

# WebFOCUS

WebFOCUS App Studio Installation  
and Configuration Guide

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# Preface

This content describes how to install and configure WebFOCUS App Studio on machines running Windows® operating systems. It is intended for developers with some knowledge of such systems.

## How This Manual Is Organized

This manual includes the following chapters:

Chapter/Appendix		Contents
1	Introducing WebFOCUS and WebFOCUS App Studio	Provides an overview of WebFOCUS and App Studio and their installation configurations.
2	Installing App Studio	Provides the installation requirements and instructions, as well as verification and migration information.
3	Configuring the Web Server or Application Server	Provides information on configuring web or application servers for stand-alone, Project-based development and local processing.
4	Configuring the Local Reporting Server Security	Provides information needed to configure WebFOCUS Reporting Server Security and User IDs.
A	Configuring a Network Installation	Provides information for a network installation of App Studio.
B	Troubleshooting App Studio	Provides troubleshooting tips and information on using verification and tracing tools.

## Conventions

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

Convention	Description
<b>THIS TYPEFACE</b> or <i>this typeface</i>	Denotes syntax that you must enter exactly as shown.

Convention	Description
<i>this typeface</i>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u>underscore</u>	Indicates a default setting.
<i>this typeface</i>	Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices. Type one of them, not the braces.
[ ]	Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).
. . .	Indicates that there are (or could be) intervening or additional commands.

## Related Publications

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## Customer Support

Do you have questions about this product?



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

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

## Information You Should Have

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

- ☐ Your six-digit site code (xxxx.xx).
- ☐ Your WebFOCUS configuration:
  - ☐ The front-end software you are using, including vendor and release.
  - ☐ The communications protocol (for example, TCP/IP or HLLAPI), including vendor and release.
  - ☐ The software release.
  - ☐ Your server version and release. You can find this information using the Version option in the Web Console.
- ☐ The stored procedure (preferably with line numbers) or SQL statements being used in server access.

- ☐ The Master File and Access File.
- ☐ The exact nature of the problem:
  - ☐ Are the results or the format incorrect? Are the text or calculations missing or misplaced?
  - ☐ Provide the error message and return code, if applicable.
  - ☐ Is this related to any other problem?
- ☐ Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- ☐ What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- ☐ Is this problem reproducible? If so, how?
- ☐ Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- ☐ Do you have a trace file?
- ☐ How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

## User Feedback

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Thank you, in advance, for your comments.

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# Introducing WebFOCUS and WebFOCUS App Studio

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The following topics provide an overview of WebFOCUS and WebFOCUS App Studio.

**In this chapter:**

- ❑ [About WebFOCUS and App Studio](#)
  - ❑ [WebFOCUS and App Studio Overview and Architecture](#)
  - ❑ [App Studio Installation and Configuration Steps](#)
- 

## About WebFOCUS and App Studio

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, HTML, and Excel®.

WebFOCUS App Studio is a Windows-based development environment for creating WebFOCUS applications. App Studio provides intuitive graphical features that help with interface design, business logic, and data manipulation. Using App Studio, 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 FOCUS, Microsoft® SQL Server, Sybase, Oracle, Informix, Ingres, and Db2.

## WebFOCUS and App Studio Overview and Architecture

App Studio is used to develop and manage WebFOCUS applications, as well as to administer Managed Reporting environments. It is normally assumed, but not required, that WebFOCUS is installed, or will be installed, somewhere in your enterprise. In addition, App Studio architecture and functionality are based on the architecture of WebFOCUS.

## App Studio Components

There are two pieces involved when developing or administering with App Studio.

- ❑ **App Studio.** This is the set of graphical development and code generation features that organize and create WebFOCUS applications.

The graphical and code generation features do not actually process reports and access data. Instead, they connect to a WebFOCUS environment.

- ❑ **WebFOCUS Environment.** This is a complete installation of WebFOCUS. When you install App Studio, it will create a development environment. This allows local, stand-alone development. After installing App Studio, you can choose to connect to a WebFOCUS Environment installed elsewhere in your enterprise or use one installed locally.

**Note:** For all other editions, including installations of the Network editions, you configure App Studio to access a WebFOCUS environment you installed separately. This step is performed from within App Studio.

## WebFOCUS Environments and Components

In a WebFOCUS environment, WebFOCUS connects a web server and/or application server to your data. End users then access WebFOCUS applications through a web browser. Your enterprise may have multiple WebFOCUS environments, each containing the following components:

- ❑ **Third-Party Web and/or Application Server.** Users access WebFOCUS by making requests to a web and/or application server. WebFOCUS functionality can be implemented using Java servlet calls. When App Studio communicates with WebFOCUS, it does so through the web and/or application server as well.

Apache Tomcat™ is provided along with App Studio and WebFOCUS for Windows, so no separate web or application server is required to get started. Apache Tomcat is a servlet container that App Studio can use as a web server and application server.

**Note:** Web servers handle traditional web content, such as static HTML and GIF files. Application servers generally handle Java and other processes, but many application servers can also handle the traditional web content. If your application server can handle traditional web content, then a web server is not required. The term application server is used to refer to either an application server or servlet container in WebFOCUS documentation. A servlet container generally handles a subset of what an application server can handle.

- ❑ **WebFOCUS Client.** This resides on the web server and/or application server. When a user makes a request to the web server from a webpage or App Studio, the WebFOCUS Client receives the request, processes it, and passes it to the WebFOCUS Reporting Server. The WebFOCUS Client connection is implemented through Java servlets. In addition, the WebFOCUS Client may include other WebFOCUS products and interfaces, such as Managed Reporting.

A scaled-down WebFOCUS Client is installed with App Studio. The functionality available is based on the App Studio edition for which you are licensed. An embedded Derby database is also installed with stand-alone versions of App Studio. It is used for authentication purposes.

- ❑ **WebFOCUS Reporting Server.** The WebFOCUS Reporting Server provides data access, data processing, and report generation functionality. WebFOCUS Reporting Servers reside on machines that can access your data. There can be multiple WebFOCUS Reporting Servers in a WebFOCUS environment. A WebFOCUS Reporting Server is always installed with App Studio because some components are required by the development features and functions.

WebFOCUS employs a distributed architecture. This means that the WebFOCUS Client and its WebFOCUS Reporting Servers can either be on the same machine and operating system, or distributed across multiple machines running different operating systems. You can easily connect an Apache web server running on UNIX to Microsoft SQL Server data on Windows and Db2 data on z/OS.

For more information on WebFOCUS components and configuration options, refer to the installation and configuration documentation for your platform.

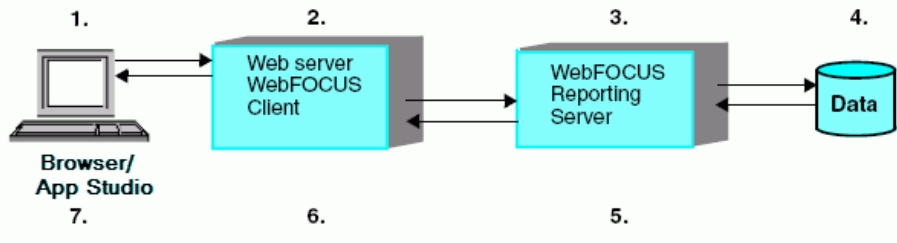
**Note:** To ensure proper communication, WebFOCUS components should be the same release number as each other and App Studio.

## WebFOCUS Processing

The following steps accompany the figure below and describe how WebFOCUS or App Studio processes requests:

1. A user makes a request and passes parameters by calling the WebFOCUS servlet through links and forms on a webpage or through App Studio.
2. The request and parameters come to the WebFOCUS Client through the web and/or application servers, and the WebFOCUS Client processes the parameters to create 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 user request using the retrieved data.
6. The response is returned to the WebFOCUS Client.
7. The response is returned to the user.



## App Studio Processing

App Studio processes requests the same way that WebFOCUS does. App Studio makes calls to a web and/or application server that is configured to accept a WebFOCUS servlet request. The servlet then connects to the WebFOCUS Reporting Server to process the request.

The web and/or application server can be located on the same machine as App Studio or located elsewhere in your enterprise.

- ☐ **Local Web and/or Application Server.** When you install App Studio, you can choose to install and configure a web and/or application server. Manual configuration instructions are also provided in [Configuring the Web Server or Application Server](#) on page 35. Using a local web and/or application server creates a development environment and allows you to process requests on the App Studio machine.
- ☐ **Remote Web Server.** In versions where a local web server is not required, the Help can be serviced through an SDK model. If you do not want to use a local web or application server for WebFOCUS processing, you can configure App Studio to connect to a WebFOCUS environment elsewhere on your network. App Studio then processes requests on the remote WebFOCUS machine.

You can also use a combination of local and remote processing.

## App Studio Development Options

App Studio provides flexibility in how you develop and maintain your WebFOCUS applications and reports. There are several ways to develop with App Studio.

- ❑ **Project-based Development (Optional).** In Project-based development (optional), you use App Studio to create and manage applications. These applications are referred to as projects. When you create a project with App Studio, a special file with a graphical FOCUS application (.gfa) extension is created. The GFA file helps control and organize your application through the development, testing, deployment, and maintenance phases.

You can test and run your projects either from within App Studio or through a web browser.

There are two types of Project-based development:

- ❑ In stand-alone Project-based development, files are developed on the same machine where you install App Studio.

With stand-alone Project-based development, a web and/or application server is required on the machine where you run App Studio.

- ❑ In remote Project-based development, you use App Studio to connect to a WebFOCUS environment running elsewhere in your enterprise. Files are then stored in the remote WebFOCUS environment.

- ❑ **Remote Development.** In remote development, you use App Studio to connect to WebFOCUS environments running elsewhere in your enterprise. After you are connected, you can create and edit files on the remote machines and perform application development through the Data Servers area or use the domain area to perform Managed Reporting development and administration.

For more information about App Studio configurations and development environments, see the *WebFOCUS App Studio User's Manual*.

## App Studio Networked Installation

Normally, App Studio is installed on the desktop of each developer. However, a networked App Studio installation option is available as well.

In a networked configuration, App Studio is installed on a single shared machine, rather than each desktop. Developers then launch App Studio on their desktops by executing files that have been installed on the shared machine. This simplifies administration, installation, and upgrading and it allows all developers to use a common, preconfigured environment.

A network installation of App Studio includes only the GUI features and functions to develop, organize, and maintain applications and procedures. After installing the networked App Studio option, you must set up a connection to a WebFOCUS environment somewhere on your network. App Studio then uses the web server configuration, application server configuration, WebFOCUS Client connectivity, and WebFOCUS Reporting Server of that WebFOCUS environment.

Network installations are discussed in [Configuring a Network Installation](#) on page 53.

### App Studio on a WebFOCUS Machine

App Studio and WebFOCUS can be installed on the same machine, provided WebFOCUS is installed first. The App Studio installation program will detect that WebFOCUS is already installed and, by default, use the existing WebFOCUS environment and components. App Studio then runs using the existing WebFOCUS Client configuration, application directories, web and/or application server aliases and context roots (virtual folders), and WebFOCUS Reporting Server. All products can co-exist and use the same WebFOCUS environment through App Studio or a browser.

App Studio, when installed on the same machine as WebFOCUS, can also be configured to have an independent configuration from WebFOCUS. This can be accomplished by providing a custom alias during the installation.

### App Studio Installation and Configuration Steps

The steps to install and configure App Studio vary depending on how you plan to develop applications.

- ❑ **Local Processing.** Install App Studio on the machine of each developer, then ensure that a web and/or application server is configured on each machine. To access data, configure the local WebFOCUS Reporting Server. Developers will develop applications and run reports on their machines.
- ❑ **Remote Processing.** Install App Studio on the machine of each developer, then set up a connection from each App Studio machine to a WebFOCUS environment installed somewhere on your network. To access data, configure the WebFOCUS Reporting Server in the WebFOCUS environment. An application server is needed on the App Studio machines to run the Help system. Optionally, App Studio can be configured to use remote hosted Help. However, WebFOCUS processing occurs on the remote environment, so the local web and/or application server is not needed on these machines. This is because developers connect to environments running elsewhere to develop applications and run reports.



- ❑ **Network Installation.** Install App Studio on one shared machine. Developers will run App Studio from their desktop by accessing the files installed on the shared machine over the network. You must set up a connection from App Studio on the shared machine to a WebFOCUS environment. To access data, configure the WebFOCUS Reporting Server in the WebFOCUS environment. A special license code is needed for a network installation.
- ❑ **Installation on a WebFOCUS Machine.** Install App Studio after WebFOCUS is installed and configured. App Studio connects to the WebFOCUS environment that is already installed or, optionally, App Studio can be configured to have its own configuration.

## Installation and Configuration Steps

Perform the following steps to install and configure App Studio:

1. Ensure all requirements are met (see [Installing App Studio](#) on page 19).
2. Run the App Studio installation (see [Installing App Studio](#) on page 19).
3. Ensure a web and/or application server is configured either locally or remotely.
  - ❑ For local processing, verify the automatic web or application server configuration (see [Installing App Studio](#) on page 19) or manually configure a web or application server (see [Configuring the Web Server or Application Server](#) on page 35).
  - ❑ For remote processing, or network installations, ensure a WebFOCUS environment has been configured somewhere on your network. To install WebFOCUS, see the *WebFOCUS and ReportCaster Installation and Configuration* manual for your platform.
4. Launch App Studio.
5. Set up a connection to a WebFOCUS environment.
  - ❑ For local processing and installation on a WebFOCUS machine, this should occur automatically if the web server is configured. In some environments, you may need to specify the web server port to set up the connection. You can also create connections to additional WebFOCUS environments running on your network.
  - ❑ For remote processing, or network installations, set up connections to WebFOCUS environments and specify the default environment to use for development.
6. Configure data adapters and metadata to report on your data through the WebFOCUS Reporting Server (see the *WebFOCUS App Studio User's Manual*). For remote processing, and network installations, use the adapters and metadata of the remote environment.
7. For network installations, configure access from developer desktops to the shared machine where you installed App Studio (see [Configuring a Network Installation](#) on page 53).



## Installing App Studio

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The following topics explain how to run the App Studio installation program.

**In this chapter:**

- ☐ [App Studio Requirements](#)
  - ☐ [Installing App Studio](#)
  - ☐ [Verifying App Studio](#)
  - ☐ [Silent App Studio Installation](#)
  - ☐ [App Studio Web Server Configuration Verification Tool](#)
- 

### App Studio Requirements

You must be an administrator to the Windows machine to run the installation.

Review the following requirements to ensure your machine supports App Studio.

#### Hardware Requirements

App Studio is a 64-bit application and includes a 64-bit Reporting Server that requires 64-bit Java. Verify that your Windows machine meets the App Studio hardware requirements:

- ☐ 2 GHz or faster dual core 64-bit (x64) processor.
- ☐ 4 GB of RAM minimum.
- ☐ 8 GB of free disk space.
- ☐ Screen resolution of 1366x768 is recommended.

#### Software Requirements

Your Windows machine must meet the following App Studio software requirements:

- ☐ **Windows 10, Windows 8.1, Windows 7 Enterprise, Professional or Ultimate editions, Windows 2016, 2012, 2012 R2, 2008, or 2008 R2 Server editions.**
- ☐ **Microsoft Internet Explorer®.** Internet Explorer components are required for App Studio. Internet Explorer 11 is certified for App Studio.

- ❑ **Adobe® Reader®.** Adobe Reader XI (11) and Adobe Reader X (10) are certified with App Studio.
- ❑ **Adobe Flash® Player.** Adobe Flash Player 10 or higher is certified with App Studio. Required for the Active PDF report output format.

For more information on Adobe Flash Player and to verify the state of support on 64-bit browsers, check the Adobe website:

<http://www.adobe.com>

To use the WebFOCUS servlet, the required third-party components are included with App Studio. App Studio can install and configure Apache Tomcat for use as both a web server and application server.

**Note:** App Studio is built using Visual Studio and requires the Visual C++ Redistributable Package for Visual Studio 2012. The Visual C++ Redistributable Packages install run-time components of Visual C++ libraries that are required to run applications developed using Visual Studio 2012 on a computer that does not have Visual Studio 2012 installed. Most machines have the required libraries. However, when running the product, if your system does not have the required updates to allow this application to run, you will receive the following message:

`The program can't start because mfc110.dll is missing from your computer.  
Try reinstalling the program to fix this problem.`

or

`This application has failed to start because the application configuration  
is incorrect. Reinstalling the application may fix the problem.`

To correct this issue, download and install the latest update Visual C++ Redistributable for Visual Studio 2012 x64 version from <https://www.microsoft.com>.

## Provided Third-Party Components

The following third-party components are provided for use with App Studio. If they are not present on your machine, you have the option to install them with App Studio:

- ❑ **Java 8 Update 162 (8u162).** Java is included with App Studio. Java will be used for local stand-alone development when the option to install Tomcat is also selected.
- ❑ **Apache Tomcat 8.5.29.** A web and/or application server is required for stand-alone Project-based development, local report processing, and the Help system. Apache Tomcat is provided and can be automatically configured for use as either both a web and application server or as only an application server.

Apache Tomcat is required for the App Studio Help system even if you are using another web and/or application server supported with WebFOCUS.

Optionally, the product can be configured to use remote hosted Help.

Without a web and/or application server, you can create and process reports by connecting App Studio to an instance of WebFOCUS installed somewhere else. However, files cannot be processed or stored locally without a web or application server on the App Studio machine.

**Note:** The version of Tomcat that is included with App Studio is installed for the Help system, and for local and stand-alone development. You have the option to install the Tomcat packaged with App Studio under the default directory, ...\\ibi\\tomcat\\, or in another location of your choice. If we detect an existing version, you can select to use that installation and allow the installation to configure the required context roots. Tomcat will be configured using default ports. If you already have an instance of Tomcat installed, for example, a 6 version, and you also install a version 8 of Tomcat through App Studio, you need to ensure that the two versions do not use the same ports. See [Configuring Additional Web and/or Application Servers](#) on page 46 for additional information on how to configure Tomcat ports.

**Note:** The installation program includes the following third-party components: Tomcat, Java, and Derby. Later versions or releases of these third-party components, which often contain fixes for security vulnerabilities, may exist at installation time. It is your responsibility to check the vendor sites listed below for updates to newer versions or releases of these third-party components if you intend to use them with App Studio. Install the new updates or versions prior to proceeding with the App Studio installation. If these components are installed through the App Studio installation program, it is your responsibility to update these components after the installation is completed.

The latest version of Tomcat is available at <https://tomcat.apache.org>.

The latest version of Java is available at <https://www.java.com>.

The latest version of Derby is available at <https://db.apache.org/derby>.

## Installing App Studio

There are two ways to run the installation utility:

- ☐ **Graphical (GUI) Installation.** The default installation mode launches windows that prompt for parameters. You should use the GUI installation the first time you install App Studio. This section describes the standard GUI installation of App Studio.

- ❑ **Silent Installation.** In a silent installation, you launch the installation and specify a text file. The text file contains the installation parameters, so no GUI windows are launched.

### Web and/or Application Server Options

The App Studio installation can automatically configure one of the following for you:

- ❑ **Apache Tomcat Stand-alone.** You can use Apache Tomcat as both a web and application server. The App Studio installation can install and configure this for you. This is the simplest and recommended configuration.
- ❑ **Microsoft® IIS and Apache Tomcat.** You can use IIS as the web server with Apache Tomcat as the application server, if IIS is installed. In this configuration, traditional web processing is handled by IIS and servlet processing is handled by Tomcat. Calls are made to IIS and IIS then routes requests to Tomcat when servlet processing is needed. This is done using the Tomcat JK 1.2 Connector for IIS. This is not supported if ServletExec ISAPI is installed. IIS cannot use both the Tomcat Connector and ServletExec ISAPI.

This document assumes IIS listens on port 80 and Tomcat listens on port 8080. If you change the defaults, substitute accordingly.

You can manually configure a different application server, as explained in [Configuring Additional Web and/or Application Servers](#) on page 46.

### Installing App Studio and WebFOCUS on the Same Machine

When installing WebFOCUS and App Studio on the same machine, do the following:

1. Ensure that your machine meets the WebFOCUS requirements.
2. Completely install and configure WebFOCUS.
3. Install App Studio.

The App Studio installation program will detect that WebFOCUS is already installed and allows you to select and use the WebFOCUS configuration or install App Studio with its own configuration. If you select to use the WebFOCUS configuration, the installation program will not provide options to automatically configure a web or application server. In this case, you do not need to configure a web or application server for App Studio if one is already configured for WebFOCUS on the machine. App Studio will use the existing WebFOCUS environment including the web or application server configuration. All products can co-exist and use the WebFOCUS environment through App Studio or a browser.

If you choose to create a separate configuration for App Studio, you must select the *Advanced Configuration* option and specify a unique alias for /ibi\_apps and port for the App Studio Reporting Server to avoid conflicts with the WebFOCUS configuration.

## Running the Installation

Follow this procedure to install App Studio.

**Note:** You must be an administrator to the Windows machine to run the installation.

### **Procedure:** How to Install App Studio

The App Studio installation can be obtained through an Internet download.

1. Run the downloaded installation file.
2. Select the language for the installation.

App Studio provides support for English, French, and Brazilian Portuguese during the installation process of the product.

The languages presented during the installation process depend on the system locale of your machine. When the locale is set to English, French, or Brazilian Portuguese, then English, French, and Brazilian Portuguese are available from the Language drop-down list. For all other cases, only English is available. App Studio will be configured to use the language you select during the installation process.

You can update the language App Studio uses post-installation, using the Language selection drop-down list on the General tab of the App Studio Options dialog box.

3. Click *OK*.

The Welcome dialog box opens.

4. Click *Next*.

The License Agreement dialog box opens.

5. Select *I accept the terms of the License Agreement* if you accept the License Agreement and then click *Next*.

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

- ☐ To update your existing installation to a new service pack level, select *Update* and the existing instance you want to update.

If you select *Update*, the Pre-Installation Summary dialog box opens. Click *Next* and continue to step 13.

- ☐ To install all available features of WebFOCUS, select *Full Install*.

If you select *Full Install*, the Software Registration dialog box opens. Click *Next* and continue to step 6.

6. Type the user name, company, and product serial number when prompted and click *Next*.

The serial number is based on your license agreement and controls the software edition that is installed.

If you type a valid serial number, the Software Information dialog box opens, displaying software requirements and configuration options for App Studio.

7. Review the requirements and then click *Next*.
8. On the Choose Install Set dialog box, select the *Typical* or *Custom* installation type and click *Next*.

**Note:** Choose *Custom* if you are using the product for local development and want to change the Tomcat contexts. If you select the *Custom* installation type, you will see the Advanced Configuration dialog box during the installation process, where you can customize the contexts used by the product.

The Select Program Folder dialog box opens.

**Note:** If you want to have multiple App Studio installations on your machine, you can change the Program Folder name by adding a suffix. Changing the default name will also change the folder name where App Studio will be installed. For example, if the default folder name is WebFOCUS 82 App Studio, the product will be installed in a directory with the name ...\\AppStudio82.

9. Accept the default program folder, or specify a new one, and click *Next*.

The Choose Destination Locations dialog box opens.

10. Specify the following locations, or accept the default values:

- a. **Product Installation Directory.** This directory contains the software executable files. The new software will be placed in this directory.

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

- b. **Application Directory.** This directory contains the sample applications that come with the product, and is the location where you create stand-alone applications.

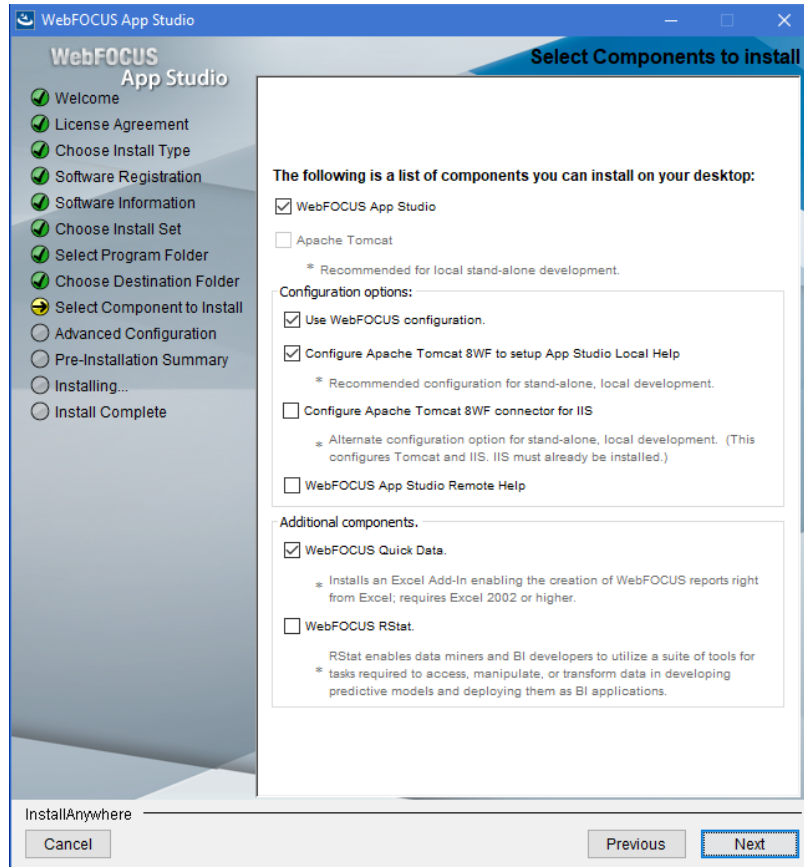
Accept the default value or click *Browse* to select a different directory.

- c. **Disk.** If there is more than one disk or shared folder to which the software can be installed, select the one on which you want to install.

11. Click *Next*.



The Select Components to install dialog box opens, as shown in the following image. The options that display are specific to the edition of App Studio that you are installing.



This dialog box includes the following options. If an option is already installed or unavailable, it is grayed out:

- ☐ **WebFOCUS App Studio.** When selected, this installs the App Studio development environment. This option is required.
- ☐ **Apache Tomcat.** When selected, this installs Apache Tomcat for use as the web and/or application server. Select this option when performing local/stand-alone development. This is also used to configure the App Studio Help locally on your machine.

**Note:** This option is not enabled if a supported version of Tomcat is detected.

The following configuration options appear:

- ☐ **Use WebFOCUS configuration.** This option is visible if WebFOCUS is detected on the same machine. When selected, the installation continues and will not allow customizable configurations. This option will not update your Tomcat configuration.
- ☐ **Configure Apache Tomcat 8WF to setup App Studio Local Help.** Select this option to configure the App Studio Help locally on your machine. If the option to use the WebFOCUS Configuration is selected, the Tomcat configuration is enabled, and will create an App Studio Help context. This option does not affect the WebFOCUS configuration.

**Note:** This option is available if the Use WebFOCUS configuration option is selected.

- ☐ **Configure Apache Tomcat stand-alone.** When selected, this configures the detected or installed Apache Tomcat version for use with App Studio as both a web and application server. This can also be manually configured, as explained in [Configuring Additional Web and/or Application Servers](#) on page 46.

**Note:** This option is available if the Use WebFOCUS configuration option is not selected.

- ☐ **Configure Apache Tomcat Connector for IIS.** When selected, this configures Apache Tomcat as the application server, configures IIS as the web server, and configures communications between IIS and Tomcat. IIS must be installed to use this option. This can also be manually configured, as explained in [Configuring Additional Web and/or Application Servers](#) on page 46.

**Note:** If you choose the Tomcat Connector option and receive a message that says *Unable to Create Filter*, some manual configuration is required. To do this, open the Internet Services Manager, right-click your website, and choose *Properties*. On the ISAPI Filters tab, determine if a Jakarta or ServletExec filter appears. If neither appear, click *Add* and add the isapi\_redirect.dll file using the filter name Jakarta. For more information, review the remainder of this chapter and then see [Configuring Microsoft IIS to Use the Tomcat Connector](#) on page 42. Also, be aware that you cannot use the Tomcat Connector if ServletExec ISAPI is installed.

- ☐ **WebFOCUS App Studio Remote Help.** Select this option if you want App Studio Help to be hosted on a different Application Server. This option prompts you for the machine name and port number.
- ☐ **WebFOCUS Quick Data.** This option installs an Excel Add-In that allows developers to create WebFOCUS reports directly from Microsoft Excel. Developers create reports using InfoAssist, and output is displayed in the active Excel Workbook.

Enabling this option through App Studio provides a single-user license applicable only to the App Studio user. This option also functions against the local App Studio environment or against licensed WebFOCUS environments.

This feature must be licensed separately for use in multi-user WebFOCUS environments. This also applies when App Studio and WebFOCUS are installed on the same machine.

- ❑ **WebFOCUS RStat.** WebFOCUS RStat is a statistical modeling workbench integrated with WebFOCUS App Studio, a Business Intelligence platform. It enables you to perform Predictive Analytics and Data Mining tasks. With WebFOCUS Rstat, you may explore and analyze data to discover important similarities and groups. You may also develop statistical models that can be deployed as scoring applications in the form of visuals, maps, reports, charts, and dashboards.

**Note:**

- ❑ The WebFOCUS RStat software and the MinGW64 compiler can be downloaded from the Technical Support Center. Sign in to the [Technical Support Center](#). On the navigation bar, point to *Download*, and then click [My Downloads and Shipments](#). Registration is required.
- ❑ To install and configure RStat through App Studio, RStat and the MinGW compiler must be downloaded ahead of the App Studio installation. When the *RStat* option is selected, it prompts for the location of the RStat installation executable. Similarly, when the *Mingw Compiler Install* option is selected in the RStat Installation wizard, it prompts for the location of the MinGW64 installation executable.

WebFOCUS RStat may also be installed separately after the App Studio installation.

- ❑ WebFOCUS RStat is for use with full installations of App Studio on local machines. Network installations of App Studio do not support WebFOCUS RStat.

For additional information on WebFOCUS RStat, see the *Using WebFOCUS RStat for Predictive Analytics* manual.

12. Select the components you wish to install and configure, and then click *Next*.

The Pre-Installation Summary dialog box opens.

13. Review the summary of tasks that will be performed during the installation and click *Install* to begin the installation.

An installation progress dialog box opens.

Once the installation has completed, the Install Complete dialog box opens.

14. Click *Done* to complete the installation.

**Note:** Program groups are automatically created after the installation completes, with the available product shortcuts. These shortcuts are created in the Start menu, under All Programs for Windows 7 or All apps for Windows 10, in the Information Builders app.

### App Studio Directory Structure

After installation, the App Studio directory structure is created. The default location is:

`C:\ibi`

The following are some of the main subdirectories. The actual directories may vary based on your license:

`\apps`

Contains applications and data. By default, this is the APPROOT directory where WebFOCUS looks for application files. Sample files are provided in the `\ibinccn` and `\ibisamp` directories.

`\AppStudio82\bin`

Contains the graphical front-end components for creating WebFOCUS applications.

`\AppStudio82\client`

Contains WebFOCUS Client configuration files. Many of these files were installed with the WebFOCUS Reporting Server in previous versions. However, the main communications file `odin.cfg` is still installed under the `srv82\wfs\etc` directory, instead.

`\AppStudio82\config`

Contains the `install.cfg` file that holds information about the installation.

`\AppStudio82\derby`

Contains the embedded Derby database files.

`\AppStudio82\ibi_html`

Contains webpage components that provide local processing, web-based tools, and other features.

`\AppStudio82\jre`

Contains Java used by the installation program and by Tomcat, if installed with App Studio.

`\AppStudio82\logs`

Contains space for log files.

`\AppStudio82\magnify`

Contains Magnify data and sample applications.

`\AppStudio82\Maptiles`

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

`\AppStudio82\srv`

Contains a WebFOCUS Reporting Server installed and configured for App Studio.

`\AppStudio82\temp`

Contains space for local processing.

`\AppStudio82\Uninstall`

Contains the product components for uninstalling App Studio.

`\AppStudio82\Utilities`

Contains features and files for additional configurations.

`\AppStudio82\webapps`

Contains the WebFOCUS web application.

If you installed Tomcat, the default location is:

`drive:\ibi\tomcat`

If you are using Tomcat and IIS together, the Tomcat Connector is installed in:

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

## Installation Log Files

App Studio creates log files in the following location for Windows:

`drive:\Users\user_id\AppData\Local\Temp\AppStudio_Debug_date_time.log`

`drive:\Users\user_id\AppData\Local\Temp\WebFOCUS_82_App_Studio_Install_date_time.log`

where:

`user_id`

Is your Windows user ID.

`date_time`

Is the date and time the log file was created.

These log files provide information about the App Studio installation. If you contact Customer Support Services with an installation problem, have these files available.

### WebFOCUS Reporting Server for App Studio

The App Studio development features require certain components installed with the WebFOCUS Reporting Server. Therefore, a Reporting Server is always installed with App Studio even when one is already installed, or you use App Studio for remote processing.

This server is configured for App Studio and installed within the App Studio directory structure. On the Start menu, it is under the Information Builders app.

**Note:** The server only starts with security OFF, and can only be started by the user who installed App Studio.

If you install App Studio on the same machine as WebFOCUS, be sure to configure the server installed for WebFOCUS and not the server installed with App Studio. The server installed for WebFOCUS should be started before App Studio. Otherwise, App Studio starts the server installed with App Studio instead.

### Tomcat Security and Settings

If you are not using Tomcat, proceed to [Verifying App Studio](#) on page 31.

#### **Reference:** Apache Tomcat Installation Information

If you installed Tomcat with App Studio, the installation is done silently and uses default settings.

- ❑ The default installation directory is:

`drive:\ibi\tomcat`

- ❑ To start, stop, and restart Tomcat, you can use Windows Services. If Tomcat was installed through App Studio, the Tomcat Service is listed as *Apache Tomcat 8.5.29 for WebFOCUS*, and is configured to start automatically with Windows. If Tomcat was preinstalled, the Service Name may be different, for example, Apache Tomcat 8.5 Tomcat8.
- ❑ Tomcat uses TCP ports 8080, 8009, and 8005, by default. Port 8080 is the HTTP listener through which you access Tomcat in a web browser. Port 8009 is needed for the Tomcat Connector for IIS. If you need to change these ports, you must edit the following file:

`<catalina_home>\conf\server.xml`

If you change defaults, substitute accordingly in procedures and examples. You also need to update the App Studio connection settings so it knows the correct Tomcat HTTP port if you change the default. For more information, see [Tomcat Ports](#) on page 40.

- ❑ To avoid malicious attacks on the developer machine, when Tomcat is installed from the App Studio installation program, Tomcat is configured to only allow connections from localhost (IP address 127.0.0.1).

This secures access to the Tomcat Manager and Administration web applications and restricts connections by remote IP addresses or hosts.

Restriction to localhost only connections is done by configuring `< catalina_home >\conf\server.xml` and adding an entry for `address="127.0.0.1"` to the segment `<Connector port="8080".../>`. For example:

```
<!-- Define a non-SSL HTTP/1.1 Connector on port 8080 -->
<Connector port="8080" maxHttpHeaderSize="8192" address="127.0.0.1"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" redirectPort="8443" acceptCount="100"
connectionTimeout="20000" disableUploadTimeout="true" />
```

- ❑ If you choose to install the Tomcat Connector for IIS, it is installed silently in:

```
< catalina_home >\Jakarta Isapi Redirector
```

- ❑ The default Tomcat Java memory settings are increased when Tomcat is installed with App Studio. If you did not install Tomcat with App Studio, you should increase the Java memory options, as explained in [Java Memory Issues](#) on page 67.

## Verifying App Studio

App Studio connects to a WebFOCUS environment in order to create and process requests.

- ❑ If you chose to have the installation configure Apache Tomcat, a localhost development environment should exist for App Studio. Verify the web and/or application server configuration, as explained in [Web and/or Application Server Verification](#) on page 32.
- ❑ If App Studio is installed on the same machine as WebFOCUS, App Studio uses the already installed WebFOCUS environment. In some environments, you might need to specify the web server port or change default connection settings in the WebFOCUS Environment Properties dialog box.
- ❑ For a network installation, proceed to [Configuring a Network Installation](#) on page 53 to set up a connection to a WebFOCUS environment and configure shared access.

- ❑ To manually configure a web and/or application server for local processing, proceed to [Configuring the Web Server or Application Server](#) on page 35.

## Web and/or Application Server Verification

If Tomcat is configured for you, you should restart it to ensure all settings are correct. If you are using Tomcat with IIS, you should restart IIS as well.

### **Procedure:** How to Start Apache Tomcat or Microsoft IIS

1. Open Windows Services and right-click *Apache Tomcat* and/or *IIS Admin Service*.
2. Choose *Start*, *Stop*, or *Restart*. For IIS, also make sure the *World Wide Web Publishing Service* is started.

#### **Note:**

- ❑ If you install Tomcat with App Studio, the Tomcat service starts automatically with Windows. If you want to change this behavior, right-click *Apache Tomcat* in the Services window, select *Properties*, and change the Startup type to Manual. However, be sure to start Tomcat before starting App Studio.
- ❑ A WebFOCUS Server for App Studio service appears in the Services window. However, you should not start this server from here. This WebFOCUS Reporting Server cannot run as a service.

### **Procedure:** How to Verify the Web Server

After starting or restarting your web server, confirm that it is running by accessing it through a browser.

- ❑ For IIS, go to the following page in your browser:

<http://localhost>

- ❑ For Tomcat, go to the following page in your browser:

<http://localhost:8080>

When using Tomcat standalone, use port 8080 when accessing Tomcat in a web browser or through App Studio. When using Tomcat with IIS, you normally do not go through port 8080 when running App Studio, but you can go to this port to ensure Tomcat is running and configure Tomcat.

The Tomcat home page should appear. If it does not, Tomcat may still be loading. Wait a few minutes and try again.



**Procedure: How to Verify the WebFOCUS Web Application Deployment**

The WebFOCUS web application is installed with App Studio in:

`drive:\ibi\AppStudio82\webapps\webfocus`

If you chose the automatic configuration option, Tomcat is configured to access the expanded webapps\webfocus directory when it receives a request for:

`/ibi_apps`

If you are using IIS with Tomcat, then IIS receives the request for `/ibi_apps` and passes that request to Tomcat.

You should test this by going to the default WebFOCUS Sign In page. If you are not using the default ports, substitute accordingly.

- ☐ If you are using Tomcat either standalone or with IIS, go to the following URL:

`http://localhost:8080/ibi_apps/`

- ☐ If you are using IIS with Tomcat, go to the following URL:

`http://localhost/ibi_apps/`

The WebFOCUS Sign In page should display, by default. If you have previously signed in to WebFOCUS, the WebFOCUS Home Page displays.

A WebFOCUS Sign In page that fails to display is an indication that the web and/or application server may not be running, or the WebFOCUS environment is not configured properly.

**Silent App Studio Installation**

You can install App Studio in silent mode if you prefer to automate the installation process or if you do not want to run the installation in interactive mode. In a silent installation, dialog boxes do not appear to prompt you for parameters. Instead, you place the parameters in a text file that you specify when launching the silent installation.

**Procedure: How to Install App Studio Release 8.2.x Using the Silent Installation**

To install in silent mode, you must create a file containing your installation parameters.

1. Open the command prompt.

2. Navigate to the directory where the App Studio 8.2.x installation program (for example, AppStudio8203.exe) resides and type the following command:

```
AppStudio8203.exe -r drive:\fullpath\filename.properties
```

**Note:** Always generate the properties file before performing the silent installation 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 will be created.

3. To install in silent mode, navigate to the directory where the App Studio installation program (for example, AppStudio8203.exe) resides and type the following command:

```
AppStudio8203.exe -i silent -f drive:\fullpath\filename.properties
```

## App Studio Web Server Configuration Verification Tool

A verification tool is installed along with App Studio as part of the WebFOCUS Administration Console. For more information, see [Troubleshooting Tools](#) on page 71.



# Chapter 3

## Configuring the Web Server or Application Server

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The following topics explain how to manually configure web or application servers for stand-alone, Project-based development with App Studio.

**In this chapter:**

- ❑ [Configuration Options](#)
  - ❑ [Configuring Apache Tomcat](#)
  - ❑ [Configuring Microsoft IIS to Use the Tomcat Connector](#)
  - ❑ [Configuring Additional Web and/or Application Servers](#)
- 

### Configuration Options

This chapter is not necessary if any of the following apply:

- ❑ You chose the automatic configuration option during the App Studio installation and successfully ran the verification tool, as described in [Installing App Studio](#) on page 19. You can optionally review this information to understand the configuration or proceed to [Configuring the Local Reporting Server Security](#) on page 49.
- ❑ You installed App Studio on a machine where WebFOCUS was already installed and configured. In this case, App Studio can use the existing WebFOCUS configuration.
- ❑ You plan to perform only remote development, or a network installation. In this case, you must configure App Studio to access a WebFOCUS environment installed elsewhere. For additional network installation steps, see [Configuring a Network Installation](#) on page 53.

This chapter is needed if a web or application server is not configured or if you need to troubleshoot the configuration. App Studio requires a web and/or application server to perform stand-alone, Project-based development and to process reports locally. Configuration steps vary depending on which web and/or application servers you use:

- ❑ **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 rather than 80. Therefore, when calling web server pages in a browser, you must use:

`http://hostname:8080`

rather than:

`http://hostname`

Manual configuration is described in [Configuring Apache Tomcat](#) on page 36.

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

Manual configuration is described in [Configuring Apache Tomcat](#) on page 36 and [Configuring Microsoft IIS to Use the Tomcat Connector](#) on page 42.

- ❑ **Other.** Other web and/or application servers, such as IBM WebSphere®, can be manually configured, as explained in [Configuring Additional Web and/or Application Servers](#) on page 46.

For convenience, the term application server is used to refer to either a servlet container, J2EE Engine, or application server.

## Configuring Apache Tomcat

The App Studio 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 not familiar with Tomcat, you may wish to review this section to understand the configuration process.

### Note:

- ❑ If Tomcat is not yet installed, install it at this time. You can install Tomcat by restarting the App Studio installation program, choosing the *Full Install* option, choosing the *Apache Tomcat* installation option, and deselecting the *App Studio* option.
- ❑ Tomcat uses TCP ports 8080, 8009, and 8005 by default. If you need to change them, see [Tomcat Ports](#) on page 40.

- ❑ If App Studio installs Tomcat, it increases the default Java VM memory options. If you manually install Tomcat or need to troubleshoot memory issues, see [Java Memory Issues](#) on page 67.

## Tomcat Configuration Overview

To configure Tomcat, you tell Tomcat where App Studio files are located and the contexts in which to use them. For example, the WebFOCUS web application is installed with App Studio in:

`drive:\ibi\AppStudio82\webapps\webfocus`

Tomcat must know to serve files from the web application when it receives a request for the ibi\_apps context path. For example:

`http://localhost:8080/ibi_apps`

Tomcat can be used as both a web server and application server, so Tomcat can also serve files outside of a web application after it knows their location and context. On a traditional web server, you create aliases. With Tomcat, 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)
<code>/ibi_apps</code>	<code>drive:\ibi\AppStudio82\webapps\webfocus</code>
<code>/ibi_apphelp</code>	<code>drive:\ibi\AppStudio82\webapps\ibi_apphelp</code>
<code>/approot</code>	<code>drive:\ibi\apps</code>

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

Context (path)	Directory (DocumentBase)
<code>/ibi_apps</code>	<code>drive:\ibi\AppStudio82\webapps\webfocus</code>
<code>/ibi_apphelp</code>	<code>drive:\ibi\AppStudio82\webapps\ibi_apphelp</code>

The `ibi_apphelp` and `approot` contexts are then created as aliases (Virtual Directories) on IIS and IIS is configured to send requests for `ibi_apps` to Tomcat.

### Configuring Tomcat

There are many ways to configure Tomcat. It is recommended that you create XML files under:

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

where:

```
< catalina_home >
```

Is the actual location of your Tomcat installation directory. For example:

```
drive:\ibi\tomcat
```

or

```
C:\Program Files\Apache Software Foundation\tomcat x.x.
```

Context roots can be created as specified in the following steps.

#### **Procedure:** How to Create Contexts for Apache Tomcat

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

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

This directory can contain XML files that define contexts. If the App Studio installation installed and configured Tomcat for you, the following files should appear to define the `ibi_apps` context that deploys the `webfocus` directory:

```
approot.xml
```

```
ibi_apps.xml
```

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

```
ibi_apphelp.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 Tomcat documentation.

3. If the ibi\_apps.xml file does not exist, create it using Notepad. For example:

```
<?xml version='1.0' encoding='utf-8'?>
<Context docBase="C:\ibi\AppStudio82\webapps\webfocus" path="/ibi_apps">
</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 stand-alone Tomcat and approot.xml does not exist, create it using Notepad. 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. If you are using stand-alone Tomcat and ibi\_apphelp.xml does not exist, create it using Notepad. For example:

```
<?xml version='1.0' encoding='utf-8'?>
<Context docBase="C:\ibi\AppStudio82\webapps\ibi_apphelp" path="/
ibi_apphelp">
</Context>
```

Be sure to specify the correct directory on your machine.

6. Restart Tomcat from Windows Services.

### **Procedure:** How to Test the Tomcat Configuration

1. Ensure that Tomcat has been restarted.
2. Test the ibi\_apps context by going to the following URL in a web browser:

[http://localhost:8080/ibi\\_apps/](http://localhost:8080/ibi_apps/)

The WebFOCUS Home Page should appear. If you receive an error, see [Troubleshooting App Studio](#) on page 67.

Additional Tomcat Configuration Options

You should be aware of how to secure the Tomcat Manager Web Tool, Tomcat TCP ports, and how to reload web applications.

Reference: 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: <a href="http://localhost:8080">http://localhost:8080</a>
8009	Connector Port	Web servers can route servlet requests to Tomcat on this port. The Tomcat Connector for IIS uses this port. Tomcat listens on this port even if no web server is connecting.
8005	Shutdown Port	Tomcat uses this port for internal operations and for shutting down.

If these ports are not available or you wish to change them, do the following:

1. Open the following file in a text editor:  
`< catalina_home > \ conf \ server . xml`
  2. Search for the port numbers you wish to replace (8080, 8009, 8005) and replace them with the ports you wish to use.
  3. Save and exit the file.
  4. Restart Tomcat.
- If you change defaults, substitute accordingly in procedures and examples. You also need to update the App Studio connection settings so it knows the correct Tomcat HTTP port if you change the default.



**Reference: Reloading Web Applications**

This is not a consideration if you just installed Tomcat with App Studio for the first time, only when installing a service pack or new release. When you upgrade App Studio or install a service pack, Tomcat must use the new web application rather than cached copies of the old version.

To clear the Tomcat cache, delete the content in the following directory and restart Tomcat:

`< catalina_home > \work\`

**Reference: Additional Configuration Steps**

If you are using Tomcat as the application server and IIS as the web server, configure IIS, as explained in the next section.

**Apache Tomcat Application Server Unicode Configuration**

To set up a Unicode environment, follow these steps:

1. Edit the server.xml file located under `drive:\ibi\tomcat\conf`.
2. Add `useBodyEncodingForURI="true"` to the Connector, as shown in the following image.

```

93 | <!-- Define a non-SSL HTTP/1.1 Connector on port 8080 -->↓
94 | <Connector↓
95 | port="8080"          maxHttpHeaderSize="8192"↓
96 |     maxThreads="150" minSpareThreads="25" maxSpareThreads="75"↓
97 |     enableLookups="false" redirectPort="8443" acceptCount="100"↓
98 |     connectionTimeout="20000" disableUploadTimeout="true" useBodyEncodingForURI="true" />↓
99 | <!-- Note : To disable connection timeouts, set connectionTimeout value↓
100 | to 0 -->↓
101 |     ↓

```

3. Recycle the Tomcat Application Server to activate.

**Deploying the App Studio Help on a Remote Application Server**

This section is required if you are deploying the App Studio Help system on a remote application server. The App Studio Help web application must be deployed to an application server.

If Tomcat is your remote application server, you can do one of the following:

- ☐ Copy the `ibi\AppStudio82\webapps\ibi_apphelp` folder to the following location, and restart Tomcat.

`< catalina_home > \webapps`

or

- ❑ Create a context that points to the deployed Help web application. Create the context `ibi_apphelp.xml`, and place it in the following location:

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

The xml should include the following syntax:

```
<?xml version='1.0' encoding='utf-8'?>
<Context docBase="drive:\ibi\AppStudio82\webapps\ibi_apphelp" path="/
ibi_apphelp">
</Context>
```

To configure the App Studio Help on a remote application server other than Tomcat, you must deploy the `ibi_apphelp.xml` web application to the server.

## Configuring Microsoft IIS to Use the Tomcat Connector

To use Tomcat as the application server, while using Microsoft IIS as the web server, you must do the following if the installation did not do it for you:

1. On Tomcat, deploy the WebFOCUS web application by creating the `ibi_apps` context, as explained in [Configuring Tomcat](#) on page 38.
2. On IIS, set the `/approot` aliases (virtual directory).
3. Install and configure the Tomcat Connector (Jakarta Tomcat Connector JK1.2 for IIS), as explained in this section.

### Note:

- ❑ The Tomcat Connector for IIS is not supported on 64-bit Windows systems.
- ❑ If ServletExec ISAPI is installed, stop IIS, uninstall it, and reboot. If this is not possible, you can disable the filter. To disable the filter, open the Internet Service Manager, right-click your website, choose *Properties*, and remove the ISAPI filter from the ISAPI Filters tab. If no filter appears, move the `ServletExec_ISAPI.dll` file out of the `C:\inetpub\Scripts` directory.

## Installing and Configuring the Tomcat Connector for IIS

A simple program installs the Tomcat Connector and configures the default IIS website that uses the Connector. After installing the Connector, you can change the IIS website that uses the Connector, if needed. If you chose to configure the Tomcat Connector when installing App Studio, the Connector should be installed in the directory:

```
< catalina_home>\Jakarta Isapi Redirector
```

The installation program is self-explanatory and prompts you for the location in which to install the Connector.

**Note:** If you manually install the Connector, a `workers.properties.minimal` file appears, instead of a `workers.properties` file. The files are the same except for their names.

### Reference: Tomcat Connector Installation

The App Studio or Tomcat Connector installation program performs the following steps. You normally do not need to manually perform these steps, however, you should be aware of them in case you need to troubleshoot. In addition, if you need to change the IIS website that uses the Connector, you may need to perform some manual configurations.

1. The Connector is installed by default in the following location:

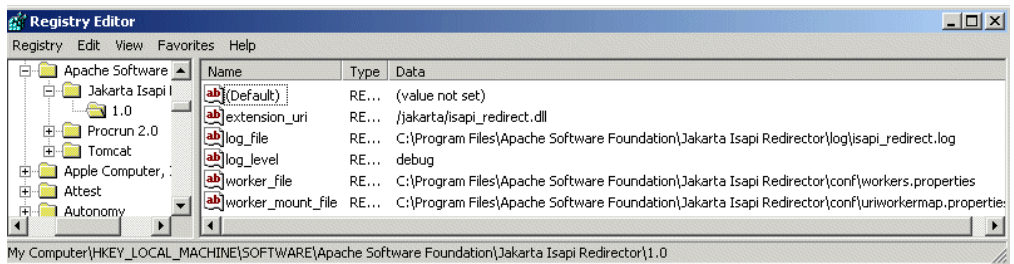
`< catalina_home > \Jakarta Isapi Redirector`

2. The following table shows the registry settings that are created under:

`HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Jakarta Isapi Redirector\1.0`

Value Name	Value Data
extension_uri	<code>/jakarta/isapi_redirect.dll</code>
log_file	<code>&lt; catalina_home &gt; \Jakarta Isapi Redirector\log\isapi_redirect.log</code>
worker_file	<code>&lt; catalina_home &gt; \Jakarta Isapi Redirector\conf\workers.properties</code>
worker_mount_file	<code>&lt; catalina_home &gt; \Jakarta Isapi Redirector\conf\uriworkermmap.properties</code>

The following image shows those settings in the registry.



- 3. A Virtual Directory (alias) with scripts and executable permissions is created under the default IIS website, as shown below.

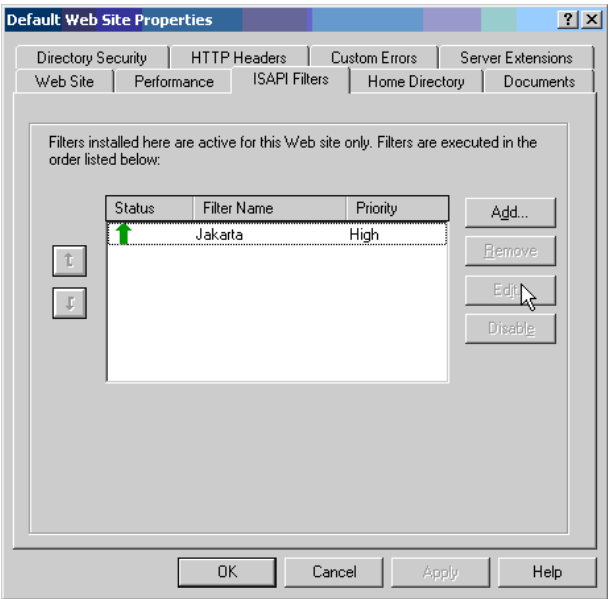
Alias	Path
/jakarta	< catalina_home > \Jakarta Isapi Redirector \bin \

If you wish to use the Connector with a different website, create this Virtual Directory under that site.

- 4. The following file is added to the default website as an ISAPI Filter.

< catalina\_home > \Jakarta Isapi Redirector \bin \isapi\_redirect.dll

In some environments, WebFOCUS does not successfully add this and you must do it manually. You can confirm or add this by right-clicking your website in the Internet Services Manager, selecting *Properties*, and then selecting the *ISAPI Filters* tab. If the Jakarta filter does not appear, as it does in the following image, click *Add* and add it.



If you wish to use the Connector with a different website, create this filter under that site.

**Note:** If App Studio installed the Tomcat Connector, you can manually uninstall it by removing the registry settings, ISAPI Filter, Virtual Directory, and Jakarta Isapi Redirector directory. If you ran the Tomcat Connector installation utility, you can uninstall it using the Control Panel.

**Procedure: How to Configure the Redirection for App Studio**

The following file installed with the Tomcat Connector tells IIS when to route requests to Tomcat:

```
< catalina_home>\Jakarta Isapi Redirector\conf\uriworkermap.properties
```

1. In a text editor, open the `uriworkermap.properties` file.
2. Confirm that the following line appears and manually add it if it does not appear:

```
/ibi_apps/*=ajpl3w
```

This line tells IIS to send requests for `ibi_apps` to Tomcat. If you changed the default context root, substitute accordingly. The `/ibi_apps/*` context can only appear once.

3. Save and exit the editor.
4. Restart IIS. (Any changes require restarting IIS.)

**Note:** The `workers.properties` file tells IIS where the Tomcat host and port are located. This is a different port (8009) than the port used for HTTP (8080). If you changed the default ports, edit this file accordingly.

**Verifying the Configuration**

After configuring the Tomcat Connector, ensure that IIS can route requests to Tomcat.

**Procedure: How to Run Test Calls**

1. If your test calls are not started, start the following:

☐ IIS

☐ Tomcat

2. Ensure the `ibi_apps` context is created on Tomcat by typing the following URL:

```
http://localhost:8080/ibi_apps/tools/console/wfconsole.jsp?verification
```

A page displaying information about the build should display. If there is a broken image, do not be concerned. If nothing displays, ensure that Tomcat is started and that you created this context, as explained in [Configuring Apache Tomcat](#) on page 36. If you receive an error, see [Troubleshooting App Studio](#) on page 67.

3. Ensure IIS routes a request for `ibi_apps` to Tomcat by typing the following URL:

```
http://localhost/ibi_apps/tools/console/wfconsole.jsp?verification
```

The same page should display without the broken image. If IIS is not on port 80, substitute accordingly. If you receive an error:

- ❑ Ensure that all steps have been performed to configure the Connector.
- ❑ Ensure that both IIS and Tomcat are started and try restarting them.
- ❑ Ensure that `/ibi_apps/*` appears only once in the `uriworkermap.properties` file.
- ❑ Ensure that ServletExec ISAPI is not installed or is disabled.

## Configuring Additional Web and/or Application Servers

This section explains how to manually configure other web and/or application servers.

### Configuring the Web Server

App Studio connectivity components and other web-based features sometimes run as part of the web server. Therefore, your web server must be told the locations of App Studio files. To enable this, you define aliases that map directories containing App Studio files to directories the web server can reference.

#### *Procedure:* How to Configure Aliases

Review your web server documentation and define the following alias:

Name	Path	Access
approot	<code>drive:\ibi\apps</code>	Read

### Configuring the Application Server

WebFOCUS Java servlets are provided as a web application installed as an expanded directory:

`drive:\ibi\AppStudio82\webapps\webfocus\`

To run the servlets, you need either a web server with native servlet support, a web server with a servlet engine plug-in (for example, ServletExec), or a web application server (for example, WebSphere, WebLogic®). Servlet support must meet the J2EE 6 Web Container, J2SE 7, and Servlet API 3.0 specifications.

**Procedure: How to Configure the Application Server**

Configuration procedures vary depending on your web server, application server, or servlet container. Review the third-party documentation for information on how to deploy web applications.

1. Deploy the WebFOCUS web application using the ibi\_apps context root:

Doc base or location	URL Context Path
<code>drive:\ibi\AppStudio82\webapps\webfocus</code>	<code>/ibi_apps</code>

2. If necessary, ensure your web server can route servlet requests to the application server.
3. If necessary, restart your web and/or application servers.

**Configuring App Studio**

App Studio is supported with all web and/or application servers supported with WebFOCUS. However, App Studio settings default for Tomcat and/or IIS. Therefore, if you are not using IIS or Tomcat, be aware of the following:

- ☐ App Studio attempts to call the web server on either port 80 or port 8080. If your web server listens on a different port, set the port for the WebFOCUS Environment.
- ☐ By default, App Studio attempts to start IIS when you start App Studio. You can change this behavior, if you wish.







# Chapter 4

## Configuring the Local Reporting Server Security

---

The following topics explain how to configure the App Studio Reporting Server to run with security. This applies only for stand-alone versions of App Studio. All other versions do not use a local Reporting Server. Instead, they require a remote WebFOCUS environment and use the Reporting Server(s) configured with that environment.

### In this chapter:

- ☐ [WebFOCUS Reporting Server Security and User IDs](#)
- 

### WebFOCUS Reporting Server Security and User IDs

By default, the WebFOCUS Reporting Server installed with App Studio can only be started by the user who installed it. In addition, the WebFOCUS Reporting Server is not enabled, by default, to run with security. For use with App Studio, this is sufficient because App Studio starts the WebFOCUS Reporting Server with security OFF. This server is used by a developer for local standalone development (not to be shared by other developers) and it is not licensed for group development.

### Configuring WebFOCUS Reporting Server Security and User IDs

You must configure server security if the following applies:

- ☐ You wish to run the WebFOCUS Reporting Server with security OPSYS.

The WebFOCUS Reporting Server can encrypt and store passwords for administrator user IDs. To start with security OFF, the passwords are not required. However, to start with security OPSYS, the server must know both the Windows user ID and its password. By default, the WebFOCUS Reporting Server does not know any passwords and, therefore, cannot start with security OPSYS.

### **Procedure:** How to Set Server Security and User IDs

1. Close App Studio if it is open and ensure the WebFOCUS Reporting Server stops.
2. Click the Start button on the taskbar.
3. In the list of installed applications, expand the *Information Builders* app.
4. Select the *WebFOCUS 82 App Studio* folder.

This opens a new File Explorer window, with all of the product shortcuts.

5. Double-click *WebFOCUS Server for App Studio*, which opens a new window that displays all the available WebFOCUS Reporting Server shortcuts.
6. Double-click the *Start Security OFF* shortcut to start the WebFOCUS Reporting Server with security OFF.
7. Double-click the *Web Console* shortcut to access the Reporting Server Console. You can also go to the following page in Internet Explorer:

`http://localhost:serverport`

where:

`serverport`

Is the port number of your Reporting Server.

**Note:** The default Reporting Server port is 8121.

8. At the top of the Web Console, click *Access Control*.  
The *Activate Providers* page opens.
9. For OPSYS, from the Status drop-down list, select *Primary*.
10. Click *Save*.

The Server Administrator ID field automatically populates your ID. Type your password in the Password field.

**Note:** If your ID is not listed, type your ID and password in the appropriate fields.

11. Click *Apply and Stop Server*.

You can now start the server using the *Start Security ON* option through the App Studio Server program group.

12. When prompted, click *OK* to restart the server.

**Note:** The passwords and user IDs stored by the server must be kept in sync with those used to sign in to Windows. If you change your Windows password, you must access the Server Console to change the password stored by the server.

## Running the Server as a Service With Security ON or OFF

To run the App Studio development features, you do not need to be an administrator to the local machine. However, the WebFOCUS Reporting Server must run as an administrator to the Windows machine.

To allow users who are not Windows administrators to use the WebFOCUS Reporting Server, you can configure the server service to run automatically with Windows. If you want to run it with security off, you can change the user ID it runs under as a service. Normally when the server runs as a service, it runs with security OPSYS and uses a local system administrator account that was created by Windows.

Users that did not install App Studio sign in to the Windows machine and use App Studio. The WebFOCUS Reporting Server stores a list of user IDs that the server recognizes as server administrators. To start the WebFOCUS Reporting Server in any security mode, you must be signed in to Windows as a user ID that the server recognizes as an administrator. By default, the server only recognizes the user ID that was used when you install App Studio. To start the server as a different ID, you must add additional user IDs through the Reporting Server Console.

***Procedure:* How to Configure the Server to Run as a Service With Security OFF**

1. Open Windows Services and right-click *WebFOCUS Server for App Studio*.
2. Choose *Properties*.
3. Click the *Log On* tab.
4. Select *This account* and specify a Windows user ID and password with administrator rights to the local machine.
5. Click *Apply*.
6. Click the *General* tab.
7. Change the *Startup type* to *Automatic*.
8. Click *OK*.



## Configuring a Network Installation

---

The following topics explain a network installation of App Studio.

You must install App Studio with the correct license to use a network installation.

**In this appendix:**

❏ [Network Installation Steps](#)

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### Network Installation Steps

This section explains a network installation of WebFOCUS App Studio. In a network installation, App Studio is installed on a single shared machine, rather than each developer desktop. Developers then launch App Studio on their desktops by executing files that have been installed on the shared machine. This simplifies administration, installation, and upgrading, and allows all developers to use a common preconfigured environment.

A network installation of App Studio does not include full WebFOCUS Client connectivity. After installing App Studio, you must configure it to access a WebFOCUS environment somewhere on your network. App Studio then uses the web server configuration, application server configuration, WebFOCUS Client connectivity, and WebFOCUS Reporting Server of that WebFOCUS environment.

An App Studio network installation involves the following steps:

1. [Ensuring Requirements Are Met](#) on page 54.
2. [Installing App Studio](#) on page 55.
3. [Configuring App Studio](#) on page 56.
4. [Setting Up Access to the Network Installation](#) on page 58.
5. [Installing App Studio Network Shortcuts](#) on page 61.
6. [Launching App Studio](#) on page 62.

## Ensuring Requirements Are Met

A network installation of App Studio can consist of three types of machines. Each machine has its own requirements.

### ☐ **WebFOCUS Machine Requirements**

WebFOCUS requirements and installation steps are provided in the *WebFOCUS and ReportCaster Installation and Configuration* manual for your platform. To use Project-based development (optional), the WebFOCUS environment must store both server files (FEX, MAS, ACX) and client files (HTML, GIF, CSS) in the same directory for each project. This means that the WebFOCUS Client and the WebFOCUS Reporting Server must use the same APPROOT directory on the same machine. For example:

`C:\ibi\apps`

**Note:** The release of WebFOCUS must be the same release number as App Studio.

### ☐ **App Studio (Shared) Machine Requirements**

App Studio can be installed on the same machine as WebFOCUS or on a separate machine. The requirements for a network installation of App Studio are the same as those of a non-networked installation. For more information on requirements, see [Installing App Studio](#) on page 55.

**Note:** You must provide a license for a network edition.

Since this machine will be accessed by multiple users over the network, you should use a machine that supports multiple connections and frequent network access.

### ☐ **App Studio End User (Remote) Machine Requirements**

Machines from which you run App Studio off the network should meet the following requirements:

- ☐ **Windows 10, Windows 8.1, Windows 7 Enterprise, Professional or Ultimate editions, Windows 2016, 2012, 2012 R2, 2008, or 2008 R2 Server editions.**
- ☐ **Microsoft Internet Explorer.** Internet Explorer components are required for App Studio. Internet Explorer 11 is certified for App Studio.
- ☐ **Adobe Reader.** Adobe Reader XI (11) and Adobe Reader X (10) are certified with App Studio.
- ☐ **Administrator Rights.** Administrator rights are required during the initial launch of the network version from the client machine to set up required registry entries in the local machine area.

- ❑ **Enabling Multiple Browser Support in App Studio.** Developers can use Chrome™, Firefox®, Edge®, Internet Explorer®, or the internal viewer when running reports. To use Chrome, Firefox, or Edge, the product requires components that are delivered with the .NET Framework version 4.0. This version of .NET is preinstalled on most machines. If your machine does not have this .NET version it can be installed by downloading the latest Microsoft .NET Framework 4.x Developer Pack from <https://www.microsoft.com/en-us/download/details.aspx?id=42637>

To verify that the required .NET Framework is installed on the Client machine, confirm that the following directory exists:

`%SystemRoot%\Microsoft.NET\Framework64\v4.0.30319\`

where:

`%SystemRoot%`

Is the location of the Windows folder on your machine (for example, C:\Windows).

**Note:** This directory should contain the RegAsm.exe file.

**Note:** App Studio is built using Visual Studio and requires the Visual C++ Redistributable Package for Visual Studio 2012. The Visual C++ Redistributable Packages install run-time components of Visual C++ libraries that are required to run applications developed using Visual Studio 2012 on a computer that does not have Visual Studio 2012 installed. Most machines have the required libraries. However, when running the product, if your system does not have the required updates to allow this application to run, you will receive the following message:

The program can't start because mfc110.dll is missing from your computer. Try reinstalling the program to fix this problem.

or

This application has failed to start because the application configuration is incorrect. Reinstalling the application may fix the problem.

To correct this issue, download and install the latest update Visual C++ Redistributable for Visual Studio 2012 x64 version from <https://www.microsoft.com>.

## Installing App Studio

Install App Studio as explained in [Installing App Studio](#) on page 19. Be aware that when providing a network installation license, you will not have the option to install or configure Tomcat, or other supported configurations.

You must install using the proper license code for a network installation.

## Configuring App Studio

To configure a network installation of App Studio, you must set up access to instances of WebFOCUS that are installed on your network. You do this by defining WebFOCUS environments.

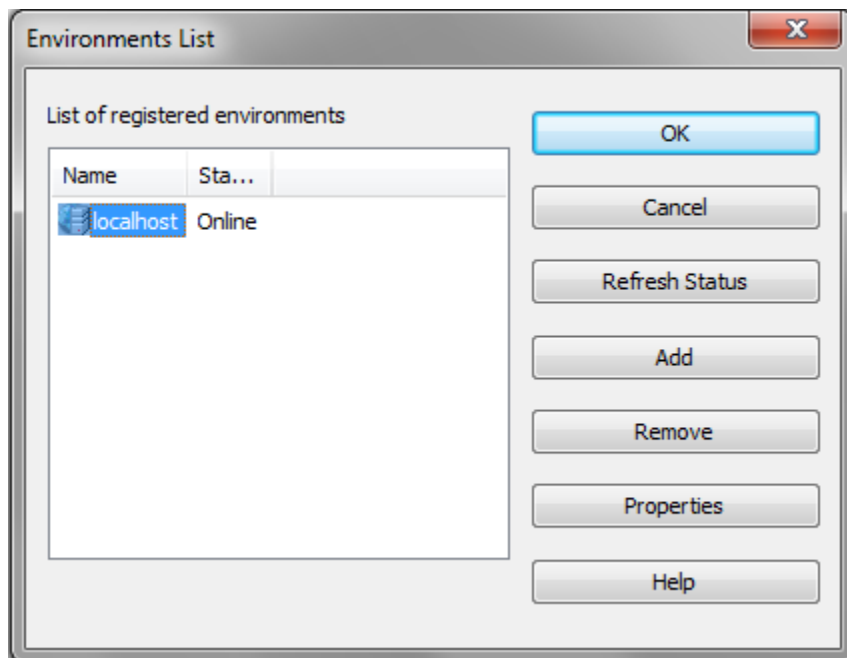
### **Procedure:** How to Define a WebFOCUS Environment

1. If WebFOCUS and App Studio are on the same machine, start the WebFOCUS Reporting Server and ensure that the web and/or application servers are started.
2. Click the Start button on the taskbar.
3. In the list of installed applications, expand the *Information Builders* app.
4. Select the *WebFOCUS 82 App Studio* folder.

This opens a new File Explorer window, with all of the product shortcuts.

5. Launch *WebFOCUS App Studio*.
6. On the *Home* tab, in the *Utilities* group, click *Environments* to open the Environments List dialog box, as shown in the following image.

The Environments List dialog box lets you define connections to WebFOCUS environments.





The Environments List dialog box shows all WebFOCUS environments that have been defined for App Studio. If you have previously defined a WebFOCUS environment, it will be shown here. Otherwise, only the localhost environment displays.

7. Click the *localhost* environment and then click *Properties* to edit the default settings.

The WebFOCUS Environment Properties window opens.

8. Change the Description field to a name end users should see when they launch App Studio from remote machines. The name localhost will be misleading, since they are on their local machines.
9. Change the Host Name and Port to access the web server where WebFOCUS is configured. Do not use localhost for the Host Name, even if WebFOCUS is installed on the same machine as App Studio. When end users launch App Studio, localhost will resolve to the end users machine, and not the App Studio machine.
10. Select *Allow Host Aliases* if you need to configure multiple WebFOCUS instances that have been installed on the same host machine.
11. Optionally, you can specify the connection timeout, in seconds. You can specify a connection timeout between 120 seconds and 240 seconds if you are experiencing connection failure because of timeouts. The default connection timeout is 60 seconds.
12. Optionally, you can specify the Login Timeout to indicate how long App Studio should wait for the login credentials to be validated. The default time is 15 seconds. You can set this to a higher value, if necessary. You can configure this setting for each environment.
13. Click through the panes of the WebFOCUS Environment Properties window to change any default options that are customized in your environment.
14. Click *OK* when you have set up the default environment.

If you wish to define additional WebFOCUS environments, click *Add* on the Environments List.

15. Click *OK* on the Environments List when you have defined all your environments.
16. If prompted, sign in to the WebFOCUS Reporting Server.
17. Ensure that your WebFOCUS environments are accessible through the Environments Tree panel.
18. Stop and start the product again to ensure that you can reconnect to the environment and to confirm operability.

**Note:** The WebFOCUS Reporting Server in the WebFOCUS environment should not be the WebFOCUS Reporting Server installed as part of App Studio. The WebFOCUS Reporting Server installed as part of App Studio supports a very limited number of users (agents) at one time.

### Setting Up Access to the Network Installation

For developers to run App Studio off the network, you must complete the following on the App Studio machine:

1. [How to Set Up Network Shares](#) on page 58.
2. [How to Copy the WebFOCUS Environments File \(wfscm.xml\)](#) on page 59.
3. [How to Configure the Network Settings](#) on page 60.

#### **Procedure:** How to Set Up Network Shares

You must set up a network share before launching App Studio from another machine. If this is not practical for security reasons, then turn the AppStudio82 directory into a network share.

**Note:** If the share name is different from ibi, ensure that the new share name is used in the runfocshell.dat configuration file, as described in [How to Configure the Network Settings](#) on page 60.

To turn the ibi directory into a network share:

1. In Windows, open *File Explorer*.
2. Navigate to and right-click the *ibi* directory.
3. Choose *Properties*.
4. Select the *Sharing* tab.
5. Click *Advanced Sharing*.
6. Select *Share this folder* and type a Share name.
7. Click *Permissions* and assign permissions for the ibi share directory to *Read & Execute* and set permissions for the App Studio temp folder to *Write* access. The App Studio temp folder is

`drive:\ibi\AppStudionn\temp`

where:

`drive`

Is the directory in which App Studio is installed.

`nn`

Is the App Studio release number.

8. Grant access to the share locations for users accessing the network install. You can add users individually or you can add users to a group. A group is easier to maintain, and you can grant the required privileges to the group.

9. Click OK.

**Procedure: How to Copy the WebFOCUS Environments File (wfscom.xml)**

Copy the WebFOCUS environment settings (wfscom.xml) into the AppStudio82\bin directory so they are available to remote App Studio users.

When you define WebFOCUS environments, settings are stored in the following location for Windows:

`drive:\Users\user_id\AppData\Roaming\Information Builders\wfscom.xml`

where:

`user_id`

Is your Windows user ID.

**Note:** This file and directory may not be visible by default. To see this directory, open *File Explorer*, click *Tools*, select *Folder Options*, and then select the *View* tab. Select *Show hidden files and folders* and click *OK*.

For remote machines to access the wfscom.xml file, you must copy it to a shared directory. The default location to use is:

`drive:\ibi\AppStudio82\bin`

When running App Studio off the network, a developer can use settings in this file or settings stored on the developer machine. The first time App Studio is run off the network, the settings in this file are used. When settings in this file are used, this wfscom.xml file is placed in the end user /Application Data/Information Builders/ directory on the remote machine each time App Studio is run off the network. If all developers use the settings in this file, they always see the same WebFOCUS environments.

**Caution:**

- ☐ If a previous copy of wfscom.xml is on the machine of a remote user, it is overwritten.
- ☐ If a remote user changes WebFOCUS environment settings while accessing App Studio from the network, those changes are only saved to the end users machine. They will not be available to other users. They will also be overwritten the next time App Studio is launched, unless the user chooses not to update the environments from the network as explained in [Customizing WebFOCUS Environments](#) on page 63.

- ❑ To change WebFOCUS environment settings for all users, you must change them on the shared App Studio machine and not from a remote machine. Then, you must recopy the wfscm.xml file to the AppStudio82\bin directory so it is available when App Studio is run from a remote machine.

### **Procedure: How to Configure the Network Settings**

Settings for when App Studio is launched off the network are in the following file:

`drive:\ibi\AppStudio82\bin\runfocshell.dat`

You must edit this file before launching App Studio from another machine.

1. Open the runfocshell.dat file in a text editor, such as Notepad.
2. Find the following line:

`REGSTRING>LastUsedServer=Name to be supplied by Administrator`

3. Change this line to specify the name of the default WebFOCUS environment. For example:

`REGSTRING>LastUsedServer=WFEnvironment`

You should have set up this environment, as explained in [How to Define a WebFOCUS Environment](#) on page 56.

4. Ensure that the correct host name, share name, and UNC directory path appears for accessing the AppStudio80 directory. The host name is set by the installation, but you should confirm it and ensure the share name is correct. Several lines contain this. For example:

`WFSCOM: \\ hostname \Ibi\AppStudio82\bin\wfscm.xml`  
`SHLPPATH: \\ hostname \Ibi\AppStudio82\bin`

If the host name is incorrect or you changed the share name, update all lines where the host name appears.

Be aware that the WFSCOM value specifies where remote machines look for the wfscm.xml file. You can change the name and location of this file if needed, but the file name must end in.xml. The file specified is copied to a remote users /Application Data/ Information Builders/ directory on the remote machine. The file name on the remote machine will always be wfscm.xml regardless of the file specified by the WFSCOM value.

5. Save and exit the file.

Most of the settings in this file are created by the installation and should not be edited unless directed by Customer Support.

**Caution:** The DLL and OCX files listed in runfocshell.dat are loaded on remote machines when App Studio is loaded on those machines.

## Installing App Studio Network Shortcuts

An installation program is provided to create shortcuts to launch App Studio. Since no disk space is needed on the remote machine, this is referred to as a Zero-Footprint WebFOCUS App Studio deployment.

### **Procedure:** How to Install App Studio Network Shortcuts

To install shortcuts, perform the following on machines from which you wish to run App Studio off the network:

1. Open File Explorer.
2. In the Address bar, type the host name of the machine where App Studio is installed using the Universal Naming Convention (UNC). This has the form:

`\\hostname`

where:

`hostname`

Is the host name or IP address of the machine where App Studio is installed.

You should see a list of shared directories including the ibi shared directory you created.

3. Navigate the shared directory to:

`\\hostname\ibi\AppStudio82\Utilities\Local_setup`

4. Run the setup.exe application to install App Studio shortcuts.  
The installation wizard launches and a Welcome window opens.
5. Click *Next* at the Welcome window.  
You are prompted to create shortcuts.
6. Select which shortcuts to create and click *Next*.  
Shortcuts are created.
7. Click *Finish*.

**Note:** To remove the shortcuts from the remote machine, use the Control Panel. The shortcuts appear as Zero-Footprint WebFOCUS App Studio. Be aware that this does not remove the registry settings or files described in [Network App Studio Settings on Remote Machines](#) on page 62.

## Launching App Studio

After installing the App Studio shortcuts, you can start App Studio from the Start menu by selecting *Zero-Footprint WebFOCUS App Studio*.

If the WebFOCUS Reporting Server runs with security OPSYS, you may be prompted to log on.

If you receive other errors, review the steps in [Setting Up Access to the Network Installation](#) on page 58 and ensure that WFSCOM is defined correctly in runfocshell.dat.

**Note:** App Studio is built using Visual Studio and requires the Visual C++ Redistributable Package for Visual Studio 2012. The Visual C++ Redistributable Packages install run-time components of Visual C++ libraries that are required to run applications developed using Visual Studio 2012 on a computer that does not have Visual Studio 2012 installed. Most machines have the required libraries. However, when running the network version from the Client machine, if your system does not have the required updates to allow this application to run, you will receive the following message:

The program can't start because mfc110.dll is missing from your computer.  
Try reinstalling the program to fix this problem.

or

This application has failed to start because the application configuration  
is incorrect. Reinstalling the application may fix the problem.

To correct this issue, download and install the latest update Visual C++ Redistributable for Visual Studio 2012 x64 version from <https://www.microsoft.com>.

### **Reference:** Network App Studio Settings on Remote Machines

The first time you launch App Studio on a remote machine, the wfsc.com.xml file is copied from the shared networked machine to the remote machine. The file is normally placed in the following location for Windows:

`drive:\Users\user_id\AppData\Roaming\Information Builders\wfsc.com.xml`

where:

`user_id`

Is your Windows user ID.

Other files are also created in this directory. This directory may not be visible by default. To see this directory, open Windows Explorer, click *Tools*, choose *Folder Options*, and click the *View* tab. Then select *Show hidden files and folders* and click *OK*.

When you launch App Studio on a remote machine, registry settings are created under:

`HKEY_LOCAL_MACHINE\SOFTWARE\Information Builders`

`HKEY_CURRENT_USER\SOFTWARE\Information Builders`

In addition, DLL and OCX files listed in the `\\hostname\ibi\AppStudio82\bin\runfocshell.dat` file are loaded.

## Customizing WebFOCUS Environments

There are two ways to handle WebFOCUS environment settings when running App Studio off the network. Developers can use the common settings on the network or use settings specific to the developer machine.

- ☐ **Option 1:** Use the common WebFOCUS environment settings on the network (default).

With this option, whenever a developer launches App Studio, the `wfscom.xml` file on the network installation is copied to the developer machine from the following location.

`\\hostname\ibi\AppStudio82\bin\wfscom.xml`

where:

*hostname*

Is the host name or IP address of the machine where App Studio is installed.

This means all developers who launch App Studio from this network location use the same environment settings. It also means that any WebFOCUS environment settings that developers change on their machines will not appear the next time they launch App Studio.

- ☐ **Option 2:** Use customized WebFOCUS environment settings on the local machine of a developer.

With this option, the first time a developer launches App Studio, the `wfscom.xml` file is copied from the network to the developer machine. However, after App Studio is started on the developer machine, you can allow the developer to prevent the `wfscom.xml` file from being copied over in the future. By default, developers have the option to choose whether to copy over `wfscom.xml` or not.

On the machine of a developer, after App Studio has started:

1. Click the Application button.
2. On the Application menu, click *Options*.

3. On the General tab, under Other Settings, clear *Remote Update Server Environment from Network*.

This creates a registry setting on that machine that tells App Studio not to copy over wfscm.xml when App Studio is launched from the network.

You can control whether the *Remote Update Server Environment from Network* appears and whether wfscm.xml is automatically copied by editing the runfocshell.dat file. This file was introduced in [How to Configure the Network Settings](#) on page 60. The runfocshell.dat file specifies registry entries that are created on developer machines. The registry entries are created each time a developer launches App Studio off the network and will overwrite any previous entries.

By default, the following lines appear:

```
REGISTRY:HKEY_CURRENT_USER\SOFTWARE\Information Builders\AppStudio  
REGDWORD:IsRemote=1
```

With these lines, wfscm.xml is copied and developers can choose whether or not to continue copying the file in the future.

You can choose not to show the option by changing the lines to:

```
REGISTRY:HKEY_CURRENT_USER\SOFTWARE\Information Builders\AppStudio  
REGDWORD:IsRemote=0
```

With these lines, wfscm.xml is always copied and developers do not have the option to change this behavior.

You can add the following line if you want to force the copying of wfscm.xml regardless of what a developer has chosen in the past:

```
REGISTRY:HKEY_CURRENT_USER\SOFTWARE\Information Builders\AppStudio  
REGDWORD:IsRemote=0 REGDWORD:BypassWFSUpdate=0
```

With these lines, wfscm.xml is always copied, even if a developer has chosen not to copy it in the past. This is a good way to force all developers to use a new version of wfscm.xml if you make a major change in the environment settings.

If you never want wfscm.xml to be copied from the network, use the following line:

```
REGISTRY:HKEY_CURRENT_USER\SOFTWARE\Information Builders\AppStudio  
REGDWORD:IsRemote=0 REGDWORD:BypassWFSUpdate=1
```

With these lines, wfscm.xml is never copied and developers do not have the option to change this.



## Limiting Access to App Studio

There are several ways to limit access to App Studio.

- ❑ You can restrict access to the file system of the App Studio machine by setting NTFS permissions on the shared directory.
- ❑ You can specify which user IDs can run App Studio by editing the following file on the App Studio machine:

`drive:\ibi\AppStudio82\bin\devstdpw.dat`

By default, this file contains an asterisk (\*) indicating that any user ID can run App Studio. If you wish to restrict which user IDs can run App Studio, remove the asterisk (\*). Then specify each user ID that is allowed to run App Studio. Each user ID should be entered on a single line (one line per user ID). These are the user IDs used to sign in to Windows. This file is case sensitive. Do not enter the domain as part of your user ID.

## Creating App Studio Traces From a Client Machine in App Studio Network Edition

For the network version of App Studio, the App Studio trace utility can be used to trace requests from a client machine. To accomplish this, copy the App Studio Communications Layer Trace utility, `drive:\AppStudio82\bin\wfscmtrace.exe`, and the `drive:\AppStudio82\bin\focshell.dat` file from the network machine to any location on the client machine. Run this utility prior to performing the task that is having issues and needs to be analyzed by Information Builders. From the trace utility, enable traces. Save the trace file when done, turn traces off, and close the Communications Layer Trace utility.



## Troubleshooting App Studio

---

The following topics explain how to troubleshoot App Studio.

**In this appendix:**

- ❑ [Troubleshooting Tips](#)
  - ❑ [Troubleshooting Tools](#)
- 

### Troubleshooting Tips

Review the following tips when troubleshooting App Studio.

#### Tomcat Configuration Options

Since Tomcat runs as a service, Tomcat Java settings and other parameters are written into the registry. They can be configured through the Apache Tomcat Properties window. If Tomcat was installed by Information Builders software, you can launch this from the Start menu by selecting *Tomcat Configuration Utility*, under the Information Builders app. If Tomcat was preinstalled, the Service Name may be different, for example, Apache Tomcat 8.5 Tomcat8.

If you need to adjust the Java release, click the *Java* tab to change where Tomcat looks for Java components. Be aware that Tomcat 8 requires Java 7 or later.

**Note:** Tomcat 8 requires Java 7 or later. If Tomcat 8 is configured to use Java 6, JSP page compilations will fail. To fix this, update the paths to point to the `jvm.dll` file of a supported Java version.

#### Java Memory Issues

If the App Studio installation configured Tomcat for you, the Tomcat Java VM memory settings are automatically increased. This is done because default application server Java VM memory options may not be sufficient for some WebFOCUS features. If you need to troubleshoot further or if you manually install Tomcat or another application server, you may need to manually increase the Java VM memory options.

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.

`-Xms###M`

Sets the initial Java heap size. It is common to make this 1/8 of the system RAM.

`-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:

`-Xms256M`

`-Xmx512M`

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 on Windows, you can set these options using the Apache Tomcat Properties window.

1. If Tomcat was installed by Information Builders software, from the Start menu, select *Tomcat Configuration Utility*, under the Information Builders app. If Tomcat was preinstalled, the Service Name may be different, for example, Apache Tomcat 8.5 Tomcat8.
2. Click the *Java* tab.
3. In the Initial memory pool (-Xms) field, specify the initial Java heap size in megabytes. For example:

`256`

4. In the Maximum memory pool (-Xmx) field, specify the maximum Java heap size in megabytes. For example:

`512`

5. Click *OK*.

6. Restart Tomcat.

❏ For other application servers, refer to your application server documentation.

## Startup Failures

If you encounter issues during the launch of the App Studio product, click the Start button on the taskbar, and in the list of installed applications, expand the *Information Builders* app. Select the *WebFOCUS 82 App Studio* folder, double-click the *WebFOCUS App Studio Utilities* folder, and run the product with the WebFOCUS App Studio (Safe Mode) executable.

If you still encounter issues, provide the log file that gets created in the bin folder, AppStudioFault.log, to the Customer Support team.

## Starting App Studio

If you close App Studio and then cannot restart it, you may need to manually stop the underlying AppStudio.exe process. To do this:

1. Press Ctrl + Alt + Delete and choose *Task Manager*.
2. Click the *Processes* tab.
3. Find and select an *AppStudio.exe* Image Name if it appears.

**Note:** You can click the Image Name column to sort by name.

4. Click *End Process*.

You should be able to restart App Studio if no AppStudio.exe processes appear.

## Manual Registration to Enable Multiple Browser Support in App Studio

Developers can use Chrome™, Firefox®, Edge®, Internet Explorer®, or the internal viewer when running reports. To use Chrome or Firefox, the product requires registration of the IBIWebBrowserDrivers\_dotnet\_35.dll .NET module that is included with the product.

To register this file, .NET version 4.0 is required. This version of .NET is preinstalled on most machines. If your machine does not have this .NET version, it will be installed during the App Studio installation process and the module needed to support multiple browsers will get registered.

If the registration of the module fails, the developer will not be able to switch browsers. To address this issue, the developer must register the required module manually. To do this, open a Command Window, with the option Run as administrator, and run the following commands:

```
%SystemRoot%\Microsoft.NET\Framework64\v4.0.30319\RegAsm
C:\ibi\AppStudio82\bin\ibiwebbrowserdrivers_dotnet_35.dll /u
```

A message should display that the file unregistered successfully.

Then run:

```
%SystemRoot%\Microsoft.NET\Framework64\v4.0.30319\RegAsm  
C:\ibi\AppStudio82\bin\ibiwebbrowserdrivers_dotnet_35.dll
```

A message should display that the file registered successfully.

where:

```
%SystemRoot%
```

Is the location of the Windows folder on your machine. This includes the drive and path. It is usually the C drive. For example, C:\Windows.

**Note:**

- ☐ Adjust the above commands based on location of the App Studio installation location.
- ☐ The commands in the documentation are shown in two separate lines, but they should be issued as one command.

## Manual Steps to Update Selenium Support

Selenium is a suite of tools specifically for automating web browsers. Selenium support is included with App Studio, however, if a customer installs a new browser version it may not work with App Studio. In this case, the Selenium support modules can be updated manually which may resolve the issue.

1. Go to the <http://seleniumhq.org/download> web site.
2. Under the *Selenium Client & WebDriver Language Bindings* section look for the C# line and click the *Download* link to get the ZIP file.
3. Unzip the file on the desktop machine.
4. Backup the WebDriver.dll and WebDriver.Support.dll files in the AppStudioxx\bin folder.
5. From the unzipped file location, go into the *net40* folder and copy the WebDriver.dll and WebDriver.Support.dll files into the AppStudioxx\bin folder.
6. Restart App Studio and test the installed browser version.

If there is still a problem, open a support case.

**Note:** If the user is using Microsoft Edge, they may need to get an updated driver from Microsoft which is usually available on the Microsoft web site.

## Troubleshooting Tools

Tools to troubleshoot App Studio are available in the WebFOCUS Administration Console and the Reporting Server Console.

### Accessing the Verification Tools in the WebFOCUS Administration Console

To run the verification tools installed with the WebFOCUS Administration Console, access the console.

#### **Procedure:** How to Access the WebFOCUS Administration Console

1. Ensure that Apache Tomcat and/or IIS are started.
2. Click the Start button on the taskbar.
3. In the list of installed applications, expand the *Information Builders* app.
4. Select the *WebFOCUS 82 App Studio* folder.  
This opens a new File Explorer window, with all of the product shortcuts.
5. Double-click the *WebFOCUS App Studio Utilities* folder and select *WebFOCUS Administration Console*.

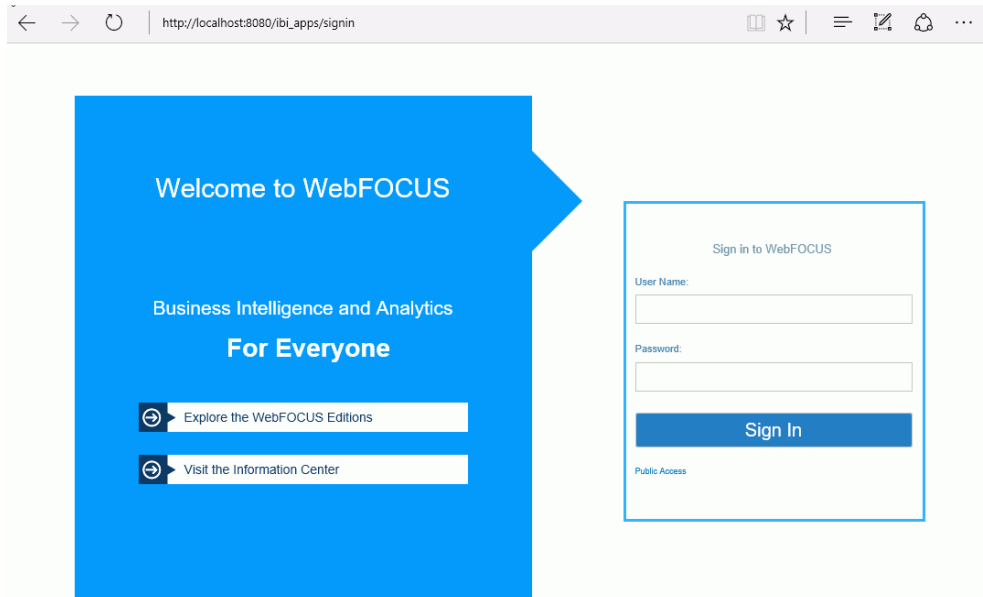
If you are using Apache Tomcat standalone, you can also go to:

[http://localhost:8080/ibi\\_apps/tools/console/wfconsole.jsp?verification](http://localhost:8080/ibi_apps/tools/console/wfconsole.jsp?verification)

For IIS with Tomcat, you can go to:

[http://localhost/ibi\\_apps/tools/console/wfconsole.jsp?verification](http://localhost/ibi_apps/tools/console/wfconsole.jsp?verification)

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



If the WebFOCUS Sign In page does not appear, ensure that your web server is started. If the web server is started and this page does not appear, you may need to manually configure the web server, as explained in [Configuring the Web Server or Application Server](#) on page 35.

6. Sign in using an administrator user ID. The initial default user name and password is *admin*.

The WebFOCUS Administration Console opens.

A page appears in the right panel with the verification test results. The list varies depending on your license and configuration. For a Tomcat standalone configuration, the Web/App Server tests may not appear.

7. Review the test results and troubleshoot accordingly.

## WebFOCUS Client Traces

The Diagnostics tab in the WebFOCUS Administration Console lets you view and delete WebFOCUS Client trace files. Trace files track requests processed by the WebFOCUS Client. Since tracing can slow performance, you should only turn on traces when troubleshooting.



### Procedure: How to View WebFOCUS Client Traces

From the Diagnostics tab, select *Session Monitor* to enable tracing for each user ID. You can view the trace files by selecting the *Log Files* option. For example, to view traces generated by the WebFOCUS Servlet, in the left pane of the WebFOCUS Administration Console under Diagnostics and Log Files, select the *Event log*.

**Note:** The Trace files that are listed depend on the installation option of the environment to which you are connected. For more information, see the *WebFOCUS Security and Administration* manual.

The screenshot shows the WebFOCUS Administration Console interface. The left pane is titled "Diagnostics" and contains a tree view with the following items: About WebFOCUS, Client Verification, HTTP Request Info, JVM Property Info, Session Monitor (selected), and Log Files. The main pane is titled "Session Monitor" and contains the following configuration options:

- Refresh interval: 10 second(s)
- URL Logging Level is currently set to: None
- Long Running Threshold: 5 minute(s)
- Current Sessions: 2

Below the configuration options is a table with the following data:

IP address	Mode	Client User	URL Logging	Trace Control	Trace FEX	Active URLs	URL # / AVG / Max	Server # / AVG / Max
0:0:0:0:0:0:1	WEB	admin	OFF	Off		1	128 / 0.015 / 0.203	0 / 0.000 / 0.000
0:0:0:0:0:0:1	WEB	admin	OFF	Off		-	108 / 0.024 / 0.730	0 / 0.000 / 0.000

For more information about the available trace options, click *Help* in the top-right corner of the WebFOCUS Administration Console.

### App Studio Trace Utility

The App Studio trace utility (Communication Layer Trace) generates trace files for tasks performed by the App Studio development environment communication layer. It captures information for tasks performed by App Studio when a request is submitted or retrieved by the product.

You can use this utility to help troubleshoot issues, such as communication failures, connection problems, and transfer of files.

To generate traces for issues you might encounter at startup, you should start the trace utility prior to launching App Studio.

To generate traces for a failure to connect to a Data Server or to determine why applications are not listed, you should start and enable the trace at the point prior to performing the task that fails.

### **Procedure:** How to Use the Communication Layer Trace

1. Click the Start button on the taskbar.
2. In the list of installed applications, expand the *Information Builders* app.
3. Select the *WebFOCUS 82 App Studio* folder.

This opens a new File Explorer window, with all of the product shortcuts.

4. Double-click the *WebFOCUS App Studio Utilities* folder and select *Communication Layer Trace* to launch the Communication Layer Trace.

The Communication Layer Trace tool opens.

5. Click the *On* radio button to enable tracing.
6. The Trace File field indicates the location and name of the trace file:

`drive:\Users\user_id\AppData\Roaming\Information Builders\wfscom.trc`

where:

`user_id`

Is your Windows user ID.

**Note:** The Application Data directory may not be visible by default. To see this directory, open Windows Explorer, click *Tools*, select *Folder Options*, and then select the *View* tab. Select *Show hidden files and folders* and click *OK*.

7. Click *View Trace* to view the created trace. Once the file is open in the editor, the file can be saved in a different location, if desired.
8. In the Trace Levels area, keep the default *All levels* to capture all required information or specify a specific level.

## WebFOCUS Reporting Server Traces

You can turn WebFOCUS Reporting Server traces on when you start the server or dynamically after the server has started.

- ❑ To start the server with traces, you should start it before App Studio. Click the Start button on the taskbar, and in the list of installed applications, expand the *Information Builders* app. Select the *WebFOCUS 82 App Studio* folder and double-click *WebFOCUS Server for App Studio*, which opens a new window that displays all the available WebFOCUS Reporting Server shortcuts. Double-click the *Diagnostic Functions* folder and then double-click the *Start Security OFF with Traces* shortcut.
- ❑ To turn traces on dynamically, access the Web Console and select *Log and Trace* from the Diagnostic group.

**Note:** Viewing traces is only available to a server administrator.

You can use the Reporting Server Console to view server traces, as well as turn them dynamically on or off for a running server.

If tracing is set to off and it was never turned on, the page shows that no traces are available and enables you to turn traces on. If tracing is on, the page displays the available traces in drop-down boxes. Which traces are available depends on what requests were made against the server.

To turn traces on dynamically, click *Enable Traces*. Be aware that a dynamic trace is not the same as turning traces on at server startup. A dynamic trace is usually not sufficient for following a problem through with Customer Support, but it may suffice for other purposes, such as seeing how something is parsed.

**Note:** The default for tracing is to trace all components when tracing is turned on. However, the trace settings file (*ibitrace.fex*) may have been altered. Therefore, components that you expect to be traced may not be traced.

### **Procedure:** How to View a Trace File

1. Click the Start button on the taskbar.
2. In the list of installed applications, expand the *Information Builders* app.
3. Select the *WebFOCUS 82 App Studio* folder.  
This opens a new File Explorer window, with all of the product shortcuts.
4. Double-click *WebFOCUS Server for App Studio*, which opens a new window that displays all the available WebFOCUS Reporting Server shortcuts.
5. Double-click *Web Console* to access the Reporting Server Console.

6. Click the *Workspace* tab.
7. In the left panel, expand the *Logs and Traces* folder.
8. Double-click *Traces*, or right-click *Traces* and click *View*.

A list of traces displays in the right panel.

9. Right-click a specific trace file and then choose from the following options:

- ☐ **View.** Displays the trace in the right-hand browser pane.
- ☐ **Open or Save.** Enables you to open the trace in a local editor or to save it to a local disk.
- ☐ **Delete.** Deletes the selected trace.

The file opens, or is deleted, according to the option you choose.

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# WebFOCUS

WebFOCUS App Studio Installation and Configuration Guide  
Release 8.2 Version 03



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