT=PNG
```

If you cannot generate graphics or want to improve performance, try adding the following Java option to your application server Java VM settings:

```
-Dsun.java2d.noddraw
```

For Tomcat, this is in the Apache Tomcat Properties window on the **Java** tab, in the **Java Options** field.

If you cannot run a graph request, you may also need to set NTFS permission to allow your application server full permissions to the temporary directory used by the Java VM. This directory is the `java.io.tmpdir` parameter that appears in the WebFOCUS Administration Console when you select the **Diagnostics** tab and select **JVM Property Info**.

ibi WebFOCUS Web Server Host Name and Port Settings

During the WebFOCUS Client installation, you are asked for the host name and HTTP port of your web server. This should be the host name and port that your end users use to access WebFOCUS and WebFOCUS ReportCaster. These values are used for communications between WebFOCUS ReportCaster and the Report Library. If you use the Report Library, ensure this is set to the end user accessible web server host name and port, even if it is not on the same machine as WebFOCUS and only forwards requests through a firewall.

If you need to change the web server host name and port that you entered during the installation:

1. If you use ReportCaster, correct the host name and port number stored in the WebFOCUS ReportCaster configuration for the Report Library. To do this, access the WebFOCUS ReportCaster Console, which can be accessed from the WebFOCUS Hub. Select**Main Menu** on the banner, and then under Quick Access, select **ReportCaster Status**.

   The WebFOCUS ReportCaster Console opens in a new browser window.
2. Click the **Configuration** tab.
3. Click **Report Library** in the left pane and change the host name and port in the **Default Library URL for Email Notification** field.
4. Click the **Save** icon, followed by **Restart** to restart all WebFOCUS components.

Using the jar Utility

A `jar.exe` 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 file contents.

> **Note:** The default WebFOCUS Apache Tomcat configuration does not use the `WAR` file, so this utility is normally not needed with Tomcat.

Ensure You Can Use the jar Utility

To use the jar command, ensure that the *`JAVA_HOME`*`\bin` directory is in your search PATH. For example:

```
C:\Program Files\AdoptOpenJDK\jdk-11.0.9.11-hotspot\bin
```

To add this to your search PATH:

Procedure

1. Go to the Windows Control Panel and open the **System** folder.
2. Click **Advanced system settings** and then click the **Environment Variables** button.
3. In the bottom System variables frame, select **Path**.
4. Click **Edit**.
5. At the end of the line, add a semicolon (;) and the path to the *JAVA_HOME*\bin directory. For example:

   ```
   C:\Program Files\AdoptOpenJDK\jdk-11.0.9.11-hotspot\bin
   ```

6. Click **OK** to close out.

Edit the ibi WebFOCUS Web Application

The WebFOCUS web application is provided as both an expanded directory and a WAR file:

```
drive:\ibi\WebFOCUS93\webapps\webfocus
```

```
drive:\ibi\WebFOCUS93\webapps\webfocus.war
```

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 backup 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. Open a Command Prompt.
5. Navigate to the webfocus directory. For example:

```
drive:\ibi\WebFOCUS93\webapps\webfocus
```

6. 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 "../".

7. Redeploy the WebFOCUS web application to your application server.

Execute the jar Utility

The options for using the jar commands are useful to know. You execute the jar utility from the Command Prompt.

- To create a new jar file:

  ```
  jar cvf FileToCreate.war FileToAdd1 FileToAdd2
  ```

  You can add all files and subdirectories using an asterisk (*).

  ```
  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
```

ibi WebFOCUS File Extensions

WebFOCUS files have several non-standard file extensions on Windows, such as `.mas`, `.prf`, `.acx`, `.wfs`, `.cfg`, and `.xmls` files. Depending on the software installed on your machine, these file extensions may already be in use for other applications. Normally, this causes no conflicts when using either WebFOCUS or the other applications. However, should you attempt to open a WebFOCUS file that is mapped for another application by double-clicking it in File Explorer, problems can arise.

Note: By default, you might not see file extensions in File Explorer. To see extensions, open File Explorer. On the **View** tab, enable **View file name extensions**.

Specific instances where WebFOCUS extensions may conflict are the following:

- PRF files, such as `drive:\ibi\srv93\wfs\etc\edasprof.prf`

  PRF files are normally mapped to Microsoft Outlook Profile settings. On some Windows releases, opening `edasprof.prf` by double-clicking it in File Explorer, can cause damage to your Microsoft Outlook settings. Therefore, if you need to edit this file, open it from within a text editor.

- MAS files, such as `drive:\ibi\apps\ibisamp\car.mas`

  MAS files may be mapped as Microsoft Access files if you have Microsoft Access installed.

Missing Tomcat Context Definition Files

Symptom: The context definition files for Tomcat are being deleted periodically.

The following files are deleted randomly:

```
<catalina_home>\conf\Catalina\localhost\ibi_apps.xml
```

```
<catalina_home>\conf\Catalina\localhost\approot.xml
```

Problem: This is a problem with Tomcat in certain environments. The exact cause of the issue is unknown.

Solution: Within the Tomcat configuration (`server.xml`), turn off autoDeploy.

1. Edit your Tomcat `server.xml` file.

   On Windows, this is typically found at:

   ```
   <catalina_home>\conf\server.xml
   ```

   or, if the WebFOCUS Client installation installed Tomcat, it is located under

   ```
   <catalina_home>\conf\server.xml
   ```

2. Find the following section within your server.xml file:

   ```
   <Host name="localhost" appBase="webapps"
   unpackWARs="true" autoDeploy="true"
   xmlValidation="false" xmlNamespaceAware="false">
   ```

   and change autoDeploy to false:

   ```
   <Host name="localhost" appBase="webapps/localhost"
   unpackWARs="true" autoDeploy="false"
   xmlValidation="false" xmlNamespaceAware="false">
   ```

3. Restart Tomcat.

ibi WebFOCUS WebFOCUS ReportCaster Troubleshooting Tips

WebFOCUS ReportCaster relies on communications between the following components:

- Web browser (for user interfaces)
- Application server
- Java VM
- ReportCaster web components
- ReportCaster Distribution Server
- Database server where WebFOCUS Repository tables are located
- WebFOCUS Reporting Server
- Mail server
- FTP server (for FTP distribution)

If WebFOCUS ReportCaster fails to perform properly, confirm that all components are installed, started, and listening on their expected ports. The WebFOCUS ReportCaster Distribution Server will not start if it cannot connect to the repository. All components are related, so what appears to be a problem in one component may be caused by a different component. If possible, restart components and reboot, especially after making changes.

All components can run on one machine, or they 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.

Note:

- All WebFOCUS and ReportCaster components must be the same release number.
- If the Distribution Server is not started, you can edit the WebFOCUS ReportCaster Server Configuration interface from WebFOCUS. After you sign in to WebFOCUS, on the WebFOCUS Hub, select **Main Menu** on the banner, and then under Quick Access, select **ReportCaster Status**. The WebFOCUS ReportCaster Console opens in a new browser window. Click the **Configuration** tab, which contains the WebFOCUS ReportCaster configuration settings.

Troubleshooting Web and Application Server Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client and Configuring Web and Application Servers.

- Ensure the web server and application server are running.
- If your repository requires JDBC drivers, ensure they are in your application server CLASSPATH. The path up to and including any file names must be specified. Specifying a directory containing a driver file is not sufficient. Be sure to restart your application server after changing CLASSPATH.

  For Tomcat, you can set CLASSPATH from the Start menu by selecting **Tomcat Configuration Utility**, under the Information Builders app.

Troubleshooting Java Errors

If the Distribution Server fails to start, or starts as a non-Windows service but fails to start as a Windows service, check your Java configuration.

- Confirm that Java executes by checking the version at a command prompt. Open a Command Window and type:

  ```
  java -version
  ```

  Something similar to the following should appear:

  ```
  java version "OpenJDK 11 JRE version 11.0.9"
  ```

  If you receive an error, ensure the Java JDK is properly installed.

Troubleshooting ibi WebFOCUS ReportCaster Distribution Server Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client and WebFOCUS® ReportCaster Postinstallation Tasks.

- Ensure the WebFOCUS ReportCaster Distribution Server is running.
- Ensure that the WebFOCUS ReportCaster web application knows where the Distribution Server is. Edit the `dserver.xml` file, which is located in the following directory:

  ```
  drive:\ibi\WebFOCUS93\utilities\WFReposUtil\xml
  ```

  Locate the <host_name> and <port> elements in the dserver.xml file. For example:

  ```
  <host_name>hostname1</host_name>

  <port>8200</port>
  ```

  If the values within these elements are incorrect, correct them. Specify the host name and TCP port for the Distribution Server according to your configuration.

  After you save the `dserver.xml` file, you must reload the repository tables and restart Tomcat or the application server where WebFOCUS is deployed.
- Check the Java configuration, as explained in ibi WebFOCUS WebFOCUS ReportCaster Troubleshooting Tips. If WebFOCUS ReportCaster starts as a non-Windows service but does not start as a Windows service, the Java installation is a likely cause.
- Check settings using the WebFOCUS ReportCaster Console, which can be accessed from the WebFOCUS Hub. On the WebFOCUS Hub, select **Main Menu** on the banner, and then under Quick Access, select **ReportCaster Status**. The WebFOCUS ReportCaster Console opens in a new browser window. Click the **Configuration** tab, which contains the WebFOCUS ReportCaster configuration settings.

Troubleshooting Repository Errors

Review the installation and configuration instructions in Installing the ibi WebFOCUS Client, ibi WebFOCUS Repository Postinstallation Tasks, and Additional ibi WebFOCUS Repository

Topics and Tasks.

- Ensure the database server is running.
- Ensure the repository tables exist.
- Ensure that the Distribution Server machine contains the correct information to connect to the database. For more information on these parameters, see Repository Connection Information.
- Ensure the correct JDBC driver is installed on the web server and ReportCaster Distribution Server machines.
- Ensure that your application server or servlet container 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:

  ```
  drive:\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 utility to insert the driver files or create a new web application, as explained in ibi WebFOCUS Troubleshooting Tips. Then, redeploy the WAR file.
- Ensure the Distribution Server has the correct CLASSPATH to the JDBC driver. This is set in a file:

  ```
  drive:\ibi\WebFOCUS93\ReportCaster\bin\classpath.bat
  ```

  and in the registry:

  ```
  HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software
  Foundation\Procrun 2.0\WF93\Parameters\Java\Classpath
  ```
- For SQL Server, ensure SQL Server authentication is supported, as explained in SQL Server Preinstallation Steps.

Troubleshooting Reporting or Delivery Errors

Review the WebFOCUS and WebFOCUS ReportCaster documentation and review 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 WebFOCUS ReportCaster Server Configuration interface.
- Check the files in the logs directory:

```
drive:\ibi\WebFOCUS93\ReportCaster\log
```

Turning Distribution Server Traces ON/OFF

Normally, you should turn the Distribution Server traces on and off using the WebFOCUS ReportCaster Console, which can be accessed from the WebFOCUS Hub. On the WebFOCUS Hub, select **Main Menu** on the banner, and then under Quick Access, select **ReportCaster Status**. The WebFOCUS ReportCaster Console opens in a new browser window. Click the **Configuration** tab. The Distribution Server trace and log settings can be accessed in the left pane.

The trace files appear in *drive:*\ibi\WebFOCUS93\ReportCaster\trc. In addition, check the log files in *drive:*\ibi\WebFOCUS93\ReportCaster\log for more information.

Installing and Configuring ibi WebFOCUS DSML Services for Windows

This topic describes the installation and configuration of ibi™ WebFOCUS® DSML Services.

ibi WebFOCUS DSML Services Installation Requirements

Important:

- DSML Services can be run on Intel x86_64 Windows system, Release Windows 11, Windows Server 2019 or higher.
- The DSML Services installation is only available for the English language.

Hardware Requirements

The following are hardware requirements for DSML Services in Windows:

- **Operating System.** Windows 11, Windows Server 2019 or higher.
- **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:

- 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 may result in longer query processing times.

ibi WebFOCUS DSML Services Installation Components and Steps

ibi™ offers the following ways to install DSML:

- Using binary components.
- Using Windows services.

Install DSML Services

Perform the following steps to start the DSML services like Autoanalytics, Metadata, ML-Functions, NLQ, and Chart Recommendation.

1. From the eDelivery site at https://edelivery.tibco.com/storefront/index.ep, download the installer for DSML.
2. Run the installer. For example:

   ```
   IBI_dsml_release_number_win_x64.exe
   ```

   The installation lays down the following binary components of DSML for windows.exe are provided under the *install_root*/ibi/dsml/bin/ directory:

   - ibi_analytics.exe
   - ibi_chart_rec.exe
   - ibi_nlq.exe
   - ibi_metadata.exe

- ibi_ml.exe

Start NGINX Services Using Binary Components

1. Run the **get_and_start_nginx.bat** batch script in **install_root/ibi/dsml/conf** directory to download and run Nginx server.

   Note:
   - Default environment values are stored and fetch from **dsml_set_env.bat** script file during start/stop of service.
   - If you change the port numbers in the **dsml_set_env.bat** script, you need to make the corresponding changes to the port numbers in the **install_root/ibi/dsml/conf/dsml.conf** file. You can make any other necessary changes for configuring NGINX in the **dsml.conf** file, or accept the default values

Start DSML Default Services - Autoanalytics, Metadata, and MachineLearning Functions Using Binary Components

Perform the following steps to run the DSML services like Autoanalytics, Metadata, and ML-Functions.

1. Run the **run_dsml_services.bat** script to start default DSML services.

   The batch script starts machine learning, metadata, and autoanalytics(insight) services.

   Note: To test the connection to the endpoint of the respective service run **test_dsml_endpoints_with_nginx.bat** or **test_dsml_endpoints_without_nginx.bat**. This step is optional.

Start NLQ Services- Natural Language Query and Chart Using Binary Components

Perform the following steps to run the DSML services like NLQ and Chart Recommendation.

1. Run **`run_nlq_services.bat`** to start Natural Language Query(NLQ) and Chart services. This starts the NLQ service, starts the Ollama server, loads large language model(llm) phi3, and chart services.

> **Note:** Run **`test_nlq_endpoints_with_nginx.bat`** or **`test_nlq_endpoints_without_nginx.bat`** to test the connection to the endpoint of the respective service. This step is optional.

> **Note:** It is highly recommended that you use a GPU machine to run NLQ service. Since NLQ uses a large language model runs on the Ollama server, which requires high-performance machines to reduce response time for the queries.

Stop DSML and NLQ Services Using Binary Components

You can stop the DSML and NLQ services by following the below instructions:

To stop default DSML services(autoanalytics, metadata and ml-functions) run the following script:

`stop_dsml_services.bat`

To stop NLQ and chart rec DSML services run the following script:

`stop_nlq_services.bat`

Start NGINX Services Using Windows Services

1. Run the **get_and_start_nginx_windows_service.bat** batch script in **install_root/ibi/dsml/conf** directory to download and run the Nginx server.

   Note:
   - Default environment values are stored and fetch from **dsml_set_env.bat** script file during the start/stop of service.
   - If you change the port numbers in the **dsml_set_env.bat** script, you need to make the corresponding changes to the port numbers in the **install_root/ibi/dsml/conf/dsml.conf** file. You can make any other necessary changes for configuring NGINX in the **dsml.conf** file, or accept the default values

Start DSML Default Services - Autoanalytics, Metadata, and MachineLearning Functions Using Windows Services

Perform the following steps to run the DSML services like Autoanalytics, Metadata, and ML-Functions.

1. Run the **run_dsml_windows_services.bat** script to start default DSML services.

   The batch script starts machine learning, metadata, and autoanalytics(insight) services.

   Note: To test the connection to the endpoint of the service run **test_dsml_endpoints_with_nginx.bat**. This step is optional.

Start NLQ Services- Natural Language Query and Chart Using Windows Services

Perform the following steps to run the DSML services like NLQ and Chart Recommendation.

1. Run **`run_nlq_windows_services.bat`** to start Natural Language Query(NLQ) and Chart services. This starts NLQ service, starts the Ollama server, loads large language model(llm) phi3, and chart services.

> **Note:** Run **`test_nlq_endpoints_with_nginx.bat`** to test the connection to the endpoint of the service. This step is optional.

> **Note:** It is highly recommended that you use a GPU machine to run NLQ service. Since NLQ uses a large language model runs on the Ollama server, which requires high-performance machines to reduce response time for the queries.

Stop DSML, NLQ, Ollama and Nginx Using Windows Services

You can stop the DSML and NLQ services by following the below instructions:

To stop default DSML services(autoanalytics, metadata and ml-functions) run the following script:

`stop_dsml_windows_services.bat`

To stop NLQ and chart rec DSML services run the following script:

`stop_nlq_windows_services.bat`

To stop ollama services, run the following script:

`stop_ollama_windows_service.bat`

To stop nginx services, run the following script:

`stop_nginx_windows_service.bat`

Remove DSML, NLQ, Ollama and Nginx Using Windows Services

You can remove the DSML and NLQ services by following the below instructions:

To remove default DSML services(autoanalytics, metadata and ml-functions) run the following script:

remove_dsml_windows_services.bat

To remove NLQ and chart rec DSML services run the following script:

remove_nlq_windows_services.bat

To remove ollama services, run the following script:

remove_ollama_windows_service.bat

To remove nginx services, run the following script:

remove_nginx_windows_service.bat

Connecting to the ibi WebFOCUS DSML Microservice

Assuming NGINX is running under port 8081, there should be one HTTP URL that goes into the WebFOCUS Reporting Server configuration for it to connect to the DSML microservice.

You can test whether your four DSML components are accessible by issuing the following commands:

Testing DSML NLQ:

```
http://localhost:8081/nlq/v1/system
```

NLQ sample response:

```
{"data":{"buildDate":"2025-07-
09T12:15:19Z","gitCommit":"649d47680b7","version":"9.3.5"}}
```

```
http://localhost:8081/nlq/v1/system
```

Testing DSML Chart:

```
http://localhost:8081/chart/v1/system
```

DSML Chart sample response:

```
{"data":{"buildDate":"2025-07-
09T04:42:30Z","gitCommit":"fe77251fa23","version":"9.3.5"}}
```

```
http://localhost:8081/chart/v1/system
```

Testing DSML Autoanalytics:

```
http://localhost:8081/autoanalytics/v1/system
```

DSML Autoanalytics sample response:

```
{"data":{"buildDate":"2025-07-
09T04:37:43Z","gitCommit":"1c9abf826d4","version":"9.3.5"}}
```

```
http://localhost:8081/autoanalytics/v1/system
```

Testing DSML Metadata:

```
http://localhost:8081/metadata/v1/system
```

DSML Metadata sample response:

```
{"data":{"buildDate":"2025-06-
13T11:56:39Z","gitCommit":"563a91913e9","version":"9.3.5"}}
```

```
http://localhost:8081/metadata/v1/system
```

Testing DSML ML:

```
http://localhost:8081/machinelearning/v1/system
```

DSML ML sample response:

```
{"data":{"buildDate":"2025-07-
10T05:05:08Z","gitCommit":"02e91913744","version":"9.3.5"}}
```

```
http://localhost:8081/machinelearning/v1/system
```

The py_serv URL is the URL for all services. Add the following `pyserv_url` command to the server configuration file (`edaserv.cfg`) under `[Workspace]`. The format is:

```
pyserv_url=http://hostname:8081
```

Result

The installation setup is finished and you should now be able to use DSML Services.

Default Configuration

The following table displays the default port values. The default port values can be overwritten by changing the value in both `dsml_set_env.bat` and `dsml_nginx.conf` files. To change the default ports, see Changing Default Ports.

Property Name	Value	Description
PORT_ANALYTICS	8883	Default port for autoanalytics service
PORT_METADATA	8884	Default port for metadata service
PORT_MLFUNCTIONS	8885	Default port for ml-functions service
PORT_NLQ	8881	Default port for nlq service
PORT_CHART	8882	Default port for chart service

PORT_OLLAMA	11434	Default port for ollama server service
HOST_OLLAMA	localhost	Default host for ollama server
WORKER_COUNT	1	
NGINX_PORT	8081	Default port where Nginx is running
NGINX_CONF	conf\dsml_nginx.conf	Configuration file to run dsml services

Changing Default Ports

To change the default ports, perform the following steps:

1. Update the ports in the `installdir/conf/dsml_set_env.bat` file. Change the following entries with valid and available port numbers.

```
set PORT_ANALYTICS=8883
set PORT_METADATA=8884
set PORT_MLFUNCTIONS=8885
set PORT_NLQ=8881
set PORT_CHART=8882
SET NGINX_PORT=8081
```

2. Update the same port numbers in the `installdir/conf/dsml_nginx.conf` file. See the following code snippet as an example.

```
upstream upstream_nlq {
     server localhost:8881;
    }
     upstream upstream_chart {
     server localhost:8882;
    }
    upstream upstream_autoanalytics {
    server localhost:8883;
    }
    upstream upstream_metadata {
    server localhost:8884;
    }
    upstream upstream_machinelearning {
    server localhost:8885;
```

```
    }
    server {
     server_name _;
     listen 8081 default_server;
     port_in_redirect off;
     location / {
     return 404;
     }
...}
```

If you change the default port numbers, substitute them accordingly in the pyserv_url in Reporting Server Configuration.

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.

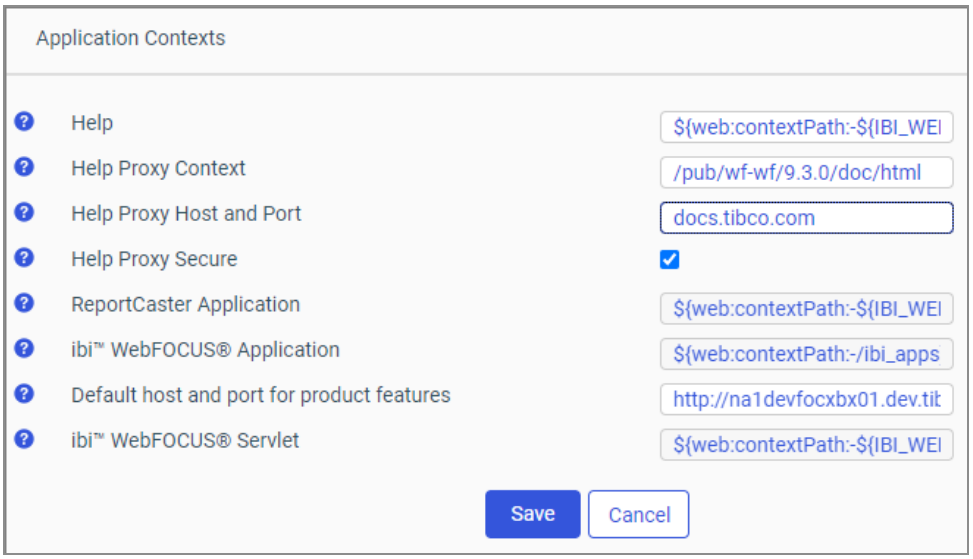
Benefits include:

- 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.

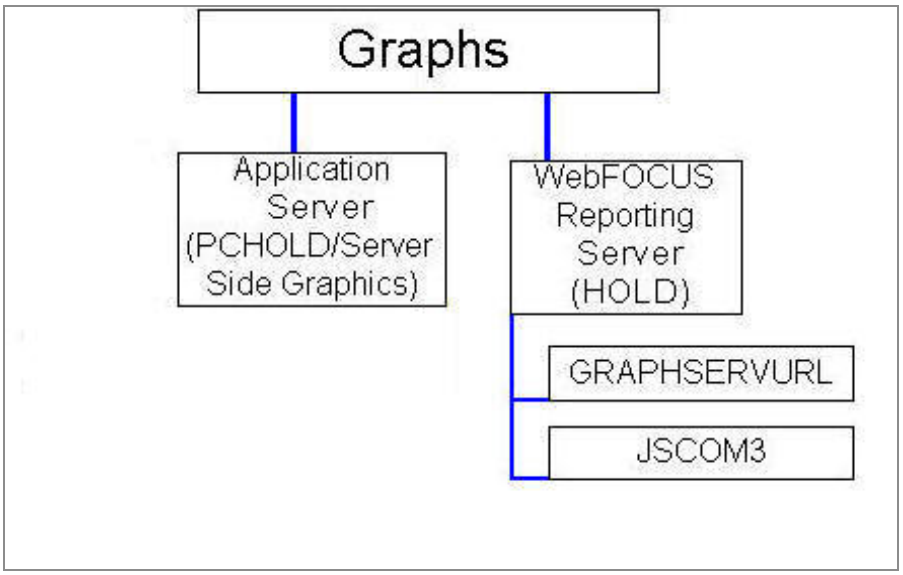
Graph Options

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.

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:

```
drive:\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.

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.

Provided the JSCOM3 listener is started, no steps are needed to configure it in WebFOCUS. In order for JSCOM3 to start on Windows, your search PATH must contain the jvm.dll file for your Java release.

The `jvm.dll` file is installed with the Java JDK in the jre\bin\client directory. For example:

The exact JDK directory depends on your Java release. For a different JDK release, substitute accordingly. If you need assistance, see the *ibi™ WebFOCUS® Reporting Server Installation* guide.

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 ibi 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
  ```

  and in the registry:

  ```
  \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.

  For Apache Tomcat, this is set if you choose to configure Tomcat when you install the WebFOCUS Client. To manually set it, use the Start menu to select **Tomcat Configuration Utility**, under the Information Builders app. Then, select the **Java** tab and add a semicolon (;) plus the full path of the file to the end of the **Java Classpath** field.

> **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.bat` 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. These steps are described in SQL Server Preinstallation Steps.

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=database_name
```

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

Table Name	Rows	Max Rows Width (bytes)	Notes
			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 (Report Library only)	10,000	NA	One record per report in the library (blob).
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.

Table Name	Rows	Max Rows Width (bytes)	Notes
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 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.

Other ibi WebFOCUS Repository Utilities and Tasks

This section describes lesser used WebFOCUS Repository related information, utilities, and tasks.

ibi WebFOCUS Repository Table Creation

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.

Changing the ibi WebFOCUS Repository

If you wish to change repositories, you must adjust the connection parameters:

- CLASSPATH. The parameter that specifies the location of the JDBC driver used for the selected WebFOCUS database.
- JDBC CLASS. Stored in `install.cfg` parameter: IBI_REPOS_DB_DRIVER
- JDBC URL. Stored in `install.cfg` parameter: IBI_REPOS_DB_URL
- Credentials. Stored in `install.cfg` parameters: IBI_REPOS_DB_USER and IBI_REPOS_DB_PASSWORD
- Update the JDBC path stored in `\utilities\sertenv\utiluservars.bat`.

If you are using the same database server and just wish to change repositories, you normally only need to change the JDBC URL or credentials. If you are moving between database types (going from WebFOCUS to Db2), you must also adjust the JDBC CLASS and change the driver in CLASSPATH.

Change Connection Information

Procedure

1. Ensure the JDBC driver for the new database server is installed on the WebFOCUS Client and the Distribution Server machines.

   The JDBC driver information is stored in the `drive:\utilities\setenv\utilsetvars.bat` file under the JDBC_PATH parameter.

   > **Note:** The value must be enclosed in double quotation marks (") if the path contains a space.

2. If this is a different driver, add the JDBC driver path to the CLASSPATH of the application server.

   For example, for Apache Tomcat, you can use the Start menu by selecting **Tomcat Configuration Utility**, under the Information Builders app. Then, select the **Java** tab and add a semicolon (;) plus the full path of the file to the end of the **Java Classpath** field.

3. Restart your application server.

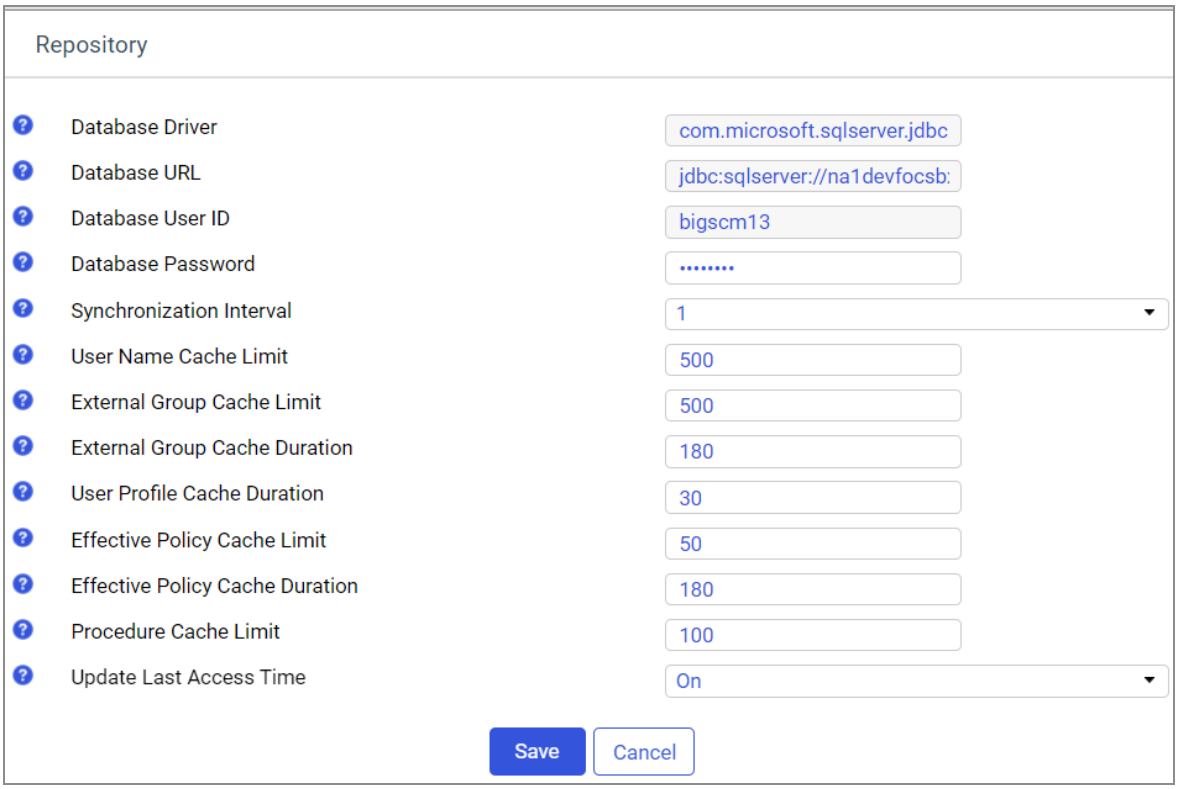
4. Modify the `install.cfg` file and provide updated values for JDBC CLASS, JDBC URL, and Credentials.

   > **Note:** The database password gets encrypted after restarting the application server.

5. Optionally, sign in to the WebFOCUS Administration Console to review repository configuration information.

6. Click the **Configuration** tab, expand **Application Settings**, and then select **Repository**.

   The Repository pane opens, as shown in the following image.



This allows you to see the values entered for the following:

- Database Driver
- Database URL
- Database User ID
- Database Password

Only the Database Password can be changed through the Administration Console. The password gets encrypted and written to the `install.cfg` file.

7. If this is a different driver, update the JDBC driver path to the following WebFOCUS ReportCaster configuration file:

```
drive:\ibi\WebFOCUS93\ReportCaster\bin\classpath.bat
```

and to the following value in the registry:

```
\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software
```

```
Foundation\Procrun 2.0\WF93\Parameters\Java\Classpath
```

8. Restart the WebFOCUS web application and the Distribution Server.

> **Note:** You do not have to restart the entire application server as it might have other applications deployed on it.

SQL Server Preinstallation Steps

The following are general guidelines and information for creating an SQL Server database to be used as the WebFOCUS repository. These steps should be performed by a DBA to apply options and configuration settings that meet your organization's specifications.

- Ensure that SQL Server Authentication is enabled. See Configure Security.
- Create a SQL Server account that you will use to own this database. See Create the Login ID.
- Create a SQL Server database for the repository. See Create the Repository Database.
- Set up connectivity between the WebFOCUS Client and the SQL Server. See Install the JDBC Driver for SQL Server.
- If you are using SQL Server, you must enable TCP/IP since it is not available, by default. See Enable TCP/IP in SQL Server.

The WebFOCUS repository can reside on the same system as the WebFOCUS Client or on a different system, and can be stored in any JDBC-compliant database for which a driver exists. For more information, see ibi WebFOCUS Client Postinstallation Tasks. When the Distribution Server is installed (as explained in Installing the ibi WebFOCUS Client), you are required to provide a supported database, JDBC driver, and authentication information (user ID and password).

Configure Security

SQL Server provides the following authentication modes:

- **Windows Authentication.** Uses the same IDs as the Windows operating system.
- **SQL Server Authentication.** Uses IDs defined within SQL Server.

The JDBC driver that is used by WebFOCUS to connect to the SQL Server database does not support Windows Authentication mode. Perform the following steps to ensure that SQL Server Authentication mode is set:

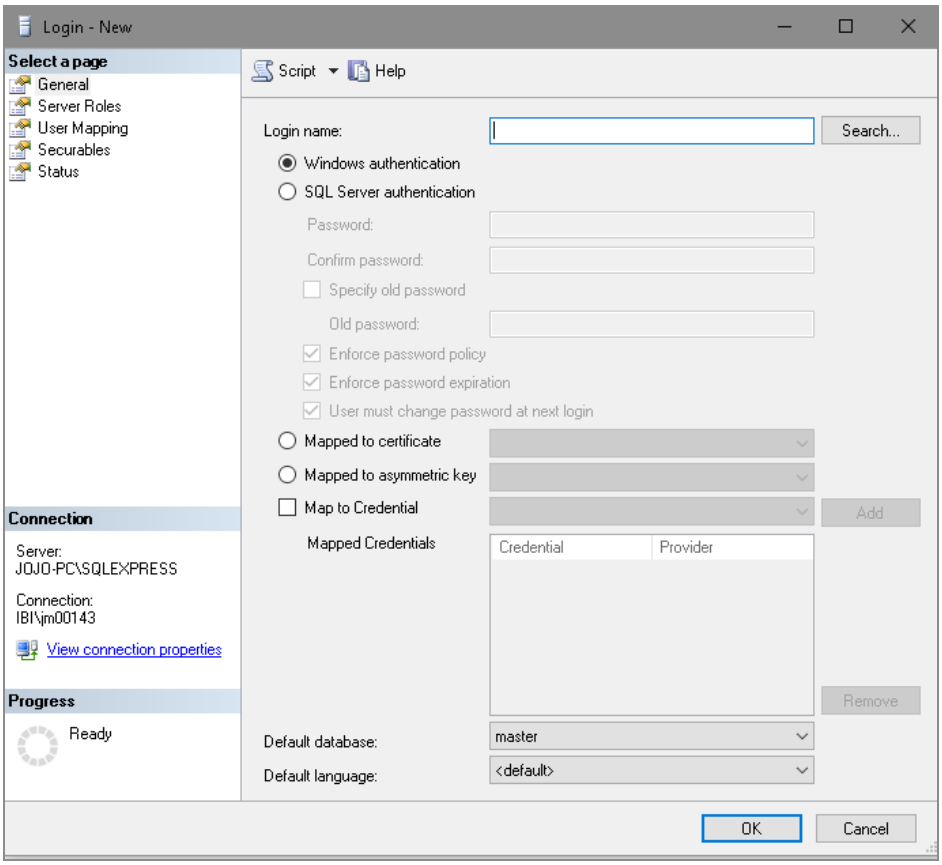
Procedure

1. Open the SQL Server Management Studio.
2. Connect to your database server.
3. Right-click your SQL Server and choose **Properties**.
4. On the left, click **Security**.
5. Ensure that **Server authentication** is set to **SQL Server and Windows Authentication mode**. If Authentication is set to **Windows Authentication mode**, change the setting.
6. Click **OK**.
7. If you changed the authentication mode, restart SQL Server.

Create the Login ID

Procedure

1. In the SQL Server Management Studio, expand your SQL Server and expand the **Security** folder.
2. Right-click **Logins**.
3. Select **New Login**.



4. Enter the user ID you wish to use in the **Login name** field.
5. Select **SQL Server authentication**.
6. Enter and confirm your password.
7. Clear the checkboxes for **Enforce password policy, Enforce password expiration**, and **User must change password at next login**.
8. Click **OK**.

Create the Repository Database

Procedure

1. In the SQL Server Management Studio, right-click the **Databases** folder.
2. Select **New Database**.

A form appears for adding a database.

3. Type a name for the repository database in the **Database name** field.
4. In the **Owner** field, enter the user ID you created in Create the Login ID.

   You can leave the remaining defaults. An initial size of 50MB for the database should be adequate for most departmental applications, but you may want to increase the initial size of the database if you anticipate a lot of use.
5. Under the Options panel, ensure you click **Collation** and select a Case-sensitive (CS) collation.
6. Click **OK**, and the database is created.

   It is a good idea to set this database as the default for your user ID. To do this, under **Security and Logins**, right-click your user ID and choose **Properties**. Then set the **Default database** and click OK.

Install the JDBC Driver for SQL Server

The application server where the WebFOCUS Client and the WebFOCUS ReportCaster Distribution Server are deployed on, use the SQL Server JDBC driver to access the WebFOCUS Repository. You should download the SQL Server JDBC driver for your SQL Server release.

For more information on supported versions of JDBC drivers, see the *ibi™ WebFOCUS® Release Notes*.

Result

If the WebFOCUS Client and WebFOCUS ReportCaster Distribution Server are on separate machines, the driver must be on both machines. Running the driver installation program is not necessary, so you can manually copy the driver files between different machines.

During the WebFOCUS ReportCaster Distribution Server installation, you are prompted for the file or files, as explained in Installing the ibi WebFOCUS Client. In addition, if you manually configure your application server, you must also provide the file or files, as explained in Configuring Web and Application Servers.

Enable TCP/IP in SQL Server

TCP/IP is not enabled in SQL Server, by default. Since the WebFOCUS Client and WebFOCUS ReportCaster require TCP/IP, you must perform the following steps to enable TCP/IP in SQL Server.

Procedure

1. Open the SQL Server Configuration Manager.
2. Under the **SQL Server Network Configuration**, select **Protocols for MSSQLSERVER**.

   A list of valid network protocols for the SQL Server engine is displayed in the right pane.
3. Select **TCP/IP** from the list of available protocols.
4. Right-click **TCP/IP** and select **Enable** from the context menu.

   A message displays, which indicates that the MSSQLSERVER service must be restarted before the change is applied.
5. Restart the MSSQLSERVER service.

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

You can download either the regular Windows install or the Windows essential install.

The following page includes documentation on installing, configuring, administering, and using MySQL:

http://dev.mysql.com/doc/mysql/en/index.html

2. Run the MySQL installation program.

   A typical installation is sufficient for WebFOCUS. You can keep all default settings during the installation and configuration.

3. Be sure to provide a password for the root account when prompted.

Increasing the max_allowed_packet Parameter Value

When you configure or migrate a MySQL repository for WebFOCUS Release 9.3.5, 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

By default, you run MySQL as a Windows service. To start, stop, or restart MySQL:

1. Open the Services Window by selecting **Control Panel**, **Administrative Tools**, and then **Services**.
2. Right-click **MySQL** and choose **Start**, **Stop**, or **Restart**.

After you install MySQL, it may be running by default and may start automatically with Windows.

Administering MySQL

Administer MySQL using a command line tool. You can open this from the Start menu by selecting **Programs**, **MySQL**, **MySQL Server 5.0**, and then **MySQL Command Line Client**.

Sign in to the command line tool using the password you specified during the MySQL installation.

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.

   You can do this by selecting Start, **Programs**, **MySQL**, **MySQL Server 5.0**, and then **MySQL Command Line Client**.

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` 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. Use Winzip to extract the MySQL JDBC driver JAR file. For example:

   ```
   mysql-connector-java-3.1.14-bin.jar
   ```

3. 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.

Additional ibi WebFOCUS Configuration Options

This appendix includes uncommon configurations. Most users do not need the configurations discussed in this appendix. The following configuration options are discussed:

- Installing multiple instances of WebFOCUS on a single machine (Installing Multiple ibi WebFOCUS Instances on the Same Machine).
- Setting optional Tomcat security options (Tomcat Security Tips).

Installing Multiple ibi WebFOCUS Instances on the Same Machine

You can run multiple copies (instances) of WebFOCUS on the same machine, if necessary. To do this, install WebFOCUS multiple times, making sure to change default locations, program folders, and ports.

This section provides an overview. Detailed information varies depending on your web server and application server.

Installing Additional ibi WebFOCUS Instances

No special steps are required to install and configure the first instance of WebFOCUS. If WebFOCUS is already installed and you just wish to add a second instance, you can keep the existing instance as is. However, if no WebFOCUS instances have been installed yet, you may wish to use non-default locations and names for all instances.

When installing a second WebFOCUS instance, keep the following in mind:

- When installing the second WebFOCUS Reporting Server, do not choose to update an

existing installation or create a new configuration. Instead, run a completely new installation.

If a WebFOCUS Reporting Server is already installed, select **No** if prompted to replace the existing installation. If multiple WebFOCUS Reporting Servers are installed, select the **New Installation/Configuration** option to not upgrade any of them.

> **Note:** It is possible to use the same WebFOCUS Reporting Server with two instances of the WebFOCUS Client.

- Place the components for each instance in a different directory. Some WebFOCUS components must be installed in an \ibi\ directory, so use root directories such as:

```
C:\wfTest\ibi
```

```
C:\wfDev\ibi
```

- Change the default program folders when installing additional instances. For example, add some text to the end of the default names.
  - `WebFOCUS 93 Server - Test`
  - `WebFOCUS 93 Server - Dev`
  - `WebFOCUS 93 - Test`
  - `WebFOCUS 93 - Dev`
  - `ReportCaster 93 - Test`
  - `ReportCaster 93 - Dev`
- Change the default ports for the WebFOCUS Reporting Server and WebFOCUS ReportCaster Distribution Server, so that each instance uses a different set of ports.
- When specifying the web server host name, be sure to use the correct port and the

exact host name you will use for the website. If this is a separate port, provide the correct port. If this is a virtual host name, be sure to use the name you will set up in the DNS, including the domain.

- For the WebFOCUS repository, create a separate instance.
- If you are using IIS, ensure you are using a server operating system.
- Do not choose any of the automatic web server or application server configuration options for additional WebFOCUS instances. You must manually configure all but the first WebFOCUS instance you install.

Install WebFOCUS components, keeping these points in mind. For details, see Installing the ibi WebFOCUS Client.

Configuring Multiple Web and Application Servers

Each instance of WebFOCUS requires a separate web server, website, or application server instance. You can set up each web server or application server instance to either listen on a separate port or use a virtual host name. Your options depend on whether you use Apache Tomcat with or without Microsoft IIS.

- **Apache Tomcat Stand-alone**

  When using Tomcat as both the web server and application server, you run two separate instances of Tomcat and set them up to listen on different ports. For example, you could access one WebFOCUS instance at:

  ```
  http://hostname:8080/ibi_apps/WFServlet
  ```

  and the other WebFOCUS instance at:

  ```
  http://hostname:9080/ibi_apps/WFServlet
  ```

  To create a second Tomcat instance, copy the Tomcat directory structure, set unique ports, and create a new service. For example, to create a new service, use the `tomcat9.exe //IS//Tomcat9Test` option. You must then edit the registry values for the new service so they are similar to those for the default service, but specify the

new instance paths.

- **Microsoft IIS with Apache Tomcat**

  Microsoft IIS can be used as the web server, while Tomcat can be used as the application server. This can involve IIS listening on separate ports or using the HTTP host header (virtual host name) feature.

  When using virtual host names, you configure the DNS server so that multiple host names resolve to the same machine. When IIS receives a request for a webpage or other resource, IIS can determine which host name was used when the request was made by looking at the HTTP host header. IIS then uses the host name to determine which website was requested.

  For example, if you are using virtual host names, you could access one instance of WebFOCUS at:

  ```
  http://www.wfDevhost.com/ibi_apps/WFServlet
  ```

  and the other WebFOCUS instance at:

  ```
  http://www.wfTesthost.com/ibi_apps/WFServlet
  ```

  Although different host names are used, they both resolve to the same machine and are received by the same IIS web server.

  For Tomcat with IIS, you run two separate instances of Tomcat and set them up to listen on different ports. You then create two IIS websites and ensure that each IIS website sends servlet requests to a different Tomcat instance. You can configure the two IIS websites to either use different ports or virtual host names.

  To create a second Tomcat instance, copy the Tomcat directory structure, set unique ports, and create a new service. For example, to create a new service, use the `tomcat9.exe //IS//Tomcat9Test` option. You must then edit the registry values for the new service so they are similar to those for the default service, but specify the new instance paths.

Tomcat Security Tips

This section provides some basic tips on security concerns when running Tomcat in a production WebFOCUS environment. For development environments that are safely behind

a firewall, this section is normally optional. You must be an administrator to the Windows machine to perform tasks in this section.

Tomcat User ID and NTFS Permissions

By default, when Tomcat runs as a Windows service, it runs as the Local System account that was created with Windows. The Local System account has full access to your Windows system. In a production environment, it is a good idea to run Tomcat as a user who has more restricted access. To do this, create a user ID for Tomcat, configure Tomcat to use that ID, and set NTFS permissions to grant that ID full access to Tomcat, WebFOCUS, and other directories it needs.

Create a Tomcat User ID

Procedure

1. Open the Windows Control Panel, **Administrative Tools**, and **Computer Management**.
2. Under System Tools, expand **Local Users and Groups**.
3. Right-click **Users** and select **New User**.
4. Name the new user and provide a password.
5. Deselect **User must change password at next logon**, and select **Password never expires**.
6. Click **Create**.

   The Tomcat user is created and added to the users group. An administrator may wish to move Tomcat into a special group with even less access to the system. However, if you do this, you must ensure Tomcat can read and execute from all the Java directories and any required JDBC drivers.
7. Click **Close** to close the New User window.

Configure Tomcat to Use the Tomcat User ID

Procedure

1. Open the Windows Services window.
2. If Tomcat is started, right-click **Apache Tomcat** and select **Stop**.
3. Right-click **Apache Tomcat** and select **Properties**.

   The Apache Tomcat Properties window appears.
4. Select the **Log On** tab.

   By default, this is set to the Local System account.
5. Click **This account**.
6. Specify the Tomcat user ID in the **This account** field.
7. Type and confirm the password you defined for the Tomcat user ID. If you ever change this password, you must change it here as well.
8. Click **OK**.

   A message similar to the following should display:

   ```
   This account .\Tomcat has been granted Log On As a Service right.
   ```

Permissions Concerns

Required NTFS permissions and user IDs vary depending on your system, environment, security needs, and administrator preferences. Tomcat, IIS, and the WebFOCUS Reporting Server normally run as separate accounts and there are cases where they all read or write to the same directory or file. It is a good idea to create a group containing all the required user IDs.

The *ibi™ WebFOCUS® Security and Administration* guide contains additional information on permissions.

If the Tomcat user is not in the default Users group and/or you have restricted permissions throughout your system, ensure the Tomcat user ID can read from the directories containing any JDBC drivers. In addition, ensure Tomcat can read and execute the directories containing the Java JDK.

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