Wonderware Information Server™

Administration Guide

Invensys Systems, Inc.

Revision D

Last Revision: 07/04/06

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Wonderware®

Contents

Welcome

This guide describes how to administer and maintain the Wonderware Information Server™ (formerly known as SuiteVoyager). This guide describes the tools available to Wonderware Information Server administrators and the steps required to accomplish administrative tasks.

The Wonderware Information Server builds on the existing Wonderware Internet functionality, and provides even more power and configurability. Wonderware Information Server is tightly integrated with Microsoft® Internet Information Server™.

The Wonderware Information Server uses the latest rendering technologies so that application windows developed in InTouch can be viewed over the Internet with better performance using only a browser. Working knowledge of Microsoft Internet Information Services, Microsoft SQL Server, and the Windows Server 2003 operating system is required.

This administrator's guide assumes that you are familiar with administering an Internet Information Server and using the administrative tools provided with the Microsoft Windows Server 2003 operating system.

For more information on Internet Information Server, Microsoft SQL Server, or your Microsoft Windows Server operating system, see your Microsoft documentation.

The Wonderware Information Server documentation set includes the following guides:

- **Wonderware Information Server Guide**. This guide describes how to install the Wonderware Information Server, administer and maintain an installed Wonderware Information Server, and how to access factory information over the Internet/intranet via the Wonderware Information Server. The installation section includes hardware and software requirements and migration instructions. The administration section includes information on configuring data sources, managing security, and performing customizations. The user section includes information on accessing factory information over the Internet/intranet via the Wonderware Information Server, and using the TableWeaver and reporting features.

- **Wonderware Information Server Win-XML Exporter Guide**. This guide describes how to use the Wonderware Information Server Win-XML Exporter to convert InTouch application windows to web pages and publish them to the Wonderware Information Server. This guide also describes how to best design InTouch windows so that they can be successfully converted.

All of these guides are provided in PDF form and can be printed. Also, information included in these guides is provided in browser-based online help, which can be accessed from the Wonderware Information Server.

Documentation Conventions

This documentation uses the following conventions:

Convention	Used for
Initial Capitals	Paths and filenames.
Bold	Menus, commands, dialog box names, and dialog box options.
`Monospace`	Code samples and display text.

Technical Support

Wonderware Technical Support offers a variety of support options to answer any questions on Wonderware products and their implementation.

Before you contact technical support, refer to the relevant section(s) in this guide for a possible solution to any problem you have with the IDE. If you need to contact technical support for help, have the following information ready:

- The type and version of the operating system you are using. For example, Microsoft Windows 2003 Server, SP1.

- Details of how to recreate the problem.

- The exact wording of the error messages you saw.

- Any relevant output listing from the Log Viewer or any other diagnostic applications.

- Details of what you did to solve the problem(s) and your results.

- If known, the Wonderware Technical Support case number assigned to your problem, if this is an ongoing problem.

Chapter 1

Getting Started

Most of the administration of the Wonderware Information Server can be accomplished via web pages on the site. From the site, you can easily perform administrative tasks such as setting up security for users, monitoring license usage, configuring data sources, customizing the site to reflect your company image, and providing access to a wide variety of factory information in the form of web applications and links.

Note Report deployment and backing up and restoring are done through separate applications. For information on report deployment, see Using ArchestrA Reporting on page 217. For information on backing up and restoring, see Creating and Restoring Backups on page 119.

When you first open the Wonderware Information Server from a client, you see a message that you need to download and install the client setup. If you have popups blocked, you need to allow popups in your browser.

About the Wonderware Information Server Home Page

The Wonderware Information Server home page is automatically created during Wonderware Information Server installation. The home page has pre-configured links to either administration and/or runtime functions. The links displayed are based on the role of the user that is logged on. For example, if you are currently logged on as an administrator, you are granted access to a page of links that administer the web site, as well as to the runtime functions.

The default URL to the Wonderware Information Server web site is:

http://<WebServer>/<VirtualDirectoryName>

where

<WebServer> is the name of the web server on which Wonderware Information Server is installed

and

<VirtualDirectoryName> is the virtual directory name chosen for Wonderware Information Server at the time of installation. The default name for this virtual directory is "Wonderware."

The following is an example of the home page:

Banner Pane   Menu Bar

Launch Pad   Footer Bar   Content Pane
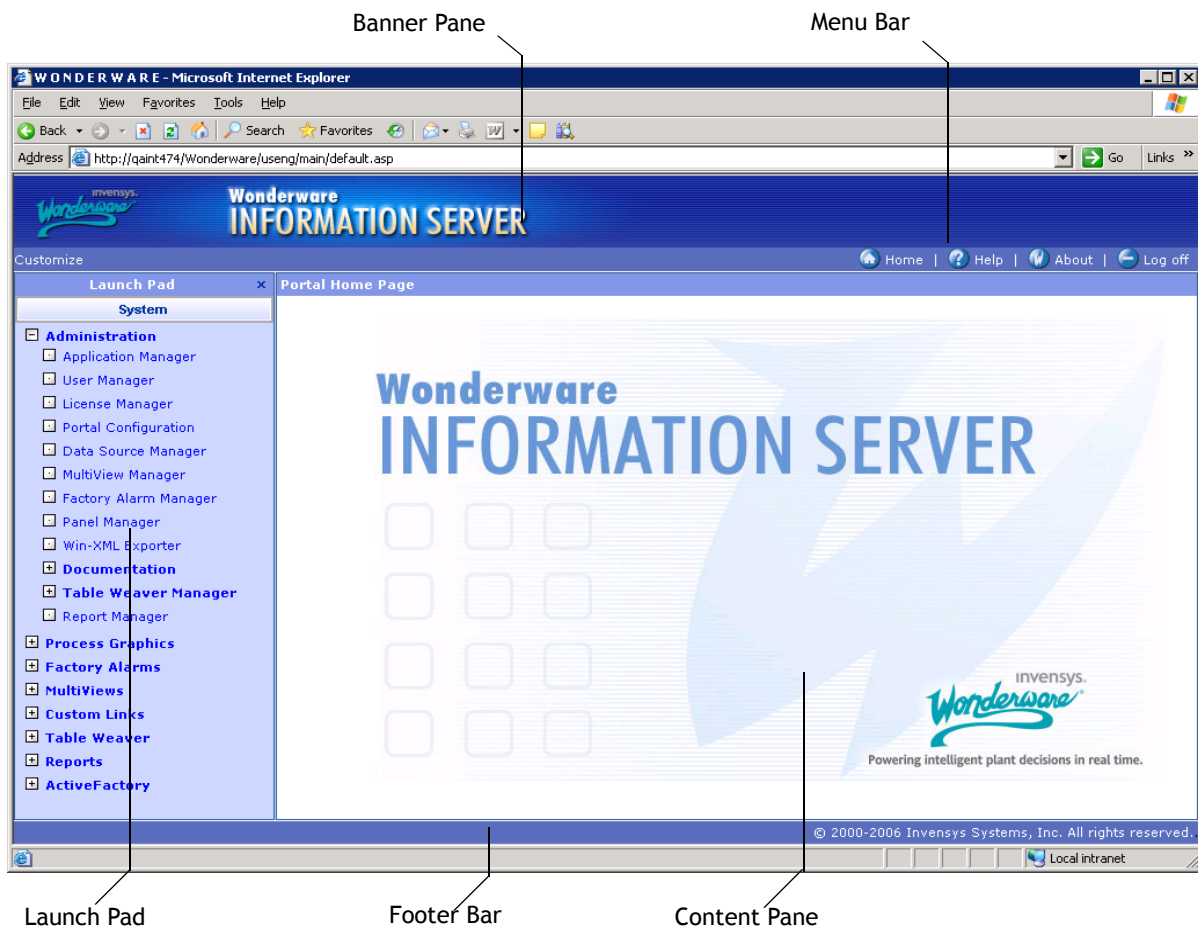
The Wonderware Information Server home page consists of five main areas:

- Banner Pane

- Menu Bar

- Content Pane

- Footer Bar

- Launch Pad

The Internet Explorer shortcut menu is not available when you right-click on a page, with the exception of pages pertaining to custom links or third-party applications. Also, if you click a link in the navigation tree the link URL is not stored in the browser history. The Back toolbar button or the Back shortcut menu only enabled if there is a URL stored in the browser history.

Banner Pane

The banner is located at the top of the page and constantly appears unless the user double-clicks on the title bar of a given page. This maximizes the window to use all of the available space in the browser.

You can customize the banner by either replacing the logo that appears in the banner or replacing the entire banner itself. For more information, see Customizing the Home Page on page 107.

Menu Bar

The menu bar is located immediately below the banner area at the top of the home page:

The following table describes the menu bar options:

Option	Description
Home	Access the home page.
Help	Access the site user Help file.
About	Access the Wonderware Information Server version and copyright information.
Log Off	Log off the site. (This will close the session and release any client licenses for immediate reuse.)

The menu bar also shows a **Show Launch Pad** link visible at the far left when the Launch Pad is hidden.

For more information about the Launch Pad, see Launch Pad on page 18.

Content Pane

The content pane shows all the information for the site. You can maximize and minimize the content pane by double-clicking on the title bar.

You can customize the content on the home page. For more information, see Customizing the Home Page on page 107.

Footer Bar

The footer bar shows the copyright information. You cannot change this information.

Launch Pad

The Launch Pad is located at the left side of the home page. The Launch Pad allows you to select access panels assigned to you and navigate to the various configuration pages, applications, and custom links.
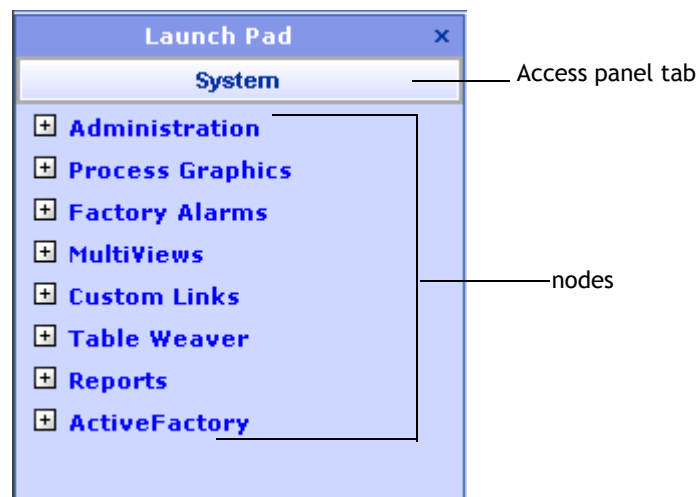
The Launch Pad can include one or more access panels, which are collections of nodes that can be restricted to certain users. By default, there is one access panel, the **System** access panel. Each access panel includes a navigation tree, which is simply a hierarchy of nodes. For more information on access panels, see Chapter 7, Configuring Access Panels. For more information on navigation trees, see Navigation Trees on page 19.

The **Administration** node provides access to configuration pages for all functionality. These nodes only appear to members of the Administrators role. For more information on administration nodes, see Getting Started with Administrative Tasks on page 20.

The **Process Graphics** and **Factory Alarms** nodes provide users access to pages related to applications, such as the converted and published InTouch browser-based windows and factory alarm pages.

The **MultiViews** node lets you use pre-configured web components, called Web Parts, to assemble custom information displays, called MultiViews. For more information, see Chapter 8, Configuring MultiViews.

The **Custom Links** node can be configured to include links to Internet/intranet web pages or documents residing on the web server. For more information, see Creating Custom Links for Users on page 110.

The **TableWeaver** node provides access to the TableWeaver, which lets you customize content and build content relationships for information from databases and related web pages. For more information, see Chapter 12, Introduction to TableWeaver.

The **Reports** node provides access to the Microsoft Reporting Services integrated reports.For more information, see Using ArchestrA Reporting on page 217.

The **ActiveFactory** node provides access to the ActiveFactory reporting website feature, a preconfigured Wonderware Information Server component that lets you generate reports, trend history data, and build and execute SQL queries against data from IndustrialSQL Server historian and other databases. For more information, see Chapter 18, ActiveFactory Reporting.

Hide the Launch Pad by clicking the **Hide** button. To show it again, click the **Show Launch Pad** link at the far left of the menu bar.

Navigation Trees

A navigation tree consists of top-level nodes, "child" nodes, and "leaf" nodes. For example:
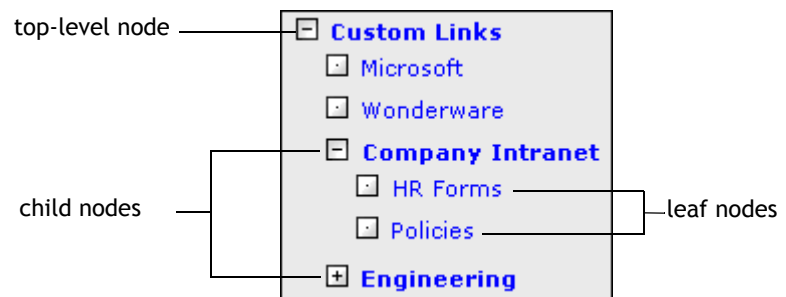
"Child" nodes are nodes that do not sit at the top level, but contain other nodes. A "leaf" node is a child node that contains a URL to a document, web page, web site, or other object, such as an InTouch browser-based windows, a chart, a data table, and so on.

To expand a collapsed node, either double-click it or select the plus sign icon to the left of the node name. You can collapse an expanded node by double-clicking on it or by selecting the minus sign icon.

Getting Started with Administrative Tasks

The **Administration** nodes provide access to configuration pages for security, data sources, applications, access panels, MultiView windows, the license manager, customization, the Win-XML Exporter, the TableWeaver Manager, the Factory Alarm Manager, the Microsoft Reporting Services Report Manager and the administration documentation.

Note None of these administration applications can be assigned to a custom access panel.

The following table briefly describes each link:

Link	Description
Application Manager	Configure or manage custom applications that have been integrated into the site.
User Manager	Assign users to system or application-specific roles. For more information, see Chapter 4, Managing Security.
License Manager	View license and license usage information. For more information, see Chapter 3, Managing Licensing.
Configuration	Customize the site. For more information, see Chapter 9, Customizing the Wonderware Information Server.
Data Source Manager	Manage the factory data providers and factory data source writeback privileges. For more information, see Chapter 5, Configuring Data Sources.
MultiView Manager	Create MultiView windows, which are multi-pane displays of objects and Web Parts. For more information, see Chapter 8, Configuring MultiViews.
Factory Alarm Manager	Configure the current alarm information from the InTouch alarm system.
Panel Manager	Segregate objects, information, and links into access panels for users. For more information, see Chapter 7, Configuring Access Panels.
Win-XML Exporter	Download the Wonderware Information Server Win-XML Exporter used for converting InTouch application windows. For more information, see your *Wonderware Information Server™* Win-XML Exporter *Guide* or Help file.

Link	Description
Documentation	Access the complete Wonderware Information Server documentation set.
TableWeaver Manager	Present and navigate information from databases and related web pages in multiple formats. For more information, see Chapter 12, Introduction to TableWeaver.
Report Manager	Configure Wonderware Information Server reporting services and administer and update reports.

Chapter 2

Installing Wonderware Information Server

This chapter describes Wonderware Information Server's hardware and software requirements and then shows you how to install it on your system.

- Using a Domain Controller with Wonderware Information Server

- Requirements for Client Computers

- Before Installing Wonderware Information Server

- Uninstalling Wonderware Information Server

- Reinstalling Wonderware Information Server

- Migrating from a Previous Version

About the Wonderware Information Server

Wonderware Information Server (formerly known as SuiteVoyager) provides enterprise-wide viewing of all information from the plant floor over the Internet or company intranet. Using Internet Explorer, Wonderware Information Server can report from a variety of data sources, including reports, documents, alarms, and historical and real-time information.

You can also use Wonderware Information Server to view and interact with InTouch application windows that have been converted with the Win-XML Exporter. These windows show all graphics and animation with real-time links to the factory floor, just as they do in InTouch WindowViewer™, but they do not require InTouch installed on the client computer.

Other features of Wonderware Information Server include

- MultiViews, web displays that contain web-based content, such as HTML pages or Extensible Markup Language (XML) code. This content is stored in handy, reusable components called Web Parts.

- Access panels, a logical grouping of navigation nodes (folders) and links that is only accessible to particular users assigned to it.

- The ActiveFactory Reporting Website, a collection of features that provide a wide array of reporting capabilities from IndustrialSQL Server (InSQL).

- A reporting capability based on the Microsoft SQL Server Reporting Services (SSRS). This new feature lets you create, deploy, and execute SSRS reports within the Wonderware Information Server. There are also interface options available to trigger those reports from IAS and InSQL.

Web Server Requirements and Recommendations

The first step in deploying Wonderware Information Server is to install or configure the web server computer that hosts the Wonderware Information Server web site. In general, use a fast server-class computer with sufficient power to handle the expected load on the web site.

Hardware Requirements

The following web server hardware requirements are recommended to handle a load of 50 concurrent users:

Minimum	Suggested
2.5 GHz Pentium IV	3 GHz Pentium IV
1 GB RAM	2 GB RAM

Minimum	Suggested
5 GB of disk space (NTFS required)	10 GB or more of disk space, depending on the number of InTouch windows published to the site.

For all software, apply the latest service packs and patches.

In addition, client users must be members of the same Windows domain, or a trusted domain, as the web server.

Operating System Requirements

Wonderware Information Server 3.0 must be installed on a server computer running Windows 2003 Server R2. This operating system incorporates Internet Information Services (IIS) v6.0 as part of the default installation, as well as the Microsoft Data Access components. All the components of Wonderware Information Server are optimized to work properly in a Windows 2003 Server environment.

Software Requirements

The following software must be installed on the web server computer before installing Wonderware Information Server:

• Microsoft Internet Information Services (IIS) 6.0 or later

Note Do not install the Microsoft Front Page extensions.

• Microsoft Internet Explorer 6.0 SP1 or later

• ASP.Net 2.0

• Microsoft SQL Server 2005 SP1

Microsoft SQL Server is used by Wonderware Information Server to store vital configuration information, such as administrative passwords. Also, Wonderware Information Server needs continuous access to the SQL Server to run properly. Wonderware Information Server supports Microsoft SQL Server 2005 only. Apply the latest service packs and patches.

Important For the Microsoft SQL Server installation, be sure that you have mixed mode selected as the authentication mode. Wonderware Information Server can run against case-sensitive databases.

> A single license for Microsoft SQL Server is included with Wonderware Information Server. This license allows you to install Microsoft SQL Server on either on the same web server computer that is running Wonderware Information Server or on a separate computer.

> You can use an existing SQL Server located anywhere on the same network. If the database resides on a SQL Server system remote from the system where the WIS is installed, then client-side TCP/IP connectivity must be configured using the Microsoft SQL Server Client tools on the Wonderware Information Server Server. This requires an installation of the Microsoft SQL Server Client tools on the Wonderware Information Server server computer.

In addition, you must have the following software installed to install and configure the associated Wonderware Information Server features.

- Microsoft Windows SharePoint Services 2.0 SP2 must be installed and configured to install the MultiViews feature. You can upgrade to SharePoint Services 3.0 after installing Wonderware Information Server.

Note FrontPage Server extensions are no longer required for Wonderware Information Server 3.0. In addition, the extensions must not be enabled when SharePoint Services is installed.

- Microsoft SQL Server 2005 SP1(or later) Reporting Services must be installed and configured on the same node as Wonderware Information Server to install the ArchestrA Reports feature.

- Microsoft .NET Framework 2.0 or later and Microsoft Office 2000 or later must be installed to install the ActiveFactory Reporting and the ArchestrA Reports features.

Guidelines for Microsoft Windows 2003 Server

The following instructions are provided as a guide and do not constitute the entire Windows 2003 Server setup that your company guidelines may require, or that you may encounter while installing the operating system software. These instructions only document specific options you need to configure during the installation.

- The operating system must be installed on an NTFS partition to work properly with Wonderware Information Server.

- Install the defaults for Windows 2003 components. The following components of IIS must be selected.

    - Common Files
    - Documentation
    - Internet Information Services
    - Internet Services Manager (HTML)
    - SMTP Service
    - World Wide Web Service

Note If you are installing Wonderware Information Server on a Windows 2003 computer that does not have IIS installed, you must install it.

- If you have decided not to use a domain controller, set up the local computer with users and passwords at this time. For more information, see Using a Domain Controller with Wonderware Information Server on page 31.

Also, check the Microsoft web site for updates and patches that you may need to install.

Wonderware Application Requirements

The minimum required software to provide particular functionality within Wonderware Information Server are:

Function	Required Software
Provide data for browser-based windows	InTouch 9.0 or later
Provide IndustrialSQL Server history data	IndustrialSQL Server 8.0 SP3 or later
Provide alarm data	InTouch 9.0 or later

To use the Wonderware Information Server Win-XML Exporter with InTouch, you must have the following installed on the InTouch computer:

- InTouch 9.0 or later

- Microsoft Windows Server 2003 R2, with the latest service packs applied, or later

- Internet Explorer 6.0 SP1 or later

For deployment considerations for InTouch or IndustrialSQL Server, see your Wonderware documentation for that particular application.

Installing SharePoint Services

You must have SharePoint installed to install and run the Wonderware Information Server MultiViews module.

Note When installing SharePoint Services, use the Server Farm installation option, not the typical install.

Selecting the defaults during installation creates a new instance of SQL Server Express on the system and configures SharePoint Services for you. Selecting the Web Farm mode of installation is more complex and requires you to have an understanding of the various features of SQL Server.

You can use the following general procedure to install Windows SharePoint Services. Depending on your installation and configuration requirements, you may need to make changes to the steps and information in this procedure. See the Windows SharePoint Services documentation for more information.

Immediately after running the Server Farm installation, do the following to configure the SharePoint Services:

1   On the **Configure Administrative Virtual Server** page, select **Use an existing application pool**. This should default to **StsAdminAppPool (NT_AUTHORITY\NETWORK SERVICE)** . Select a security configuration of **NTLM** and click **OK**. The **Application Pool Changed** page appears.

2   Follow the instructions, then click **OK**. The **Set Configuration Database Server** page appears.

3   Enter the name of the database server, which is the SQL Server on which the databases will reside, and a database name of **SharePoint**. If the firewall is enabled on this server, you need to add exceptions for SQL TCP Port 1433, file and print sharing for the backup/restore program, and port 80. For the database connection type, use a SQL login that has CREATE DATABASE rights within SQL Server.

> **Note** The NETWORK SERVICE account, which is used by the StsAdminAppPool, does not have this right.

Click **OK**. The **Central Administration** page appears.

4   Select **Extend or upgrade virtual server**. The **Virtual Server List** page appears.

5   Select **Default Web Site**. The **Extend Virtual Server** page appears.

6   Select **Extend and create a content** database. The **Extend and Create Content Database** page appears.

7   Select an application pool, which can be the same as the default application pool selected earlier. Enter an email address for the site owner (this can be a dummy address such as **someone@anywhere.com**). Select **Use default content database server** for the database information and **NTLM** for the security configuration. Click **OK**, then **OK** again on the **Virtual Server Successfully Extended** page appear.

Installing SQL Server Reporting Services

You must have the SQL Server Reporting Services installed to use the ArchestrA Reporting Services features of Wonderware Information Server.

The following tips on installing SQL Server Reporting Services may be helpful.

•   It is best to select Reporting Services as part of the original SQL Server installation, rather than trying to add it later.

•   Port 1433 must be open in your firewall on the remote node to access the Reporting Service web pages.

You can use the following general procedure to install SQL Server Reporting Services using a remote SQL Server database. Depending on your installation and configuration requirements, you may need to make changes to the steps and information in this procedure.

For more information, see the set up file **sqlsetup9.chm** (indicated in the **RequirementsSQL2005.htm** file) as well as the SQL Server Reporting Services documentation.

To install and configure the SQL Server Reporting Services using a remote SQL Server database

1   While installing the SQL Server Reporting Services, in the Components to Install section, select **Reporting Services** and click **Advanced**.

2 Under Client Components, select **Connectivity Components and Management Tools**.

3 Select **Network Service as Service Account**.

Next, configure the SQL Server Reporting Services by running the Microsoft SQL Server 2005 Reporting Services Configuration Manager and do the following:

1 On the Instance Selection page, enter the local report server node as the machine name and **MSSQLSERVER** as the instance name. Click **Connect**. Once the connection has been established, the Report Server Status appears as **Running**.

2 On the Report Server Virtual Directory page, click **New**, then click **OK** on the **Create a New Virtual Directory** dialog box to accept default values.

3 On the Report Manager Virtual Directory page, click **New**, then click **OK** on the **Create a New Virtual Directory** dialog box to accept default values.

4 On the Windows Service Identity page, select a service name of **Report Server** and enter **NT AUTHORITY\NetworkService** for the service account.

5 On the Web Service Identity page, click **New** in the Report Server section to create a new app pool with a default name of **ReportServer**. Set the security account for the app pool to **Built-in account Network Service**. Select the Report Manager to the same Report Server app pool. Click **Apply**.

Next, set up the database. You must turn off the SQL Server node firewall prior to setting up the database; otherwise, the Grant Rights script will fail. The SQL Server node firewall must also have exceptions for TCP Port 1433, file and print sharing for the backup/restore program, and port 80.

1 On the Database Setup page, enter the server name for the remote SQL Server and click **Connect**. The **SQL Server Connection** dialog box appears with the server name you selected.

2 Select **Integrated Security** or **SQL Server Account** for the credentials type. (If you select **SQL Server Account**, you must also enter a valid username and password.) Click **OK**.

3 For Database Name, click **New**. The SQL Server Connection dialog box appears. The default value for the database name is **ReportServer**. Click **OK**. **Service Credentials** is selected by default for the credentials type. If you select a different credentials type, enter a user name and a password. Click **Apply**. The **SQL Server Connection** dialog box appears.

4 Click **OK**. The Task Status shows green check boxes for all tasks.

5 Turn the SQL Server node firewall back on.

Using a Domain Controller with Wonderware Information Server

The purpose of a domain controller is simply to authenticate users in a Windows domain for security reasons. Wonderware Information Server is designed to take advantage of a domain controller for the following security functions:

• **Grant/deny users access to the site**. If a user logged on to the company network and is authenticated by the domain controller, the Wonderware Information Server handles that user as an authenticated login and then proceed to authorize the user according to the security role to which the user has been assigned. However, if a user attempts to access Wonderware Information Server from a computer that is not logged onto the network, a dialog box appears in which the user must provide a valid user name and password for the domain. After entering the appropriate information, the user is authenticated on the network by the domain controller and is granted or denied access. The use of domain logins to provide access is made possible by the use of integrated Windows security by Wonderware Information Server.

• **Assign user privileges within Wonderware Information Server**. Since Wonderware Information Server uses integrated Windows security, the product automatically connects to all the domains that it is a member of and returns a list of users already configured in that domain. This enables the administrator to save vast amounts of time and effort when assigning role-based privileges for Wonderware Information Server. In addition, users are able to have one account and password to access the company network and Wonderware Information Server, instead of multiple names and passwords.

Also, if you do not use a domain controller, Wonderware Information Server uses precious CPU resources to authenticate users instead of serving them web pages.

Because of these benefits, it is recommended that you use an existing domain controller or install a new domain controller. This allows you to manage users in the company domain separately.

For more information on domain controllers, see your Microsoft documentation or visit their web site at www.microsoft.com.

Using an Existing Domain Controller

If you already have a domain controller in place, the Wonderware Information Server computer needs to be added to the domain as a resource. This usually can be handled by the department within your company that maintains the domain controller.

Wonderware Information Server can be added to the domain well in advance of the deployment. In addition, you want someone who has knowledge of administering domain resources present during the Wonderware Information Server deployment to verify proper connections to other domain resources, such as SQL Server, InSQL, Industrial Application Server, and InTouch computers.

Using Wonderware Information Server without a Domain Controller

If your company does not have a domain controller and does not have plans to upgrade and install a domain controller, you can still use Wonderware Information Server. However, the web server that Wonderware Information Server is installed on has to perform user authentication, and all users need to be created in the local user store on the web server. For information on adding local user accounts, see your Windows documentation. For more information on security, see Chapter 4, Managing Security.

Requirements for Client Computers

Client computers can consist of a variety of hardware platforms running Windows XP SP2 or Windows 2003 Server SP1 or R2. For all software, apply the latest service packs and patches.

In addition, client users on an intranet must be members of the same Windows domain, or a trusted domain, as the web server.

Before Installing Wonderware Information Server

Wonderware Information Server consists of a set of services, a COM+ package of components, and a customizable web application of ASP and HTML pages.

You do not need to be familiar with web building software to install Wonderware Information Server. The Wonderware Information Server installation program builds the entire web application for you.

You cannot proceed with the Wonderware Information Server installation without having the prerequisites installed or configured. (The Wonderware Information Server installation program installs .Net 2.0 if you do not currently have it on your computer.) For more information, see Hardware Requirements on page 24 and Software Requirements on page 25.

Before you start the installation, be sure that you:

* Log into the web server computer using a valid domain user ID that has administrative rights on the system.

* Verify that during the Wonderware Information Server installation, no one accesses the web server, or any of its services, via a browser. The Wonderware Information Server installation program needs to be able to shut down services appropriately.

* Know the administrative login for the Microsoft SQL Server you are using. The SQL Server services need to be configured to execute on a Network account.

* You must be an Administrator on all server nodes that you are installing components on.

* Know the default language on the web server. The Wonderware Information Server installation procedure is in English only, but the product is localized for English, French, German, Japanese, and Simplified Chinese.

WARNING! **Leave ActiveFactory 9.1 Reporting Web Services on your system. The Wonderware Information Server installation program uses this for migrating ActiveFactory 9.1 reports to the ActiveFactory Reporting Web Services in Wonderware Information Server. If you uninstall ActiveFactory 9.1 Reporting Web Services before installing Wonderware Information Server, it will not migrate and you lose all your ActiveFactory 9.1 reports!**

The person who installs Wonderware Information Server is designated as the first administrator. This person is the only one who has access to the administrative pages inside Wonderware Information Server and is responsible for adding additional users to roles, assigning access privileges, customizing the product, configuring data sources and deploying the licenses. As administrator, you must know the names and passwords for the IndustrialSQL Servers and InTouch Alarm System databases from which Wonderware Information Server retrieves data.

Note Installing Wonderware Information Server creates an administration database on an available SQL Server 2005. The installation of this database also creates four login IDs used exclusively by the Wonderware Information Server software to access this database: svAdmin, svSysAdmin, svSuper and svUser. In addition, a fifth login ID, aaReportsUser, is created if the ArchestrA Reporting component is installed.

Installing the Wonderware Information Server

The installation program:

- Copies all Wonderware Information Server files to the web server.

- Installs and registers services and COM+ components.

- Creates the Wonderware Information Server administration database in the specified Microsoft SQL Server.

- Creates a virtual directory for Wonderware Information Server in IIS.

- If the computer has Windows Firewall on, adds port 80 and TCP port 1433 to the exception list.

- The installation program prompts you for an admin user name and password. This account information is only used by the installation to create the administration database. It is not stored on the computer in any way or used by the Wonderware Information Server at any later time.

- The installation program installs the ArchestrA License Manager on this computer. You must use the ArchestrA License Manager to set up a license server for Wonderware Information Server to work. For more information, see the ArchestrA License Manager Guide.

Make sure that you meet all of the requirements listed in the checklist before continuing with the installation.

To start the installation program

1   Exit all unnecessary Windows programs.

Note During the installation, you can leave the Windows firewall on, but you must enable "File and Printer Sharing" in the Windows firewall configuration to permit backup and restore to work when a second node hosts the Wonderware Information Server and reporting databases. The backup process may require UNC access to the Wonderware Information Server node.

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2   Insert the Wonderware Information Server 3.0 Server CD into your CD-ROM drive. The **Welcome** dialog box appears. Click **Next**. The **License Agreement** dialog box appears.

3   Read the license agreement and then click **Next**. The **Preinstallation Information** dialog box appears.

4   Verify that your computer is ready to install Wonderware Information Server and then click **Next**. The **Select Features** screen appears.

5   Select the Wonderware Information Server features to install. The default is to install all features on the hard disk. Click **Next**. The **System Information** dialog box appears with a report on the current version of IIS and MTS and the IIS scripts folder.

6   Click **Next**. The **User Information** dialog box appears.

7   Enter name and organization, then click **Next**. The **Wonderware Information Server Portal Account** dialog box appears.

   • Enter the Windows account information: the computer to log on to, a user name with administrative privileges, and the password. Click **Next**. The **Destination Folders and Virtual Directory** dialog box appears.

   • Click **Next** to accept the default destination folder for the software and the virtual directory name. The virtual directory name is what you enter in Internet Explorer to start Wonderware Information Server. The **Repository Authentication** dialog box appears.

Important Your repository database collation must be consistent with the database collation of Alarm and Historian databases.

8   Enter the server name and click **Next**. If you are installing ActiveFactory or Archestra Reporting features, the **Alarm Data Source** dialog box appears.

Important Wonderware Information Server can only be installed with Windows (mixed mode) authentication.

9   Enter the alarm data source name, the alarm server name, the alarm database, and the user name and password for the database. Click **Next**. If you are installing ActiveFactory or Archestra Reporting features, the **Historian Data Source** dialog box appears.

10 Enter the historian data source, the InSQL server name, and the InSQL user name and password. Click **Next**. If you are installing the ActiveFactory features, the **ActiveFactory Reporting Website** dialog box appears.

11 Enter the report web site name, and the MS-SQL admin user name and password. Click **Next**. The **Ready to Install the Application** dialog box appears.

12 To install the software with the options you've selected, click **Next**.

13 The installation program installs the software on the computer and configures the internal database. This may take a few minutes.

14 When you are done, you are prompted to reboot. Exit any applications you may have open and reboot.

Installing the Product License

Wonderware Information Server requires you to set up a license server using the ArchestrA License Manager. The license server can be set up on the same computer as the Wonderware Information Server software or on a different computer.

For information on licensing and how to install licenses, including how to read license files and set up license servers, see the ArchestrA License Manager Guide and the online help. For additional information about specific licensing issues for Wonderware Information Server, see Chapter 3, Managing Licensing.

To start the ArchestrA License Manager

◆   On the **Start** menu on the Windows Taskbar, point to **Programs**, **Wonderware**, then to **Common**, and then select **Archestra License Manager**. The ArchestrA License Manager main window appears.

Uninstalling Wonderware Information Server

You can use the standard Windows Add/Remove Programs feature from the Control Panel to remove the Wonderware Information Server.

Uninstalling Wonderware Information Server does not require you to reboot the computer after the uninstall is complete.

Language packs are installed automatically as part of the Wonderware Information Server installation process, but they must be uninstalled separately. This prevents an automatic uninstall of language packs from a computer that is also being used for ActiveFactory.

After you uninstall Wonderware Information Server, use the Windows Add/Remove Programs feature to uninstall each language pack. Language packs are named **Wonderware ActiveFactory <lang> Language**, where <lang> is French, German, Japanese, or Simplified Chinese.

You can not uninstall language packs if either Wonderware Information Server or ActiveFactory are still installed on the computer.

Reinstalling Wonderware Information Server

You can use the installation program to modify or reinstall the Wonderware Information Server software.

During a reinstall, the Wonderware Information Server installation program replaces any files that are not the correct version or have been corrupted.

During reinstall, optional features can be selected or cleared for installation. The installation program preserves as much configuration information as possible. It also checks for the condition of all prerequisite software.

To reinstall Wonderware Information Server

1   Exit all unnecessary Windows programs.

2   Insert the Wonderware Information Server 3.0 Server CD into your CD-ROM drive. The **Welcome** dialog box appears.

3   Follow the steps starting on page 35.

Migrating from a Previous Version

Migrating from a previous version involves upgrading the Win-XML Exporter and upgrading the Wonderware Information Server.

You can only migrate from SuiteVoyager 2.6 to Wonderware Information Server 3.0 or ActiveFactory RWS 9.1 to Wonderware Information Server 3.0 for the RWS content.

Chart applications and Table applications are no longer supported and are automatically removed during the migration process.

Important Do not uninstall a previous version of SuiteVoyager or ActiveFactory until you are instructed to do so.

To migrate to Wonderware Information Server 3.0

1   Exit all unnecessary Windows programs.

2   Insert the Wonderware Information Server 3.0 Server CD into your CD-ROM drive. When the installation detects the correct previous version, you are prompted that you are upgrading and may be prompted to remove prior version components before continuing.

3   Follow the steps starting on page 35. Note the following conditions:

During the installation, if you have configured Multi-Views then the Multi-View option is selected and

you cannot clear the option. If the previous version does not have configured Multi-Views, the Multi-View option is selected but you can clear the option. If you clear the option, the Multi-Views are not installed.

During the installation, if you have ActiveFactory 9.1 Reporting Web Site installed, the ActiveFactory Reporting option is selected and you cannot clear it. The reporting Web Site is installed for you.

Chapter 3

Managing Licensing

Using the **License Manager** area of the Wonderware
Information Server, you can view license details of Server,
Tag Server Write back and Client licenses and monitor who
is currently using a license.

About Wonderware Information Server Licensing

The Wonderware Information Server supports concurrent,
named user, and name device licensing; that is, the licensing
policy located on the server determines how many browsers
can access Wonderware Information Server at any given
time. All of the license information is managed by a dedicated
license management component. When a client attempts to
access Wonderware Information Server through Internet
Explorer, Wonderware Information Server checks to see if a
license is available and grants or denies access to the client
depending on license availability.

You need enough client licenses for the number of users
concurrently accessing the licensable areas of the
Wonderware Information Server. Client access to these areas
is on a first-come, first-served basis. For example, if the
Wonderware Information Server is licensed for ten
concurrent clients and an eleventh client attempts to access
the server, a message appears at the client stating that there
are no additional licenses available. However, if the eleventh
client is an administrator, then he/she can access the
administrative areas only.

A session is created when a client user accesses the Wonderware Information Server home page, and a license is issued for the use of the core Wonderware Information Server applications, such as Process Graphics, Factory Alarms, and Historical Data. A user can access these and all custom areas and still only use one license. All licenses are released for the user's session when the user clicks **Log Off** on the main menu bar. If a user closes the browser without logging off, the current license session times out after a certain length of time. By default, this is set to 20 minutes and can be changed by the web server administrator for the Wonderware Information Server application using the Internet Information Services console application.

The license management feature lets you monitor activity and usage on the Wonderware Information Server. Licensing information is displayed in text format to allow analysis of peak usage times and personnel.

For more information on creating connections, see About Wonderware Information Server Data Sources on page 67.

Viewing Active Licenses

You can view both the active licenses for the Wonderware Information Server and for any applications that have been integrated with the site. Active licenses indicate the license usage at the current time for each application.

To view active licenses

1   In the **System** access panel, expand **Administration** and then click **License Manager**. The **Active Licenses** page appears.

Different categories of license use appear:

- Server Licenses

  Shows various server licenses used by the Wonderware Information server and their details including their status, Date/Time of issue, Type, License Server and Expiry Date.

- Tag Server Writeback

  Shows the status (availability) of Tag Server Writeback license

- Client Licenses

  Shows the Wonderware Information Server client licenses and ActiveFactory web client licenses in use with details including the User, Host, License, Date/Time of Issue, Type and Expiry

2 To change the maximum number of records displayed on this page, type the new value in the **Max records** box and then click **Refresh**.

Configuring License Usage Logging

Records of license use can be logged into the Wonderware Information Server administration database.

To turn logging on/off

1 In the **System** access panel, expand **Administration** and then click **License Manager**. The **Active Licenses** page appears.

2 Click to select **Log License usage to database**.

☑ Log License usage to database
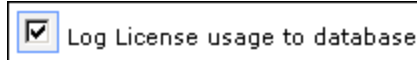
Tip The SQL Server administrator can trim the licensing history table by deleting records that are older than a given date.

Querying License History

The license history indicates prior license usage. It returns information on whether a user was allowed or denied access to an application, what time this occurred, how long a user had a license, who the user of the license is and how many licenses were available. This information enables the administrator to correctly configure the Wonderware Information Server with the appropriate number and type of licenses for the users.

To query license history

1 In the **System** access panel, expand **Administration** and then click **License Manager**. The **Active Licenses** page appears.

2 Click **Query License History**. The **Query License History** page appears.

Query License History

To display the SuiteVoyager's historical license usage, enter the desired history time range and select the Show License History button to display the report.

February 2002	February	2002

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	1	2
3	4	5	6	7	8	9

February 2002	February	2002

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	1	2
3	4	5	6	7	8	9

Start Date : 2002-2-28

Time : 00:00 ◄◄ ►►

Max records : 100

End Date : 2002-2-28

Time : 23:59 ◄◄ ►►

Show License History

3 Select the start and end dates for the query by using the calendars. You can also type in dates in the **Start Date** and **End Date** boxes. The valid format is: YYYY-MM-DD.

Note All dates reflect the time of the Wonderware Information Server web server.

4 To specify an exact time of day for the query, type the start time and end time in the **Time** boxes. The valid 24-hour format is: HH-MM. You can use the arrow buttons to adjust the time in ten minute increments.

5 In the **Max records** box, type the number of license records to retrieve.

6 Click **Show License History**. The query is executed and the **License History** page appears with the results.

Viewing License History

The Wonderware Information Server keeps track of all license requests along with their response status (acquired/denied).

Note You must have enabled license logging to use this feature. For more information, see Configuring License Usage Logging on page 44.

To view license history

1 In the **System** access panel, expand **Administration** and then click **License Manager**. The **Active Licenses** page appears.

2 Click **License History**. The **License History** page appears.

This page shows historical data about license usage for the dates specified on the **Query License History** page. Column descriptions are:

• Start time

The time at which the user accessed a licensed area of the Wonderware Information Server.

- User Name

  The Windows login ID of the license user.

- Denied

  Specifies whether or not the requested license was denied. This is based on availability, not security.

- Application

  The name of the application that requested the license.
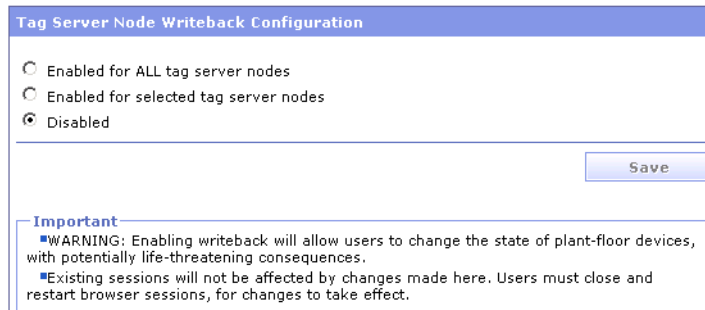
Enabling Tag Server Writeback

Tag server writeback is licensed by a separate license feature line.

WARNING! Enabling writeback allows users to change the state of plant-floor devices. This can have potentially LIFE-THREATENING consequences!

To enable tag server writeback

1 In the **System** access panel, expand **Administration** and then click **License Manager**. The **Active Licenses** page appears.

2 Click **Tag Server Writeback**. The **Tag Server Writeback** page appears.

3 Click the appropriate option:

- Enabled for ALL tag server nodes

  Click to enable tag server writeback for all nodes.

- Enabled for selected tag server nodes

The **New Tag Server Node** page appears.

Enter the name of the tag server node in the **New tag server node** field and click **Add**.

● Disabled

This is the default option. Tag server writeback is disabled for all Wonderware Information Server server nodes.

4   Click **Save**.

Changes to the tag server writeback do not go into effect until the sessions are ended and restarted.

For more information on how to use the ArchestrA License Manager, see the *ArchestrA License Manager guide*.

Chapter 4

Managing Security

Wonderware Information Server can be deployed in an Internet environment. Since this connects sensitive industrial information to the Internet and allows for the enabling of write-back to plant controllers, the need for tight security is paramount. Wonderware Information Server controls access to plant floor information at the site, user, and data source levels.

The first level of security is access to the Wonderware Information Server web server itself. Access to the Wonderware Information Server is achieved by tight integration with Microsoft Windows security (Kerberos) and the security mechanisms employed by Internet Information Services.

For additional security, the Wonderware Information Server also supports Secure Sockets Layer (SSL), password authentication, digital certificates, and Windows login dialog boxes. Wonderware Information Server is installed in a "safe state." This means that the user who installs Wonderware Information Server will be the only person with privileges on Wonderware Information Server. This user will have administrative privileges and can add additional users. However, by default, the "Everyone" Windows group (all authenticated users from the same domain as the portal) is given "Read-Only" access.

The second level of security determines what casual users (or groups of users) will be able to do once they access the site. The administrator can grant specific users (or groups) privileges by assigning them to pre-configured security roles.

The third level of security is for write-back capability for factory data sources, such as those used for InTouch browser-based windows. Enabling write-back capability requires you to have a specific write-back license installed in the License Utility.
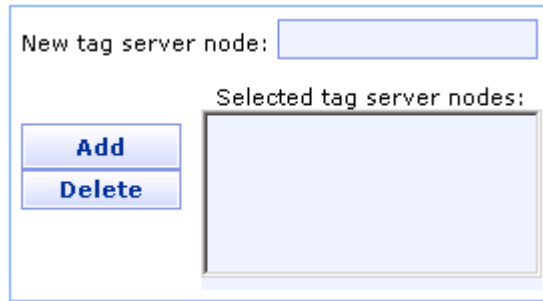
WARNING! **Enabling write-back allows users to change the state of plant-floor devices with potentially life-threatening consequences.**

Securing Access to the Wonderware Information Server

The Wonderware Information Server uses the integrated Windows authentication (Kerberos) security mechanism provided with Microsoft Windows Server and Internet Information Services (IIS) to grant users access to the site itself.

IIS also offers a variety of ways to further restrict access to the web site. Using IIS, you can grant or deny access based on IP address, domain name, or computer name. Using NTFS, you can assign ACLs (Access Control Lists) to files directly on the system.

When Wonderware Information Server is installed, a COM+ package for Wonderware Information Server is added to the Windows 2003 Component Services administration console. This package integrates to the Windows 2003 Active Directory User database and authorizes users authenticated within the Windows domain to perform actions or execute links on the site through an MTS based role system attached to the COM+ package. Users can be assigned to roles either directly by using the Component Services console or by using the Wonderware Information Server User Manager.

For additional security, the Wonderware Information Server also supports Secure Sockets Layer (SSL), and digital certificates. To use digital certificates, you need to install a digital server certificate issued by a third-party company.

Tip The IIS documentation is located on the web server as an online help file and provides helpful information on upgrading, security settings, and other valuable information about the web server. Become familiar with this information to personalize your web server to your companies policies and requirements.

Types of Access for Internet Information Services

Access to the web server is divided into two different categories:

- Authenticated access

- Anonymous access

With authenticated access, users are allowed to access the site if they are valid members of the same Windows domain as the web server or a domain trusted by the web server domain and are a member of at least the Read-Only security role.

With anonymous access, everyone has access to the site, regardless of who they are, although they cannot access the administrative functions or write-back to factory data sources.

Important Wonderware **does not** recommend anonymous access. The Wonderware Information Server supports both types of requests, but uses authenticated access by default. Wonderware Information Server also requires the default web site for the web server to enable integrated Windows authentication before write-back is allowed. This is configured automatically at the time of installation.

Authenticated access

Wonderware recommends that you use authenticated access to protect your web site from unknown users. The authenticated access method is divided into the following additional options:

- **Basic authentication**

   Basic authentication sends passwords over the network as clear text. This type of authentication transmits the passwords across the network unencrypted, making it easier for hackers to intercept usernames and passwords. This type of authentication is not recommended.

   To make this secure, Wonderware recommends that you use SSL and client certificates to authenticate users when using basic authentication. Client certificates are issued by trusted third-party organizations. This option may be required for some brands of proxy servers. For more information, see Using Proxy Servers on page 56.

- **Digest authentication for Windows domain servers**

  This method requires the support of a Windows domain controller. This method sends a hash across the network, rather than a password, and works across proxy servers and firewalls.

- **Integrated Windows authentication**

  This is the recommended and default setting for Wonderware Information Server. Integrated Windows authentication uses a cryptographic exchange with the user's Internet Explorer web browser to confirm the identity of the user. During installation, Wonderware Information Server is automatically configured to use the integrated Windows authentication security method. Using integrated Windows authentication is a good way to secure your web server and who has access to the Wonderware Information Server.

  When a client tries to access Wonderware Information Server, IIS checks to make sure they are an authenticated user in your Windows domain before allowing them access to the site. Integrated Windows authentication is very secure because it does not pass the username and password over the network. Instead, the user's browser provides the password to the web server through a cryptographic exchange with hashing.

For information on configuring authenticated access, see Configuring Security for Internet Information Services on page 53.

Anonymous access

Important Wonderware does NOT recommend that you use anonymous access authentication, because this allows anyone to access your site.

Use the IIS administration console to configure the web server to use anonymous access. For more information, see Configuring Security for Internet Information Services on page 53.

If you select anonymous access as the authentication method, then writeback from the site to the plant floor devices is disabled.

Configuring Security for Internet Information Services

To configure security for Internet Information Services

1 On the Windows **Start** menu, point to **Programs**, point to **Administrative Tools**, and then click **Internet Services Manager**. The **Internet Information Services** console appears.
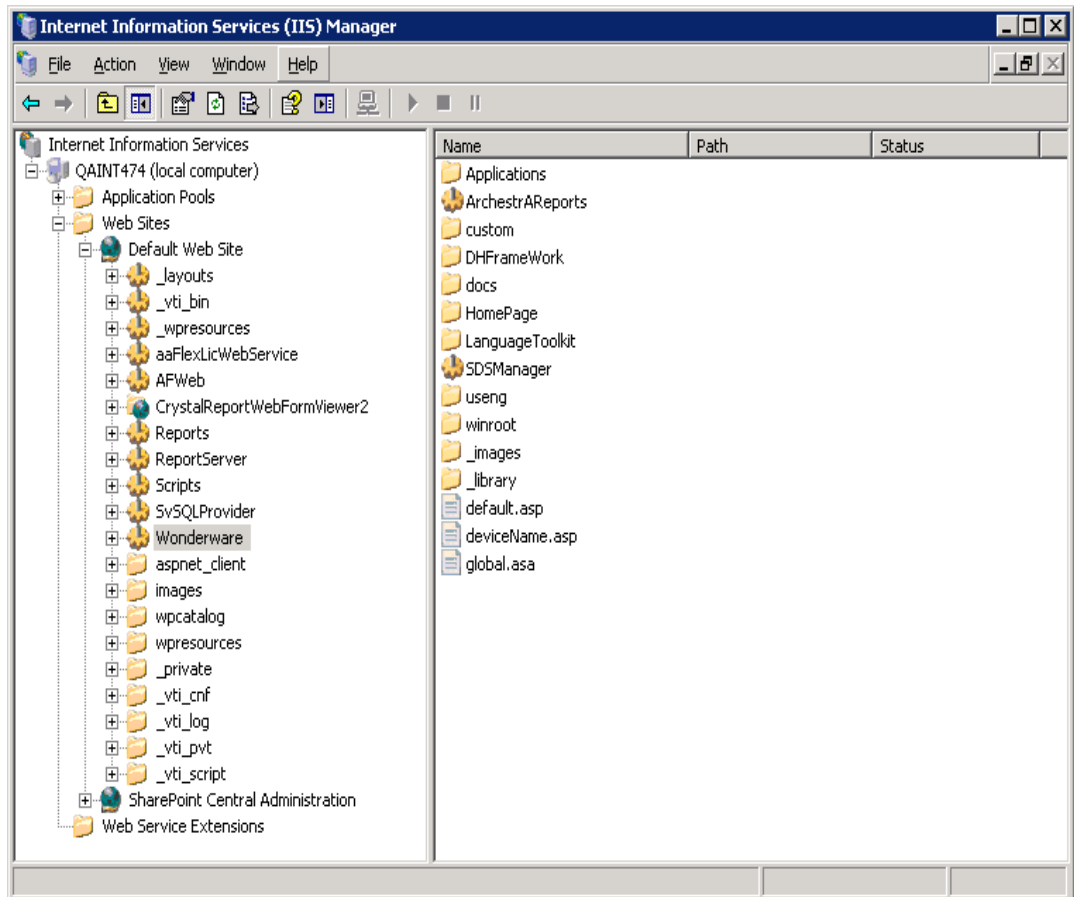
2 Expand the computer name and then expand **Default Web Site**.

3 Right-click **Wonderware Information Server** and then click **Properties**. The **Wonderware Information Server Properties** dialog box appears.
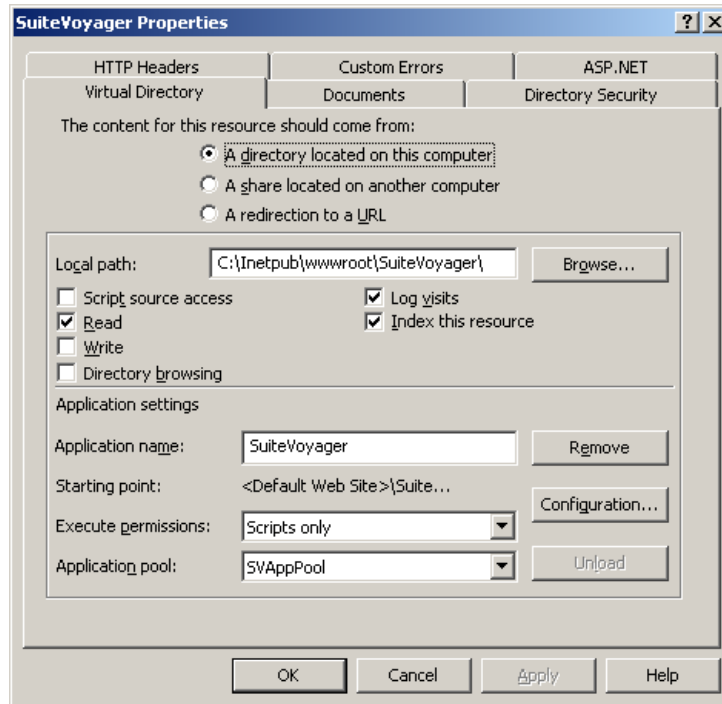
4 Click the **Directory Security** tab.
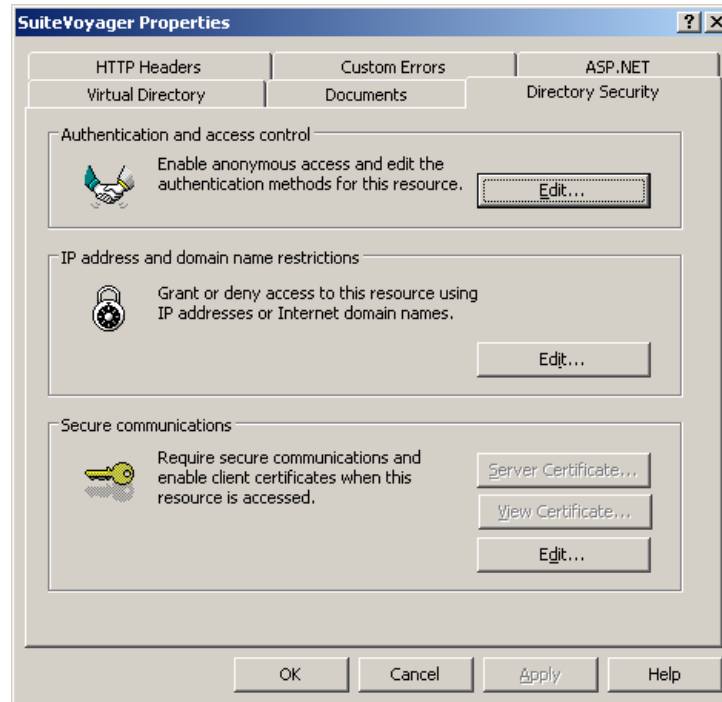
5 In the **Authentication and access control** area, click **Edit**. The **Authentication Methods** dialog box appears.
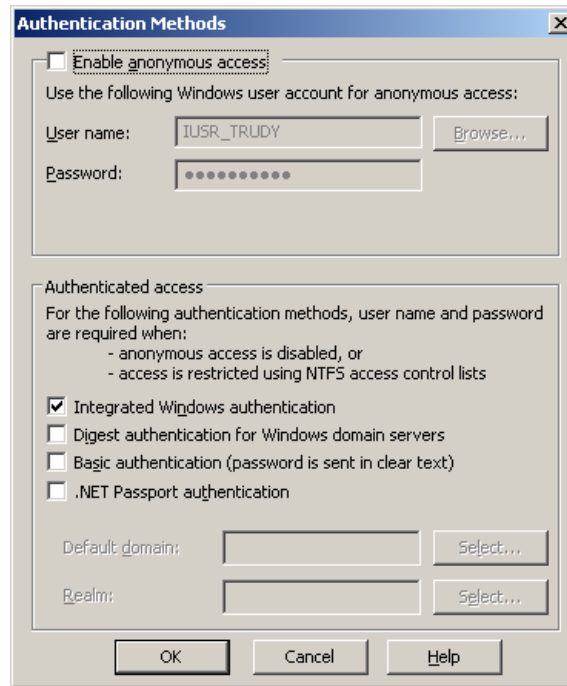
6 Configure the access type. For more information, see Types of Access for Internet Information Services on page 51.

7 Click **OK** to close the **Authentication Methods** dialog box.

8 Click **OK** to close the **Wonderware Information Server Properties** dialog box.

Firewall/DMZ Compatibility

The Wonderware Information Server is designed to be "firewall compatible." It supports connections between itself and one or more clients through port 80 in a firewall, the standard HTTP port.

It is also DMZ-compatible. The web server can exist between one outward facing firewall and one inward facing firewall. In this configuration, the inner firewall needs to open the SuiteLink port 5413 to access the plant floor I/O Servers on the secure plant floor network.

If SSL is enabled on the node, you must open port 443.

If a remote database server is being used, the SQL TCP port 1433 should be opened.

For more information, see About Wonderware Information Server Data Sources on page 67. Using this technique, you provide the most security to your plant floor SQL Server installations.
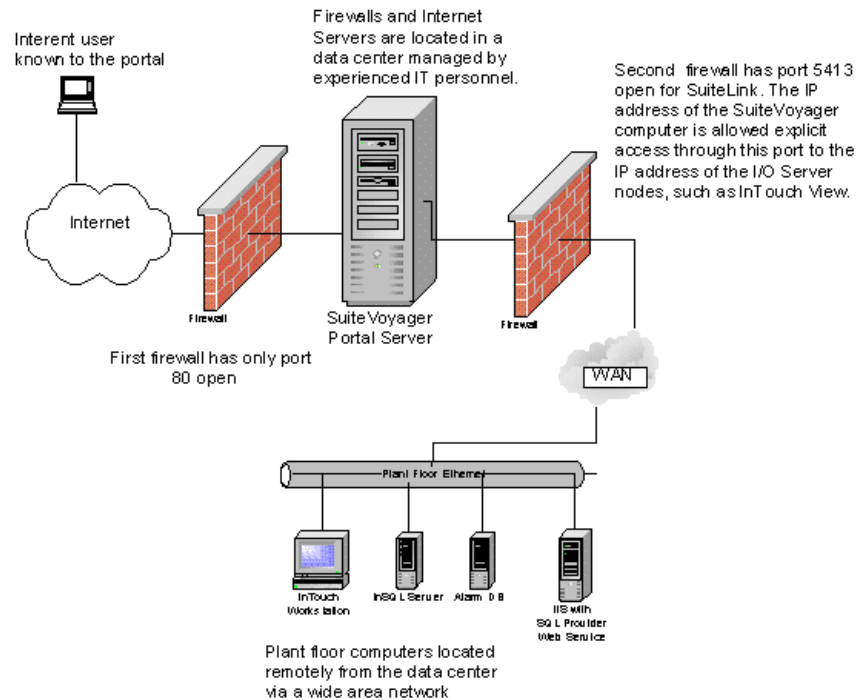
For more information about your organization's firewall, contact your Internet administrator.

Using Proxy Servers

Wonderware Information Server supports most up-to-date proxy servers. In some cases, older proxy servers do not support the SOAP protocol. If the Wonderware Information Server web server resides on the Internet, and if the clients are behind this type of proxy server, failures occur within many of the applications that use XML method calls. Clients in an intranet setting should bypass the proxy server, a typical setting.

Wonderware Information Server is tested successfully with Microsoft proxy servers. If you are using another type of proxy server, you need to either configure the client to bypass the proxy server or have basic authentication enabled. It is recommended that you use SSL in this case. The bypass must be configured on the client computer.

For information on enabling basic authentication, see Types of Access for Internet Information Services on page 51.

To configure Internet Explorer to bypass a proxy server

1   On the **Tools** menu, click **Internet Options**. The **Internet Options** dialog box appears.

2   Click the **Connections** tab.

3   Click **LAN Settings**. The **Local Area Network (LAN) Settings** dialog box appears.
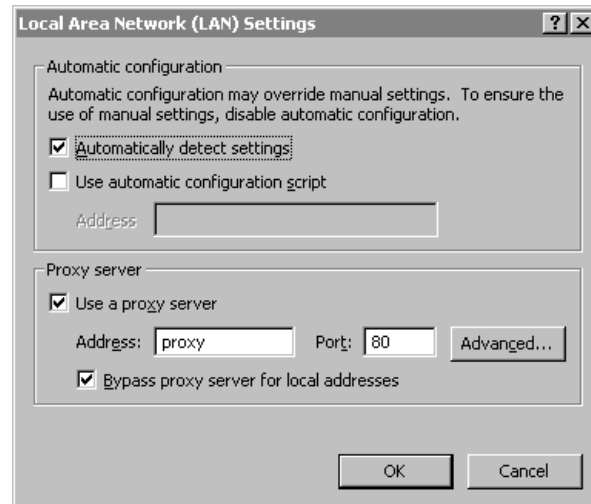
4   Click **Automatically detect settings**.

5   Click **Use a proxy server**.

6   Click **Bypass proxy server for local addresses**.

7 Click **Advanced**. The **Proxy Settings** dialog box appears.
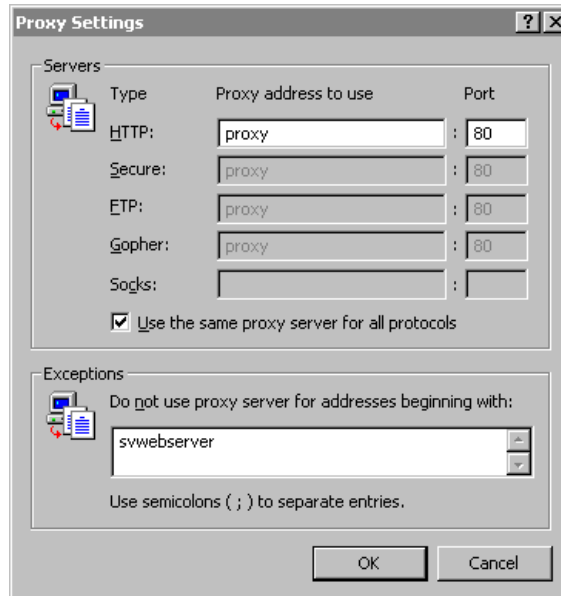
8 In the **Exceptions** window, type the name or URL of the web server computer on which Wonderware Information Server is installed.

9 Click **OK**.

10 Click **OK** to close the **Local Area Network (LAN) Settings** dialog box.

11 Click **OK** to close the **Internet Options** dialog box.

The client now bypasses the proxy server when accessing the Wonderware Information Server.

Giving Users Privileges Via Roles

The Wonderware Information Server administrator can give users privileges to read, write, or configure the Wonderware Information Server by assigning them to a pre-defined security role. Roles are authorization mechanisms used by applications within the site to determine user actions. A user assigned to a particular role inherits the authorization associated with that role, which may have a different context for different applications.

The pre-defined system roles apply to the entire Wonderware Information Server, except for the Reporting Services roles which are managed from the Reporting Services panel. For information on application-specific roles, see Adding a User to a Role on page 60.

The Wonderware Information Server includes the following pre-defined security roles:

Role	Privileges
Administrator	Has access to all information and has full administrative privileges, such as configuring applications and data sources, assigning users to roles, creating access panels, and customizing the site. Can write back values to factory data sources when running browser-based windows.
Engineer	If the **System** access panel has been enabled for all users, users in this role have user-level access to the site, but no administrative capabilities. Otherwise, a user in this role has the access assigned to them by the administrator (via custom access panels) and can write back values to factory data sources when running process graphics.
Read Only User	Has user-level access to the site, but no administrative capabilities. Cannot configure or customize the site, or create objects or MultiViews. Cannot write back values to factory data sources when running process graphics.
No Access User	No access to the Wonderware Information Server. Cannot access the home page, even if authenticated by IIS as a valid Windows domain user. The No Access User role overrides all the other roles. This means that if a user is assigned to both the Administrator role and the No Access role, the user has no access to the Wonderware Information Server.

Wonderware Information Server automatically detects all domain controllers on the network and lists users from each Windows domain. You simply select the users or groups to add to the pre-defined security roles. If you need to add a user to the domain, contact the domain administrator. By default, the Windows user group "Everyone" is automatically added to the Read Only role. You may remove the "Everyone" group and explicitly add users you want to have access to the Wonderware Information Server.

If you do not have a domain controller in the network, the "Everyone" group refers to all local users created on the Wonderware Information Server server computer. To add local users, see the Windows 2003 Server documentation.

Adding a User to a Role

Individual Windows users or groups may be added to each role. Users and groups must exist in the Windows security system, either in a trusted domain or on the local computer. For instructions on creating new Windows users, see your Microsoft documentation.

A single user or group can belong to multiple Wonderware Information Server roles.

To add a user to a role

1   In the **System** access panel, expand **Administration** and then click **User Manager**. The **User Manager** page appears.
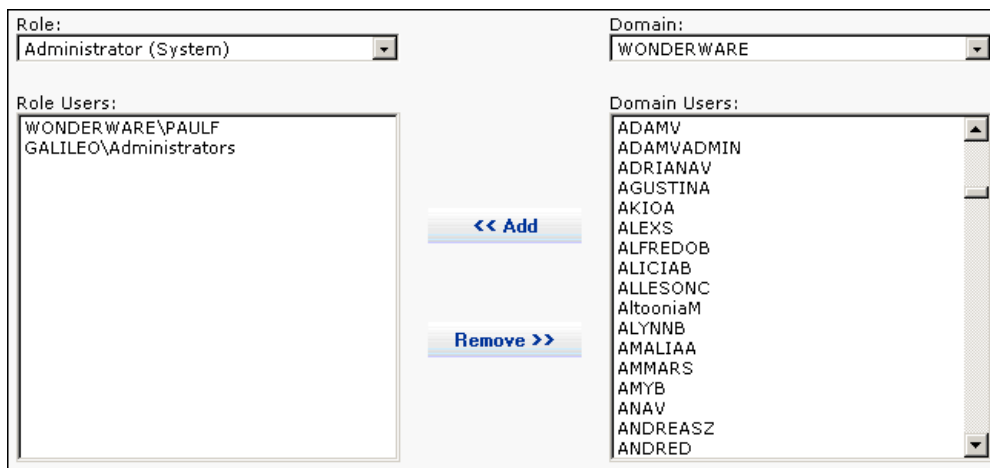
2   In the **Role** list, click the role to which you want to add a user(s). A list of all users who are currently assigned to that role appears in the **Role Users** window.

3   In the **Domain** list, click the domain that contains the user(s) to add. A list of all users in that domain appears in the **Domain Users** window.

4   Select the user or user group you want to add.

5   Click **<< Add** to assign the user to the role.

Removing a User from a Role

Changes to the users access rights do not take effect until the user logs off. To effect changes immediately, you must stop and re-start the Internet Information Services. The exception to this rule is for process graphic windows. The user's security role is checked each time a new window is opened. The user does not need to log off to obtain a new role assignment.

To remove a user from a role

1   In the **System** access panel, expand **Administration** and then click **User Manager**. The **User Manager** page appears.

2   In the **Role** list, click the role to which you want to remove a user(s). A list of all users who are currently assigned to that role appears in the **Role Users** window.

3   Select the user you want to remove.

4   Click **Remove >>**.

Enabling Write-Back Privileges

WARNING! Enabling write-back allows users to change the state of plant-floor devices, with potentially LIFE-THREATENING consequences.

Wonderware Information Server allows you to give users write-back privileges, such as a running WindowViewer application or an I/O Server, when running InTouch browser-based windows. Thus, you can put control of the factory floor onto the Internet. By default, write-back privileges are disabled.
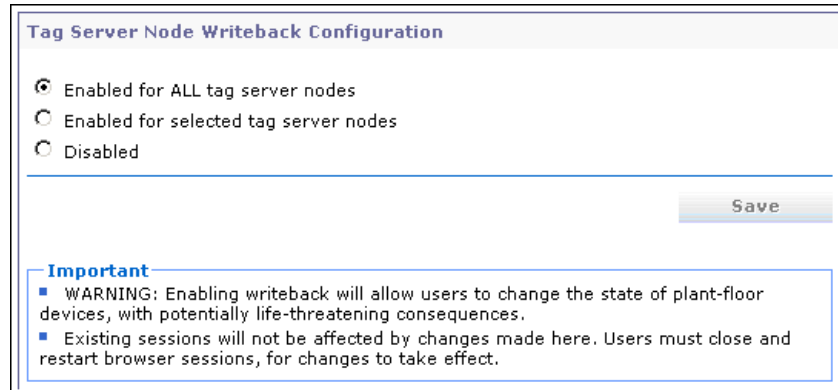
Write-back privileges are only available if the Wonderware Information Server site and the default web site of the web server that supply the data are set to use integrated Windows authentication. You must also have a separate license that gives you write-back capabilities. If you enable write-back, the ability to write is only given to users that are assigned to the Administrator or Engineer roles.

You can enable the writeback privileges for all nodes or just for selected nodes. Know the name of the node (computer name) before you start. Also, verify that you can connect to the node from the Wonderware Information Server.

Existing client sessions are not affected by writeback changes until they are terminated and restarted. The browser must be closed and restarted.

To enable write-back

1   In the **System** access panel, expand **Administration** and then click **License Manager**. The **License Manager** page appears.

2   Click **Tag Server Writeback**. The **Tag Server Node Writeback Configuration** page appears.
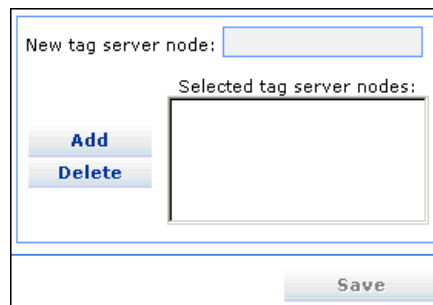
3   To disable writeback for all nodes, click **Disabled**. Then, go to step 8.

4   To enable writeback for all nodes, click **Enable for ALL tag server nodes**. Then, go to step 8.

5   To enable writeback for specific nodes only, select **Enable for selected tag server nodes**. The writeback options appear.

6   To add a node, type the name of the node in the **New tag server node** box and click **Add**.

    The node name is the computer name on which the data source is running. You can also specify the IP address.

7   To remove a node, select the node in the **Selected tag server nodes** window and click **Delete**.

8   Click **Save**. A confirmation dialog box appears.

9   Click **OK**.

Updating the Windows Login for Wonderware Information Server Components

Because Wonderware Information Server is designed to run without anyone logged on locally to the server, its COM+ components must run under the authority of a valid Windows account.

These components use the Windows login that was specified during the Wonderware Information Server installation, obtained from the installing user at the time of the Wonderware Information Server installation. If the password for this account expires, must be changed, or if the login account itself is deleted, then you must set the COM+ package to run under the new identity. For security reasons, this login is not automatically updated.

For Data Source Management a stored user, svSysAdminUser, is provided for linked server management.

For example, in some organizations, Windows passwords are set to automatically expire. Also, you may want to manually change the Windows password from time to time for security purposes.

If the Windows login information has changed, you need to reconfigure it for Wonderware Information Server using the Windows Component Services console.

To reconfigure the login

1   On the Windows **Start** menu, point to **Programs**, point to **Administrative Tools**, and then click **Component Services**. The **Component Services** console appears.
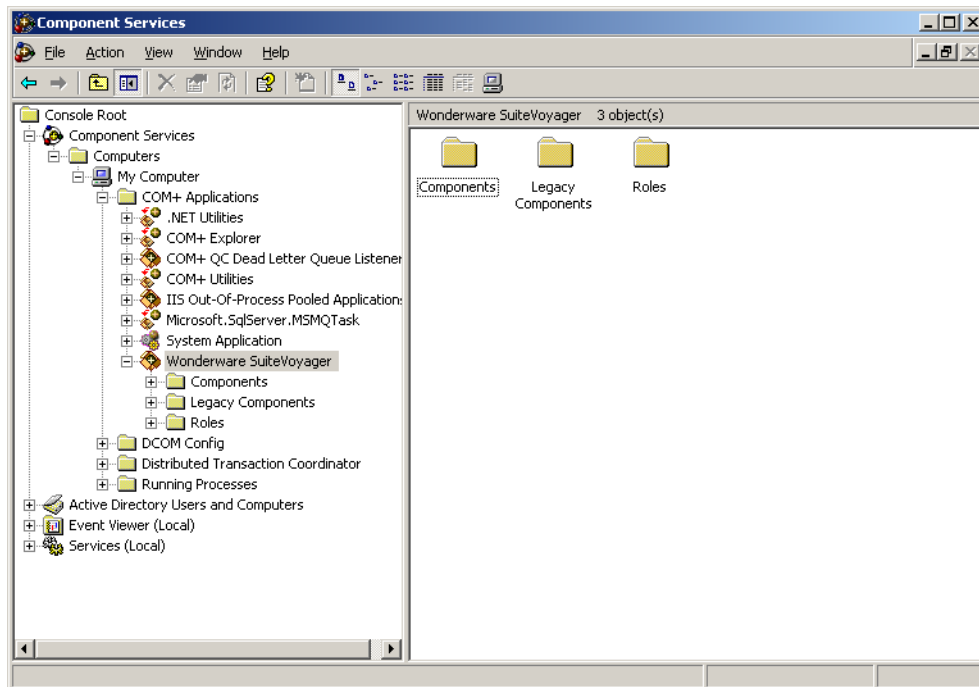
2   Expand **Component Services** and then expand **Computers**.

3   Expand **My Computer**, and then expand **COM+ Applications**.

4   Right-click **Wonderware Wonderware Information Server** and then click **Properties**. The **Wonderware Wonderware Information Server Properties** dialog box appears.

5   Click the **Identity** tab.
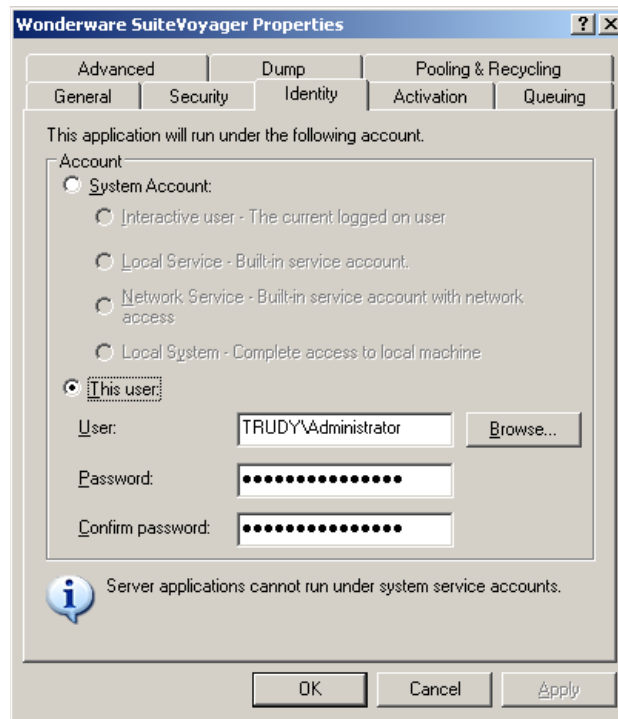
6   In the **Password** and **Confirm Password** boxes, type the updated password.

7   Click **OK**.

For more information, see your Microsoft Windows documentation.

Chapter 5

Configuring Data Sources

Using the **Data Source Manager** area of Wonderware Information Server, you can configure the different data sources used by Wonderware Information Server.

About Wonderware Information Server Data Sources

All external data sources configured for Wonderware Information Server use a common definition and configuration, called a shared data source, regardless of the component accessing the database. Shared data sources are shared by Wonderware Information Server components such as ActiveFactory reports, TableWeaver, Factory Alarms, and ArchestrA reporting. This lets you have a single data source and use it in multiple components.

Adding Data Sources

Shared data sources are named and configured by the administrator and can then be referred to by name within Wonderware Information Server applications. Shared data source names must be unique within a Wonderware Information Server installation.

The Data Source Manager includes five predefined data source types:

- Alarm

- Historian

- Production

- OLEDB

- Other

Each data source type can have multiple named data source instances. However, only one of each data source instance can be defined as the default. The default data source is used by ArchestrA Reporting. For more information on ArchestrA Reporting, see Using ArchestrA Reporting on page 217.

Note The ArchestrA Reporting Services use the default data source for reporting. If the data source used for reporting is not the default, the report fails. Be careful when changing the Default Data Source setting. For more information, see Using ArchestrA Reporting on page 217.

Adding Alarm Data Sources

Wonderware Information Server supports the Distributed Alarm System, from the Wonderware Alarm Manager. Alarms can originate from InTouch or the Industrial Application Server.

To add an alarm data source

1   In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.
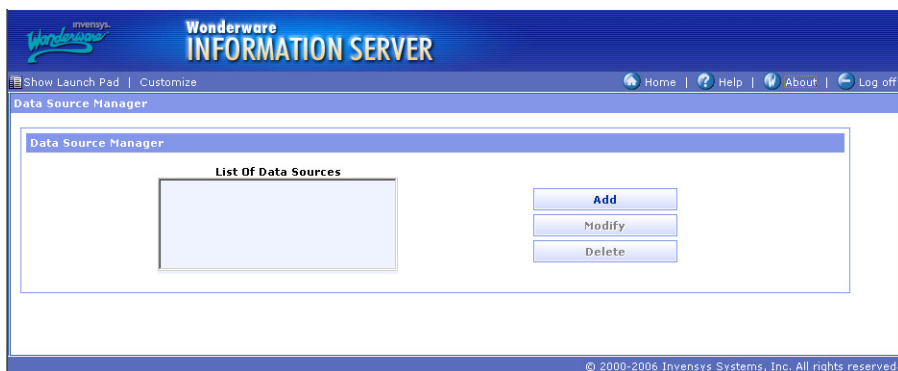
2 Click **Add**. The **Add Shared Data Source Manager** window appears.

3 In the **Data Source Type** drop-down list, select **Alarm**. The **Add New Shared Data Source** window appears.
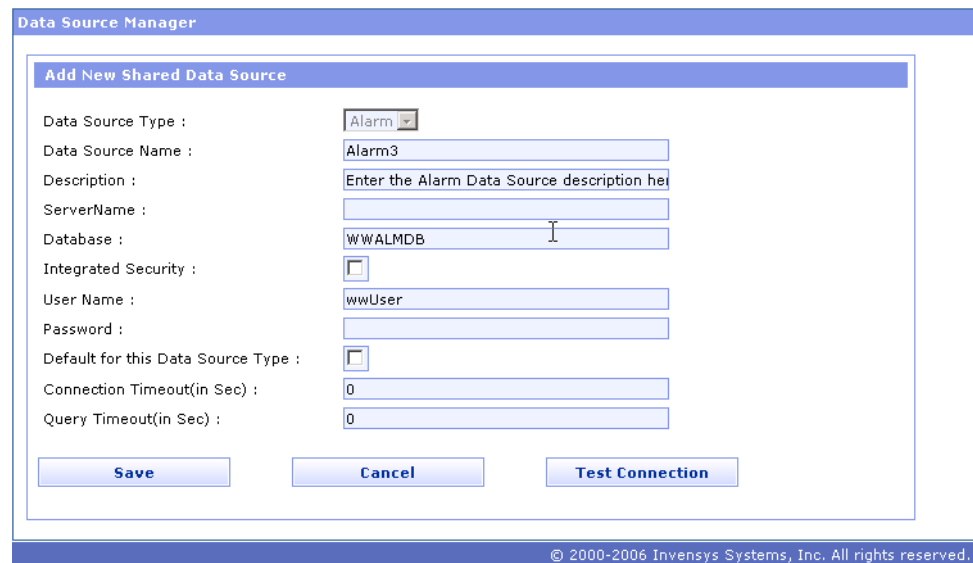
4 Enter information as follows:
- In the **Data Source Name** and **Description** fields, type a unique name identifying the data source and a brief description. The data source name is the name you identify the database with (such as PrimaryAlarms or AlarmsTank 3) but it is not necessarily the actual database name.
- In the **Server** field, type the server name. The server name is not preceded by backslashes.
- In the **Database** field, type the name of the database as it appears on the server.

5 Select one of the following security settings:
- Check the **Integrated Security** box to enable integrated Windows security for the data source.

- Type the SQL User Name and Password to access the database.

6 Check the **Default for this Data Source Type** box to make this data source the default for this data source type. The Default shared data source is the data source used by the ArchestrA Reports component.

7 In the **Connection Timeout(in Sec)** and the **Query Timeout(in Sec)** fields, type values for the connection and query timeouts.

When you have typed the data source information in the window, click **Test Connection**. The test results appear at the bottom of the window. Click **Save** to save the data source and return to the **Data Source Manager** window.

Adding Historian Data Sources

Wonderware Information Server uses the search engine, the tag finder, and the real-time trend to access Historian data. To use these features, you need to add an IndustrialSQL Server as a data provider. These features depend on IndustrialSQL Server for tag definitions and values.

Any tag for which you want to retrieve history data must be defined in the IndustrialSQL Server database.

To add a historian data source

1 In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.
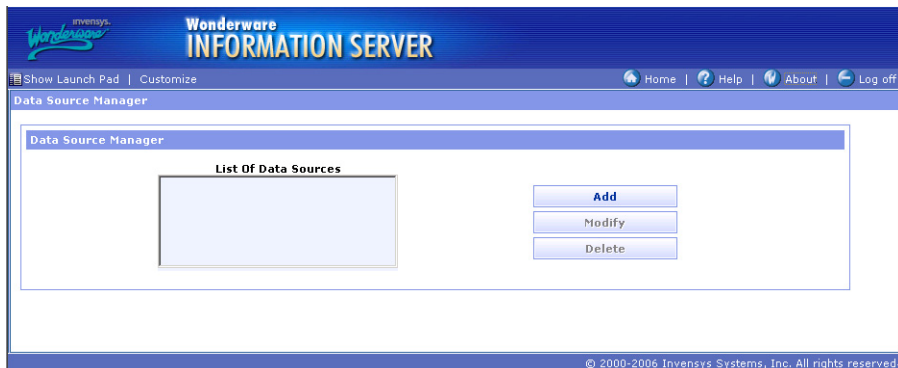
2 Click **Add**. The **Add Shared Data Source Manager** window appears.
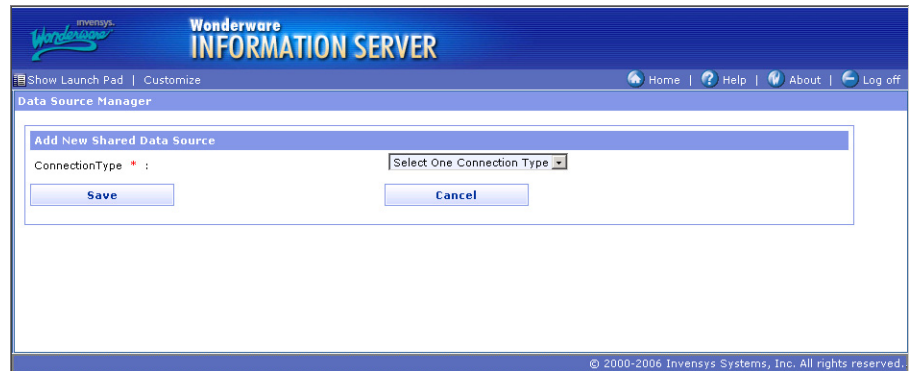
3 In the **Data Source Type** list, click **Alarm**. The **Add New Shared Data Source** window appears.
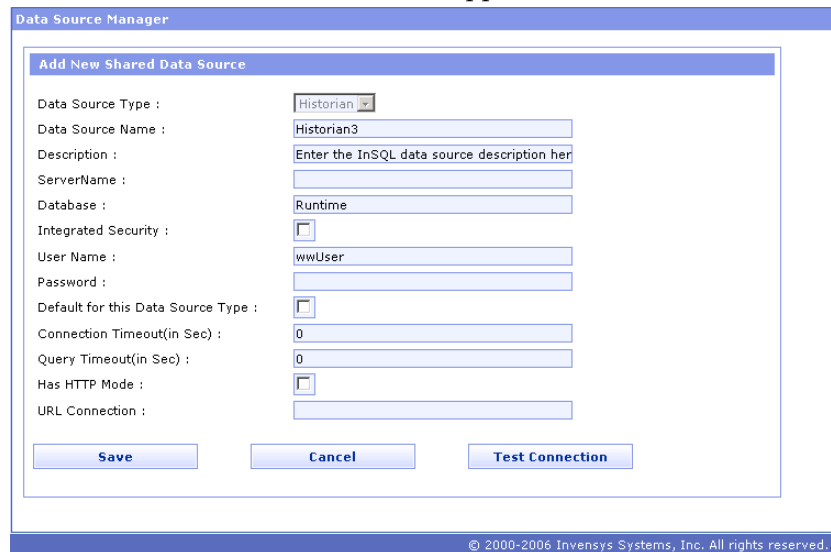
4 Enter information as follows:

- In the **Data Source Name** and Description fields, type a unique name identifying the data source and a brief description. The data source name is the name you identify the database with (such as HistoryMain or InSQL) but it is not necessarily the actual database name.

- In the **Server** field, type the server name. (The server name is not preceded by backslashes.)

- In the **Database** field, type the name of the IndustrialSQL Server Runtime database as it appears on the server.

5 Select one of the following security settings:

- Check the **Integrated Security** box to enable integrated Windows security for the data source.

- Type the SQL User Name and Password to access the database.

6 Check the **Default for this Data Source Type** box to make this data source the default for this data source type.

7 In the **Connection Timeout(in Sec)** and the **Query Timeout(in Sec)** fields, type values for the connection and query timeouts.

8 Check the **HTTP Mode** box if you want to access the database with HTTP. Enter the associated URL in the **URL Connection** field.

After you type the data source information in the window, click **Test Connection**. The test results appear at the bottom of the window. Click **Save** to save the data source and return to the **Data Source Manager** window.

If you are using the ActiveFactory Web reporting feature, you must set the connection timeout for the data source to some other value than 0 (the default) so that Internet Explorer doesn't time out when Wonderware Information Server tries to connect to the IndustrialSQL Server database.

Using HTTP mode

You must also install SQLXML to provide access to the IndustrialSQL Server database from the Wonderware Information Server client computer. The SQLXML software is not automatically installed as part of the Wonderware Information Server installation process. Install it from the Wonderware Information Server installation CD.

After installing SQLXML on the IndustrialSQL Server computer, modify the data source in Wonderware Information Server to enable HTTP mode and set the URL to the IndustrialSQL Server database. The URL must accessible from the client computer. For example, if the client computer can only access the IndustrialSQL Server computer through the IP address, specify the URL as http:// <IP Address>/Virtual_folder_on_InSql.

Adding Production Data Sources

Production data sources are InTrack or InBatch databases. You can have one or more production data sources, depending on your system configuration.

To add a production data source

1   In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.

2   Click **Add**. The **Add Shared Data Source Manager** window appears.
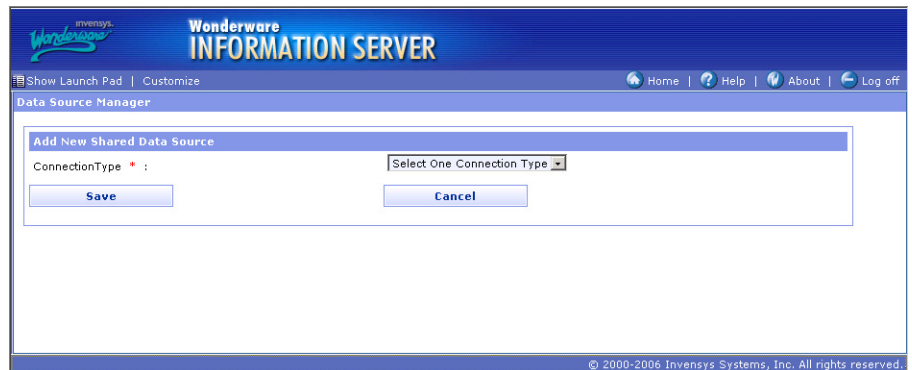
3 In the **Data Source Type** list, select **Production**. The **Add New Shared Data Source** window appears.

4 Enter information as follows:
- In the **Data Source Name** and **Description** fields, type a unique name identifying the data source and a brief description. The data source name is the name you identify the database with (such as ProductionFloor or AssemblyTrack 1) but it is not necessarily the actual database name.
- In the **Server** field, type the server name. The server name is not preceded by backslashes.
- In the **Database** field, type the name of the database as it appears on the server.

5 Select one of the following security settings:
- Check the **Integrated Security** box to enable integrated Windows security for the data source.
- Type the SQL User Name and Password to access the database.

6 Check the **Default for this Data Source Type** box to make this data source the default for this data source type.

7 In the **Connection Timeout(in Sec)** and the **Query Timeout(in Sec)** fields, type values for the connection and query timeouts.

After you configure the data source information, click **Test Connection**. The test results appear at the bottom of the window. Click **Save** to save the data source and return to the **Data Source Manager** window.

Adding OLEDB Data Sources

OLEDB data sources are used for setting up data sources using OLEDB compatible databases.

To add an OLEDB data source

1 In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.

2 Click **Add**. The **Add Shared Data Source Manager** window appears.
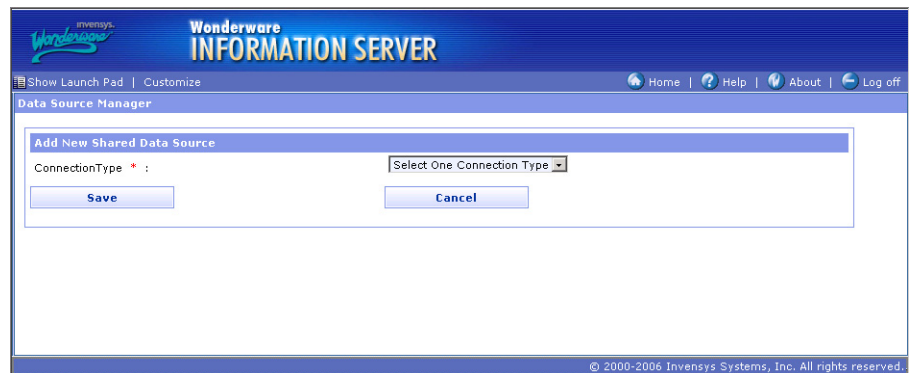
3 In the **Data Source Type** list, select **OLEDB**. The **Add New Shared Data Source** window appears.

4   Enter information as follows:

- In the **Data Source Name** fields, type a unique name identifying the data source. The data source name is the name you identify the database with (such as LabMain or OracleMaintenance) but it is not necessarily the actual database name.

- In the **User Name** and **Password** fields, type the user name and password to access the database.

- In the **Connection String** field, type a connection string for the database.

5   After you type the data source information in the window, click **Test Connection**. The test results appear at the bottom of the window.

6   Click **Save** to save the data source and return to the **Data Source Manager** window.

OLE DB Database Connection String Examples

You can connect to various OLE DB providers such as Oracle, standard SQL Server, and Access.

Connect to the Microsoft OLE DB provider for Oracle

```
Provider=msdaora;Data Source=MyOracleDB;User
   Id=myUsername;Password=myPassword;
```

Connect to the Oracle OLE DB provider

```
Provider=OraOLEDB.Oracle;Data Source=MyOracleDB;User
   Id=myUsername;Password=myPassword;
```

Connect to the SQL Server OLE DB provider

```
Provider=sqloledb;Data Source=myServerAddress;Initial
   Catalog=myDataBase;User
   Id=myUsername;Password=myPassword;
```

Connect to the Microsoft Access OLE DB provider

```
Provider=Microsoft.Jet.OLEDB.4.0;Data
   Source=C:\mydatabase.mdb;User Id=admin;Password=;
```

Adding Other Data Sources

Other data sources are any Microsoft SQL databases.

To add an other data source

1 In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.
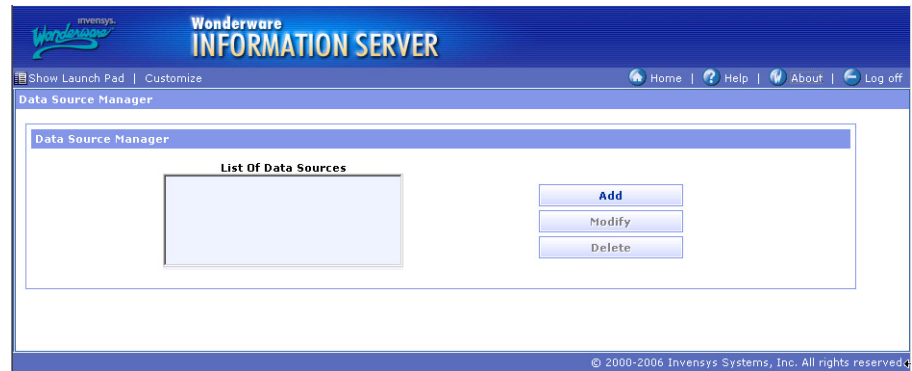
2 Click **Add**. The **Add Shared Data Source Manager** window appears.
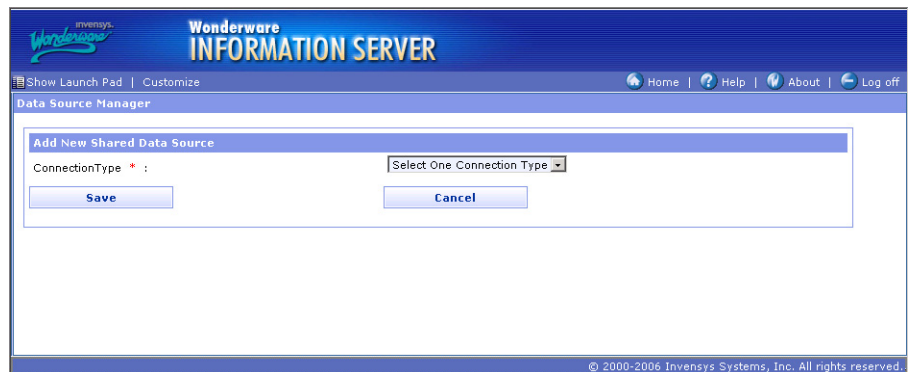
3   In the **Data Source Type** list, select, select **Other**. The **Add New Shared Data Source** window appears.

Data Source Manager

Add New Shared Data Source

Data Source Type :	Other
Data Source Name :	Other3
Description :	
ServerName :	
Database :	
Integrated Security :	☐
User Name :	
Password :	
Default for this Data Source Type :	☑
Connection Timeout(in Sec) :	
Query Timeout(in Sec) :	

[**Save**]   [**Cancel**]   [**Test Connection**]

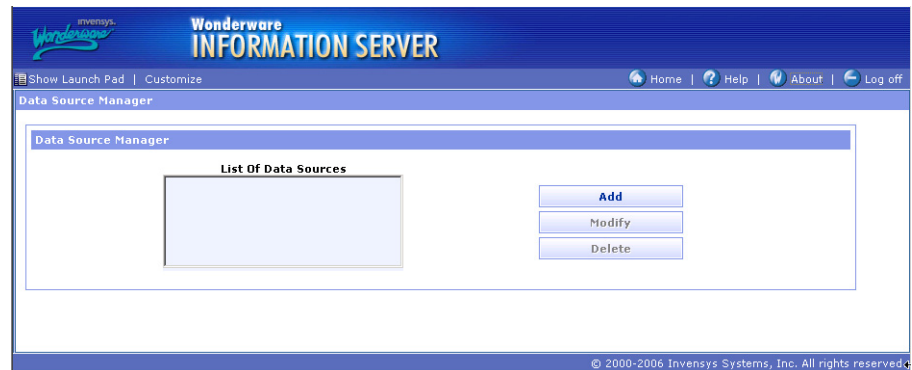© 2000-2006 Invensys Systems, Inc. All rights reserved.

4   Enter information as follows:

- In the **Data Source Name** and **Description** fields, type a unique name identifying the data source and a brief description. The data source name is the name you identify the database with, such as ProductionFloor or AssemblyTrack 1, but it is not necessarily the actual database name.

- In the **Server** field, type the server name. (The server name is not preceded by backslashes.)

- In the **Database** field, type the name of the database as it appears on the server.

5   Select one of the following security settings:

- Check the **Integrated Security** box to enable integrated Windows security for the data source.

- Type the SQL User Name and Password to access the database.

6   Check the **Default for this Data Source Type** box to make this data source the default for this data source type.

7   In the **Connection Timeout(in Sec)** and the **Query Timeout(in Sec)** fieldfields, type values for the connection and query timeouts.

After you type the data source information in the window, click **Test Connection**. The test results appear at the bottom of the window. Click **Save** to save the data source and return to the **Data Source Manager** window.

Editing Data Sources

Data sources may need to be edited to update information.
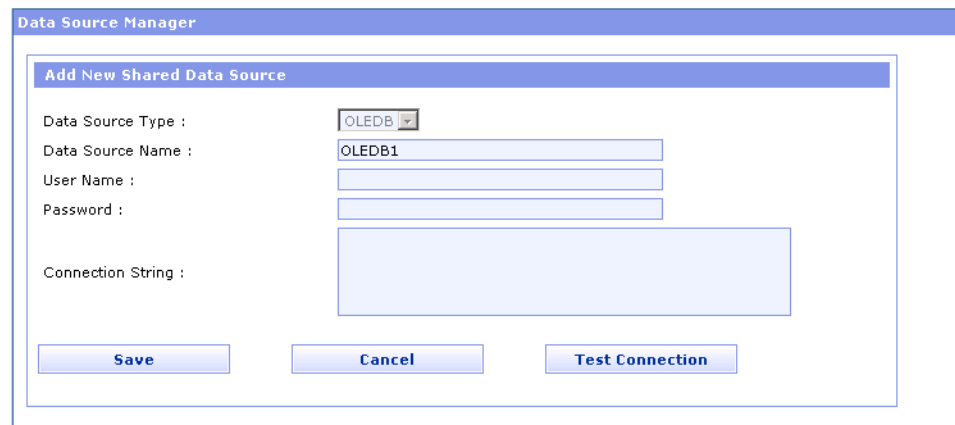
To edit data source information

1 In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.

2 Click the name of the data source you want to modify. The information for the data source appears at the bottom of the **Data Source Manager** window.
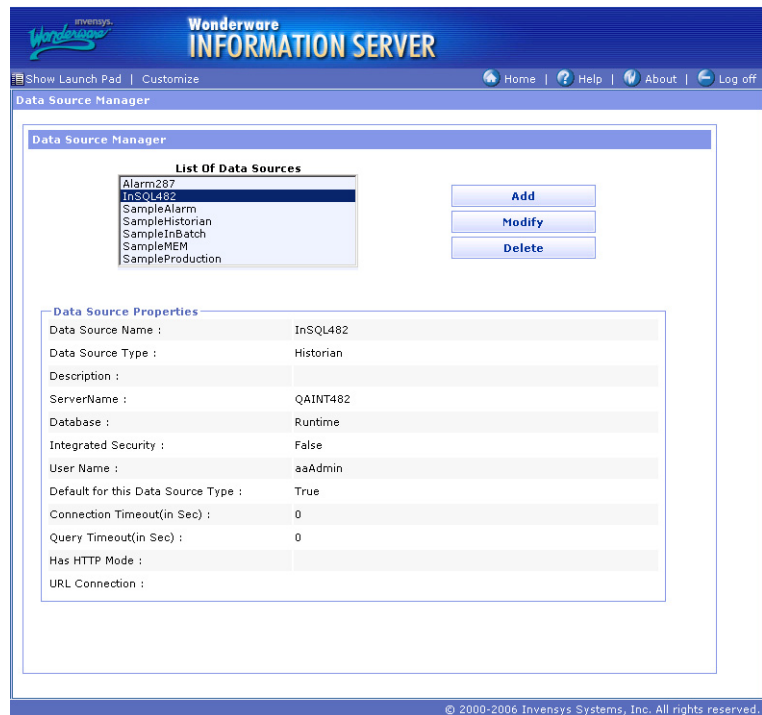
3 Click **Modify**. The **Modify Shared Data Source** window appears. This window is the same as the **Add New Shared Data Source** window for that data type.

4 Change the information as needed.

After you type the data source information in the window, click **Test Connection**. The test results appear at the bottom of the window.

5 Click **Save** to save the data source and return to the **Data Source Manager** window.

Deleting Data Sources

Outdated or unused data sources can be deleted. Deleting the entry for a data source in Wonderware Information Server only deletes the data source information; it does not delete the data source itself.

To delete a data source

1 In the **System** access panel, expand **Administration** and then click **Data Source Manager**. The **Data Source Manager** window appears.

2 Click the name of the data source you want to delete. The information for the data source appears at the bottom of the **Data Source Manager** window.
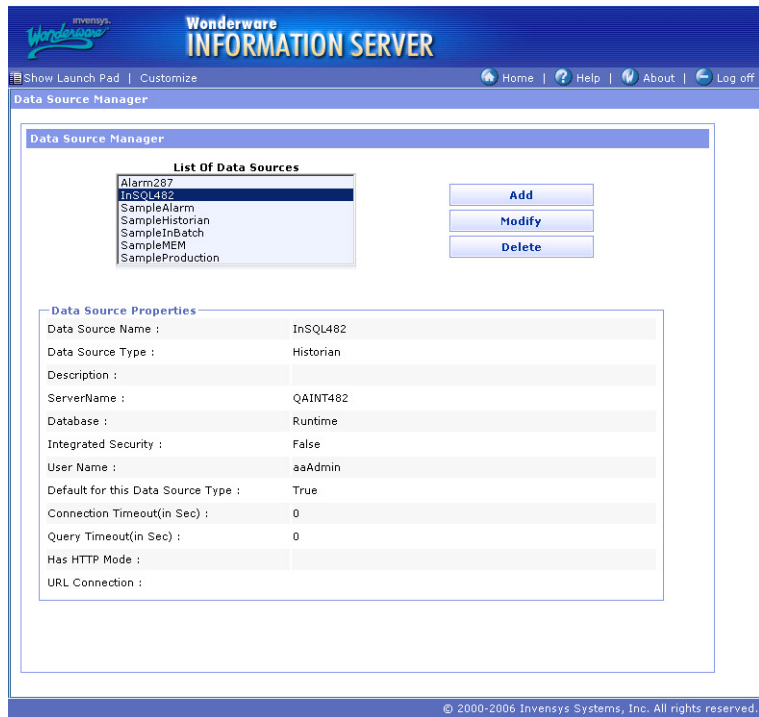
3 Click **Delete**. Confirm the deletion.

Chapter 6

Configuring Factory Alarms

Factory alarms let you browse your plant alarm systems, either by querying the live alarm systems from the alarm providers or the alarm history databases.

Configuring Factory Alarms

Wonderware Information Server supports both current and historical alarms from configured alarm data sources.

To configure factory alarms

1   In the **System** access panel, expand Administration and then click **Factory Alarm Manager**. The Factory Alarm Manager page appears.
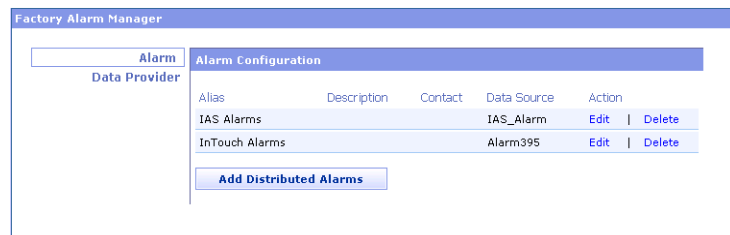
2 Click **Add Distributed Alarms**. The alarm configuration page appears.

3 Enter information in the fields as follows:

Alias – Displayed name in the Factory Alarms Node.

Data Source – Select an alarm shared data source. This is the connection to your alarm history database. For more information on configuring an alarm shared data source, see Chapter 5, Configuring Data Sources.

Distributed Alarm Query - The query string used to retrieve the current alarm records from the alarm provider. The Distributed Alarm Query can also be used as a filter. When a user chooses to see alarms for this provider, he/she only sees the alarms from the alarm groups specified in this query. You can add as many providers as required, but you must separate each query with a comma.

The syntax is:

\\<Server Name>\<Alarm Provider>!<Alarm Group>

For example:

\\MyServer\intouch!$system

Or

\\MyServer\Galaxy!Area_001

4 Click **Add**.

> **Note** If you are working in http: mode and you want to switch your alarms to https: mode, open the Data Provider page and change the URL in the **WSDL** field from http: to https:, then click **Save**.

Chapter 7

Configuring Access Panels

An access panel is a logical grouping of navigation nodes (folders) and links that is only accessible to particular users assigned to it. Access panels allow you to segregate objects (for example, converted InTouch windows, alarm displays, and history reports) into groups of related information.

Each access panel can be configured to allow access by specific Windows users and user groups (for example, plant maintenance personnel, operators, or managers), so that each user or group sees only the objects that are pertinent to their area of the plant or their user group.

For example, an Operators access panel shows InTouch graphics for a particular portion of the plant floor to just the plant operators assigned to that panel. A Maintenance access panel shows only historical trends of plant equipment tags to plant maintenance personnel.

An access panel is accessible via a wide button-like tab that appears in the Launch Pad. By default, Wonderware Information Server includes a **System** access panel. You can add additional access panels and populate them with nodes and links from the **System** access panel and include additional customized links. By creating these additional access panels and dropping relevant application and custom links nodes into them, you can easily establish access panels for different limited access groups of users throughout the company.

Each access panel consists of three parts: a display name, a navigation tree, and a user access list.

About the System Access Panel

By default, Wonderware Information Server includes the **System** access panel. The **System** access panel shows all of the configuration and application folders and links that are available on the web site. The **System** access panel can be visible to all users or just to administrators, but the links within it to administration functions are only accessible to users assigned to the Administrators security role. Because administrators have access to everything in the web site, the entire hierarchy of configured folders and links are visible to them within the **System** access panel.

This access panel can be considered the "master" list of folders and links. The organization of the folders and links in the **System** access panel is fixed, except for the links pertaining to the applications installed on the Wonderware Information Server.

System access panel tab
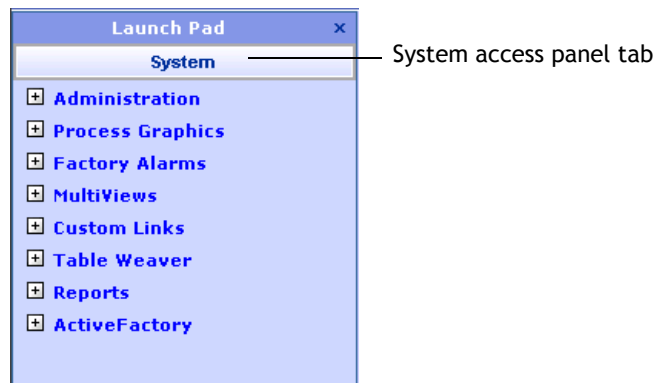
About Custom Access Panels

Custom access panels cannot contain nodes from under the main administration node in the **System** access panel, but may contain administrative nodes from other applications.

All role assignments still apply within the custom access panels. That is, even if a user has access to a particular access panel, he or she may not be able to see all of the navigation tree nodes within the access panel if those particular nodes require a certain role access that the user is not in.

Each access panel contains one navigation tree, which consists of a hierarchy of nodes pertaining to links and web site objects. However, all other access panels can have any number or arrangement of custom nodes and links. For example:
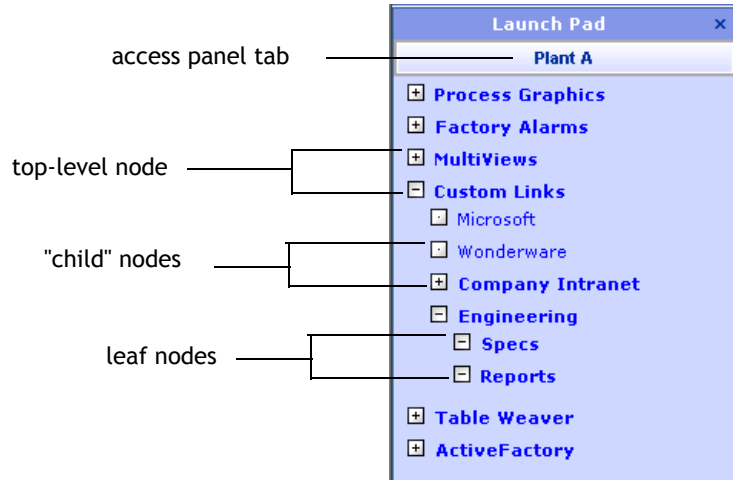
Creating a Custom Access Panel

Theoretically there is no limit to the number of custom access panels you can create. However, it is highly recommended that you not give any one user access to more than four panels, for performance reasons.

Note If you are working in http: mode and then switch to https: mode, items added to the panel that have been defined to use http: protocol will no longer work. To fix these broken links, someone with administrator privileges must delete the items from the panel and then re-add them so that they have the https: protocol.

To create a custom access panel

1 In the **System** access panel, expand **Administration** and then click **Panel Manager**. The **Panel Manager** page appears.
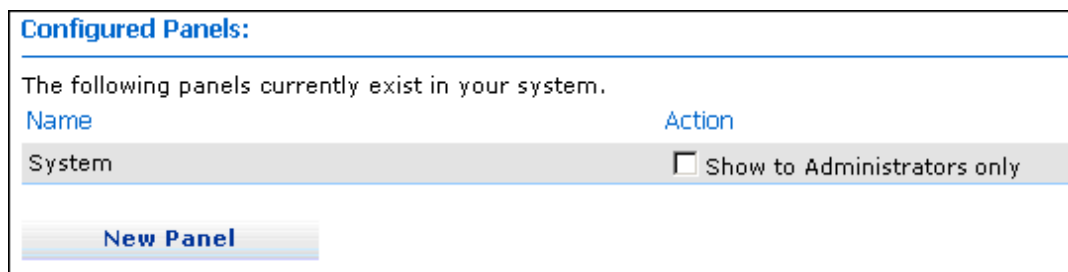
2   Click **New Panel**. In the box that appears, type the access
    panel name that will appear on the tab (button) in the
    Launch Pad.

3   Press **Enter** on your keyboard. The new access panel
    appears in the list.

4   Go to Configuring the Navigation Tree for a Custom
    Access Panel on page 88.

Configuring the Navigation Tree for a Custom Access Panel

You must have already created a custom access panel to
configure the navigation tree for it.

To configure the navigation tree

1   In the **Panel Manager** page, locate the panel for which you
    want to configure the navigation tree.

2   Click **Edit** in the **Action** column. The **Panel Content** page
    appears.

Panel Content

To add a link to the panel, drag and drop a node from the System Panel onto a node in the working panel. To create a
folder in the panel, right click on node in the working panel, select the Add Folder option, enter the folder name and select
the Ok button. To delete a node from the panel, right click on the node to be deleted in the Work Panel, select the Delete
option, and then select the Ok button to confirm the delete.

System Panel	Plant A
⊞ **Process Graphics**	⊞ **ROOT**
⊞ **Factory Alarms**	
⊞ **MultiViews**	
⊞ **Custom Links**	
⊞ **Table Weaver**	
⊞ **ActiveFactory**	

Save Panel Content   **Cancel**

Note The **System** access panel cannot be edited.

3   Drag the desired navigation node(s) from the **System** access panel node to the node in the user access panel that you want it to appear under.
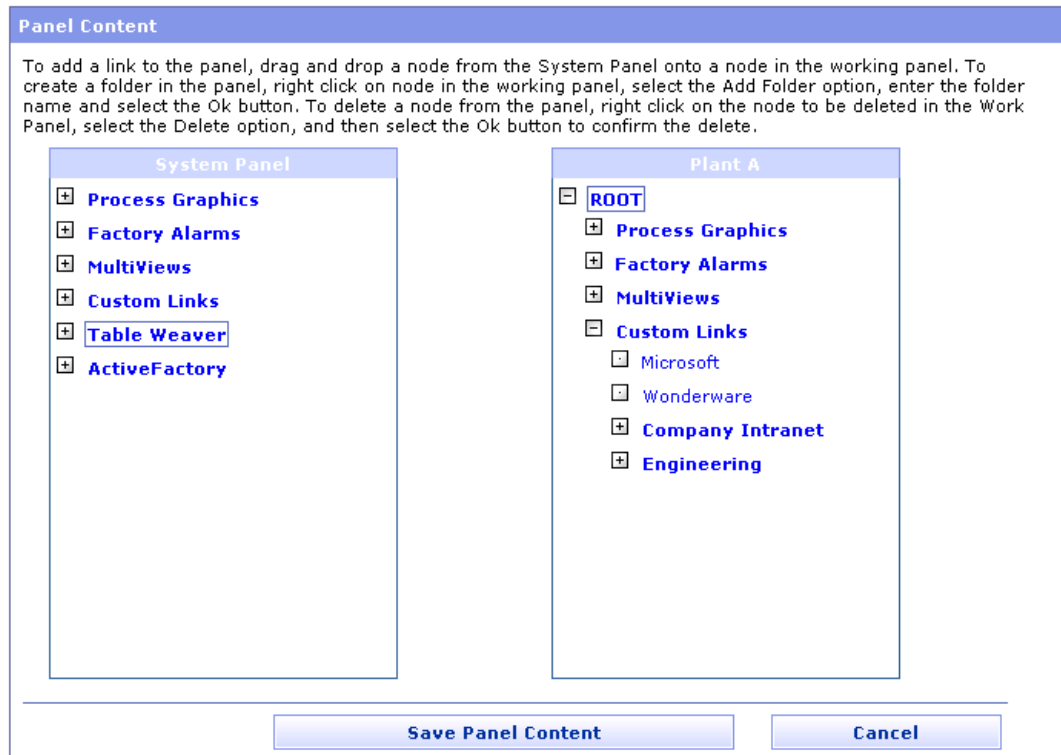
4   To create a new folder (also called a "node") in the user access panel, right-click a folder in the tree and click **Add Folder**. In the dialog box that appears, type a name for the folder and click **OK**.

5   To delete a folder, right-click the folder to delete and click **Delete**. This also deletes all folders under it.

6   When you are done configuring the tree, click **Save Panel Content**.

7   Go to Configuring User Access for a Custom Access Panel on page 90.

Configuring User Access for a Custom Access Panel

It is highly recommended that you not give any one user access to more than four panels, for performance reasons.

To configure user access for a panel

1 If you are not already in the **Panel Manager** for a specific custom access panel, in Launch Pad, click **Panel Manager**. In the list of configured access panels, locate the name of the panel for which you want to configure access, and then click **Edit** in the **Action** column.

2 In the **Panel Manager** page, click **Users**. The **Panel User Access** page appears.

3 In the **Domain** list, click the domain that contains the user(s) or Windows security group(s) to add. A list of all users in that domain appears in the **Domain Users** window.

4 Select the user(s) or group(s) you want to give access.

5 Click **Add** to grant access to the panel.

Renaming a Custom Access Panel

To rename an access panel

1   In the **System** access panel, expand **Administration** and then click **Panel Manager**. The **Panel Manager** page appears.

2   In the list of configured panels, locate the access panel to rename and then click **Rename** in the **Action** column.

3   In the box that appears, type the new name for the access panel.

4   Press **Enter** on your keyboard.

Deleting a Custom Access Panel

Panel navigation trees are made up of custom folders, logical references to **System** access panel nodes, or copies of dynamically created **System** access panel nodes, so deleting a panel does not delete any application nodes, static or dynamic, in the **System** access panel.

To delete an access panel

1   In the **System** access panel, expand **Administration** and then click **Panel Manager**. The **Panel Manager** page appears.

2   In the list of configured panels, locate the access panel to delete and then click **Delete** in the **Action** column.

Hiding the System Access Panel from Non-Administrators

You can configure the **System** access panel so that it is hidden from all users except for those who are members of the **Administrators** security role. If you do not hide the **System** access panel, any user can click an administration link, only to see a message that he/she has no access.

If you have hidden the **System** access panel, non-administrative users can only see the administrative pages if they have been granted access through a custom access panel, which you must create.

To hide the System access panel

1   In the **System** access panel, expand **Administration** and then click **Panel Manager**. The **Panel Manager** page appears.

2   For the **System** access panel, click to select **Show to administrator only**.

Chapter 8

Configuring MultiViews

Using the Wonderware Information Server **MultiView Manager**, you can use pre-configured web components, called Web Parts, to quickly and easily assemble custom information panes called MultiViews.

When you create a MultiView, you first set options pertaining to how the MultiView appears in the browser window, then add the Web Parts for the MultiView to display.

Note To use MultiView Manager, Microsoft SharePoint Services must be installed on the Wonderware Information Server node.

About MultiViews and Web Parts

MultiViews are collections of Web Parts arranged in a specific layout. You can use the MultiView Manager to generate MultiViews similar to the MultiViews created by previous versions of Wonderware Information Server.

Web Parts can be created by Wonderware features, such as Process Graphics or Alarm Windows. You can also use native Microsoft Web Parts, and third party Web Parts.

Using the MultiView Manager

You can use the MultiView Manager to:

- Create a new Multiview.

- Edit or delete a MultiView.

- Import a MultiView created with a previous version of Wonderware Information Server.

When you create a MultiView, Web Parts appear in different locations called zones. The zones are assigned automatically by the import process. You can move the Web Parts and change their properties using the MultiView Manager edit feature.

When you create a MultiView, you first set options pertaining to how the MultiView appears in the browser window, then add the Web Parts for the MultiView to display.

To create a new MultiView

1   Expand the Administration pane.

2   Click **MultiView Manager**. The MultiView Manager appears in the right pane of the browser window.

3   Click the **New MultiView** button. The **Settings for "New MultiView"** pane appears.

Type a name for your MultiView in the **MultiView Name** field.

4   Select a layout template from the **Layout Template** list. On the right side you can see an animated preview of the selected layout. You can select the following layouts:

• Full Page, Vertical

• Header, Left Column, Body

• Header, Right Column, Body

• Header, Footer, 3 Columns

- Header, Footer, 2 Columns, 4 Rows
- Header, Footer, 4 Columns, Top Row
- Left Column, Header, Footer, Top Row, 3 Columns
- Right Column, Header, Footer, Top Row, 3 Columns

5   Configure the MultiView to refresh automatically by selecting **Yes** on the **Refresh automatically** option.

- Type the number of seconds in the text field.

6   Add Web Parts by selecting from one of the Galleries listed in the **Add Web Parts** pane.

Web Parts include

- InTouch Windows
- Alarms
- Table Weaver Content

When you select an option, the corresponding features are configured in Wonderware Information Server.

The **Web Part List** shows the Web Parts contained in the selected gallery. These can be:

- Names of the Windows contained in Process Graphics
- Historic or Current Alarms from the Distributed Alarm Database
- Samples from Table Weaver

To import web parts into a selected gallery, click the **Browse** arrow, locate the Web Part, then click the **Import** button.

7   Click **Save** to save a MultiView and its Web Parts.

The new MultiView appears in the **Available MultiView Windows** list.

You can edit or delete it by clicking on the **Edit** or **Delete** action links next to the MultiView.

Editing a MultiView

You can add, change, or delete the Web Parts in a Multiview. Web Parts are stored in galleries which are collections of Web Parts that are grouped together. For example, all of the Web Parts in a gallery may relate to a specific function or be published by a particular company.

The MultiView Manager lets you:

- Rearrange Web Parts within the layout.
- Add Wonderware Web Parts to the MultiView.
- Delete Web Parts from the MultiView.
- Change Web Part Properties.
- Change MultiView Properties, such as Title, Description, Dimensions, Frame style, Visibility, Orientation, Order, Icons and so on.
- Export a Web Part from a MultiView.

To edit a MultiView

1 Expand the **Administration** pane.
2 Click **MultiView Manager**. The MultiView Manager appears in the right pane of the browser window.
3 Select the MultiView you want to change and click **Edit**. The MultiView Manager pane opens.

    Use the MultiView Editor to do any of the following tasks.

To rearrange Web Parts within a MultiView

1 Open the MultiView for editing.
2 Select the Web Part you want to move and click its title bar.
3 Drag the Web Part to the new destination zone.

Note You can drag a Web Part to a zone that already contains another Web Part. In that case, both Web Parts are arranged horizontally or vertically in the same zone.

To add Wonderware Web Parts to a MultiView

1 Open the MultiView Manager for editing.
2 In the **Tool** area, select **Virtual Server Gallery**.
3 Drag the **SuiteVoyager Content Viewer** Web Part to the destination zone.
4 Click the arrow down icon of the Web Part and select **Modify Shared Web Part**.

5   Select a Category from the **Content ToolPart** section. The Categories are **Intouch Windows**, **Alarm**s, or **Table Weaver Content**. The **Items** list in each category shows the available Web Parts.

6   Select a Web Part from the **Items** list.

7   Click **OK**. The selected Web Part appears in the layout.

To delete a Web Part from a MultiView

1   Open the MultiView you want to edit.

2   Locate the Web Part you want to delete.

3   Click the arrow down icon on the **Web Part** title bar.

4   Select **Delete** from the menu.

5   Click **OK** when you are prompted to remove the Web Part from the layout.

To change Web Part Properties

1   Open the MultiView for editing.

2   Locate the Web Part for which you want to change the properties.

3   Click the down arrow in the title bar and click **Modify Shared Web Part**.

4   In the **ToolPart** section, expand any of these main headings

   •   Appearance

   •   Layout

   •   Advanced

5   Make the changes to the property. You can change the following properties:

   Appearance

   •   **Title**: Specifies the title of the Web Part shown in the Web Part title bar.

   •   **Height**: Specifies the height of the Web Part.

   •   **Width**: Specifies the width of the Web Part.

   •   **Frame State**: Specifies whether the Web Part appears minimized as a title bar, or shows the full contents.

   •   **Frame Style**: Specifies the frame style of the Web Part (Default, None, Title Bar and Border, Title Bar Only).

   Layout

   •   **Visible on Page**: Specifies to show or hide the Web Part.

- **Direction**: Specifies the alignment of the content in the Web Part (Default, Left to Right, Right to Left).
- **Zone**: Specifies the zone on the Web Part Page where the Web Part is located. Changing this setting is the same as dragging-dropping the Web Part into a different Zone.
- **Part Order**: Specifies the position of the Web Part in a zone when the zone contains more than one Web Part. Every Web Part within a zone must have a unique Part Order.

Advanced

- **Allow Minimize**: Specifies whether or not the Web Part can be minimized.
- **Allow Close**: Specifies whether or not the Web Part can be removed from the Web Part Page.
- **Allow Zone Change**: Specifies whether or not the Web Part can be moved to a different zone.
- **Allow Export Sensitive**: Controls whether Web Part personal view property changes can be exported to a Web Part description file (.dwp).
- **Description**: Specifies the URL of a file containing additional information about the Web Part.
- **Help Link**: Specifies the location of a file containing help information about the Web Part
- **Icon File (Large)**: Specifies the location of a file containing a large Web Part icon. A large icon is 32 x 32 pixels.
- **Icon File (Small)**: Specifies the location of a file containing a small Web Part icon. A small icon is 16 x 16 pixels.
- **Missing Assembly Error**: Specifies a message that appears if the Web Part assembly file is missing or incorrect.

6   Click **OK**.

To export a Web Part from a MultiView

1   Open the MultiView for editing.

2   Locate the Web Part to export, click the down arrow and select **Export** from the menu. The **File Download** dialog box appears.

3   Click **Save**. The **Save As** dialog appears.

4   Specify the location where you want to save the Web Part.

5   Click **Save**. A Web Part description file (.dwp) is created.

6   Click **Close** when the **Download Complete** dialog box appears.

Importing a MultiView

You can import MultiViews from SuiteVoyager 2.5 only. SuiteVoyager MultiView files targeted for import must be in `.ddb` format. In addition, Sub-MultiViews and Content Web Parts are ignored in imported MultiViews.

Caution If there is a name conflict with an existing Multiview, the imported MultiView file overwrites the existing MultiView file.

To import a MultiView

1   Open the MultiView Manager from the Administration section.

2   Click **Import MultiView**. The **Import** panel appears.

3   Click the **Browse** button to select a MultiView, or type the location of the MultiView in the text field.

4   Click **Import**. The MultiView appears in the MultiView Manager.

Using Wonderware Information Server Web Parts in Windows SharePoint

You can use Wonderware Information Server Web Parts directly in Windows SharePoint, without using the MultiView Manager and Editor.

You can create customized web pages with Windows SharePoint that include Wonderware Information Server Content. Wonderware Information Server provides three web parts for use in Windows SharePoint.

•   **Content Viewer**: Displays Process Views, Factory Alarms, and Table Weaver Content.

- **InTouch**: For Process Views that have Industrial Application Server References. Use this web part to allow configuring or real-time Application Object Reference switching through web part connections. This web part uses InTouch applications that have been published to Wonderware Information Server.

- **Trend**: Displays ActiveFactory Trends, and published trends. You can also configure a trend. The Trend web part allows real-time switching of published trends or configuring the trend through web part connections.

Note The Wonderware Information Server Web Parts provide the standard SharePoint Web part Appearance, Layout, and Advanced options for configuration. For more Information see To Change Web part properties in the Multiview Editor.

To add Wonderware Information Server Web Parts to Windows SharePoint web pages

1 Open Internet Explorer and type the URL for your configured Windows SharePoint Site.

2 Click **Modify Shared Page** in the top-right corner and select **Add Web Parts**, then **Browse**. The **Add Web Parts** pane appears on the right.
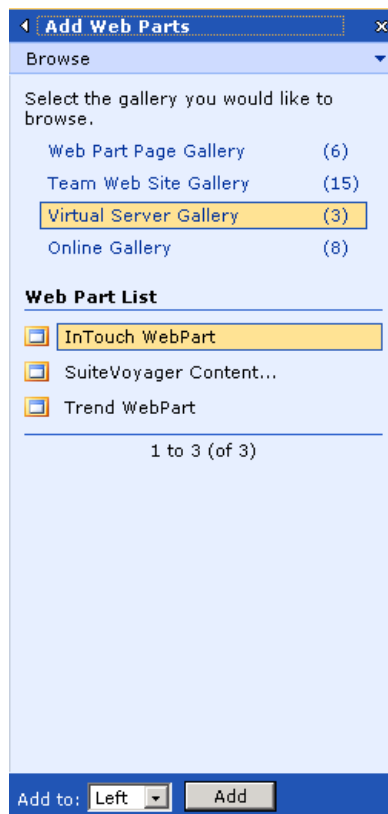
3   Select the **Virtual Server Gallery** and drag the Wonderware Information Server Web part you want into a target zone on the Shared Page.

4   Click the menu arrow on the Wonderware Information Server Web Part you just added and select **Modify Shared Web Part**. The right side of the screen shows the **ToolPart** Tool pane.

To configure the Wonderware Information Server Content Viewer Web Part

1   In the Web part **ToolPart** Pane, select a category such as **Table Weaver Content** and an available Item.

2   Click **OK** to save the Web part configuration.

To configure the Wonderware Information Server InTouch Web Part

1   In the Web parts **ToolPart** Pane, select an InTouch Window that has Industrial Application Server References. The Tool pane shows a list of existing References and a Text field for configuring new references.

2   Configure the ApplicationObject references.

3   Click **OK** to save the WebPart configuration.

To configure the Wonderware Information Server Trend Web Part

1   To configure the web part to use a Published AcitveFactory Trend, click the **Use Published Trend** option and select an available Trend.

2   Click **OK** to save the Trend configuration.

To configure a new trend

1   Click the **Configure Tags** option and configure the following:

  a   Select a Historian data source.

  b   Type the tag name.

  c   Select a Pen Color, Width, and Style.

  d   Configure a time offset and a Retrieval mode.

  e   Add the Tag to the configuration list.

2   Repeat steps a - e until all tags are configured for the trend.

3   Configure the Trend Date mode by selecting **Absolute** or **Relative** time.

4   Configure the Start Time and Duration for the Trend.

5 Configure the Update mode to be enabled or disabled.

- If Update mode is **Enabled**, configure the trend to be in **Live** or **Replay** mode.

- For **Replay** mode, select a replay speed.

6 Configure the Trend Chart appearance by enabling or disabling the Tag Picker, Tool Bar, Time Bar, Axis Label, and Grid visibility options.

7 Click **OK** to save the Trend configuration.

Using Web Part Connections with the Wonderware Information Server Web Parts

SharePoint technology supports communications between web parts. This is achieved using web part connections. In this context, one web part becomes a "provider" and one a "consumer."

Connecting the InTouch WebPart

The InTouch web part supports InTouch Windows published to Wonderware Information Server using the Win-XML Exporter.

When you connect the InTouch WebPart, the first three tags shown in the InTouch Toolpart are available for connections. The following graphic shows an existing Connection for **Parameter 1** of the InTouch WebPart. Detailed configuration steps are included in the following section.
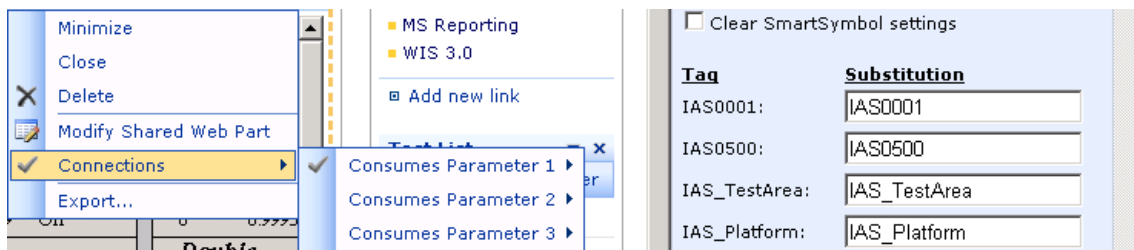
Connecting with SharePoint Web Parts Example

You can use SharePoint connection configuration to provide communication between web parts. This is done by adding a SharePoint web part that connects with the InTouch WebPart provider. This example shows you how.

Note The following steps are an example of how to connect web parts. For more information about web part connections, see Microsoft documentation.

To add a SharePoint web part

1 Open the default SharePoint Team Site where the InTouch WebPart is located and click **Documents and Lists** on the main navigation bar.

2 Click **Create**.

3 Click **Custom List**.

4 Type any name and click the **Create** button. The new list appears as a blank panel.

5 Click **Modify settings and columns** in the left panel.

6 In the **Columns** area, click **Add a new column**. When the **Add Column** panel appears, do the following:

a Type **InstanceName** in the Column name field and ensure the **Single line of text** option is selected.

b Scroll down and ensure the **Add to default view** option is selected.

c Click **OK**.

7 Click **Documents and Lists** and open your new list.

8 Click **New Item** and do the following:

a Type any title.

b Type the tag value in the **InstanceName** field. In this example, the instance name is `Tank_001`.

9 Repeat the previous step and add more new items.

10 Click **Save and Close**.

To configure connections between web parts

1 Click **Home** in the main **Team Web Site** navigation bar.

2 Click **Modify Shared Page** and add the list you just created to the site. It is located in the **Team Web Site Gallery**. The following graphic shows the List web part added to the Right zone, with two InstanceNames.

3   Click the InTouch **Web Part Menu** arrow and click **Modify Shared Web Part**.

4   When the InTouch Toolpart appears, click the **Web Part Menu** arrow on the InTouch WebPart.

5   Click **Connections** and do the following:

a   Click **Consumes Parameter 1** and select your web part from the menu. In the following graphic, Test List is the web part we want to connect.
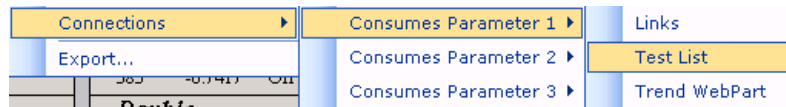
The **Edit Connection** dialog box appears.

b   Select the correct column from the **Column** list. In the following figure, the column is called **InstanceName**.
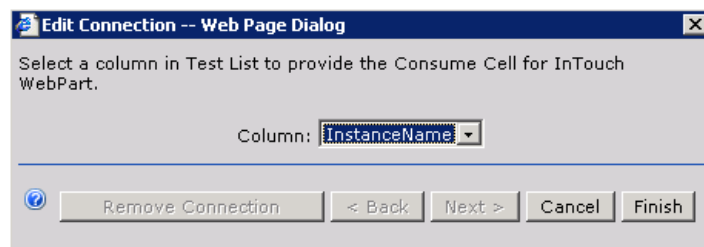
c   Click **Finish**. The List appears with the updated Instance Names you entered in the List web part.

6   Close the **Add Web Parts** panel.

The following graphic shows the **List** web part after completing the configuration.

7   When you want to switch tags, click an available **InstanceName** option.

Connecting the Trend Web Part

Use the ActiveFactory Trend WebPart from SharePoint to select and configure a published trend. The published trend resides on the ActiveFactory Reporting Website of the Wonderware Information Server.

When published trends are not available, you can select an IndustrialSQL Server node from the Shared Data Source, and create your own trend using standard Trend functionality.

The Trend WebPart connects by using a published Trend, or by Configuring Tags.

The ActiveFactory functionality in Wonderware Information Server uses SharePoint technologies. The SharePoint Team Site and the Wonderware Information Server are installed on the same server, and provide integrated connection through the Trend WebPart.

To configure Trend WebPart connection options

1   On the Trend WebPart, click the **Web Part Menu** arrow and select **Modify Shared Web Part**.

2   With the Trend Tool Part open, click the **Web Part Menu** arrow on the Trend WebPart and select Connections.

Use Published Trend

When you connect to a published trend, the following connections are supported:

- **Provides Published Trend**: Provides the Trend WebPart's URL as text to any other web parts within the SharePoint site.

- **Consumes Published Trend**: Consumes a published Trend URL as text from other web parts within the SharePoint site.

Configure Tags

When you configure tags, you can select any IndustrialSQL Server from the top list. This list contains Named Data Sources of the InSQL type. The data source is configured in the Shared Data Source Manager.

For more information about trend properties, see the *ActiveFactory User's Manual*.

The following connections are supported:

- **Provides InSQL Server**: Provides the InSQL Server node name to any other web part.

- **Provides Current Tag Name**: Provides a tag name from an InSQL Server node to any other web part.

- **Consumes InSQL Server**: Uses an InSQL Shared Data Source provided by another web part.

- **Consumes Current Tag Name**: Uses a valid tag name from the Shared Data Source as provided by another web part.

- **Consumes Retrieval Style**: Uses a valid retrieval style value such as Cyclic, Averages, Time In State, and so on as provided by another web part.

- **Consumes Start Date and End Date**: Uses a start and end date provided by another web part.

- **Consumes Trend Duration**: Uses a duration value as provided by another web part.

- **Consumes Date Mode**: Uses the Relative or Absolute time settings.

Chapter 9

Customizing the Wonderware Information Server

You can completely customize the look and feel of the Wonderware Information Server home page, such as:

• Adding a custom logo or replacing the site banner.

• Replacing the default home page content.

• Creating links to published reports, documents, other web sites, or resources.

All of this is accomplished through a series of easy-to-use menus, without leaving Wonderware Information Server.

Changes made to the look and feel appear when the page is refreshed.

Customizing the Home Page

You can customize the following areas of the home page:

• Custom logo

You can specify a custom logo image to be placed in the banner area. Make the height of the image 64 pixels —anything smaller is stretched to 64 pixels and anything larger is cut off. The width is resolution dependent.

●   Banner pane

The banner is located at the top of the home page and is constantly displayed. You can customize the banner by specifying a custom HTML or ASP page to appear in the banner area. If you replace the banner with an HTML page, then the page is resolution dependent on the width only. If you replace it with an ASP page, the page scales down to the banner pane. Make the height of the banner page content 66 pixels to avoid distortion.

Tip Use a banner that coordinates with the color scheme that you pick for the web site. For more information on available schemes, see Changing the Color Scheme on page 109.

●   Content pane

You can change the default content that appears in the web site home page. You can specify an ASP or HTML file for the content.

For more information on the areas of the home pages, see About the Wonderware Information Server Home Page on page 15.

To customize the home page

1   In the **System** access panel, expand **Administration** and then click **Configuration**. The **Configuration** page appears.

2   Click **Home Page**. The **Home Page** customization page appears.

3   To change the logo, click **Custom Logo**. In the **File** box, type the path to the file to upload or click **Browse** to locate the file. The uploaded file is saved in the c:\Inetpub\wwwroot\Wonderware\custom.

4   To change the entire top banner, click **Custom Banner URL**. In the **Banner URL** box, type the path to a configured banner .asp page.

5   To change the content pane for the home page, in the **Home Page URL** box, type the path to a configured content .asp page.

6   Click **Save**.

Changing the Color Scheme

You can change the color scheme to one of ten pre-configured schemes. The scheme controls the background colors for the menu bar, Launch Pad background, heading bars, and so on. You can view how a sample page looks with the new scheme before you implement your changes.

To apply the new color scheme, you must have administrative privileges on the computer on which the site is installed.

To change the color scheme

1   In the **System** access panel, expand **Administration** and then click **Configuration**. The **Configuration** page appears.

2   Click **Color Scheme**. The **Color Scheme** page appears.
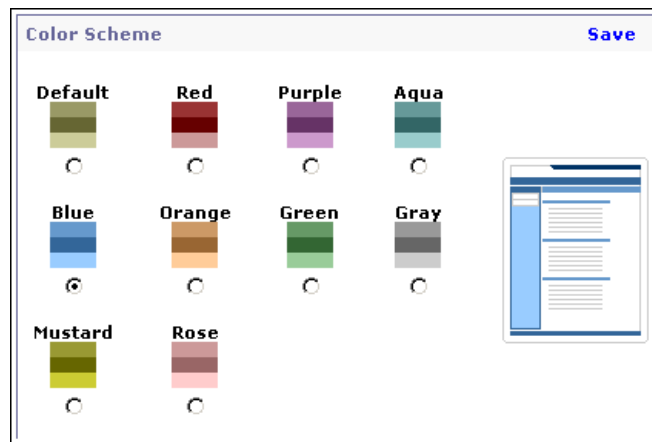
3   Click the color scheme you want. The sample page thumbnail changes to preview your selection.

4   Click **Save**.

Creating Custom Links for Users

You can create a customized hierarchy of hyperlinks that appears in the access panel of the web site. These links can point to other web pages, send e-mail to a specified account, or open a document file. For example, to add a link to a legal disclaimer page, also called a "terms of use" page.

Valid document file formats include: .html, .asp, .doc, .xls, .bmp, and .dwg. When a user clicks a document link, the file opens in the appropriate editor, if installed on the client computer. Verify that your users have the appropriate editors on their client computers to open the document links that you post on the web site.

Client users must have a default e-mail application such as Microsoft Outlook configured for Internet Explorer to use a mailto link. If a user clicks on a mailto link in the navigation tree, the client e-mail application starts and opens a blank e-mail message with the sender address already configured.

For more information on the navigation tree, see Navigation Trees on page 19.

To create a custom link

1   In the **System** access panel, expand **Administration** and then click **Configuration**. The **Configuration** page appears.

2   Click **Custom Links**. The **Custom Links** page appears.

3   To add a new node to the hierarchy, right-click the tree and click **Add Node**. The **Node Name** box becomes available.

4   In the **Node Name** box, type the name of the node as you want it to appear in the navigation tree. For example, "Projects."

5   In the **Node Typ**e box, click **LEAF** if this node is the bottom node in the branch. If you are planning on adding additional levels under this node in the hierarchy (one or more "child" nodes), click **NODE**.

Note   A leaf node cannot have a child node.

6   Create a web page link.

- Click **HTTP** in the **Link Type** area.

- In the **URL** box, type the address of the web page. When the user clicks the link, the web page appears in the contents pane; a new browser window is not opened. You can specify HTTPS in the URL.

7   Create an e-mail link.

- Click **MAILTO** in the **Link Type** area.

- In the **URL** box, type the e-mail address.

8   Create a document link.

- Click **Upload Document**.

- In the **File** box, type the path to the file to upload or click **Browse** to locate the file.

- Click **Upload**. The file is copied to the correct location on the web server and the **URL** box is configured for you.

9   Click **Update Node**. The new link appears under the selected category in the sample navigation tree to the right. Verify that the new link is correct.

10   To delete a link, right-click the link in the sample navigation tree and click **Delete**.

When you are finished creating all of your custom links, click **Save**.

Chapter 10

Maintenance Tasks

After you install and configure the Wonderware Information Server, you need to monitor the system and perform general maintenance tasks to ensure that your casual users continue to have the best access possible to the information on the site. Maintenance tasks include monitoring web server performance, monitoring usage, and obtaining feedback about the site itself.

Viewing Errors

Wonderware Information Server logs error messages to the Wonderware ArchestrA Logger, which is installed by default when you install Wonderware Information Server. You can customize the types of messages that are reported to the ArchestrA Logger using the LogFlag Editor utility.

For information on using the ArchestrA Logger and the LogFlag Editor, see the ArchestrA Logger documentation.

Monitoring Web Server Performance

Microsoft provides some free web monitoring tools that you can download from their web site. These tools allow you to test the performance and connectivity of your web server. In particular, they provide a web "stress" tool that enable you to duplicate performance on your web server with multiple users. The results enable you to plan for current and future upgrades and enhancements to your hardware and communications network.

Monitoring Usage

IIS automatically creates a log file to track user access to the site. This log file tells who was on the site, where they went in the site, how long they were on each page, and anything they looked at in the site. This file could be helpful for determining site usage and which areas are used more than others. The log file is stored under your \WINNT\System32\LogFiles directory.

However, the log file gets very large very quickly and you need to put a standard operating procedure into place for either purging or archiving this file. You can also turn the logging feature off if it is not helpful to you. For more information on IIS log files, see your IIS documentation.

Also, it is essential that you monitor site usage to determine if you have enough client licenses installed. If not, you may want to determine if the people that are logging on to the site during busy times could be asked to log in during slower times or if you need to purchase additional licenses. The License Manager is located under the Administration section of the Wonderware Information Server. For more information on the License Manager, see Chapter 3, Managing Licensing

Obtaining Feedback

As the administrator, provide users with an easy way to send feedback. This can easily be accomplished by creating an e-mail link using the Configuration area of the site. For more information, see Creating Custom Links for Users on page 110. Most intranet/Internet users are familiar with an e-mail link labeled "Contact Us." Creating this link provides a way for users to comment on the usefulness of the information they obtain, additional information they want to see, speed to access information, and any problems they encounter while navigating through the site.

Obtaining good feedback helps you to design a useful, functional, and informative tool for the casual users in your company and help you tailor the information that Wonderware Information Server delivers to the organization.

Changing the Wonderware Information Server Timeout Values

The Wonderware Information Server automatically times out the browser session after a default of 20 minutes without usage. In addition, ASP pages time out after 90 seconds. Typically, ASP pages contain form fields for user input. These are the default settings that IIS issues to applications running on the web server.

To change the browser timeout settings

1   On the Windows **Start** menu, point to **Programs**, point to **Administrative Tools** and then click **Internet Information Manager**. The **Internet Information Services** console appears.

2   Expand the web server name and then expand **Default Web Site**.
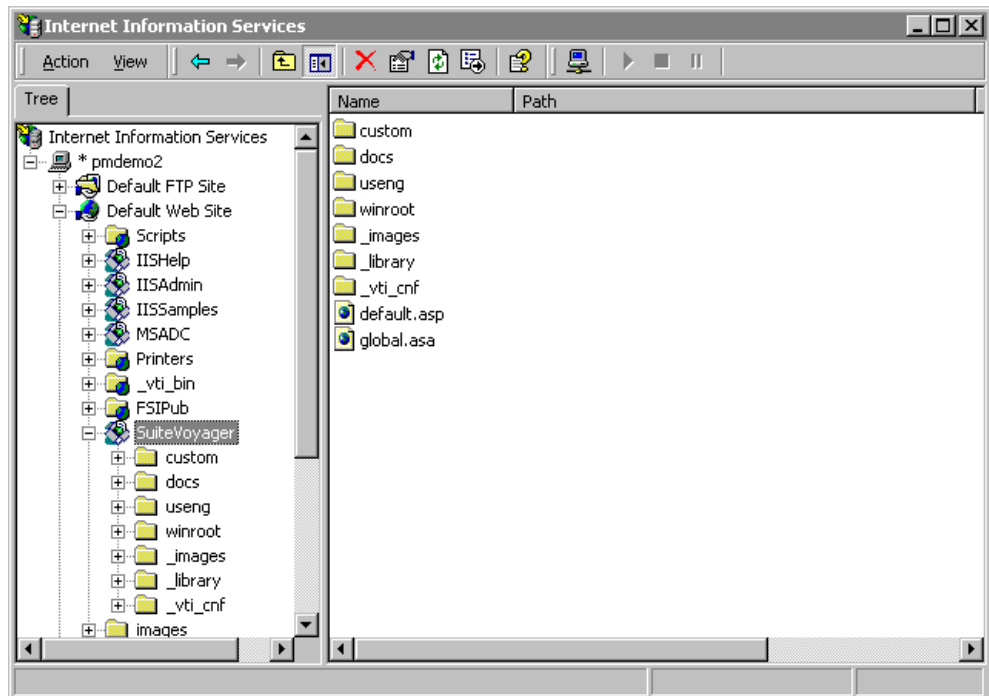
3 Right-click **Wonderware Information Server** (or the name of the virtual directory you created during installation) and then click **Properties**. The **Wonderware Information Server Properties** dialog box appears.
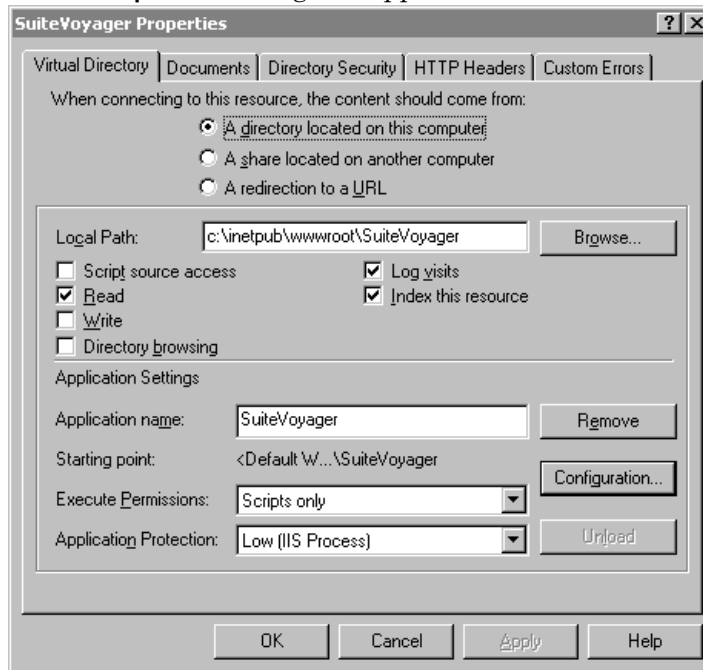
4 In the **Virtual Directory** tab, click **Configuration**. The **Application Configuration** window appears.

5 Click the **App Options** tab.
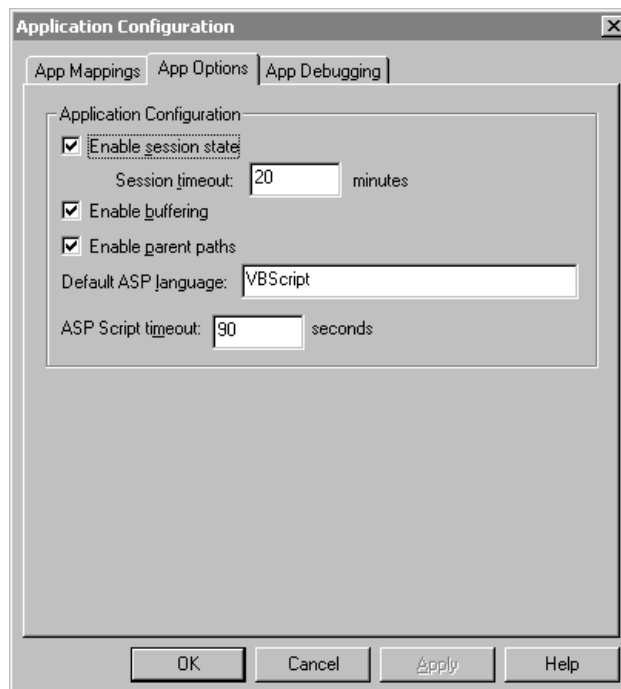
6　In the **Session timeout** box, type the new timeout limit for client connection sessions.

7　In the **ASP Script timeout** box, type the new timeout limit for scripts.

8　Click **OK**.

Viewing Wonderware Information Server Service Details

The following Wonderware Information Server processes are started as Windows services:

Task Service	Name	Description
wwsvalmsvc.exe	Wonderware Alarm Consumer	Handles distributed alarm information
Rdbhandler.exe	Wonderware Runtime DB Handler	Handles real-time data coming from InTouch and SuiteLink I/O sources
wwsvlicmgr.exe	Wonderware License Manager	Handles license information.

To view service details

1　On the Windows **Start** menu, point to **Programs**, point to **Administrative Tools**, and then click **Component Services**. The **Component Services** console appears.
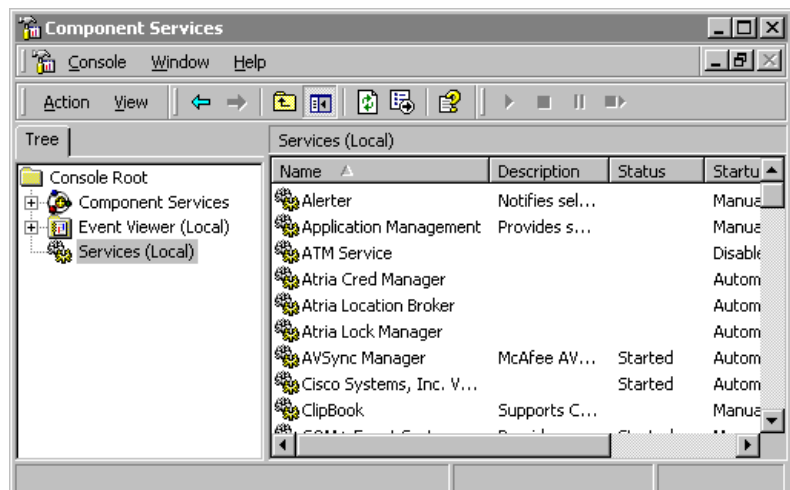
2　The status of each service appears in the Status column. From this dialog box, you can start, stop, pause, or continue a selected service.

3 To view or edit properties for a service, right-click the
service and click **Properties**.

For more information on services, see your Microsoft
documentation.

Viewing Wonderware Information Server Version Information

To view Wonderware Information Server version information

1 In the home page, click **About** on the menu bar. The **About
Wonderware** dialog box appears.
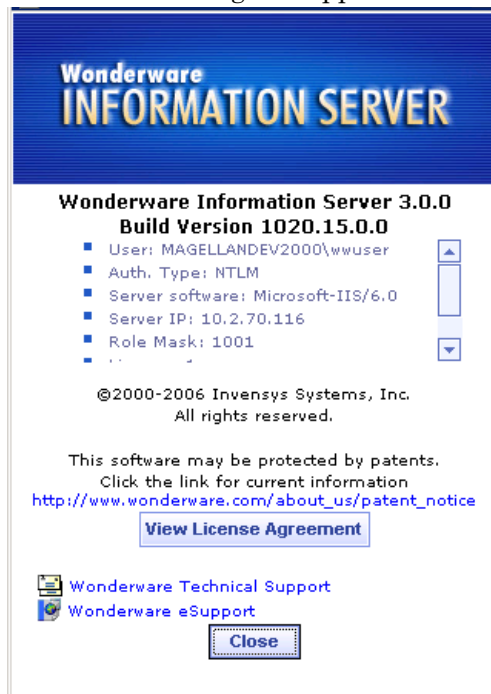
2 Click **Wonderware Technical Support** to send an e-mail to
the Technical Support team.

3 Click **Wonderware eSupport** to access the Technical
Support web site.

4 Click **Close**.

Chapter 11

Creating and Restoring Backups

The Backup/Restore Manager lets you create backups of the Wonderware Information Server configuration. You can use a backup to restore the original site.

Requirements

The Backup/Restore Manager for Wonderware Information Server 3.0 is not compatible with previous versions of the software.

You can host the Wonderware Information Server configuration database on a remote SQL server node. The SQL server must be running under a network account with the correct permissions. These permissions are network share privileges that allow the Backup/Restore Manager to access the remote node's file system.

You must also be a local administrator of the Wonderware Information Server computer. In addition, the user credentials must also have SQL Server system administrator privileges.

You must install the SQL Server client connectivity components on the Wonderware Information Server computer.

What Is Contained in a Backup

A backup is a CAB file that contains:

- the Wonderware Information Server database

- MultiViews and Web Parts

- aaReports database

- Report Server database

- Report Server configuration

- ActiveFactory reports

- ActiveFactory configuration

- InTouch WindowSets

- Windows registry entries that pertain to Wonderware Information Server

The Backup/Restore Manager does not back up:

- Any ActiveX control that runs within a Web Part or process graphic

- The Wonderware Information Server license file

About Restoring Backups

You can only restore a backup to the Wonderware Information Server with the same virtual directory name for both the Wonderware Information Server and the ActiveFactory Reporting Website from which it was created.

The restoration process is as follows:

- The existing Wonderware Information Server database is deleted. If the database is corrupt, you must reinstall Wonderware Information Server to fix the database corruption before restoring the backup.

- A new Wonderware Information Server database is created.

- Information in the database is restored with information from the backup.

- All site customizations that are contained in the backup are restored. For more information, see What Is Contained in a Backup on page 120.

You must first disconnect all clients from Wonderware Information Server, then start the restoration process. The Internet Information Services (IIS) is stopped during the restoration process. Also, the Wonderware Information Server database is inaccessible until restoration is complete. However, all other databases in the same SQL Server continues to function and provide data to clients.

Typically, a system reboot is not required after the restoration process.

Note You cannot create a backup from a Wonderware Information Server site on an operating system in one language and restore it to a Wonderware Information Server site on an operating system of a different language.

Creating a Backup

The Wonderware Information Server is accessible by clients during the backup process.

Note If a backup already exists with the same name, it is overwritten automatically.

To create a backup

1   On the **Start** menu on the Windows Taskbar, point to **Programs**, **Wonderware**, then to **Information Server**, and then select **Backup and Restore**. The **Backup/Restore** dialog box appears.
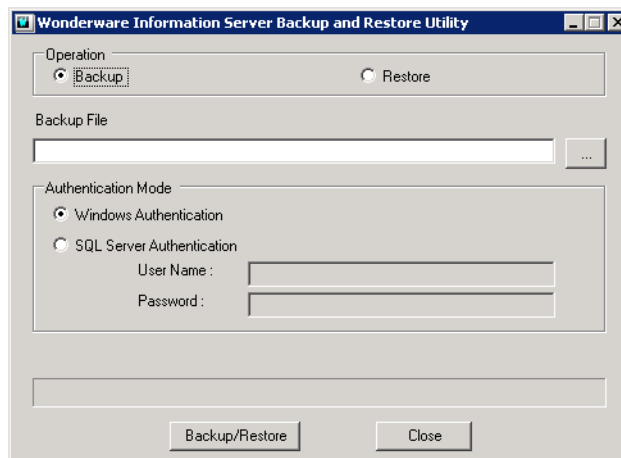
2   In the **Backup File** box, type or browse to the CAB backup file.

3   Select either Windows Authentication or SQL Server Authentication.

4 Click **Backup/Restore**. The status of each phase of the backup process appears in the **Backup Status** box.

For more information on error messages, see Troubleshooting Backup Failures on page 123.

When the backup is complete, a log file is created in the backup destination directory. The log file is named using the following convention: <backupname>_Backup.log. You can open the log file with any text editor.

Restoring a Backup

Before you restore, make sure you all open connections to the database are closed.

To restore a backup

1 On the **Start** menu on the Windows Taskbar, point to **Programs**, **Wonderware**, then to **Information Server**, and then select **Backup and Restore**. The **Backup/Restore** dialog box appears.

2 Select **Restore**.

3 Specify the complete path to the backup file or click the button next to the Backup File box to browse for the backup file. Select the .Cab file and click **Open**.

4 Select either Windows Authentication or SQL Server Authentication.

5 Click **Backup/Restore**.

When the restoration process begins, the **Restoration Status** dialog box appears.

If the restoration program could not restore an item, a message appears in the dialog box.

6 When the Restore is complete, click **Close**.

Troubleshooting Backup Failures

A log file is created in the same location as the backup file. The log file has the same name as the backed up file, with the .log extension, such as MyBackup.log.

If a log file already exists with the same name, the existing log file is overwritten. An example of the log file is as follows:

The following list describes the error messages that can occur during the backup process.

MTS roles could not be backed up

CAUSE: You may not have the privilege to access the Microsoft Transaction Server (MTS) package for Wonderware Information Server.

SOLUTION: You must have the privilege to access the Wonderware Information Server MTS package. Check that you belong to the Administrators group on the Wonderware Information Server site computer.

InTouch windows could not be backed up

CAUSE: You may not have the privilege to copy files from the \inetpub\wwwroot\<site virtual directory>\winroot directory

SOLUTION: Make sure that you have the privilege to access this directory.

The database could not be backed up

CAUSE: The Wonderware Information Server database is currently locked.

SOLUTION: Make sure that the Wonderware Information Server database is not locked.

CAUSE: The SQL Server client components are not installed on the site.

SOLUTION: Make sure that the SQL Server client components are installed on the site.

Version information could not be retrieved

CAUSE: The version table (the SVInfo table) in the Wonderware Information Server database may be corrupted.

SOLUTION: To fix a corrupted table, reinstall Wonderware Information Server.

Registry entries could not be backed up

CAUSE: You may not have the privilege to access the Windows registry.

SOLUTION: Make sure you have the privilege to access the registry.

The .Cab file could not be created

CAUSE: The name for the backup is invalid.

SOLUTION: Make sure that the backup name does not contain any of the following characters: | / < > : * ? "

The export clsid could not be retrieved

CAUSE: The clsid for the backup could not be created.

SOLUTION: If the problem persists, contact technical support. You are asked to provide a detailed description of your backup scenario.

The backup failed with an unknown error
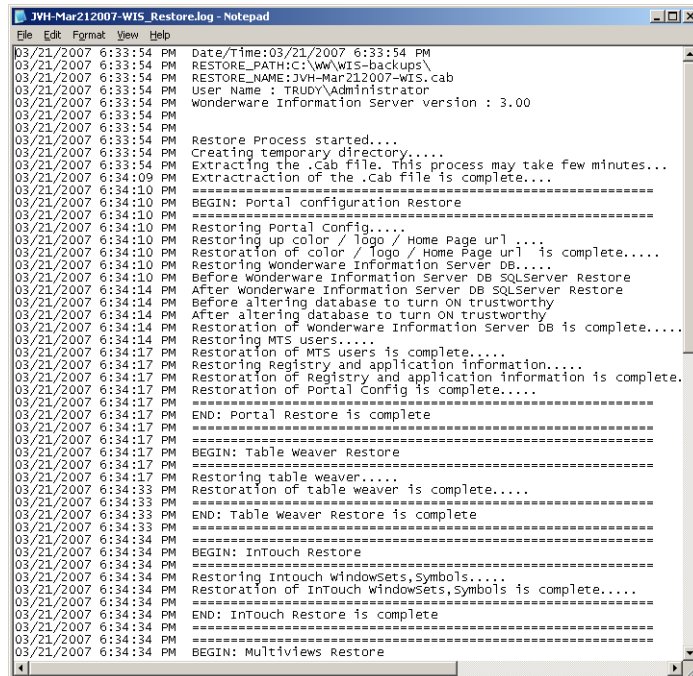
CAUSE: No obvious cause.

SOLUTION: If the problem persists, contact technical support. You are asked to provide a detailed description of your backup scenario.

Troubleshooting Restoration Problems

The restoration log file, named Backup file_Restore.txt, is created in the same location where the backup file (.cab) resides when you run the restoration program. This file contains status messages for all of the major steps that occur during the restoration process, so that you can troubleshoot the point of failure.

If a log file already exists with the same name, the existing log file is overwritten. An example file is as follows:

The RestoreSummary.txt file also includes a listing of any site user accounts that could not be restored. A typical cause for an unrestored user account is that the account is not in the domain of the computer to which you are restoring the backup. The user account may have been deleted from the domain after you created the backup.

If an error occurs during the restoration process, an error message is posted to the log file. These error messages are typically generated by software other than the restoration program, such as Microsoft SQL Server. Review any error messages and consult the appropriate software documentation to further troubleshoot the problem.

Chapter 12

Introduction to TableWeaver

The Table Weaver feature makes it easy to present and navigate information from databases and related webpages. It provides you with the building blocks for customizing contents, allowing you to establish content relationships, provide contextual navigation, and configure information displays in multiple formats. The Table Weaver Manager consists of six components, each giving you the flexibility to build the content according to your needs.

About the Table Weaver Manager

The Table Weaver Manager consists of the following components:

- Data sources
- Queries
- Content units
- Displays
- Links
- Key performance indicators (KPIs)

Each component is defined to build the content unit component which brings all the defined settings into one content. These components are defined independently to make it easy to reuse portions of definition units across multiple content unit definitions.
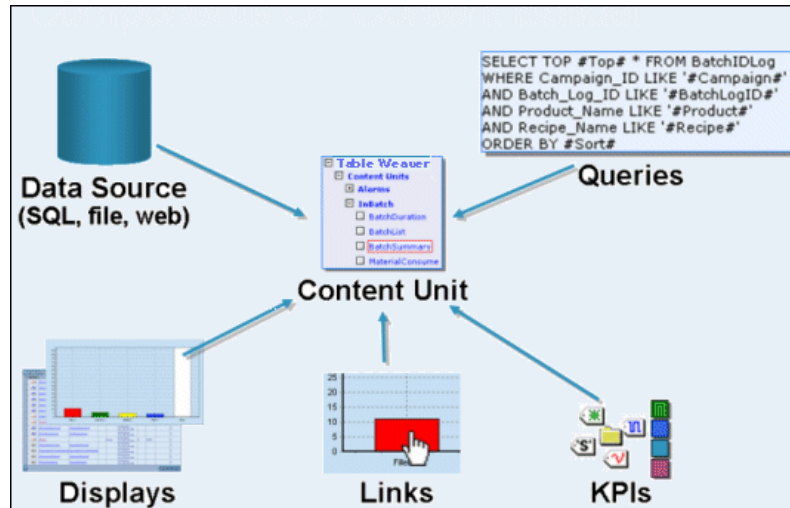
Data source and query definition units are required to define a content unit. The data source defines the source of data or information. The query defines the conditions to retrieve the data from the data source. These definition units can define a content unit that displays the result in a display format or as XML by default.

Display formats are defined in the display's definition unit. It defines how data retrieved from a data source is visualized to the user. The display types supported are:

- Chart
- Tabular
- Web Content
- Filter Entry
- SmartSymbol

Each display type contains its own set of configuration options that allow you to customize the display. For example, the Sales per Category chart and table are both configured from the same data source and query, but the different display format configurations provide different representations of the content.
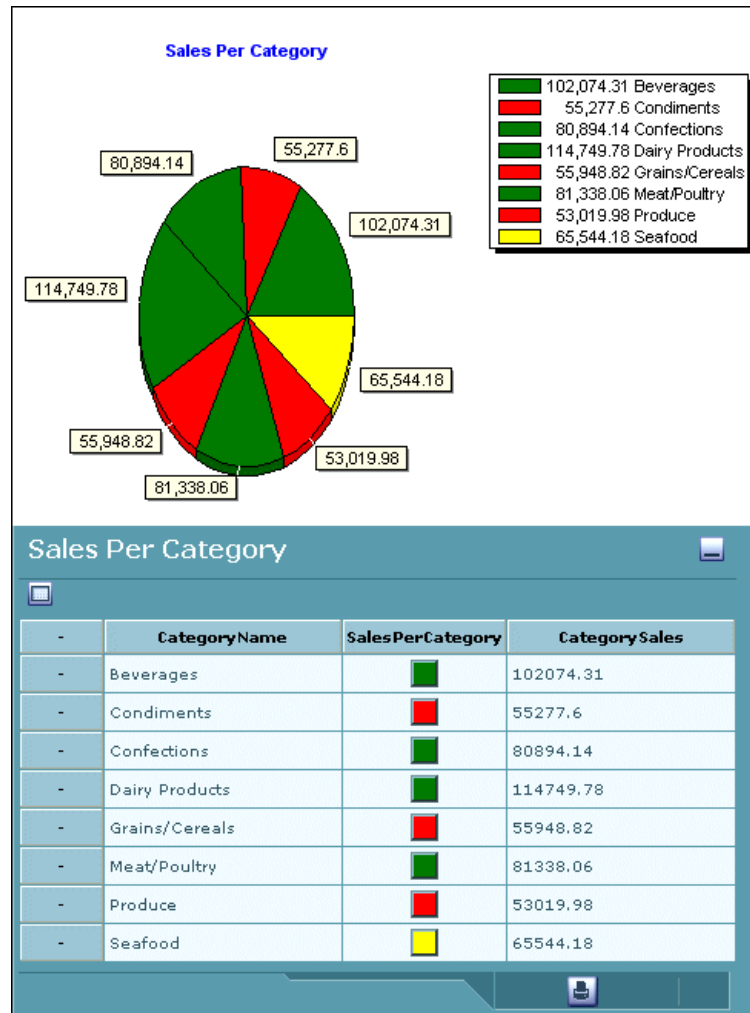
Displays, links, and KPIs are optional components. Links provide more navigation between a content unit and other contents. They provide related information regarding the selected item.

KPIs are visual indicators that express a value as either a color or an icon. Each KPI has one or more targets with its own set of target conditions that display visual indicators when the target condition is met.
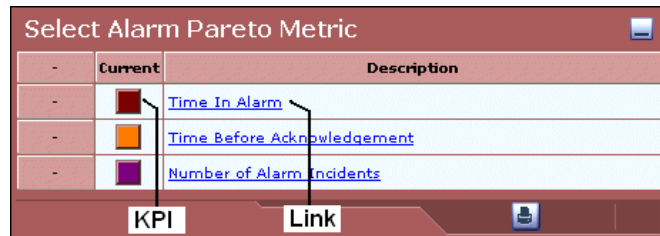
Getting Started with Table Weaver Manager

The Table Weaver Manager allows you to define data sources, queries, displays, links, KPIs, and content units. The Table Weaver Manager is located under the System access panel in the Administration node.

Each Table Weaver Manager component is separated into its own subsection in the Table Weaver Manager node. For each subsection, you can define the content for the specific definition unit.

Note After clicking an Table Weaver component, the URL link is stored in the Internet Explorer History browser.

For more information on how to define a specific Table Weaver component, see Adding Data Sources on page 67, Defining a Query on page 146, Defining a Content Unit on page 137, Defining a Display on page 156, Defining a Link Collection on page 171, Defining a KPI Collection on page 179.

Common Definition Unit Options

All Table Weaver definition unit pages contain a common set of options. The following table provides a brief description of each option.

User Option	Description
New Folder	Creates a new folder in the current definition list page.
New	Create a new definition unit.

User Option	Description
Delete	Deletes the selected definition unit(s) and/or folder(s).
Copy	Copies the selected definition unit. Copies can be placed in the same or different folder.
Cancel	Cancels all actions and returns to the parent page.
Save	Saves changes for a new or existing definition unit. A dialog box appears to confirm the save or inform you of missing information that is required.
Reset	Resets all properties to their original values.

For more information on the common definition unit options, see Creating a New Folder on page 132, Copying a Definition Unit on page 133, Editing a Definition Unit on page 134, and Deleting a Definition Unit on page 135.

Creating a New Folder

You can organize definition units by creating folders. As you define different definition units, storing definition units within folders makes it easier to later find what you are looking for.

To create a new folder

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Select a Table Weaver definition unit page. The corresponding definition unit list page appears.

3   Click **New Folder**. The **New Folder** section appears.

4   In the **Folder Name** box, type a name for the folder. This name appears on the definition unit list page. The folder name must be unique in the current folder and cannot contain spaces or special characters (\ / : * ? < > & | ' ").

5   Click **Save**.

Deleting a Folder

To delete a folder

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Select a Table Weaver definition unit page. The corresponding definition unit list page appears.

3   Select the check box next to the folder(s) you want to delete. You can delete folder(s) and definition unit ID(s) at the same time. For more information on deleting a definition unit ID, see Deleting a Definition Unit on page 135.

4   Click **Delete**. You are prompted to verify the deletion.

5   Click **OK**.

Copying a Definition Unit

The copy option is available for all Table Weaver Manager definition units. Folders cannot be copied. Copies can be placed in the root folder or in another defined folder.

To copy a definition unit

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Select a definition unit. The corresponding definition list page appears.

3   Click the check box next to the definition unit ID you want to copy.

Link Collection List - Northwind	Home >> Parent Link Collection List >> Link Collection List		
Link Collection ID	**Type**		**Description**
☐ ProductInfo			Details about this product
☐ ProductLink			
☐ SalesPerCategory			Sales Per Category
☐ SupplierInfo			SupplierInfo
☐ SupplierLinks			Supplier's products
☐ SupplierProduct			Supplier Products
☑ SuppliersList			List of Suppliers
New Folder	**New**	**Delete**	**Copy** **Cancel**

Note   Only one definition unit can be copied at a time.

4   Click **Copy**. The **Copy Definition Object** window appears.

New Link ID for SuppliersList

Link ID :

Save   Cancel

Copy to another folder....   Browse

5 You can copy the definition unit to the current folder or to a different folder.

- To put the copy in the current folder, type a name for the copied definition unit. The name must not contain spaces or special characters (\ / : * ? < > & | ' "). Click **Save**.

- To copy the definition unit to another folder, click **Browse**. The list of available folders in the definition unit list page appears.

Current Path : Root

☐ Alarms

☐ InBatch

☐ InSQL

☐ InTrack

☐ Northwind

New Link ID for SuppliersList in the Current Path

Link ID :

Save   Cancel

6 Select a folder provided in the window. If no folders are available, click **Cancel** and go back to step 5. Type in a name in the **definition unit ID** box. The definition unit ID must be unique in the selected folder. Click **Save**.

Note A definition unit can only be copied into a folder one at a time.

Editing a Definition Unit

To edit a definition unit

1 In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2 Select a definition unit. The corresponding definition unit list page appears.

3 Select a definition unit ID and make edits.

4 Click **Save**.

Deleting a Definition Unit

To delete a definition unit

1 In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2 Select a Table Weaver definition unit. The corresponding definition unit list page appears.

3 Select the check box next to the definition unit ID(s) you want to delete. You can delete definition unit(s) and folder(s) at the same time.

4 Click **Delete**. You are prompted to verify the deletion.

5 Click **OK**.

Chapter 13

Defining Content Units

Using the **Content Unit** area of the Table Weaver Manager, you can select the data source, query, display, link, and KPI definitions to define a content unit.

About Content Units

The content unit is a collection of associated data source, query, display, link, and KPI definitions. It is the core definition item of Table Weaver Manager. The content unit is self-contained and ready for processing to render content to its users.

Defining a Content Unit

A content unit requires a data source and query definition. Other Table Weaver Manager definition units are options that enhance the display of the content.

To define a content unit

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Content Unit**. The **Content Unit List** page appears.

3 Click **New**. The **Content Unit** page appears.

Enter the information for the new content unit as follows.

1 In the **Content Unit ID** box, type a name for the content unit. The content unit ID must be unique in the current folder and cannot have spaces or special characters (\ / ? & : ""< > | * %). This name appears on the **Content Unit List** page.

2 In the **Description** box, type a description for the content unit. This description appears on the **Content Unit List** page and on the **Table Weaver** navigation panel. Users can see the description(s) of the content unit(s) on the **Table Weaver** navigation panel.

3 In the **Data Source** list, select the data source to link to the content unit. The data source list contains all defined data sources from the shared data source configuration. You can view the details of the selected data source using the browse button placed next to the **Data Source** list.

Note You can edit query, link, display, and KPI definition components by using the browse button placed next to each definition component list. To edit data sources, you must go to the Data Source Manager. For information on using the Data Source Manager, see Chapter 5, Configuring Data Sources.

4 In the **Query** list, select the query to link to the content unit. The query list contains all defined queries from the query definition.

The selected data source and query must belong to the same data source type.

5 In the **Link Collection** list, select the link collection to attach to the content unit. The link collection list contains all defined links from the link collection definition. For more information on link collection, see Defining a Link Collection on page 171.

The selected link matches the selected data source and query combination.

6 In the **Display** list, select the display definition to link to the content unit. The display list contains all defined displays from the display definition. When no display is selected, the content unit displays the data in XML.

Web content displays must be used for web content data sources and queries. Table and chart displays can be used for database data sources and queries, but the data for chart displays must include the selected columns.

7 In the **KPI Collection** list, select the KPI collection to attach to the content unit. The selected KPI collection contains individual KPIs with target conditions for the specific content unit. For more information on KPIs, see About KPIs on page 179.

The selected link and KPI definitions match the selected data source and query combination.

Note You cannot configure KPIs for SmartSymbol content units.

In addition to the required information, you can set a number of options for content units.

1 In the **Alternative Display** list, select alternative displays for the content unit. The alternative display allows you to view your content unit in different display formats. You must use the double right arrow button to move the selected display format name(s) into the alternative display box.

For example, the Sales Per Category content unit shows a chart with an alternative tabular display available for the same content.
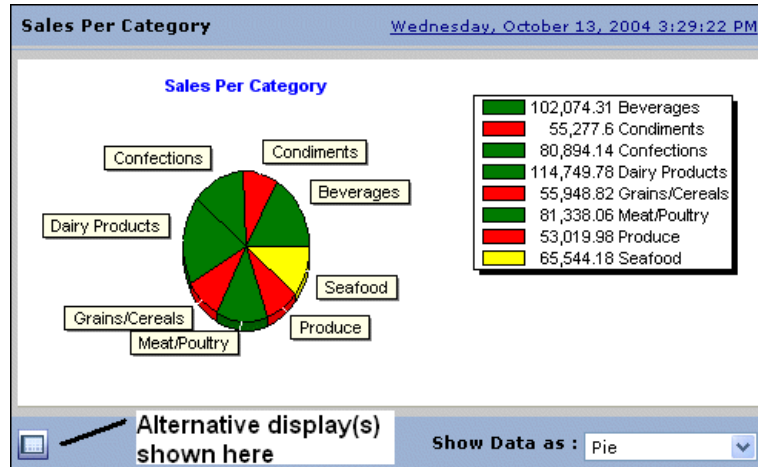
2 To attach an image to the selected display format(s), select the display and click **Attach Image. The Select an Image window appears.**
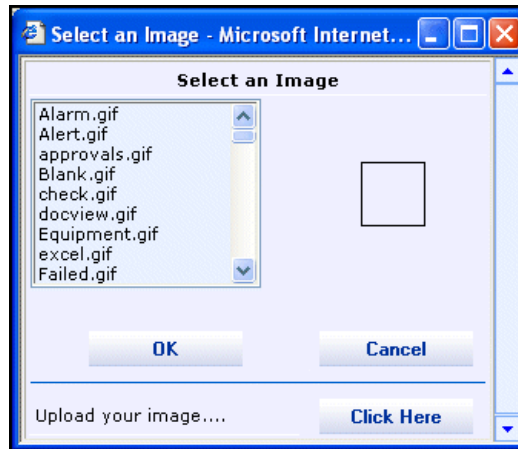
3   Select an image from the list in the Image Library or upload your own image. Only images with an extension of .gif, .jpg, .jpeg are allowed to be uploaded. There is no limit on the size of uploaded images. The uploaded images are stored in /<Wonderware Information Server Virtual Directory>/useng/main/contentbuilder/Imagelib. Previews for both the images from the list and an uploaded image can be viewed in the box to the right of the list. Click **OK** to attach the image as an icon for the selected alternative display.

4   Select the **Primary** check box to specify the content unit as a primary content unit. Only primary content units are listed in the Table Weaver navigation panel. A primary content unit is a content unit that is self-contained and does not require any information from other content units. **Secondary content units require parameter values from an associated link collection and are only accessed by "drilling through" from another content unit.** The primary check box is selected by default.

Note You must refresh the Table Weaver node on the navigation panel to view newly created content unit folders and/or primary content units.

5   In the **Refresh Timing** box, type a numeric value to indicate the time interval (seconds) to refresh the content unit. The browser refreshes the content automatically based on the refresh timing value. If the box is left blank, the browser does not refresh.

6   Click **Save**.

Previewing a Content Unit

A content unit can be previewed allowing you to verify that it is properly defined.

To preview a content unit

1   In the **Content Unit List** page, select a content unit ID.

2   In the **Parameters** box, type in the parameters and their values to pass to the query linked to the content unit. Separate multiple parameters with a semicolon. For example, param1 = foo&param2 = foobar. The parameters are for preview only. The value in the parameters box is not stored.

3   Click **Preview**.

Copying, Editing, Deleting a Content Unit

To copy a content unit, see Copying a Definition Unit on page 133.

To edit a content unit, see Editing a Definition Unit on page 134.

To delete a content unit, see Deleting a Definition Unit on page 135.

Exporting a Content Unit

It is possible to export one or more selected content units and/or content unit folders from the Content Unit List page. Exporting a content unit exports all definition units associated with the content unit. Exporting a folder exports all contained folders, content units, and the associated elements for each content unit.

To export a content unit
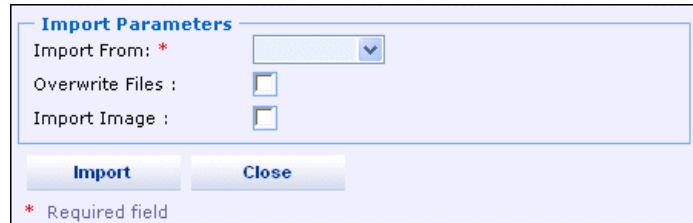
1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Content Unit**. The **Content Unit List** page appears.

3   Select the check box next to the content units and/or content unit folders you want to export. If a specific content unit or folder is not selected, then all content units and folders in the current folder are exported.

4   Click **Export**. The **Export Content Units** page appears.

5   In the **Export Name** box, type a name for the export. This name is the folder name for the exported content located at <Wonderware Information Server Program files Installation Directory>\Export. The export name(s) import content unit(s).

6   Select the **Export Image** check box if you want to export the images selected in the content unit/folder files. Images are exported to <Wonderware Information Server Program files Installation Directory>\Export\ImageLib.

7   Click **Export**.

Importing a Content Unit

To import a content unit

1 In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2 Click **Content Unit**. The **Content Unit List** page appears.

3 Click **Import**. The **Import Content Unit(s)** window appears.

4 Select the export name(s) available from the **Import From** list.

5 Select the **Overwrite Files** check box if you want to overwrite existing content unit/folder files with the corresponding files from the selected export.

6 Select the **Import Image** check box if you want to import the images from the selected export.

7 Click **Import**.

Chapter 14

Defining Queries

Using the **Query** area of the Table Weaver, you can define queries for a specific data source type.

About Queries

A query describes the particular information to be retrieved from a data source. For example, a query includes the data source type (database or web content), SQL statement, and parameters to pass. A query is one of the two mandatory definition units required to define a content unit.

To use a query in a content unit, there must be a corresponding data source with the same type. Use a database query with a database data source, and a web content query with a web content data source. Database and web content queries allow parameter variables to be passed to the query or data source.

Note If you are working in http: mode and then switch to https: mode, items added to the panel that are defined to use http: protocol no longer work. To fix these broken links, someone with administrator privileges must delete the items from the panel and then re-add them so that they have the https: protocol.

For more information on the different query types, see Defining a Database Query on page 146, and Defining a Web Content Query on page 149.

Defining a Query

To define a query

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Query**. The **Query List** page appears.

3   Click **New**. The **Query** page appears.

4   In the **Data Source Type** list, select a data source type. The properties from the selected data source type appear.

5   For more information on defining queries for each type of data source, go to Defining a Database Query on page 146, and Defining a Web Content Query on page 149.

Defining a Database Query

A database query includes information such as the data source, the query ID, and the SQL statement, which is executed against the database. Parameters can be defined for the query that can be dynamically populated at execution time.

To define a database query

1   In the **Data Source Type** list, click **Database**. The **ODBC Query Properties area** appears.

2 In the **Query ID** box, type a name for the query. The name must be unique in the current folder and not contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Query List** page.

3 In the **Description** box, type a description for the query. This description appears in the **Query List** page.

4 In the **SQL Query** box, type a script or statement to be executed by the database. For information on SQL queries, see Examples of Database Queries on page 148.

5 In the **Field Captions** box, type a caption that replaces the field name, which is provided by the data source. Captions must be separated by a semicolon. If the Field Captions box is left blank, the field name provided by the data source used. Information is taken in the same order as provided by data source. Another option is to set the field caption in the SQL query. Most OLE DB providers support using the AS clause within the query to set the displayed name.

For example, the following SQL query from the Northwind database includes the field caption name within the query:

```
SELECT ProductId as [Product ID], SupplierId as
[Supplier], UnitPrice as [Price] from Products
```

6   In the **Page Size** box, type a numeric value to limit the number of records that are returned from the result. For example, if the numeric value 10 is typed in the box, only the first 10 records are returned. The page size is only considered if the value is a positive number.

This option has precedence over the transact SQL's TOP functionality. For example, the following transact SQL query with page size set to 10 only returns the first 10 records of the query result.

```
SELECT TOP 50 * FROM products
```

7   In the **Parameters** area, configure the values to be passed through the parameters defined in the SQL Query. Parameter names are case sensitive. For more information on configuring parameter name and value for queries, see Examples of Database Queries on page 148 and Examples of Web Content Queries on page 151.

- **Name**   Name of the parameter in the SQL query.
- **Value**   Value that you want to pass in the parameter. This is the default value for a database query parameter. It can be replaced by the value configured in a link parameter.

It is possible to have multiple name-value parameter pairs. Click **More** to add more parameters.

8   Click **Save**.

Examples of Database Queries

The database query allows you to pass in parameters defined in the query. For example, you want to create a query that retrieves the product names that start with a "c" using data from the Products table in the Northwind database. Type in the following values for the configuration options:

SQL Query: `SELECT * From Products Where ProductName Like '#ID#'`

Parameter Name: `ID`

Parameter Value: `c%`

With no other defined parameters, the runtime query is:

```
SELECT * FROM Products Where ProductName Like 'c%'
```

SQL Stored Procedure:

```
EXEC custordersdetail #OrderParam#
```

Defining a Web Content Query

The web content query allows you to configure a query to retrieve content from the Web. The web content can either be in the form of web pages or a list of URL links.

To define a Web Content query

1   In the **Data Source Type** list, click **Web Content**. The **Web Link Definition** area appears.

2   In the **ID** box, type a name for the query. The name must be unique in the current folder and not contain spaces or special characters ($\setminus$ / : * ? < > & | ' "). This name appears in the **Query list** page.

3   In the **Description** box, type a description for the query. This description appears in the **Query list** page.

4   In the **Link Type** list, select **List** or **Page** to define the link type.
   - A **List** link type defines the link as a link, allowing multiple web content links within a query definition.
   - A **Page** link type defines the link as content, allowing only one link definition per query.

Defining a Page Link Type

When you are defining a query, you can pass parameters to the target URL using the GET or the POST method. The method you select is dependent on the target URL's requirements for passing parameter values.

- The GET method passes parameters as name-value pairs as part of the URL query string. These parameters appear in the URL and are visible when you open the content unit.

- The POST method passes parameters through a customized form. These parameter values do not appear in the URL but they are available for the target URL page to process.

To define a page link type

1   The **Web Link Definition** area selects **Page** as the **Link Type** by default. The **Link Definition** area appears.

2   In the **Method** list, select **GET** or **POST** for the http method of the link.

3   In the **URL** box, type the http URL of the link.

4   In the optional **Parameters** area, type the name and value of the parameter to pass to the URL. Parameters for the **GET** method are passed as a query string. Parameters for the **POST** method are passed as a form post. Click **More** to add more parameters to the query.

5   Click **Save**.

Configuring a Page Link Definition for ArchestrA Reporting

Create a Link Definition that has WebSource as Target and the type the following URL:

```
../../../../../../ArchestrAReports/ExecuteReport.aspx
```

This string delivers the correct .aspx file, relative to the content unit.

Do not use the relative path to the page from the Table Weaver's virtual folder.

In the **Parameters** area, add Parameters for each ArchestrA Report parameter.

The Parameter's **Name** and **Value** are appended to the URL.

Defining a List Link Type

The web content query differs from the Custom Links feature configured under Configuration in that it allows parameter passing and includes the POST method to retrieve the web link.

To define a list link type

1   Select **List** from the **Link Type** list. Click **Save**. The **Web Link Collection** area appears.

2   Click **New Link**. The **Link Definition** area appears.

3   In the **Name** box, type a name for the link. This name appears in the web link collection for the defined web query.

4   In the **Method** list, click **GET** or **POST** for the http method of the link.

5   In the **URL** box, type the http URL of the link.

6   In the optional **Parameters** box, type the name and value of the parameter to pass to the URL. Parameters for the **GET** method are passed as query a string. Parameters for the **POST** method are passed as a form post. Click **More** to add more parameters to the query.

7   Click **Save**. To add more links, click **New Link** from the **Web Link Collection** area.
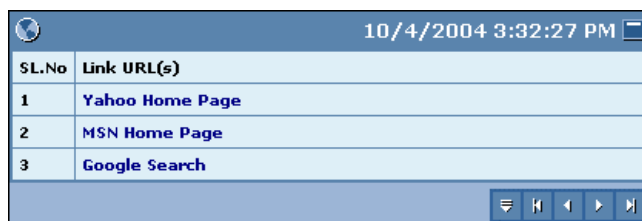
Examples of Web Content Queries

For web content queries that use the list type, you can define multiple links in a query definition. For example, you want to define a list of links of search engines. Type the following values for the configuration options:

```
Link Type: List
Method: GET
URL: http: //www.google.com/search
```

Click **New Link** in the **Web Link Collection** properties to add another link to the web content query. The **Link Type** list is unavailable because the query definition is already defined as a list type. There is no limit to the number of links defined in a web content query.

The web content display of the web links displays the links in a list. For more information on web content displays, see Defining a Web Content Display on page 168

	10/4/2004 3:32:27 PM ☐
SL.No	Link URL(s)
1	**Yahoo Home Page**
2	**MSN Home Page**
3	**Google Search**

With an appropriate data source and display, this query displays a tabular list of all links defined in the query. Each link is identified by the name specified in the query. Clicking on any item in the list launches the respective content.

For web content queries that use the page link type, only one link definition can be defined in a web content query. For example, to show the content of the Google search page in the French language through the Table Weaver. Type in the following values for the configuration options:

```
Link Type: Page
Method: GET
URL: http://www.google.com/search
Parameter Name: hl
Parameter Value: fr
```

With an appropriate content unit and display, this query shows the Google search page in French.
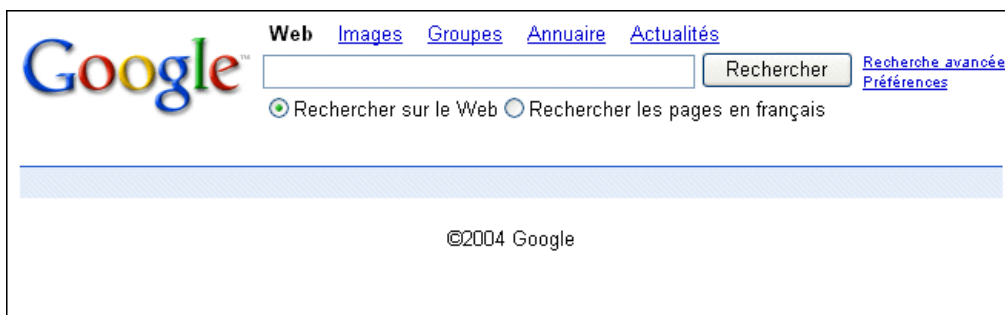
Copying, Editing, Deleting a Query

To copy a query, see Copying a Definition Unit on page 133.

To edit a query, see Editing a Definition Unit on page 134.

To delete a query, see Deleting a Definition Unit on page 135.

Chapter 15

Defining Displays

Displays define the visual presentation of the data returned by a query. They transform the raw data returned by the query into a graphical representation, which is then displayed to the user. You can configure different types of displays supported by Table Weaver to display the content of the content unit.

About Displays

TableWeaver displays support:

- Hyperlinks to related information

- Value-based color or image selection (KPIs)

- Reusable and parameterized queries

- Web data sources

Wonderware Information Server 3.0 provides the following display types:

- Chart

- Filter Entry

- SmartSymbol

- Tabular

- Web Content

Defining a Display

To define a display

1 In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2 Click **Display**. The **Display List** page appears.

3 Click **New**. The **Display** page appears.

4 In the **Display Type** list, select and click a display type. The properties from the selected display type appear.

Information on defining chart, filter entry, SmartSymbol, tabular, and web content displays appear in the following sections.

Defining a Chart Display

You can define several charts in Wonderware Information Server.

- Single Series
  The single series graph shows a graph with two data fields (x-axis, y-axis). The single series graph can select all of the chart types.

- Multiple Series
  The multiple series graph shows a graph with three data fields (x-axis, y-axis, series) with the option to display the graph as a single or separate multi-series graph.

- Separate Graph per Series
Identifies whether the series data is shown as a single graph or separate graphs. This option is only applicable for multiple series. For example, the Tee Chart shows a multiple series single graph.
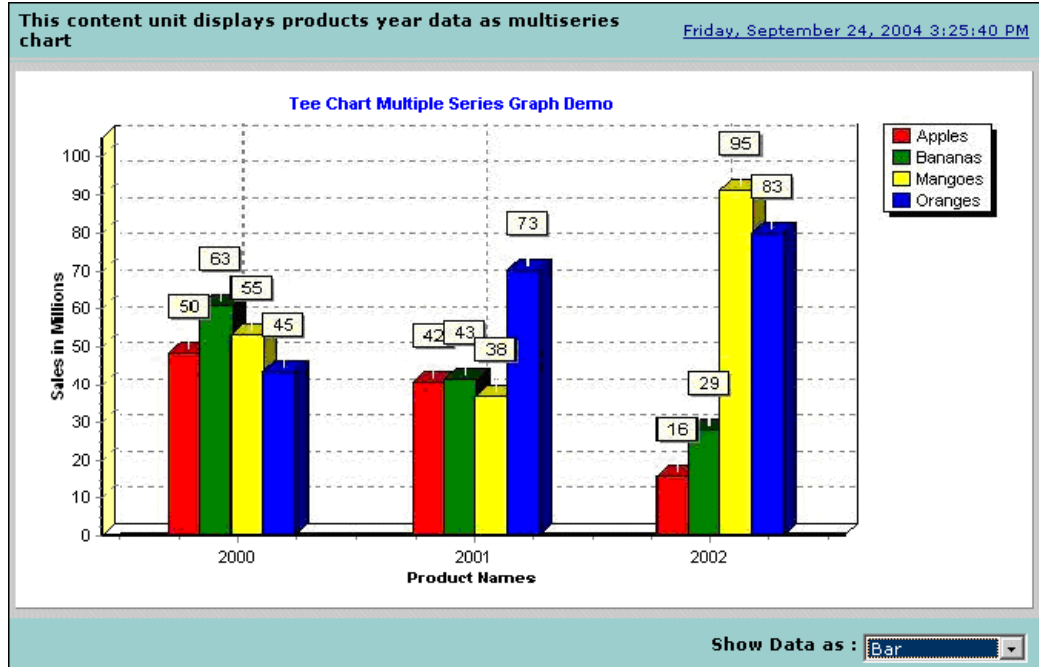
The Equipment Status bar chart displays a multiple series graph with the separate graph per series option.
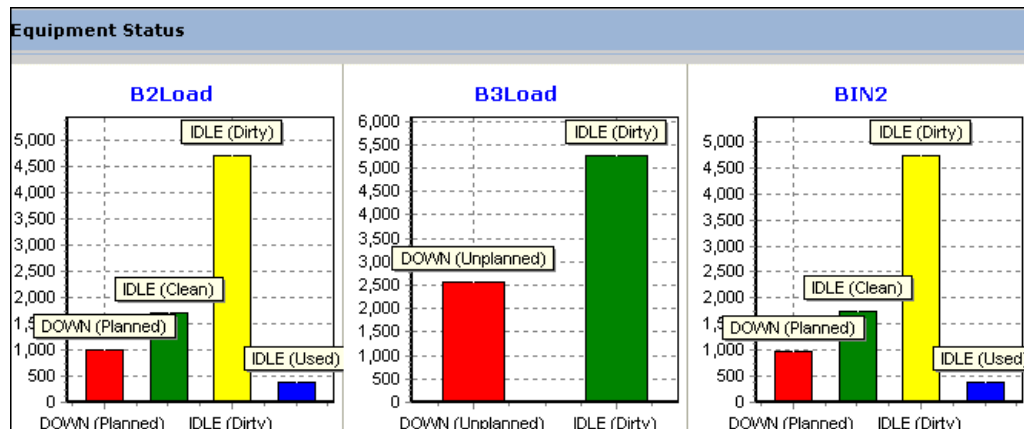
- Default Chart
  All outputs are plotted on a graph with an x-axis and
  y-axis, except for the pie chart. The chart types for
  multiple series graph are limited to bar, horizontal bar,
  stacked bar, stacked bar percentage and fast line. The
  chart default is set to line.

Type of Chart	Description
Line	Outputs all points by drawing a line between them (that is, a trend graph).
Bar	Outputs a series of vertical bars, with the top edge of each bar indicating the point value.
Horizontal Bar	Outputs a series of horizontal bars, with the right edge of each bar indicating the point value.
Stacked Bar	Outputs a series of stacked bars, with the height of each bar indicating the point value. Subsequent series are stacked to the prior series. For example, if the series values for a point are 4, 5, and 11, then there are bars from 0-4, 4-9, and 9-20.
Stacked Bar Percentage	Outputs a series of stacked bars, with the height of each bar indicating the percentage of the total from all series.
Area	Outputs all points by drawing a line between them and then filling the area defined by the line and the bottom side of the chart.
Point	Outputs all points by drawing individual point markers.
Pie	Outputs all points by drawing slices that form an ellipse (oblong circle).

Type of Chart	Description
Fast Line	Outputs all points by drawing a line between them (that is, a trend graph). A fast line chart is drawn more quickly than a normal line chart, but it is not clickable and does not support marks.
Volume	Outputs a series of thin vertical lines, with the top edge of each bar indicating the point value.

To define a chart display

1   Click **Chart** from the **Display Type** list. The **Chart Properties** area appears.

2   In the **Display ID** box, type a name for the display. The name must be unique in the current folder and cannot not contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Display List** page.

3   In the **Description** box, type a description that appears in the **Display List** page.

4   Configure the **Graph Type** options for the chart.

5   In the **X-Axis Data Field** box, type the data field name from the data set that is used for the x-axis. The name appears in the chart results.

6   In the **Y-Axis Data Field** box, type the data field name from the data set that is used for the y-axis. The name appears in the chart results.

7   In the **Series Data Field** box, type the data value to group the data for a multi-series chart. This option is only applicable for multiple series charts.

8   Configure the **Appearance** options for the chart.

● Header

Specifies the header of the chart. You can type in a name or include a parameter value with #param# syntax. This header appears above the chart.

● X-Axis Caption

The caption that appears on the x-axis of the chart.

● Y-Axis Caption

The caption that appears on the y-axis of the chart.

● Size %(Width, Height)

Sets the size of the width and height of the chart to be displayed in percentage. The value must be positive integers. The default size is (100, 100)

9   Configure the **View Options** for the chart.

● Show Legend

Shows or hides the chart legend to the right of the chart. The legend lists all item values in the chart.

● 3-D View

Specifies the chart as a three-dimensional graphic.

● Zoomable

Zoom in or out on the chart display.

● Show Marks

Shows or hides the marker for each data point on the graph.

● Show Timestamp

Shows the data retrieval timestamp on the chart in client time zone.

10 Click **Save**.

Single Series Chart Example

For charts that use a single series, provide data field names for the **X-Axis Data Field** and **Y-Axis Data Field**. For example, to create a chart that displays the sales per category using sample Product Sales data. The SQL query defined for this example is the following:

```
SELECT CategoryName, Sum(ProductSales) AS
CategorySales FROM "Product Sales for 1997" GROUP
BY CategoryName
```

In defining the chart display, type in the following values for the configuration options:

X-Axis Data Field: `CategoryName`

Y-Axis Data Field: `CategorySales`

Header: `Sales Per Category`

X-Axis Caption: `Category Name`

Y-Axis Caption: `Sales`

Size %(Width, Height): `100, 100`

The resulting chart displays Category Name values graphed along the x-axis of the chart and the Sales values graphed along the y-axis of the chart. The header appears at the top of the chart and the captions are shown along the indicated axis. In this display, the **Show Marks**, **3-D View**, and **Show Legend** options are selected.
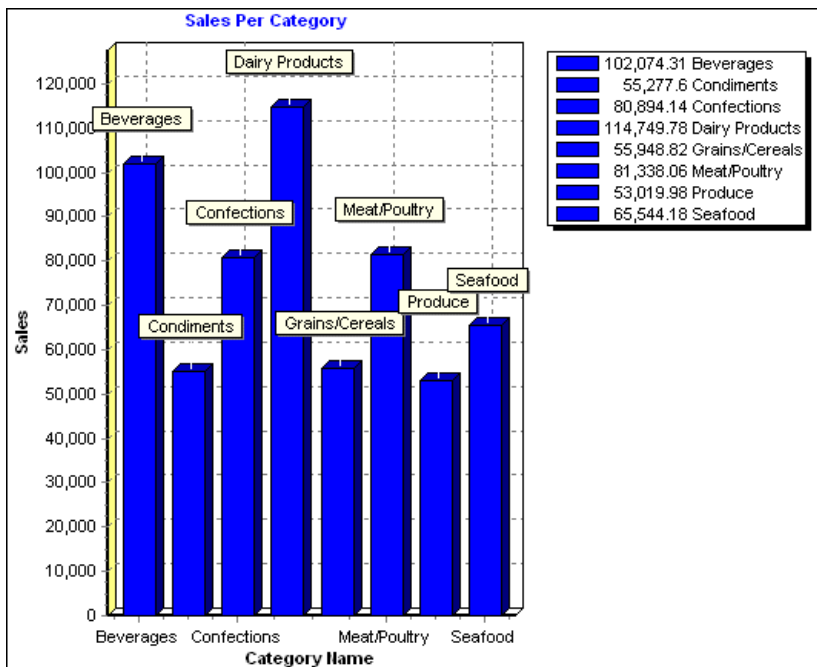
Multiple Series Chart Example

For charts that use a multiple series, you need to provide data field names for the **X-Axis, Y-Axis**, and **Series Data Field**. For example, you want to create a chart that displays the sales per category using sample Product Sales. The SQL query defined for this example is the following:

```
SELECT ProductName, ProductID AS _ProductID,
SupplierID AS _SupplierID,'ReorderLevel' AS
Series, ReorderLevel AS 'Measure', ReorderLevel,
UnitsInStock FROM Products
```

```
UNION
```

```
SELECT ProductName, ProductID,
SupplierID,'InStock', UnitsInStock, ReorderLevel,
UnitsInStock FROM Products
```

In defining the chart display, type in the following values for the configuration options:

```
X-Axis Data Field: ProductName
```

```
Y-Axis Data Field: Measure
```

```
Series Data Field: Series
```

```
Size %(Width, Height): 100, 100
```

The resulting chart displays the count of InStock and ReOrderLevel units for all the Products. This is a multiple series single graph with links on each product bar to more detailed product information.
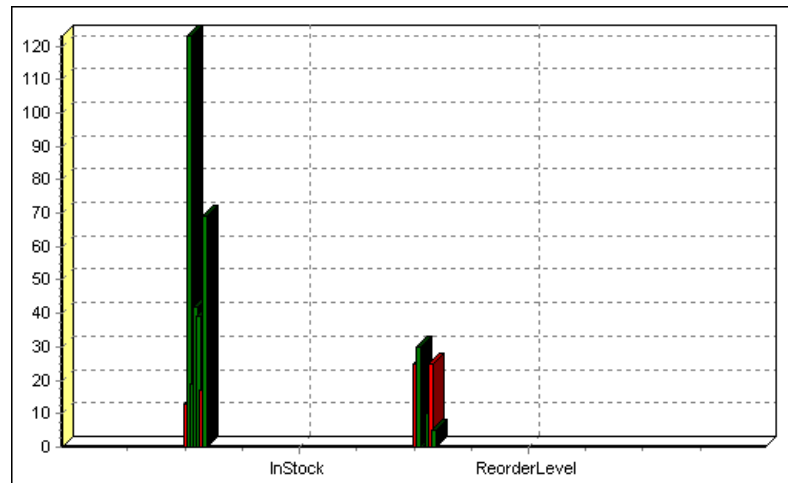
Defining a Filter Entry Display

The display is based on the links associated with the content unit. It provides a user input box with a list of associated links. Selecting a link from this list opens additional input fields for each defined link parameter for the selected link.

The user must provide values for these parameters which are then passed to the link target. The target content is filtered based on the data received from the user.

To define a filter entry display

1   In the **Display Type** list, click **Filter Entry**. The **Filter Tabular Display Properties** area appears.

2   In the **Display ID** box, type a name for the display. The name must not contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Display List** page.

3   In the **Description** box, type a description for the display. This description appears in the **Display List** page.

4   Select the **Show Timestamp** check box to show the date and time the data is retrieved. The date and time is displayed in the site's user time zone.

5   Click **Save**.

Filter Entry Example

The filter entry display filters the data in the content unit based on user input. It shows the available links to filter and provides an input box in which users can type the specific value for the link parameter. For example, you want to define a filter display for sample orders and suppliers. The number of links available in the filter display depends on the link definition unit. You want to create two links for the filter, one for order, the other for supplier. For the order link, type the following values for the configuration options:

Description: `Order detail link`

Binding: `Field`

Entity: `OrderID`

Parameter Name: `OrderID`

Create a supplier link in the same link collection as the order link. Type the following values for the configuration options:

Description: `Show suppliers details`

Binding: `Field`

Entity: `CustomerID`

Parameter Name: `CustomerID`

Type in the following SQL query for the query definition unit:

```
SELECT Orders.OrderID, Orders.CustomerID,
Orders.EmployeeID, Orders.OrderDate,
Orders.RequiredDate, Orders.ShippedDate,
(convert(int, (Orders.ShippedDate -
Orders.OrderDate))) AS LeadTime, Orders.ShipVia,
Orders.Freight, Orders.ShipName,
Orders.ShipAddress, Orders.ShipCity,
Orders.ShipRegion, Orders.ShipPostalCode,
Orders.ShipCountry, Customers.CompanyName,
Customers.Address, Customers.City,
Customers.Region, Customers.PostalCode,
Customers.Country FROM Customers INNER JOIN Orders
ON Customers.CustomerID = Orders.CustomerID
```

With a general defined filter entry display, the links defined in the link definition unit appear in the **Select the Link to apply filter** list. Parameter names appears when a link is selected. For this example, the OrderID and CustomerID parameter names appears for the order and supplier links, respectively.

The user can type in a parameter value and find any related information based on the data inputted. If you click **Go** without inputting a value, the filter result shows data dependent on the configuration of the default parameter.

Defining a SmartSymbol Display

You can publish SmartSymbols from InTouch Windows. For more information, see Publishing Symbol Sets in *Win-XML Exporter User's Guide.*

Before you start, make sure you published the SmartSymbol set you want to use.

To define a SmartSymbol display

1   In the **Display Type** list, click **SmartSymbol**. The **SmartSymbol Display Properties** area appears.

2   In the **Display ID** box, type a name for the display. The name must be unique in the current folder and cannot contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Display List** page.

3   In the **Description** box, type a description for the display. This name appears in the **Display List** page.

4   In the **Symbol** list, select a symbol.

5   In the **Total Number of Symbols** field, type the total number of symbols. When the data returned by the query is greater than this number, the data is truncated to this limit.

6   In the **Symbols in a Row** field, type the number of symbols to appear in each row. When the data returned by the associated query is greater than this limit, the data appears in the next row.
    The **Tagname** field displays the tags defined in the selected symbol. The **Tagname** field cannot be edited.

7 In the **Data Field** field, type the name of the corresponding data field. The **Tagname** acquires the value of the data field and is used for animation of the symbol.

8 Click **Save**.

Defining a Tabular Display

To define a tabular display

1 In the **Display Type** list, click **Tabular**. The **Tabular Display Properties** area appears.

2 In the **Display ID** box, type a name for the display. The name must be unique in the current folder and cannot contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Display List** page.

3 In the **Description** box, type a description for the display. This name appears in the **Display List** page.

4 To number the rows in the display, click **Enable Numbering**.

5 To show the date and time the display was viewed, click **Show Timestamp**. The date and time is displayed in the client's time zone.

6 In the **Rows per view** box, type a numeric value that limits the number of rows to be presented in a single view. A zero value displays all data items in the table.

7 In the **Color Scheme** list, select a color scheme for the display. The default color scheme is blue.

8 In the **Hidden Columns** box, type the name of the column(s) in the table to hide from the table display. Hide columns that perform KPI calculations. Separate each column name with a semicolon.

9 In the **Display Type** list, select **Horizontal** or **Vertical** to determine the orientation of the table. Use the vertical orientation when there are lots of columns and few rows from the query results.

10 Click **Save**.

Tabular Display Example

A tabular display distributes the data based on the configuration options indicated in the Tabular Display Properties area. For example, you want to create a horizontal table that hides specific columns and displays only 4 rows per table view. Type in the following values for the configuration options:

Rows per view: `4`

Hidden Columns: `Supplier`

Display type: `Horizontal`

Using the Northwind database and query, the content unit shows a table based on the configuration set in the display definition unit.

Supplier Information

	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone	Fax
-	Charlotte Cooper	Purchasing Manager	49 Gilbert St.	London		EC1 4SD	UK	(171) 555-2222	
-	Shelley Burke	Order Administrator	P.O. Box 78934	New Orleans	LA	70117	USA	(100) 555-4822	
-	Regina Murphy	Sales Representative	707 Oxford Rd.	Ann Arbor	MI	48104	USA	(313) 555-5735	(313) 555-3349
-	Yoshi Nagase	Marketing Manager	9-8 Sekimai Musashino-shi	Tokyo		100	Japan	(03) 3555-5011	
-	Antonio del Valle Saavedra	Export Administrator	Calle del Rosal 4	Oviedo	Asturias	33007	Spain	(98) 598 76 54	

Defining a Web Content Display

A web content display uses a web content query to display web content based on URL links. Web content displays can be shown as a table list of web links or a web content page. For more information on the difference between web link types, see Defining a Web Content Query on page 149.

To define a web content display

1   In the **Display Type** list, click **Web Content**. The **Web Display Properties** area appears.

2   In the **Display ID** box, type a name for the display. The name must be unique in the current folder and cannot contain spaces or special characters (\ / : * ? < > & | ' "). This name appears in the **Display List** page.

3   In the **Description** box, type a description for the display. This description appears in the **Display List** page.

4   In the **Title** box, type a title for the display. The title appears on the top of the display.
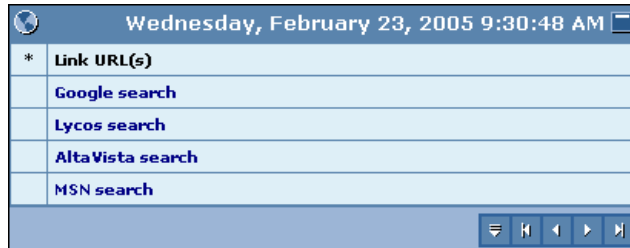
Note All web display configuration options after **Title** are only used for a web query with a list link type.

5   To number the rows in the display, select the **Enable Numbering** check box.

6   Select the **Open Link in New Window** check box to open each link in a new window instead of opening the web content in the same window.

7   Select the **Show Timestamp** check box to show the date and time the data was retrieved. The date and time is displayed in the site's user time zone.

8   In the **No. of Links per view** box, type the number of links to be presented in a single view. A zero value shows all links in the view.

9   Click **Save**.

Web Content Display Example

Web content displays can show the URL webpage or a list of web links. For example, you want to show a list of search engines web links.

Using the data from the web content query example from Chapter 14, Defining Queries the resulting Search Engines display shows the list of search engines web links with the **Enable Numbering**, **Open Link in New Window**, and **Show Timestamp** options selected.

Copying, Editing, Deleting a Display

To copy a display, see Copying a Definition Unit on page 133.

To edit a display, see Editing a Definition Unit on page 134.

To delete a display, see Deleting a Definition Unit on page 135.

Chapter 16

Defining Links

Using the **Links** node of the Table Weaver Manager, you can define links to connect to various contents.

About Links

A link is the way of connecting various contents to the content unit. Links are an optional definition unit of a content unit definition.

While processing a content unit that has a link association, Table Weaver processes the link definition and put the link information into the data obtained by running a query on the data source. The display definition unit takes the processed data and provide hyperlinks to access related contents.

Defining a Link Collection

All links are part of a link collection. A link collection can contain one or more links.

To define a link collection

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Link**. The **Link Collection List** page appears.

3 Click **New**. The **Link Collection** page appears.

4 In the **ID** box, type a name for the link collection. The name must be unique in the current folder and cannot contain spaces or special characters (\ / : * ? < > & | ' "). This link appears on the **Link Collection List** page.

5 In the **Description** box, type a description for the link. This description appears on the **Link Collection List** page.

6 Click **Save**. You can now define links within the link collection.

Copying, Editing, Deleting a Link Collection

To copy a link collection, see Copying a Definition Unit on page 133.

To edit a link collection, see Editing a Definition Unit on page 134.

To delete a link collection, see Deleting a Definition Unit on page 135.

Defining a Link

Note If you are working in http: mode and then switch to https: mode, items added to the panel that have been defined to use http: protocol will no longer work. To fix these broken links, someone with administrator privileges must delete the items from the panel and then re-add them so that they have the https: protocol.

To define a link

1   The link must be part of a link collection. Click a defined
    link collection from the **Link Collection list** page.

2   Click **New Link**. The **Definition** area appears.

3   In the **Name** box, type a name for the link. The name
    must not contain spaces or special characters (\ / : * ? < >
    & | ' "). This link appears on the selected link collection
    list page.

4   In the **Description** box, type a description for the link.
    This description appears on the selected link collection
    list page and as mouse-over text in the display.

5   In the **Binding** list, click the type of the link. The link can
    be bound to a **Record** (data row), a **Field** (specific data
    column), or a **KPI**.

Note If the content unit is SmartSymbol, you can only bind to a
Record.

6 To bind the link to a KPI, a KPI collection must be selected for the content unit. The link is bound to a record by default.

7 To bind to a specific column, type in the name of the column in the **Entity** box. To bind to a KPI, type the name of the KPI in a KPI Collection.

8 In the **Target** list, select **Content Unit** or **Web Source** to indicate the target of the link. If content unit is selected, a **Content Unit** list appears. If web source is selected, a **URL** box appears for you to type the URL link.

9 In the **URL** box, type the URL of the target. If the target is a content unit, select the name of the target content unit from the provided list.

10 To attach an image to the link, click **Attach Image**. The **Select an Image** window appears.
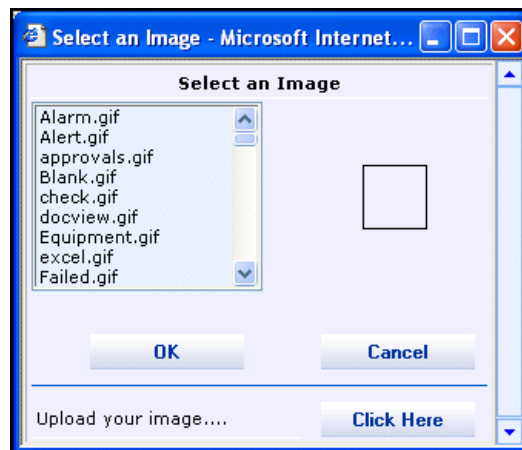
11 Select an image from the default list or upload an image from the local drive or network path. Previews for both the images from the default list and an uploaded image can be viewed in the right-hand box. Click **OK**.

12 In the **Position** list, click **First**, **After** or **Last** to indicate the position of the link in the view. If the **After** position is selected, type the name of the column that the link(s) place after in the **PositionColumn** box.

13 Select the **New Window** check box to open the link in a new window.

14 In the **Parameters** box, configure the values to be passed through the parameters defined in the SQL Query. Click **More** to pass multiple name-value parameter pairs. Parameter names are case sensitive. For more information on configuring link parameters, see Example of Link Parameters on page 176.

- **Name**

  Name of the parameter in the SQL query.

- **Value**

  Value that you want to pass in the parameter. To pass a value from the associated data source, specify the appropriate column name enclosed with the # symbol.

15 Click **Save**.

Editing a Link

To edit a link

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Link**. The **Link Collection List** page appears.

3   In the **Link Collection List** page, select a link collection ID.

4   Click the link name and start editing.

5   Click **Save**.

Deleting a Link

To delete a link

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **Link**. The **Link Collection List** page appears.

3   In the **Link Collection List** page, select the link collection ID that contains the link(s).

4 Select the check box next to the link(s).

5 Click **Delete**. You are prompted to verify the deletion.

6 Click **OK**.

Example of Link Parameters

Link parameters can pass multiple parameter values to targeted queries to show detailed information in the display.

For example, you have a tabular display that shows the number of suppliers from each country. You want to apply links to all the country names to show an individual tabular display of the details for each supplier in the selected country.

Based on the link definition, hyperlinks are listed for all the countries listed in the table. The hyperlinks connect to another tabular display that shows specific information about the suppliers for the selected country. The links are configured in the link definition which specifies the binding, entity, and target of the link.

The link is bound to a field with the Country entity and targets a content unit that passes a parameter value to a database query.

The link parameter passes in the #Country# parameter value to the targeted content unit database query. In the database query properties, the SQL query searches through the Country column for the value of the selected country. The value of #Country# becomes the name of the country link selected by the user.

The parameter value passed into the database query returns a tabular display of the suppliers for the selected country. Clicking the Australia hyperlink shows the supplier(s) information for Australia.

Suppliers In A Country					
-	**Products**	**CompanyName**	**ContactName**	**City**	**Phone**
-	🔍	Pavlova, Ltd.	Ian Devling	Melbourne	(03) 444-2343
-	🔍	G'day, Mate	Wendy Mackenzie	Sydney	(02) 555-5914

Chapter 17

Defining KPIs

Using the **KPIs** area of the Table Weaver Manager, you can configure the KPI and target conditions to display visual indicators in the displays when the target conditions are met.

About KPIs

Key Performance Indicators (KPIs) are visual indicators that express a value as either a color or an image. Each KPI has one or more targets with their own set of target conditions that display visual indicators associated with the target when all target conditions are met.

Defining a KPI Collection

A KPI collection is a set of KPIs that is associated with one or more content units. All KPIs must be defined in a KPI collection.

To define a KPI collection

1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2 Click **KPI**. The **KPI Collection List** page appears.

KPI Collection List		Home >> KPI Collection List
KPI Collection ID **Type**		**Description**
☐ Alarm	📁	2 Items
☐ InBatch	📁	2 Items
☐ InSQL	📁	3 Items
☐ InTrack	📁	1 Items
☐ Northwind	📁	3 Items
New Folder **New**	**Delete**	**Copy** **Cancel**

3 Click **New**. The **KPI Collection page** appears.

KPI(s) in Collection(\)   Home >> KPI Collection List >> KPI Collection

KPI Collection Definition

ID : *
Description : *

Save   Reset   Cancel

* Required field

4 In the **ID** box, type an identifier for the KPI Collection. The KPI Collection ID must be unique in the current folder and cannot contain spaces or special characters (\ / ? : * < > & | "" %). This ID appears on the **KPI Collection List** page.

5 In the **Description** box, type a description for the collection. This description appears on the **KPI Collection List** page.

6 Click **Save**. The **KPI List** for the newly created KPI Collection appears. For more information on how to create a KPI, see Creating a KPI on page 181.

Copying or Deleting a KPI Collection

For information on copying a KPI Collection, see Copying a Definition Unit on page 133.

For information on deleting a KPI Collection, see Deleting a Definition Unit on page 135.

Creating a KPI

A KPI is part of a KPI collection. You can configure multiple KPIs in a KPI collection.

To create a KPI

1 Select a KPI collection from the **KPI Collection List** page.
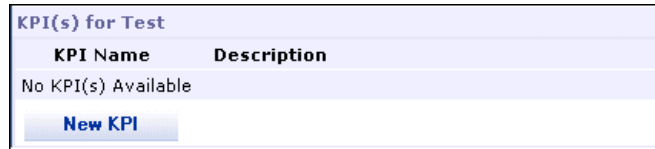
2 Click **New KPI**. The **KPI Definition** properties appear.
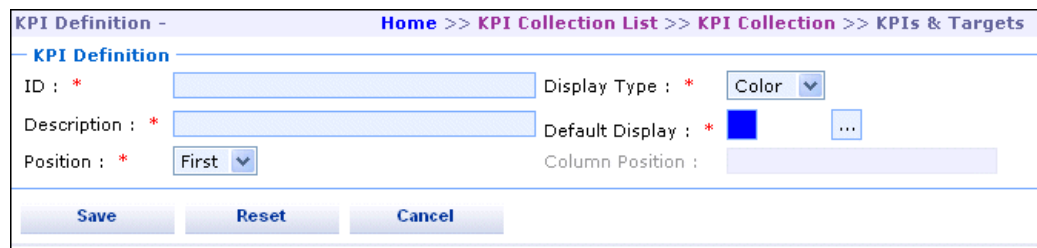
3 In the **Name** box, type a name for the KPI. The name must be unique in the current KPI Collection. The name appears in the **KPI Collection** page.

4 In the **Description** box, type a description for the KPI. The description appears in the **KPI Collection** page.

5 In the **Position** list, click **First**, **After** or **Last** to indicate the position of the KPI in the view. If the **After** position is selected, the **Column Position** box is enabled for you to type the name of the field column for the KPI to be after.

In this example, the KPI named SalesPerCategory is positioned after CategoryName.

6   In the **Display Type** list, select **Color** or **Image** to indicate the display of the KPI. The selected color or image appears in the display as a default indicator when none of the KPI targets are met. For more information about KPI target conditions, see Defining a KPI Target on page 183.

7   If you selected **Color** in the **Display Type** list, the **Default Display** opens a color picker dialog box for a default color display. The selected color appears as default when the KPI target condition is not met.

8   If you selected **Image** in the **Display Type** list, the **Attach Image** button allows you to select an image for the KPI. You can select an image from the default list or attach an image from your local drive.

9   Click **Save**.

Editing a KPI

To edit a KPI

1   Select a KPI collection from the **KPI Collection List** page.

2   Select the KPI you want to edit. All information in the KPI definition can be modified except the KPI name. You must define a new KPI to modify the KPI name.

3   Click **Save**.

Deleting a KPI

To delete a KPI

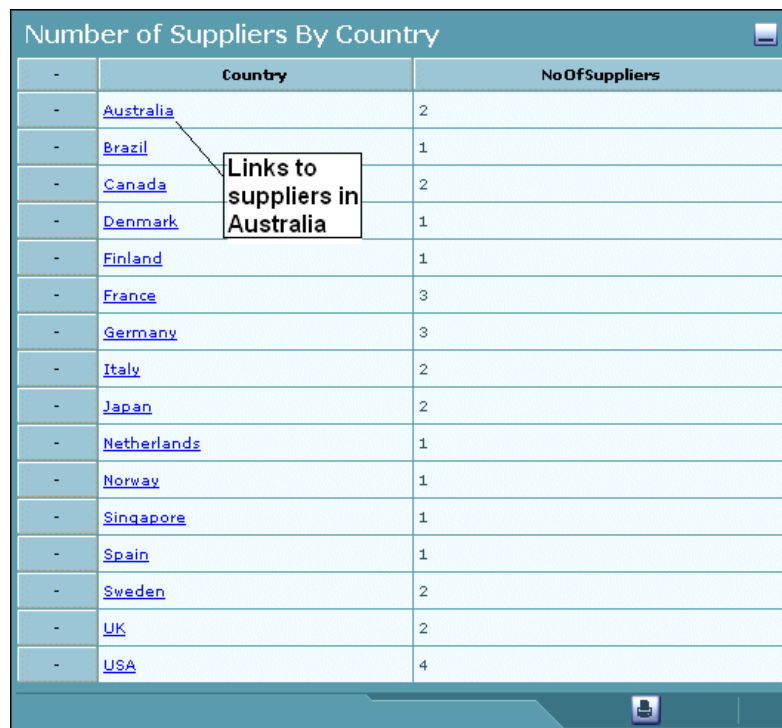1   In the **System** access panel, expand **Administration** and then click **Table Weaver Manager**. The **Table Weaver Manager** page appears.

2   Click **KPI**. The **KPI Collection List** page appears.

3   In the **KPI Collection List** page, select the KPI collection ID that contains the KPI(s).

4   Select the check box next to the KPI(s).

5   Click **Delete**. You are prompted to verify the deletion.

6   Click **OK**.

Defining a KPI Target
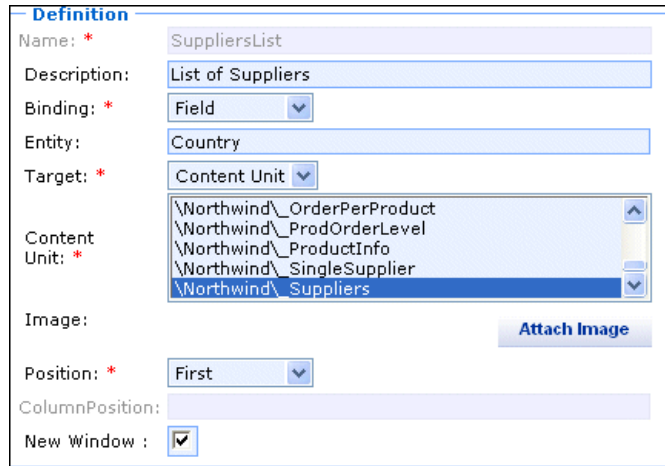
A KPI can include multiple targets, each with its own set of target conditions. You can configure the target display based on the KPI display selection of color or image. The target display appears in the content unit display(s) when the target conditions are met.

To define a KPI target

1   Select a KPI collection from the **KPI Collection List** page.

2   Select a KPI definition from the KPI collection.

3   Click **New Target**. The **Target Definition** area appears.

4   In the **ID** box, type an ID name for the target. Target ID name must be unique within the selected KPI definition.

5   In the **Description** box, type a description for the KPI target.

6   Based on the display type selected for the KPI, the **Display** box provides the same display type with the proper display options. If the KPI is defined with a color display, a color picker dialog box appears for you to select the color of the target definition. If the KPI is defined with an image display, you can attach an image to the target definition.

7   In the **Conditions** area, set target condition. Type a field and value in the **Field** and **Value** boxes, respectively, and select an operator from the list. Each target condition is evaluated with the data returned from the data source. Click **More** to add multiple conditions to the target.

Note Multiple conditions are linked together with an AND.

8   Click **Save**.

Editing a KPI Target

To edit a KPI target

1 Click a KPI collection from the **KPI Collection List** page.

2 Select a KPI definition from the KPI collection.

3 Select a target from the KPI target collection.

4 Edit the **Target Definition** properties. All information in the target definition can be modified except the target name. You must create a new KPI target to modify the target name.

5 Click **Save**.

Deleting a KPI Target

To delete a KPI target

1 Click a KPI collection from the KPI Collection List page.

2 Select a KPI definition from the KPI collection.

3 Select the KPI target that you want to delete.

4 Click **Delete**. You are prompted to verify the deletion.

5 Click **OK**.

Chapter 18

ActiveFactory Reporting

The ActiveFactory Reporting Website is a preconfigured Wonderware Information Server component that allows web users to:

- Generate reports using data from IndustrialSQL Server historian databases.

- Trend history data from IndustrialSQL Server historian databases.

- Build and execute SQL queries against data from IndustrialSQL Server historian and other databases.

The ActiveFactory Reporting Website can be accessed both directly or through Wonderware Information Server. When accessing the site directly, a custom starting page appears from which users can access the various Reporting Website features. When accessing through Wonderware Information Server, the Reporting Website features appear under the **ActiveFactory** node in the Launch Pad.

Although not required, you may want to change some of the settings related to report publishing. This can be accomplished by editing a set of .xml files.

About Report Publishing

The following components are used during the publishing of reports to the ActiveFactory Reporting Website.

• Tables within the IndustrialSQL Server historian store report information. For more information, see Database Entities for Report Publishing on page 189.

• A set of folders located on the web server contain the published reports. For more information, see Report Publishing Folders on page 188.

• A set of XML files control the configuration and parameters for published reports. For more information, see Reporting Support Files on page 190.

• The Reporting Service (aaHistClientReportingService) is a Windows service that handles all of the report publishing tasks.

When a report is published to the website:

1 Information about the report is added to the IndustrialSQL Server historian database.

2 The report file is copied to the appropriate report folder on the Reporting Website computer by the Reporting Service. The Reporting Service periodically checks the IndustrialSQL Server historian database to see if new reports need to be published.

3 The website is configured to include the new report.

   • For a static report, the results are saved as an HTML file. When accessing the report, client users see the saved static data.

   • For an on-demand report, only the report definition is saved, but no data. Current data is retrieved from the database whenever a client user accesses the report.

The following diagram shows this process.
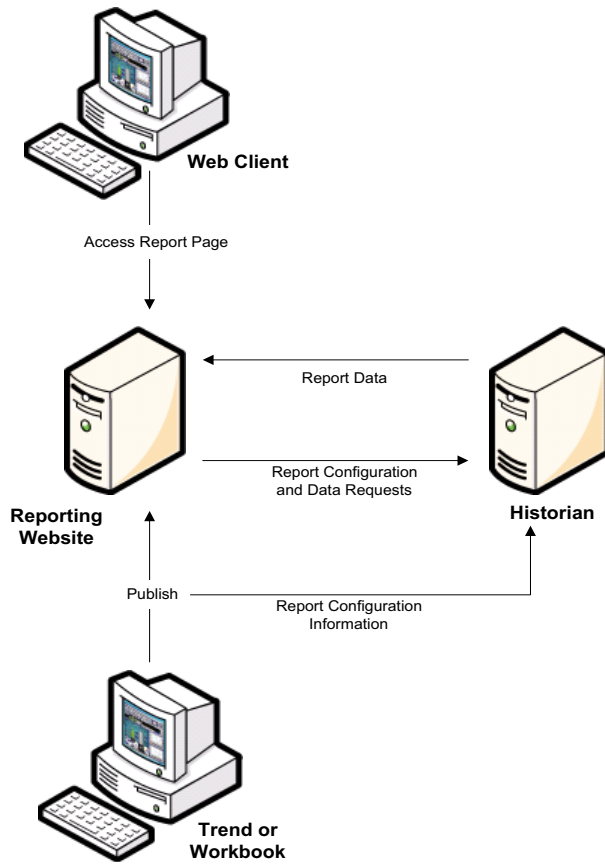
Report Publishing Folders

By default, all published reports reside in the following set of folders on the web server:
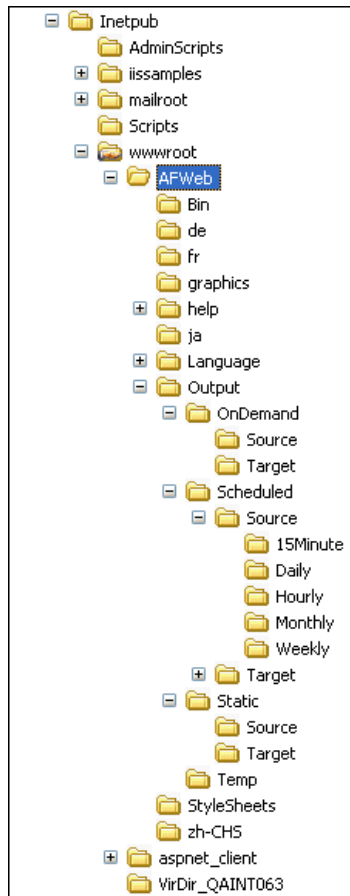
Each type of report (static, on demand, and scheduled) has its own folder. Within each of these folders are two subfolders: Source and Target. When a report is published, the Report Service copies the published report file to the \Source folder. The \Target folder is used during the actual generation of the report by the website user.

For scheduled reports, there is a subfolder for each time period.

Database Entities for Report Publishing

When the ActiveFactory Reporting Website or the ActiveFactory client software package is installed for the first time, three tables are added to the Runtime database of the IndustrialSQL Server historian.
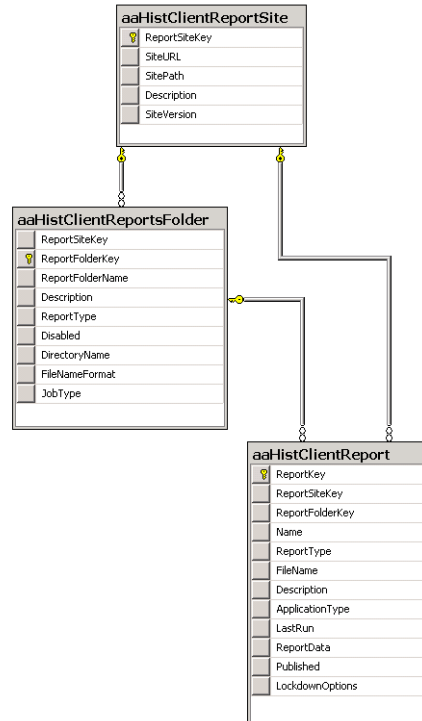
- The aaHistClientReport table contains one row for each report that is published.

- The aaHistClientReportsFolder table contains one row for each report folder that appears under the main **Published Reports** navigation node.

- The aaHistClientReportSite table contains basic configuration information for the Reporting Website, such as the URL.

Also, the following stored procedures are created:

- aaManualTagInsert

- aaManualTagSingleValueInsert

- aaDiscreteTimeInState

These tables and stored procedures are for internal use only. Do not modify them.

Reporting Support Files

The following XML files are used by the Reporting Website:

- **ReportParameters.xml**. This file stores information related to the reports. There is a section for each report group (Pre-Defined, System Status, Summary Reports, and so on), as well as sections for each type of report in the report groups. For published reports, additional sections are included to contain information regarding the report name, file names and paths, the report type, and so on.

- **Configuration.config**. This file stores basic information for the website, such as schedules and archival rules for reports and the folders for scheduled, static, and on-demand reports.

- **ReportsDefinition.xml**. This file stores all of the query definitions for the pre-configured reports, as well as information regarding the style sheet files for these types of reports.

About IndustrialSQL Server Connections

A connection to an IndustrialSQL Server historian is required:

- During the ActiveFactory Reporting Website installation.

- When a predefined or dynamic report is generated.

- When a report is published.

The nature of the connection for each of these cases is slightly different, and it is important that you understand the differences between them.

Logins for Predefined and Dynamic Reports

For generating reports, the ActiveFactory Reporting Website can use any IndustrialSQL Server connection that is defined as a data source for the "Historian" data source type in Wonderware Information Server. By default, the ActiveFactory Reporting Website uses the default Historian data source that you specified during installation. Client users can select any other Historian data source by clicking the **Select InSQL** node in the Launch Pad.

Managing Scheduled Reports

A scheduled report is a published report that is periodically re-generated according to a specified time schedule. For example, you may want a particular report to be run every 15 minutes and posted to the website.

The following default schedules are available for reports:

- 15Minute (every 15 minutes)

- Hourly

- Daily

- Weekly

- Monthly (every 30 days)

Scheduled Report Folders

Reports are saved to files in folders on the website server. Each time a scheduled report is run, the resulting file is placed into a particular folder on the website. The following schedule folders appear by default in the *<installation_path>\<report_website_name>*\Output folder.
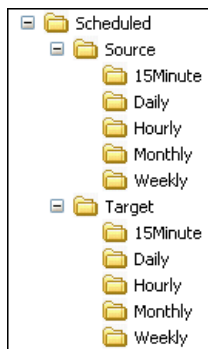
Configuration Information for Scheduled Reports

Folder names, time periods, and descriptions for scheduled reports are stored in the Configuration.config file. There is a section for each available time period.

```
– <SCHEDULEDREPORTPATHS>
  + <!--  -->
  – <EVENT>
      <FOLDERNAME>Event</FOLDERNAME>
      <TIMEINTERVAL>0,0,0</TIMEINTERVAL>
      <STARTTIME>-1,*,*,*</STARTTIME>
      <!--  -1 => this never fires on its own  -->
      <DESCRIPTION>Event</DESCRIPTION>
    </EVENT>
  – <FIFTEENMINUTE>
      <FOLDERNAME>15 Minute</FOLDERNAME>
      <TIMEINTERVAL>0,0,15</TIMEINTERVAL>
      <STARTTIME>*,*,*,0</STARTTIME>
      <DESCRIPTION>Every 15 minutes</DESCRIPTION>
    </FIFTEENMINUTE>
  – <HOURLY>
      <FOLDERNAME>Hourly</FOLDERNAME>
      <TIMEINTERVAL>0,1,0</TIMEINTERVAL>
      <STARTTIME>*,*,*,0</STARTTIME>
      <DESCRIPTION>Every hour</DESCRIPTION>
    </HOURLY>
  – <DAILY>
      <FOLDERNAME>Daily</FOLDERNAME>
      <TIMEINTERVAL>1,0,0</TIMEINTERVAL>
      <STARTTIME>*,*,0,0</STARTTIME>
      <DESCRIPTION>Every day</DESCRIPTION>
    </DAILY>
  – <WEEKLY>
      <FOLDERNAME>Weekly</FOLDERNAME>
      <TIMEINTERVAL>7,0,0</TIMEINTERVAL>
      <STARTTIME>*,1,0,0</STARTTIME>
      <DESCRIPTION>Every week</DESCRIPTION>
    </WEEKLY>
  – <MONTHLY Description="Beginning of the month">
      <FOLDERNAME>Monthly</FOLDERNAME>
      <TIMEINTERVAL>31,0,0</TIMEINTERVAL>
      <STARTTIME>1,*,0,0</STARTTIME>
      <DESCRIPTION>Beginning of every month</DESCRIPTION>
    </MONTHLY>
  – <SHIFT>
      <FOLDERNAME>Shift</FOLDERNAME>
      <TIMEINTERVAL>0,8,0</TIMEINTERVAL>
      <STARTTIME>*,*,6,0</STARTTIME>
      <DESCRIPTION>Every shift</DESCRIPTION>
    </SHIFT>
  </SCHEDULEDREPORTPATHS>
```

The <TIMEINTERVAL> element controls how often the report is run. The value notation for this element is:

Days, Hours, Minutes, Seconds

A time interval of 7,0,0,0 is every 7 days, 0 hours, 0 minutes, and 0 seconds. In other words, one time a week.

The <STARTTIME> element controls the time at which a particular report runs for the first time. A published report first runs at the start time and then periodically at the interval specified using the <INTERVAL> element. The value notation for the <STARTTIME> element is:

DayOfMonth,DayOfWeek,HourOfDay,MinutesOfHour

If you want a parameter to be ignored, use an asterisk (*) in place of a value. If any of the parameters are blank, the entire schedule is ignored.

Use the following values for the DayOfWeek parameter: Sunday = 0; Monday = 1; Tuesday = 2; Wednesday = 3; Thursday = 4; Friday = 5; Saturday = 6.

If the DayOfMonth parameter exceeds the number of actual days in current month, then the maximum number of days in the month is used. For example, if the DayOfMonth is set to 31, the scheduled report runs on the following dates:

1/31, 2/28 (or 2/29, depending if it is the leap year), 3/31, 4/30, 5/31, and so on

If you specify values for both the DayOfWeek or DayOfMonth parameters, then they must not be in conflict, or else the schedule does not run. For example, if you set the DayOfWeek to Monday and the DayOfMonth to the first day, there is a conflict if Monday is not the first day of the month. In other words, the combination of these two parameters must be true for the schedule to run.

Example report schedules are:

- Monthly at 5:00 p.m. on the last day of the month:
  ```
  <TIMEINTERVAL>31,0,0</TIMEINTERVAL>
  <STARTTIME>31,*,17,0</STARTTIME>
  ```
- Monthly at midnight on the first day of the month:
  ```
  <TIMEINTERVAL>31,0,0</TIMEINTERVAL>
  <STARTTIME>1,*,0,0</STARTTIME>
  ```
- Each Monday morning at 7:00 a.m.:
  ```
  <TIMEINTERVAL>7,0,0</TIMEINTERVAL>
  <STARTTIME>*,2,7,0</STARTTIME>
  ```
- Daily at 8:00 a.m.:
  ```
  <TIMEINTERVAL>1,0,0</TIMEINTERVAL>
  <STARTTIME>*,*,8,0</STARTTIME>
  ```
- Every eight hours starting at 6:00 a.m.:
  ```
  <TIMEINTERVAL>0,8,0</TIMEINTERVAL>
  <STARTTIME>*,*,6,0</STARTTIME>
  ```
- Hourly at 30 minutes past the hour:
  ```
  <TIMEINTERVAL>0,1,0</TIMEINTERVAL>
  <STARTTIME>*,*,*,30</STARTTIME>
  ```

Adding or Changing Scheduled Reports

You can add a new schedule, change the default schedules, or delete a schedule.

To add a new schedule

1 Use an XML editor to open the Configuration.config file.

2 Add a new entry in the <SCHEDULEDREPORTPATHS> element. The <FOLDERNAME> element reflect the name of the new schedule.

For example, to add a 45-minute schedule in a new 45Minute folder, add this element:

```
<45MINUTE>
    <FOLDERNAME>45Minute</FOLDERNAME>
    <TIMEINTERVAL>0,0,45,0</TIMEINTERVAL>
    <DESCRIPTION>Every 45 minutes</DESCRIPTION>
</45MINUTE>
```

3 Save the file.

4 Optionally edit the archival rules for the new schedule type. For more information, see Managing Report Archives on page 194.

The new schedule is available for publishing from Workbook.

To change a schedule, follow the same procedure, but edit existing entries instead of adding to the files.

To delete a schedule, simply delete the entry from the file.

Managing Report Archives

When a scheduled report is run, the resulting report file is saved to disk on the web server. You may or may not want to keep every report that is generated. You can use the archiving feature of the Reporting Website to configure which scheduled reports to keep and for how long.

About the Archival Rules

The archival rules determine how long a report is kept and what name is given to each result file for a scheduled report.

The archival rules are set in the Configuration.config file in the element between the <ARCHIVALRULES> and </ARCHIVALRULES> tags. The <ARCHIVALRULES> element contains the <DEFAULT> and <EXAMPLEREPORT> elements. To add archival rules for a specific report, add another element under the <ARCHIVALRULES> element and name it according to your report. You can use the <EXAMPLEREPORT> element as a starting point for your custom archival rules. For more information, see Adding a Report-Specific Archival Rule on page 199.

```
– <REPORTS>
  – <ARCHIVALRULES>
    + <!--    -->
    – <DEFAULT>
      + <DEFAULTRULE>
      + <TEMPFILE>
      + <EVENT>
      + <FIFTEENMINUTE>
      + <HOURLY>
      + <SHIFT>
      + <DAILY>
      + <WEEKLY>
      + <MONTHLY>
      </DEFAULT>
    + <!--    -->
    + <EXAMPLEREPORT>
    </ARCHIVALRULES>
  – <SCHEDULEDREPORTPATHS>
```

The <DEFAULT> element is only used if no other rules are found.

```xml
– <REPORTS>
  – <ARCHIVALRULES>
    + <!--    -->
    – <DEFAULT>
      – <DEFAULTRULE>
        + <!--    -->
        – <DIRECTORYNAME>
            <FORMATSTRING>'Generated on' yyyy-MM-dd HH mm
              ss</FORMATSTRING>
          </DIRECTORYNAME>
        – <FILENAME>
            <FORMATSTRING>yyyy MM dd HH mm
              ss</FORMATSTRING>
          </FILENAME>
        </DEFAULTRULE>
      – <TEMPFILE>
          <OLDERTHAN>0,1,0</OLDERTHAN>
          <KEEPCOUNT>100</KEEPCOUNT>
        </TEMPFILE>
      + <EVENT>
      – <FIFTEENMINUTE>
        – <DIRECTORYNAME>
            <FORMATSTRING>dd (dddd)</FORMATSTRING>
          </DIRECTORYNAME>
        – <FILENAME>
            <FORMATSTRING>'15-Minute' dd (dddd)
              HH.mm</FORMATSTRING>
          </FILENAME>
          <OLDERTHAN>7,0,0</OLDERTHAN>
          <!--  7 = one week    -->
          <KEEPCOUNT>672</KEEPCOUNT>
          <!--  672 = one week's worth of 15-minute reports    -->
        </FIFTEENMINUTE>
      + <HOURLY>
      + <SHIFT>
      + <DAILY>
      + <WEEKLY>
      + <MONTHLY>
      </DEFAULT>
```

The <DIRECTORYNAME> and <FILENAME> tags control the name of the directory in which the scheduled report is saved and the name that is given to the report, respectively.

The <FORMATSTRING> tag controls the format of the report name or the report folder. For more information, see Editing Format Strings for Scheduled Reports on page 197.

Information in the <OLDERTHAN> element controls how old a report must be before it can be deleted. The value notation for this element is: days, hours, minutes, seconds.

The <KEEPCOUNT> tag controls how many versions of the same scheduled report to keep at any one time. For example, if you set this value to three, when the fourth scheduled report is created, the oldest report is deleted, thus maintaining a total of three.

The following archival procedure is followed:

1 All reports that are older than the <OLDERTHAN> time interval are deleted first.

2 If, after all reports older than the <OLDERTHAN> time interval are deleted and the number of remaining reports is greater than the amount specified by the <KEEPCOUNT> tag, then reports are deleted until the number of remaining reports is equal to the amount specified by the <KEEPCOUNT> tag. The reports are deleted in the order of when they were published, oldest to newest.

The <DEFAULT> element contains all of the information about archival rules for reports, including default values. If no archive information is found for a specific report, the system uses the information in the <DEFAULT> element. This allows for flexibility in the application of the archival rules. For example, keep daily reports for one week and weekly reports for three months.

The reports are published under the schedule that they were published under. The saved reports are in the target folder. Each report may have its own folder under the schedule as specified in the configuration.config file.

Editing Format Strings for Scheduled Reports

The format string for a scheduled report controls the format of the report name. For example.

<FORMATSTRING>'Generated on Day' ddd</FORMATSTRING>

Any text that is contained in single quotes is output exactly as is. The variables that can be used are any of the culture-specific format characters. For example:

ss = second

mm = minute

hh = hour

dd = day

yyyy = year

The <FORMATSTRING > element can specify the folders where published reports are saved. To use a nested folder structure, each folder must be separated from its predecessor by the / (forward slash) character.

You can change the format strings for scheduled reports by editing the Configuration.config file. There are three options for setting the format strings:

- In the <DEFAULTRULE> element, change the <FORMATSTRING> tag to have the format you want. This is the lowest priority rule to be executed and only executes if no other rules are found.

- For a preconfigured schedule rule (for example, <FIFTEEMINUTE>), change the <FORMATSTRING> tag to have the format you want. This is the next to lowest priority rule to be executed and only executes if no other rules are found.

- Add a rule and edit the <FORMATSTRING> tag to have the format you want. This is the highest priority rule to be executed. For more information, see Adding a Default Archival Rule on page 198.

Adding a Default Archival Rule

You may want to add a default archival rule for scheduled reports. For example, create a "45 Minute" archival rule for reports.

For more information on adding a scheduled report, see Adding or Changing Scheduled Reports on page 194.

To add a default archival rule

1 Use an XML editor to open the Configuration.config file.

2 Add a new element in the <DEFAULT> element.

   For example, the following element specifies an archival rule for a 45Minute folder that deletes any files older than 10 days:

```
<45MINUTE>
    <OLDERTHAN>10,0,0,0</OLDERTHAN>
    <DIRECTORYNAME>
        <FORMATSTRING>'Generated on Day'
        ddd</FORMATSTRING>
    </DIRECTORYNAME>
    <FILENAME>
        <FORMATSTRING>yyyy MM dd HH mm
        ss</FORMATSTRING>
    </FILENAME>
</45MINUTE>
```

3 Save the file.

Adding a Report-Specific Archival Rule

You may want to add an archival rule that only applies to a single report folder. For example, you added a "Shift1" scheduled report folder by editing the <SCHEDULEDREPORTPATHS> element of the Configuration.config file. For more information, see Adding or Changing Scheduled Reports on page 194.

For example, the following element is an archival rule for a Shift1 folder for an eight-hour shift report that deletes any files older than 2 days:

```
<SHIFT1>
    <8HOUR>
        <OLDERTHAN>2,0,0,0</OLDERTHAN>
        <DIRECTORYNAME>
            <FORMATSTRING>'Generated on Day'
            ddd</FORMATSTRING>
        </DIRECTORYNAME>
        <FILENAME>
            <FORMATSTRING>yyyy MM dd HH mm
            ss</FORMATSTRING>
        </FILENAME>
    </8HOUR>
</SHIFT1>
```

To add a report-specific archival rule

1   Use an XML editor to open the Configuration.config file.

2   Copy the entire <EXAMPLEREPORT> element and paste it after the <EXAMPLEREPORT> element. Be sure that the copied element is at the same level as the original <EXAMPLEREPORT> element.

3   Rename the element tags in the new element to reflect the report folder name.

    For example, change <EXAMPLEREPORT> </EXAMPLEREPORT> to <SHIFT1> </SHIFT1>.

4   Modify the entries as required.

5   Save the file.

Managing Temporary Files for Scheduled Reports

Each time a pre-defined report is generated, a tmpXXX.xml file is created in the following default folder:

C:\Inetpub\wwwroot\<*report_website_name*>\Output\ Temp

These temporary files are deleted according to rules that are specified in the Configuration.config file.

```
– <TEMPFILE>
    <OLDERTHAN>14,0,0</OLDERTHAN>
    <KEEPCOUNT>100</KEEPCOUNT>
  </TEMPFILE>
```

Within the <ARCHIVALRULES> element of the Configuration.config file, there is a <TEMPFILE> element. Two rules govern how long temp files are kept in the \Temp folder:

- <OLDERTHAN> specifies the age at which to delete a temporary file. The value notation for this element is: days, hours, minutes.

- <KEEPCOUNT> specifies how many files to keep at any given time.

The OLDERTHAN element has higher priority. KEEPCOUNT is always applied after OLDERTHAN.

In the following example, any temporary files older than a day are deleted. Also, no more than two temporary files are stored at any time.

```
– <TEMPFILE>
    <OLDERTHAN>1,0,0</OLDERTHAN>
    <KEEPCOUNT>2</KEEPCOUNT>
  </TEMPFILE>
```

The cleanup operation is handled by the aaHistClientReportingService. The cleanup operates every 30 seconds or the same interval as what is specified in the <INTERVAL> element. For more information, see Adjusting Settings for Report Generation on page 211.

Creating Custom Folders for Static and On Demand Reports

By default, all static reports are saved to the following folder:

<installation_path>\<report_website_name>\Output\Static

All on demand reports are saved to the following folder:

<installation_path>\<report_website_name>\Output\OnDemand

You can create custom folders for reports.

To create a custom static folder

1   Use an XML editor to open the Configuration.config file.

2   Add a new element called <STATICREPORTPATHS> after the <SCHEDULEDREPORTPATHS> element. The <STATICREPORTPATHS> element must be on the same level in the XML hierarchy as the <SCHEDULEDREPORTPATHS> element.

3   In the <STATICREPORTPATHS> element, add an element for the custom folder you want to create. The element notation is as follows, where *<report_name>* is the actual name of the report:

```
<report_name>
    <FOLDERNAME>Type the folder name
    here</FOLDERNAME>
    <DESCRIPTION>Type the description
    here</DESCRIPTION>
</report_name>
```

The description for the custom folder appears in the publishing dialog box for ActiveFactory Trend and ActiveFactory Workbook.

To create a nested subfolder, include a forward slash (/) in the folder name.

For example, the following element adds three custom static folders to the list. The aaHistClientReportingService creates these folders, which are named STATICONE, STATICTWO, and STATICTWOA. The second static folder (StaticTwo) contains a nested subfolder called "A."

The source files for the published reports is stored in …Output\Static\Source\StaticOne, …Output\Static\Source\StaticTwo and …Output\Static\Source\StaticTwo\A for STATICONE, STATICTWO and STATICTWOA, respectively. The generated reports are stored in a similar structure under …Output\Static\Target\.

```
<STATICREPORTPATHS>
    <STATICONE>
        <FOLDERNAME>StaticOne</FOLDERNAME>
        <DESCRIPTION>First static folder</DESCRIPTION>
    </STATICONE>
    <STATICTWO>
        <FOLDERNAME>StaticTwo</FOLDERNAME>
        <DESCRIPTION>Second static folder</DESCRIPTION>
    </STATICTWO>
    <STATICTWOA>
        <FOLDERNAME>StaticTwo/A</FOLDERNAME>
        <DESCRIPTION>Static folder nested under
        StaticTwo</DESCRIPTION>
    </STATICTWOA>
</STATICREPORTPATHS>
```

4 Save the file.

To create a custom on-demand folder

1 Use an XML editor to open the Configuration.config file.

2 Add a new element called <ONDEMANDREPORTPATHS> after the <SCHEDULEDREPORTPATHS> element. The <ONDEMANDREPORTPATHS> element must be on the same level in the XML hierarchy as the <SCHEDULEDREPORTPATHS> element.

3 In the <ONDEMANDREPORTPATHS> element, add a element for the custom folder you want to create. The element notation is the same as for adding a custom static folder. For example, the following element adds an on-demand folder named "OnDemandOne":

```
<ONDEMANDREPORTPATHS>
    <ONDEMANDONE>
        <FOLDERNAME>OnDemandOne</FOLDERNAME>
        <DESCRIPTION>First on-demand
        folder</DESCRIPTION>
    </ONDEMANDONE>
</ONDEMANDREPORTPATHS>
```

4 Save the file.

Any custom folders you create appears in the publishing dialog box for ActiveFactory Trend and ActiveFactory Workbook. The folder structure in the publishing dialog box appears flat, but the reports are published to the hierarchy that you created.

Customizing the ActiveFactory Reporting Website Banner

Note The following customizations have no effect when accessing the ActiveFactory Reporting Website through Wonderware Information Server.

When accessing the ActiveFactory Reporting Website directly, a navigation banner appears along the top of the page. You can customize this banner by editing the Header.xml file. You can replace the banner logo with your own image, as well as add menu items. You can also localize the banner settings.

The Header.xml file is located in the \Language\en-US folder of the ActiveFactory Reporting Website virtual directory. By default, the path for this directory is:

\inetpub\wwwroot\<*report_website_name*>\Language\en-US

Important Any customizations that you make for the ActiveFactory Reporting Website banner may not be preserved during upgrades to future releases.

Adding a Custom Logo

To add a custom logo

1   Locate the <BannerImg> element within the Header.xml file.

2   In the <URL></URL> sub-element, type the URL of the image you want to display in the ActiveFactory Reporting Website banner.

The URL can be either an absolute or a relative URL. A relative URL are relative to the ActiveFactory virtual root directory. The recommended image size is 295x83 pixels. The maximum height is 83 pixels.

For example, to use the MyLogo.gif file located in the graphics folder of the website, add the content as follows: <URL>graphics/MyLogo.gif</URL>

3 In the <AlternateText></AlternateText> sub-element, type the text to be displayed for the graphic.

This text appears when 1) a website user moves the mouse over the image, 2) if image file is not found at the specified URL, 3) the image file is being loaded, and 4) if the image download option has been turned off in Internet Explorer.

For example: <AlternateText>CompanyA logo</AlternateText>

4 Save the .xml file.

Adding Menu Items

To add a new menu item

1 Locate the <MenuItem> element within the Header.xml file.

2 In the <Name></Name> element, type the name of the menu item.

3 In the <URL></URL> element, type the relative or absolute URL of the web page to be displayed when the menu item is clicked.

A relative URL is relative to the ActiveFactory virtual root directory.

4 In the <Target></Target> element, specify the location in which the target content appears.

To open the web page in the content element of the ActiveFactory Reporting Website, leave this element blank.

To open the web page in the main Internet Explorer window currently used by the ActiveFactory Reporting Website, type _top.

To open the web page in a separate Internet Explorer window, type any text. It does not matter what text you use, as long as the element is filled.

5 Save the .xml file.

Note The <ImageURL> element is for future use.

The following example code shows how to add a "MyMenu" menu item that display the contents of the MyMenu.htm file in the content element of the ActiveFactory Reporting Website:

```
<MenuItem>
    <Name>MyMenu</Name>
    <URL>MyMenu.htm</URL>
```

```
<Target></Target>
   <ImageURL></ImageURL>
</MenuItem>
```

The following example code shows how to add a "Wonderware" menu item that displays the home page for the Wonderware website in a separate browser window:

```
<MenuItem>
   <Name>Wonderware</Name>
   <URL>http://www.wonderware.com</URL>
   <Target>Wonderware</Target>
   <ImageURL></ImageURL>
</MenuItem>
```

Adding Multiple Menu Items

To add multiple menu items

1   Copy the existing <MenuItem> element and paste it into the <Menu> element (between the <Menu> and </Menu> tags).

   Paste the copied element at the same level as the existing <MenuItem> element in the XML hierarchy.

2   Change the content of the <Name>, <URL>, and <Target> elements.

3   Repeat Steps 1 and 2 for any additional menu items.

4   Save the .xml file.

Localizing Banner Customizations

To localize customizations to the banner

1   Locate the appropriate language folder in the ActiveFactory Reporting Website virtual directory.

   For example, the folder used for Japanese is \inetpub\wwwroot\AFWeb\Language\ja.

2   Copy the Header.xml file in the appropriate language folder.

3   In the Header.xml file, translate the element content into the appropriate language.

4   If you want to load different web pages for the different language, change any URLs to point to the language-specific files.

5   Save the .xml file.

Adding Custom Reports

You can create a custom report and include it in the list of pre-configured reports on the Reporting Website. Custom reports can include:

- Static reports generated from .html or .txt files.

- On-demand query reports generated from .sql files.

- A "dynamic" report that executes a query against the historian, but does not use an .sql file.

For all types of custom reports, the Reporting Service handles the conversions to XML for display in the web browser.

Adding a Custom Static Report

To add a custom static report

1 Create the static report file. The static report file can be an .html or .txt file.

2 Copy the report file to the \Static\Source folder. For more information, see Report Publishing Folders on page 188.

3 Open the ReportParameters.xml file and add an additional <REPORT> element to contain the new report. Be sure to add the <REPORT> element under the "Static Reports" element. For example:

```
<Name>Published Reports</Name>
<ReportGroup>
    <Name>Static Reports</Name>
    <ReportType>1</ReportType>
    <Report>
        <Name>OperatorSchedule</Name>
        <ApplicationType>3</ApplicationType>
        <Id>http://QAINT063/AFWeb/Output/Static/Sourc
        e/OperatorSchedule.html</Id>
        <Filename></Filename>
        <ProcessReport>1</ProcessReport>
        <LockdownOptions></LockdownOptions>
        <ArchiveID />
    </Report>
```

4 Set the <ApplicationType> element to 3.

5 Save the ReportParameters.xml file.

6 In the reporting website, expand the **Static Reports** folder. The custom report is added to the list of reports.
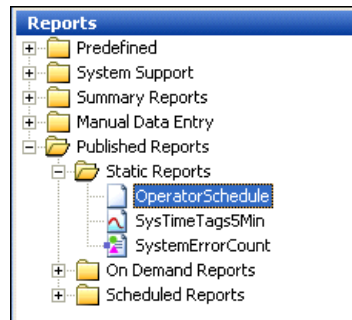
7 Select the report and click **Generate Report**. The custom report page appears in the report display pane.

Operator Schedule

OPERATOR	Monday	Tuesday	Wednesday	Thursday	Friday
Scott	X	X	X	X	X
Mary	X	X	X	X	X
Don	X		X		X
Charlie		X		X	

Adding an On-Demand, Custom SQL Report

If you have an existing .sql file, you can add it to the list of on-demand reports so that website users can generate the resulting data at any time.

To add a query report

1 Create the .sql file.

Note Test the SQL statement in the file using a database query tool and verify the results before publishing the query to the website.

2 Copy the report file to the \OnDemand\Source folder. For more information, see Report Publishing Folders on page 188.

3 Open the ReportParameters.xml file and add an additional <REPORT> element to contain the new report. Be sure to add the <REPORT> element under the "On Demand Reports" element. For example:

```
<Name>On Demand Reports</Name>
<ReportType>2</ReportType>
(...)
entries for existing published reports
(...)
<Report>
    <Name>ReactorLevelDetails</Name>
    <ApplicationType>4</ApplicationType>
```

```
        <Id>C:\inetpub\wwwroot\AFWeb/Output/OnDemand/Sou
        rce/ReactlevelDetails_OnDemandSQL.sql</Id>
        <Filename></Filename>
        <ProcessReport>2</ProcessReport>
        <LockdownOptions></LockdownOptions>
        <ArchiveID />
</Report>
```

4   Set the <ApplicationType> element to 4.

5   Save the ReportParameters.xml file.

6   In the reporting website, expand the **On Demand Reports** folder. The custom SQL report is added to the list of reports.
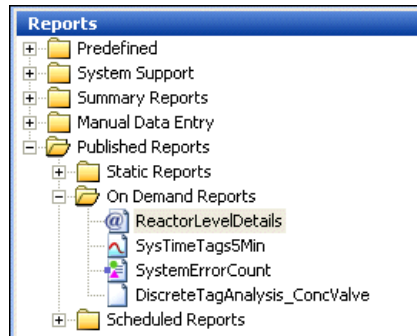
7   Select the report and click **Generate Report**. The custom report page appears in the report display pane.

By default, the results are formatted according to the rwsqlReport.xsl stylesheet. All report stylesheets are located in the C:\Inetpub\wwwroot\<*report_website_name*>\StyleSheets folder.

You can specify your own stylesheet by adding an XML reference to the stylesheet in the .sql file. For example:

```
<?xml-stylesheet type="text/xsl"
  href="../../StyleSheets/test.xsl" ?>
```

Be sure to reference the folder in which your stylesheet is located. The stylesheet reference must be the first text found in the .sql file.

Adding a Custom Dynamic Report

This type of report is "dynamic" in the sense that it retrieves information from the historian, but is not contained in an .sql file.

To add a custom dynamic report

1   Create an .xsl stylesheet to format the raw data from your query for display on the website.

2   Copy the stylesheet into the \Stylesheets folder for the Reporting Website. By default, this path is C:\Inetpub\wwwroot\AFWeb\StyleSheets.

3   Open the ReportsDefinition.xml file and add an additional element to specify the parameters for the new report.

In the following example, "MyCustomReport" is the identifier for the report. The StyleSheet element is set to the value of a custom .xsl file. Include the database query in the <QUERY> element.

```xml
<?xml version="1.0" ?>
- <Report>
  - <MyCustomReport StyleSheet="MyStyleSheet.xsl">
      <Query Header="Employees" RowName="Result">USE Northwind SELECT *
      FROM Employees WHERE City = 'London'</Query>
    </MyCustomReport>
  - <TagStatus StyleSheet="rwtagValue.xsl">
    - <AnalogTag>
        <Query Header="TagName" RowName="Result">SELECT TagName =
        Tag.TagName, Description,AnalogTag.MinRaw,
        AnalogTag.MaxRaw,DateTime, EngineeringUnit.Unit,vValue FROM
        AnalogTag, EngineeringUnit, v_Live INNER JOIN Tag ON
        Tag.TagName = v_Live.TagName WHERE Tag.TagName IN ('%
        TagNameParam%') And Tag.TagName = AnalogTag.TagName AND
        (AnalogTag.EUKey = EngineeringUnit.EUKey)</Query>
      </AnalogTag>
```

4   Save the ReportsDefinition.xml file.

5 Open the ReportParameters.xml file and add an additional <REPORTGROUP> element to contain your new custom report, or add the report to an existing element.

The first <NAME> tag controls the top-level name in the **Reports** area in the **Configuration** pane of the website.

The second <NAME> tag controls the second-level name in the **Reports** area.

For the <ID> tag, specify the name that you gave the report in the ReportsDefinition.xml file.

For example,

```
<?xml version="1.0" encoding="utf-8" ?>
– <Reports>
  – <ReportGroup>
      <Name>Custom Reports</Name>
    – <Report>
        <Name>Custom Reports</Name>
        <Id>MyCustomReport</Id>
      </Report>
    </ReportGroup>
  – <ReportGroup>
      <Name>Predefined</Name>
    – <Report>
        <Name>Tag Value</Name>
        <Id>TagStatus</Id>
        <Analog>Yes</Analog>
```

6 Save the ReportParameters.xml file.

The new report is added to the list of reports displayed in the website.

Triggering a Report using an IndustrialSQL Server Event Action

You can use generic SQL event actions to trigger the running of reports for the ActiveFactory Reporting Website.

To set up an event-based report

1 In the Configuration.config file, create a scheduled report entry that does not include a frequency. For example, MyEventGroup.

2 Publish a report to the report group you created. For example, MyReport1.

3 In the IndustrialSQL Server historian, create an event tag and configure it to use the generic SQL action. Use the following Transact-SQL statement for the action script, substituting the names of the report folder and the published report that you created in steps 1 and 2, respectively.

```
UPDATE aaHistClientReport SET
LastRun='1753-1-1', Published=0 FROM
aaHistClientReport r,
aaHistClientReportsFolder f
      WHERE r.Name = 'ReportName'
      AND r.ReportFolderKey = f.ReportFolderKey
      AND f.ReportFolderName = 'ReportFolder'
      AND r.ReportSiteKey = 1
```

You can omit the `AND r.ReportSiteKey` clause if there is only one website; otherwise, use the appropriate site ID from the aaHistClientReportSite table.

Adjusting Settings for Report Generation

Depending on the publishing environment and the complexity of the reports, report generation may exceed various timeout limits enforced by Microsoft ASP .NET and Internet Information Services. If a timeout limit is exceeded, an ASP error is shown.

The key timeouts are as follows. For more information on these timeouts, see the Microsoft documentation. If you receive an ASP error for a report, adjust these settings until the report can successfully be generated.

Note The location and content of the following reference information may change.

• Scripttimeout

  http://msdn.microsoft.com/library/default.asp?url=/library/en-us/iissdk/html/429c1800-7d19-4011-a1ca-482a43b1abef.asp

• Session.timeout

  http://msdn.microsoft.com/library/default.asp?url=/library/en-us/iissdk/html/429c1800-7d19-4011-a1ca-482a43b1abef.asp

• Executiontimeout

  http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpgenref/html/gngrfhttpruntimesection.asp

• Responsedeadlockinterval

  http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpgenref/html/gngrfProcessmodelSection.asp

Another setting that you may want to adjust is the polling interval for report publishing. By default, the reporting service processes and posts published reports every 30 seconds. Typically, published reports take between four and five seconds to appear in the website, but they can take up to 30 seconds to appear. When the service first starts up, reports can take up to one minute to appear.

You can adjust the polling interval by editing the following tag in the Configuration.config file.

<INTERVAL>30000</INTERVAL>

The polling interval is in milliseconds.

The interval also determines when to clean up temporary files that are created during publishing. For more information, see Managing Temporary Files for Scheduled Reports on page 200.

Controlling ActiveFactory Trend using URL Parameters

You can integrate ActiveFactory Trend into a custom application and control it by passing URL parameters.

To open ActiveFactory Trend from a custom application

◆ Call the Trend.aspx file in the Reporting Website's virtual directory. Pass any required parameters in the following format:
`http://hostname/VirtualDir/Trend.aspx?SV=true&Par1=Value1&Par2=Value2&...`

Where `Par1=Value1` etc. are the parameter/value pairs that you want to use. Always pass the `SV=true` parameter. Otherwise, session timeout errors occur.

The following sections describe available parameters.

Connecting to a Historian

Use the following parameters to connect to an IndustrialSQL Server historian.

Name	Description
Server	The server name of the IndustrialSQL Server historian.
User	The user name to connect to the historian. If omitted, Windows integrated security is used.

Name	Description
Password	The password to connect to the historian.
BaseURL	The base URL to use when accessing the historian via HTTP.
VirDir	The virtual directory to use when accessing the historian via HTTP.

Trend uses HTTP to access the historian whenever you specify values for both the `BaseURL` and `VirDir` parameters. Otherwise, it uses a regular SQL Server connection.

Specifying the Tags to Show

To specify the tags to show in the trend, use the `Tags` parameter. To specify multiple tags, separate tag names by semicolons. For example, to show the SysTimeSec and SysTimeMin tags, pass the following:

```
Tags=SysTimeSec;SysTimeMin
```

Specifying the Time Period

Use the following parameters to specify the time period to show in the trend.

Name	Description
Start	The start time in the following format: YYYY-MM-DD hh:mm:ss.s
End	The end time in the following format: YYYY-MM-DD hh:mm:ss.s
Duration	The duration in seconds.
DateMode	Determines whether to show absolute or relative times. Specify 1 for relative time, 0 for absolute time.

To specify a time period, use one of the following combinations of parameters:

- **Start time and end time.** In this case, the duration parameter is ignored.

- **Start time and duration.** If you specify only the start time, but no duration, the duration is set to five minutes.

- **End time and duration.** The start time is set to the end time minus the duration. If you specify only the end time, but no duration, the duration is set to five minutes.

- **Duration only.** In this case, the start time is set to the current time minus the duration.

- **No parameter.** The time period is set to the last five minutes.

All time parameters are relative to the client computer's time zone.

Enabling User Interaction

By default, all user controls in the trend are visible. Use the `LockdownOptions` parameter to hide individual controls. Pass the values of the controls you want to hide, separated by commas. Values are as follows:

Value	Description
TagPickerVisible	Hide the Tag Picker.
TimebarVisible	Hide the time toolbar.
ToolbarVisible	Hide the main toolbar.
AllowGridEditing	Hide the Tag List.
AllowContextMenu	Hide the shortcut menu.

For example, to hide the Tag Picker and main toolbar, pass the following:

```
LockdownOptions=TagPickerVisible,ToolbarVisible
```

Opening a Trend File

Use the `FileName` parameter to open an existing trend file. Pass the path to the file either as a local path on the client computer or as a URL. To specify a backslash (\) character, prefix it with another backslash.

For example, to open a trend file saved on the client computer as C:\Trends\Trend1.aaTrend, pass the following:

```
FileName=C:\\Trends\\Trend1.aaTrend
```

To open a trend file that was published to the Reporting Website, pass a value like the following:

```
FileName=http://Server1/afweb/output/ondemand/source/tr
  end1.aatrend
```

Configuring HTTPS Access

You can allow users to access the ActiveFactory Reporting Website using HTTPS instead of HTTP. However, some configuration is required.

To configure the website for HTTPS access

1   Configure Internet Information Services (IIS) to use HTTPS.

    For more information, see the IIS documentation.

2   Use SQL Server Enterprise Manager to modify the URL contained in the SiteURL column in the aaHistClientReportSite table of the Runtime database. Change the URL to indicate https to match how the IIS is configured. For example, change `http://Server01/AFWeb` to `https://Server01/AFWeb`.

    For more information on changing columns in a database table, see the Microsoft SQL Server 2005 documentation.

Managing Licensing

The ActiveFactory Reporting Website software supports session-based licensing for clients. Each connection to the ActiveFactory Reporting Website from a web browser counts as a session, unless the computer from which the connection is made has an ActiveFactory desktop license installed.

If all available client sessions are being used, no sessions are freed up until:

• A website user logs off using the **Logoff** link in the menu bar. If the user simply closes the web browser, the session is still in use.

• The IIS session timeout for a current logon lapses. A session is automatically terminated if the website user has not requested or refreshed a web page by the end of the timeout period. By default, the session timeout is 20 minutes. You can configure the session timeout by using the Internet Information Services console that is available within the Windows Administrative Tools program group.

Chapter 19

Using ArchestrA Reporting

You can use Industrial Application Server with the Microsoft SQL Server Reporting Services infrastructure. Before you start, you should be familiar with SQL Server Reporting Services terminology and concepts.

For general information on using SQL Server Reporting Services, see the Microsoft documentation.

> **Important** Before installing and using ArchestrA reports, be sure the collation settings of the IndustrialSQL Server Runtime database and the databases on the Wonderware Information Server node match exactly. The aaReports database uses the default collation settings on the SQL Server when it is installed.

What is ArchestrA Reporting?

ArchestrA Reporting is a set of features that publish reports using Industrial Application Server, IndustrialSQL Server, and other system data. ArchestrA Reporting integrates Microsoft SQL Server Reporting Services with Industrial Application Server.

You can use ArchestrA Reporting features to provide reports on data stored by a variety of Wonderware products and to view these reports from Industrial Application Server.

ArchestrA Reporting offers the following:

- **Common reporting database and data source:** All ArchestrA reports use the **aaReports** database as their data source. The reporting database contains replicated views pointing to "linked servers." The linked servers, in turn, refer to the actual hosts and databases from which

you want to retrieve data. The reporting database serves as a central access point to data from various databases and servers. For an example, see Concept Example: Common Reporting Database on page 219.

All default data sources defined in Industrial Application Server are automatically added as linked servers that the views in the reporting database can refer to. For example, when you change the host name or database name, the corresponding linked server definition updates accordingly so that your reports automatically use the new data source.

The **aaReports** database resides on the same server as the Industrial Application Server database.

- **Report Deployment Utility:** The ArchestrA Reports Deployment utility helps to deploy reports to a Industrial Application Server system. It automatically adds your report file to a SQL Server Reporting Services folder, executes a SQL script that replicates views from the database that contains the data you want to report on, and creates a linked server that points to that database.

Note In this context, deployment refers to report configuration and publishing, not to Industrial Application Server object deployment.

- **Integrated navigation:** Reports show as nodes in the Launch Pad and can be viewed within Industrial Application Server.

- **Custom parameter input:** For passing IndustrialSQL Server tagnames and start/end times to a report, you can use the Tag Picker and Time Picker instead of typing in values.

- **Executing reports from a script:** You can execute and print reports from an Industrial Application Server script or an IndustrialSQL Server event action. You can also execute reports using a URL, for example, to open a parameterized report from a Table Weaver content unit.

Concept Example: Common Reporting Database

In the following example, a query is executed against the ArchestrA Reporting database that requests data from two views. In the ArchestrA Reporting database, these views exist only as "dummy" views that point to the "real" views located on two different computers.
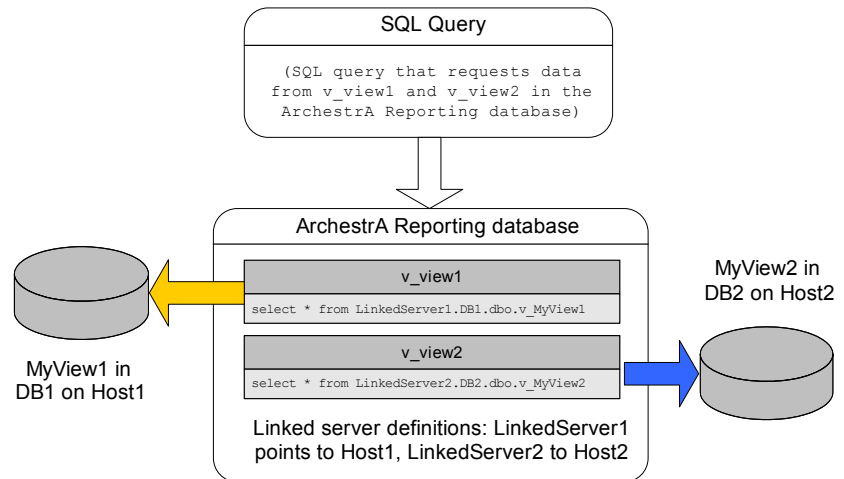
Viewing Reports

All reports in the ArchestrA Reporting base folder that the current user is authorized to view are available as nodes in the Launch Pad of Industrial Application Server. The SnapShot Reports are displayed as a node followed by datatime format items. To view a report, navigate to it just like you would access any other node.

To view a report

1 In the Launch Pad, expand the **Reports** node. A tree of reports and/or subfolders appears.

2 Navigate to the report you want to view. If a report is configured for snapshots, expand it to see the available snapshots.

3 Click the report or snapshot you want to view. If the report requires parameters, a parameter input page appears.

4 Enter parameter values as required. Depending on how the report is configured, the Tag Picker and/or Time Picker may be available.

   • If the report contains cascading parameters, select the "Parent" parameter, for example, a tag group.

   • Press the **Tab** or **Enter** keys, or click outside the field. The tags in that group appear in the next field.

- You can also use wildcards to further narrow the search.

5 For more information, see Using the Time Picker on page 224. When you are done, click **Execute**.

The report is generated, and the results appear in the content pane.

Using the Tag Picker

The Tag Picker shows which tag groups and tags exist in the IndustrialSQL Server historian that is defined as the default data source for the "Historian" data source type.

Using the Tag Picker, you can quickly search the database for tags of a certain type and/or for tags that match a particular search pattern. You can then select the ones you want to include in a report.
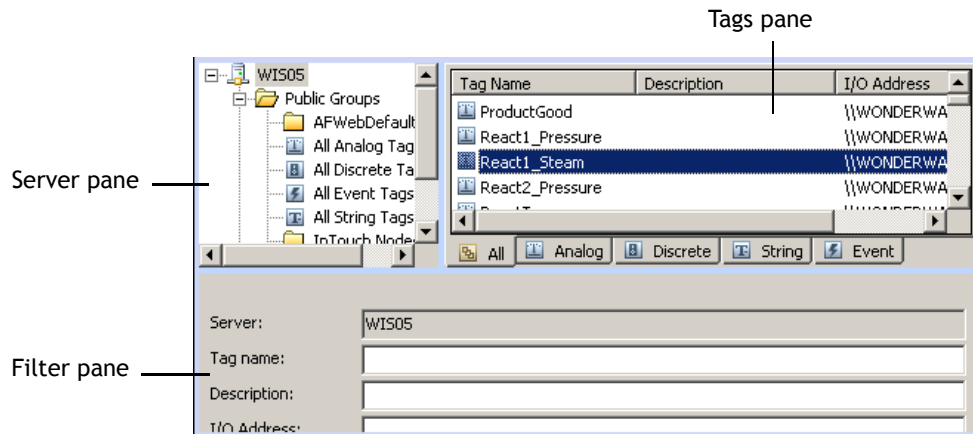
The Tag Picker is comprised of the following three panes:

- Server pane
- Tags pane
- Filter pane

To show or hide the **Server** or **Filter** pane, right-click the Tag Picker and then click the name of the pane.

Using the Server Pane

The **Server** pane allows you to navigate through the folder structure (namespace) of the IndustrialSQL Server historian.

You can add groups just as you would add a new folder in the Windows Explorer. For example, you can create the "BoilerTags" group under in the existing "Private Groups" group. You can also delete, cut, copy, paste, and drag objects from one folder to another.

To add a group

1 Right-click on the folder under which you want to create a group and then click **New Group**.

A new folder appears in the Tag Picker.

2 Type a name for the folder and press ENTER.

To add a tag to a group

1 Select the system group folder that contains the tag that you want to add to your new group.

2 In the **Tags** pane, select the tag to add.

3 Do any of the following:

- Drag the desired tag from the **Tags** pane into the folder.

- Right-click on the desired tag in the **Tags** pane. Use the **Copy** and **Paste** commands in the shortcut menu to copy the tag to the target folder.

When you add tags to a new group, the original reference still appears in the default system group.

To delete a group or tag

1 Select the group or tag in the pane.

2 Do any of the following:

- Right-click on the group or tag and then click **Delete**.

- Press the DELETE key.

When you delete a private group or tag reference in a private group, the group folder, any subfolders that the group folder may contain, and all references to tags are deleted. The tags themselves are not deleted, and the original references still appear in the default system group. You cannot delete public folders or the tag references contained in them.

To rename a group

Note You can rename a group that you have created in the Tag Picker. However, you cannot rename a public folder.

1 Select the group in the pane.

2 Do any of the following:

- Right-click on the group and then click **Rename**.

- Press the F2 key.

3 Type a new name for the group and press ENTER.

To view server details

1   In the **Server** pane, right-click on the server and then click **Server details**. The **Server Details** dialog box appears.

2   Click **OK**.

Using the Tags Pane

The **Tags** pane shows all the tags for the currently selected group in the **Server** pane.

To view only tags of a certain type, click the appropriate tab at the bottom of the pane.

To sort the table by a particular column, click the column heading.

Depending on the configuration of the report, the Tag Picker may show an additional **Selected Tags** list.
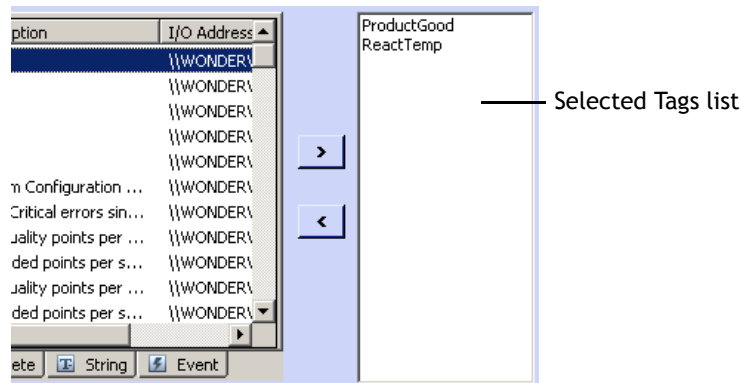
Selected Tags list

To add or remove tags from the **Selected Tags** list, use the **>** and **<** buttons. You can also drag the tags between the list panes.

Using the Filter Pane

Use the **Filter** pane to reduce the tags listed in the **Tags** pane according to criteria that you specify. You can filter the tags according to name, description, and I/O address.

The filter mechanism allows for the following "wildcard" characters as part of the filter criteria:

Wildcard Character	Filter Function
%	Any string of zero or more characters.
_	Any single character.

Wildcard Character	Filter Function
[ ]	Any single character within the specified range or set. For example: • [a-f] • [abcdef]
[^]	Any single character not within the specified range or set. For example: • [^a - f] • [^abcdef]

For example, to find all tagnames ending with "level," type "%level."

When the **Server** pane and the **Filter** pane are both visible, the filter conditions apply to the selected group in the **Server** pane. When the **Server** pane is hidden, the filter applies to all tags on the IndustrialSQL Server historian.

To apply a filter

1   In the **Tag name** box, enter the string to match for the tagname.

2   In the **Description** box, enter the string to match for the description.

3   In the **I/O Address** box, enter the string to match for the I/O address.

4   Select the **Exact match** check box to search for tags that exactly match the entire string that you provided for the tagname and/or description options.

    For example, if you specify "level" as the tagname and do not select **Exact match**, any tagname that contains the string "level" appears. For example, "ReactLevel," "ProdLevel," and "$AccessLevel."

   The **Exact match** option does not apply to the I/O address.

5   Click **Apply** to apply the filter criteria.

6   Click **Clear** to clear the **Filter** pane.

Using the Time Picker

The time picker allows you to select a time range by specifying a start time, end time, and/or duration.

To specify a time period

◆ On the Time toolbar, specify the start time, end time, and/or duration. To select a date from a calendar, click the down arrow on the start time or end time list. To select a predefined duration, click the down arrow on the duration list.

Start Time   Duration   End Time
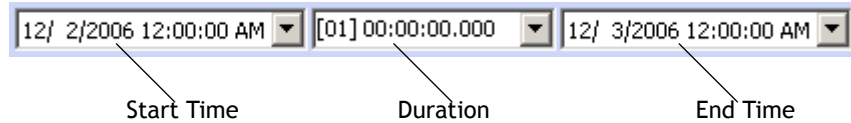
When you change one of the options, one of the other options is recalculated automatically. While you change the option, a blue frame appears around the option that will be recalculated as a result of the change.

The relation between changed and updated options is as follows:

You change...	The time picker updates...
Start time	End time (based on duration)
End time	Start time (based on duration)
Duration	Start time (based on end time)

If you change multiple options in a row, which option is updated depends on which two other options you changed last. For example, if you change the start time and then the end time, the duration is calculated accordingly. If you change the start time and then the duration, the end time is calculated, and so on.

Managing Reports

You can manage reports from Industrial Application Server using the standard functionality of SQL Server Reporting Services. For example, you can delete reports, configure default parameter values, set snapshot options, and so on.

To manage reports

◆ In the Launch Pad, expand the **Administration** node and click on **Report Manager**.

The SQL Server Reporting Services management page appears in the content pane. Use it just as you would use it when accessing it directly. For more information, see the Microsoft documentation.

Configuring Reporting Options

You can configure a number of options related to ArchestrA Reporting functionality. To do this, edit the `web.config` file located in the `ArchestrAReports` subfolder of the Industrial Application Server virtual directory. You can configure the following options:

Option	Description
`EncryptedSysAdminUserPassword`	The password for the user name specified by the `SysAdminUserName` option. This value is stored in an encrypted format. If you want to change this value manually, you must use the encrypted version of the password. To get the encrypted version, configure a shared data source in Industrial Application Server with the desired user name and password. Then, copy the encrypted password from the `DataSources` table in the `SuiteVoyager` database on the Industrial Application Server system and paste it as the value for this option.
`HiddenReportPrefix`	The prefix character for hidden reports. If a report's name starts with this character, it is not shown in the Launch Pad.

Option	Description
PrinterMapping	A mapping of Windows printer names to logical printer names. Logical printer names are used when you print a report from an Industrial Application Server or IndustrialSQL Server script. To map a printer, specify a value in a format of "Logical name=Windows name." For example, a value of "Default=ACME Corp. SuperWriter" makes the printer that is installed under the name "ACME Corp. SuperWriter" available under the logical name "Default." To map multiple printers, separate the mappings using commas.
ReportManager	The URL of the Microsoft SQL Server Reporting Services website. For example, "http://localhost/Reports". Depending on your environment, you may need to use a fully-qualified URL. For example, "http://reporthost.mydomain.com/Reports". By default a relative URL is used, /Reports. This is a client-side redirection to /Reports.
SysAdminUserName	The user name that is used to connect to the ArchestrA Reporting database and configure the corresponding linked server when adding or editing a shared data source in Industrial Application Server.

Understanding Reporting Security

ArchestrA Reporting security relies on the SQL Server Reporting Services (SSRS) role model. The SSRS role membership of Industrial Application Server users determines whether they can view, execute or create reports. Users only see those reports in the Launch Pad that they are allowed to view based on their SSRS role.

Generally, a user's role membership is checked based on the account that was used to log on to Industrial Application Server. The only exception is creating a report using Report Builder. In this case, Report Builder always runs under the account that is currently logged on to the client computer. Therefore, role membership is checked based on that account, not the account that was used to log on to Industrial Application Server (which may be a different account).

When you install Industrial Application Server, the following Windows user groups are configured on the Industrial Application Server computer:

- **aaReportsAdministrators:** This group is assigned the SSRS "Content Manager" role and the Industrial Application Server "Administrator" role.

- **aaReportsPowerUsers:** This group is assigned the SSRS "My Reports," "Report Builder," and "Publisher" roles and the Industrial Application Server "Engineer" role.

- **aaReportsUsers:** This group is assigned the SSRS "Browser" role and the Industrial Application Server "Read-Only User" role.

You can add Windows user accounts to these groups to give them the desired level of access to reports.

Furthermore, an "aaReportsUsers" user with a password of "pwReportsUser" is created in the ArchestrA Reporting database to allow non-administrator access to the database.

Developing Reports

Because Industrial Application Server uses the SQL Server Reporting Services infrastructure, you can use it to execute and view any report developed using SQL Server Reporting Services. There are, however, a number of additional features that extend standard Reporting Services. This section explains what these features are and how you can use them in your custom reports.

About Building Reports

Microsoft Report Builder uses the concept of a "Semantic Model" to build reports. Semantic models include the following elements:

- A report model is a metadata layer on top of a physical database that identifies business entities, fields, and roles. After publishing, you can develop reports without having to be familiar with database structures or understanding and writing SQL queries.

- Models are comprised of entities, which are sets of related report items that share the following:

  - Grouped together under a friendly name
  - Predefined relationships between these business entities
  - Predefined calculations.

- Models are defined using an XML language called Semantic Model Definition Language (SMDL). The file extension for report model files is .smdl.

For more information on developing reports for SQL Server Reporting Services, see the Microsoft documentation.

Creating Reports

You have two options for creating a new report for Industrial Application Server: creating a simple ad-hoc report based on a semantic model, or developing a customized report in an external development environment and deploying it to Industrial Application Server.

Creating an Ad-hoc Report

You can create a simple ad-hoc report based on any semantic model available in Industrial Application Server.

To create an ad-hoc report

1   Click **Administration** to expand the list and click **Report Manager**.

2   Click **Report Builder** in the top navigation bar. Microsoft Report Builder appears.

3   Select the model you want to use to create the report. A Historian model is provided by default.

4   Create your report using the fields provided by the model.

5   Run and/or save the report from Report Builder.

> **Note** For more information on using Report Builder, see the Microsoft documentation.

Creating a Custom Report

To create a more full-featured report, use SQL Server Business Intelligence Development Studio.

You can then deploy the report using the ArchestrA Reports Deployment utility. For more information, see Deploying Reports on page 244.

Follow these general guidelines when creating custom reports:

- Industrial Application Server shows all reports under the **ArchestrA Reports** folder in SQL Server Reporting Services (the ArchestrA Reporting root folder). After you copy your report to that folder or a subfolder, it's available in Industrial Application Server.

- You can hide reports in the Launch Pad by prefixing their name with a special character. By default, this character is the underscore. You can configure a different character. For more information, see the HiddenReportPrefix option in Configuring Reporting Options on page 225.

- If you want to package a report for deployment using the ArchestrA Reports Deployment utility, the report must use the aaReports datasource. The report must use a datasource called "aaReports" that points to the aaReports database. An error occurs during report deployment if the report is configured to use a data source other than aaReports.

- You can use cascading parameters to restrict the values of other parameters. For example, you can restrict tagnames based on the group they belong to. Filtering a cascaded value is also supported. For more information on cascading parameters, see **To view a report on page 219**.

- You can customize your report parameters to use Wonderware Information Server controls.

  The following table describes custom inputs that show the controls

Parameter Name	Data Type	Parameter	Result
TagName	String	Multi Value	Tag Picker control appears with multi-tag selection.
TagName	String	Single Value	Tag Picker control appears with single-tag selection.
(TagName AND) PathName	String	Single Value	Path field appears in the Tag Picker.
StartDateTime AND EndDateTime	DateTime	Single Value	Time Picker control appears.
TimeZoneID	Integer	Single Value	Time Zone Picker control appears.
Duration	Integer	Single Value	This parameter will not appear in the parameter page, and will automatically be set to the Time Picker duration selected by the user.

- Industrial Application Server provides two report templates that you can use to create your own reports. The default installation location is:

```
Program Files/Wonderware/SuiteVoyager/
ArchestrAReports/SampleReports
/aaReportsTemplate.
```

  The samples are also included on the installation CD at:

```
\\Wonderware\Program_ArchestrAReports\
ArchestrAReports\SampleReports\
aaReportsTemplate.
```

Working with Report Parameters

When you call a parameterized report from Industrial Application Server, a custom parameter input page appears instead of the standard input controls provided by SQL Server Reporting Services.

For example, when executing a report from SQL Server Reporting Services, the input controls might look like this:

When executing the same report from Industrial Application Server, the parameter input page might look like this:


In most respects, this page works like the regular SQL Server Reporting Services parameter input pane. However, for certain types of parameters, you can use input controls instead of regular text boxes or lists. The following sections describe using the controls.

Using the Tag Picker for Parameter Input

For reports that require IndustrialSQL Server tagnames as parameters, you can use the Tag Picker to select tags from a list or to return the path of a selected folder in the folder hierarchy.

Note One IndustrialSQL Server node is supported for Parameter Inputs.

The Tag Picker shows all tags stored on the IndustrialSQL Server historian that is defined as the default data source for the "Historian" data source type.
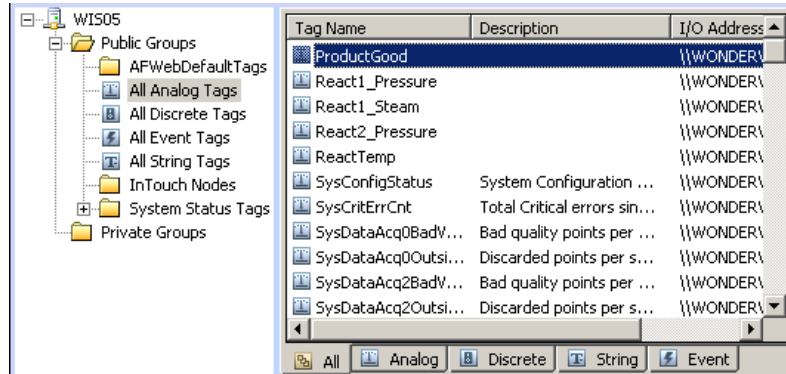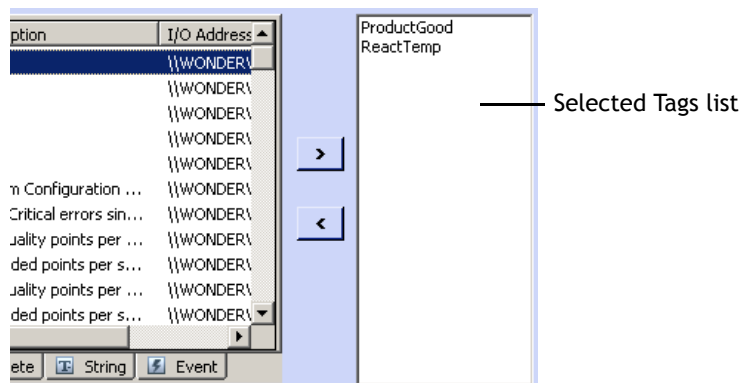

To use the Tag Picker to select tags

◆ Define a string parameter called `TagName` in your report. When you view the report in Industrial Application Server, the Tag Picker appears instead of the regular text box for that parameter.

The `TagName` parameter can be a single-value or multi-value parameter.

• For a single-value parameter, Industrial Application Server passes the currently selected tagname to the `TagName` parameter when you execute the report.

• For a multi-value parameter, the Tag Picker shows an additional **Selected Tags** list.

Selected Tags list

To add or remove tags from the **Selected Tags** list, use the **>** and **<** buttons. When you execute the report, Industrial Application Server passes all tagnames from the **Selected Tags** list to the `TagName` parameter.

To use the Tag Picker to select a folder path

◆ Define a single-value string parameter called `PathName` in your report. When you view the report in Industrial Application Server, the Tag Picker appears instead of the regular text box for that parameter.

When you execute the report, Industrial Application Server passes the path to the currently selected tag folder to the `PathName` parameter. For example, `Hist1.Public Groups.All Analog Tags`.

Using the Time Picker for Parameter Input

For reports that require start and end date/time values as parameters, you can use the Time Picker to select a time range based on a start time, end time and/or duration.

The time values sent to the report parameters are in UTC.
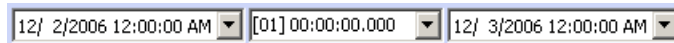
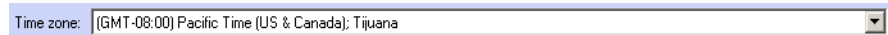**To use the Time Picker to select a time period**

The optional integer parameter `Duration`, when used in conjunction with the Time Picker, is set to the relative duration value selected in the middle Time Picker control. It may return a value documented in the `CalculateEndTimeUtc` function.

◆ Define two DateTime parameters called `StartDateTime` and `EndDateTime` in your report. Be sure to define the parameters as datatype DateTime. When you view the report in Industrial Application Server, the Time Picker appears instead of the regular text boxes for these parameters.

When you execute the report, Industrial Application Server passes the currently selected start and end times to the `StartDateTime` and `EndDateTime` parameters.

Using the Time Zone Picker for Parameter Input

For reports that require a time zone as a parameter, you can use the Time Zone Picker to select a time zone from a list.

To use the Time Zone Picker to select a time zone

◆ Define an integer parameter called `TimeZoneId` in your report. When you view the report in Industrial Application Server, the Time Zone Picker appears instead of the regular text box for that parameter.

To use a report parameter within a dataset, the parameter value must be mapped within the dataset definition. The report designer tries to do this automatically, but manual mapping may be needed.

The Time Zone Picker shows all of the time zones defined on the client computer.

Note The Time Zone lists in the client and server Registry files must absolutely match. For example, orders, numbers, and names must be the same.

When you execute the report, Industrial Application Server passes the ID of the currently selected time zone to the `TimeZoneId` parameter. You can then use custom SQL functions to calculate query times based on the time zone. For more information, see Using Add-On Functions on page 234.

Note The TimeZoneId parameter only shows the Time Zone picker when the Time Picker is also shown.

Using Add-On Functions

The ArchestrA Reporting database contains a number of custom SQL functions that you can use in your reports. The following functions are available:

*   CalculateEndTimeUtc

*   CalculateStartTimeUtc

*   DateTimeLocalToUtc

*   DateTimeToFileTime

*   DateTimeUtcToLocal

*   FileTimeLocalToUtc

*   FileTimeToDateTime

*   FileTimeToDateTimeLocal

*   FileTimeToString

*   FileTimeToStringLocal

*   FileTimeUtcToLocal

- IsDaylightSavingTime

- StringLocalToFileTime

- StringToFileTime

- TimeZoneDisplayName

- TimeZoneId

- TimeZoneName

- TimeZoneToUtc

- UtcToTimeZone

CalculateEndTimeUtc

Returns the end time of a specified relative duration at the Report Server node.

Syntax

```
CalculateEndTimeUtc(@when datetime, @duration int,
  @timeZoneID int)
```

Parameters

when
　The time to be returned if no valid duration parameter is specified.

duration
　The relative duration. Valid values are:

Value	Description
1	The last minute.
2	The last five minutes.
3	The last ten minutes.
4	The last fifteen minutes.
5	The last 30 minutes.
6	The last hour.
7	The last two hours.
8	The last four hours.
9	The last eight hours.
10	The last twelve hours.
11	The last twenty-four hours.
12	The last two days.

Value	Description
13	The last week.
14	The last two weeks.
15	The last month.
16	The last three months.
33	0:00:00 of the previous day to 0:00:00 of the current day.
34	0:00:00 of the current day to the current time.
35	The start of the previous hour to the start of the current hour.
36	The start of the current hour to the current time.

timeZoneId
  The time zone to return the end time for. −100 can be used
  to indicate `ServerLocal`.

Return Value
Returns the end time of the specified duration as a `datetime`
value in UTC (Coordinated Universal Time).

Related Topics
  CalculateStartTimeUtc
  TimeZoneToUtc
  UtcToTimeZone

CalculateStartTimeUtc
Returns the start time of a specified relative duration at the
Report Server node.

Syntax
```
CalculateStartTimeUtc(@when datetime, @duration int,
  @timeZoneId int)
```

Parameters

when
  The time to be returned if no valid `duration` parameter is
  specified.

duration
  The relative duration. For more information on valid
  values, see CalculateEndTimeUtc on page 235.

timeZoneId
  The time zone to return the end time for. −100 can be used
  to indicate `ServerLocal`.

Return Value

Returns the start time of the specified duration as a `datetime` value in UTC (Coordinated Universal Time).

Related Topics

CalculateEndTimeUtc
TimeZoneToUtc
UtcToTimeZone

DateTimeLocalToUtc

Converts a `datetime` value that represents the local time on the ArchestrA Reporting database server to UTC (Coordinated Universal Time).

Syntax

`DateTimeLocalToUtc(@`*`dateTime`*` datetime)`

Parameters

dateTime

A `datetime` value representing the local time on the ArchestrA Reporting database server.

Return Value

Returns a `datetime` value.

Related Topics

DateTimeUtcToLocal

DateTimeToFileTime

Converts a `datetime` value to a `FILETIME` value that represents the local time on the ArchestrA Reporting database server. `FILETIME` is a SQL Server bigint value representing the `Microsoft Windows 32 FILETIME` (the number of 100 nanosecond intervals since January 1, 1601)

Syntax

`DateTimeToFileTime(@`*`dateTime`*` bigint)`

Parameters

dateTime

A bigint value representing the local time on the ArchestrA Reporting database server.

Return Value

Returns a `bigint` value.

Related Topics

FileTimeToDateTime
FileTimeToDateTimeLocal

DateTimeUtcToLocal

Converts a `datetime` value that represents UTC (Coordinated Universal Time) to the local time on the ArchestrA Reporting database server .

Syntax

`DateTimeUtcToLocal(@dateTime datetime)`

Parameters

dateTime
  A `datetime` value representing UTC.

Return Value

Returns a `datetime` value.

Related Topics

DateTimeLocalToUtc

FileTimeLocalToUtc

Converts a `FILETIME` value that represents the local time on the ArchestrA Reporting database server to UTC (Coordinated Universal Time).

Syntax

`FileTimeLocalToUtc(@fileTime bigint)`

Parameters

fileTime
  A `FILETIME` value representing the local time on the ArchestrA Reporting database server.

Return Value

Returns a `bigint` value.

Related Topics

FileTimeUtcToLocal

FileTimeToDateTime

Converts a `FILETIME` value to a SQL `datetime` value.

Syntax

`FileTimeToDateTime(@fileTime bigint)`

Parameters

fileTime
  A `FILETIME` value.

Return Value

Returns the corresponding `datetime` value. No time zone conversion is applied. The "corresponding datetime value" is rounded to the nearest available SQL Server time value, which has an accuracy of 3.33 milliseconds.

Related Topics
DateTimeToFileTime
FileTimeToDateTimeLocal

FileTimeToDateTimeLocal

Converts a `FILETIME` value to a SQL `datetime` value. The result represents the local time on the ArchestrA Reporting database server.

Syntax

`FileTimeToDateTimeLocal(@`*`fileTime`*` bigint)`

Parameters

fileTime
A `FILETIME` value representing Coordinated Universal Time (UTC).

Return Value

Returns the corresponding `datetime` value rounded to nearest 3.33 ms.

Related Topics
DateTimeToFileTime
FileTimeToDateTime

FileTimeToString

Converts a `FILETIME` value to a date/time string.

Syntax

`FileTimeToString(@`*`fileTime`*` bigint, @`*`format`*`
  nvarchar(max))`

Parameters

fileTime
A `FILETIME` value.

format
The format for the date/time string. This must be a valid .NET Framework DateTime format string. If you pass NULL, the default format is used (yyyy-MM-dd HH:mm:ss.fffffff).

Return Value

Returns the value as a string. No time zone conversion is applied.

Related Topics
FileTimeToStringLocal
StringLocalToFileTime
StringToFileTime

FileTimeToStringLocal

Converts a `FILETIME` value to a date/time string. The result represents the local time on the ArchestrA Reporting database server.

Syntax

```
FileTimeToStringLocal(@fileTime bigint, @format
  nvarchar(max))
```

Parameters

fileTime
  A `FILETIME` value representing Coordinated Universal Time (UTC).

format
  The format for the date/time string. This must be a valid .NET Framework DateTime format string. If you pass NULL, the default format is used (yyyy-MM-dd HH:mm:ss.fffffff).

Return Value

Returns the value as a string.

Related Topics

FileTimeToString
StringLocalToFileTime
StringToFileTime

FileTimeUtcToLocal

Converts a `FILETIME` value that represents UTC (Coordinated Universal Time) to the local time on the ArchestrA Reporting database server.

Syntax

```
FileTimeUtcToLocal(@fileTime bigint)
```

Parameters

fileTime
  A `FILETIME` value representing UTC.

Return Value

Returns a `bigint` value.

Related Topics

FileTimeLocalToUtc

IsDaylightSavingTime

Returns whether a specific date/time falls within daylight saving time in a time zone.

Syntax

```
IsDaylightSavingTime(@when datetime, @timeZoneId int)
```

Parameters

when

The date/time value to check.

timeZoneId

The time zone ID. `-100` can be used to indicate `ServerLocal`.

Return Value

Returns True if the date/time falls within daylight saving time in the specified time zone. Returns False otherwise.

StringLocalToFileTime

Converts a date/time string to a `FILETIME` value that represents the local time on the ArchestrA Reporting database server.

Syntax

```
StringToFileTime(@timeString nvarchar(max))
```

Parameters

timeString

A date/time string representing the local time on the ArchestrA Reporting database server. The date/time format must be valid in the current .NET Framework culture.

Return Value

Returns a `bigint` value.

Related Topics

FileTimeToString
FileTimeToStringLocal
StringToFileTime

StringToFileTime

Converts a date/time string to a `FILETIME` value that represents UTC (Coordinated Universal Time).

Syntax

```
StringToFileTime(@timeString nvarchar(max))
```

Parameters

timeString

A date/time string representing UTC. The date/time format must be valid in the current .NET Framework culture.

Return Value

Returns a `bigint` value.

Related Topics
FileTimeToString
FileTimeToStringLocal
StringLocalToFileTime

TimeZoneDisplayName

Returns the long name of a time zone based on the time zone's ID.

Syntax

```
TimeZoneDisplayName(@timeZoneId int)
```

Parameters

timeZoneId
The time zone ID. `-100` can be used to indicate `ServerLocal.`

Return Value

Returns the name of the time zone as a string. For example, "(GMT-08:00) Pacific Time (US & Canada); Tijuana."

Related Topics
TimeZoneId
TimeZoneName

TimeZoneId

Returns the ID of a time zone based on the time zone's short name.

Syntax

```
TimeZoneId(@timeZoneName nvarchar(255))
```

Parameters

timeZoneName
The time zone's name. For example, "Pacific Standard Time."

Return Value

Returns the time zone's ID as an integer.

Related Topics
TimeZoneDisplayName
TimeZoneName

TimeZoneName

Returns the short name of a time zone based on the time zone's ID.

Syntax

```
TimeZoneName(@timeZoneId int)
```

Parameters

timeZoneId
  The time zone ID. -100 indicates the time zone of the server hosting the ArchestrA Reporting database.

Return Value
Returns the name of the time zone as a string. For example, "Pacific Standard Time."

Related Topics
  TimeZoneDisplayName
  TimeZoneId

TimeZoneToUtc
Converts a UTC (Coordinated Universal Time) time to the local time in the specified time zone.

Syntax

`TimeZoneToUtc(@*when* datetime, @*timeZoneId* int)`

Parameters

when
  The UTC time.

timeZoneId
  The time zone ID. `-100` can be used to indicate `ServerLocal.`

Return Value
Returns the local time in the specified time zone as a `datetime` value.

Related Topics
  UtcToTimeZone

UtcToTimeZone
Converts a local time in the specified time zone to UTC (Coordinated Universal Time).

Syntax

`UtcToTimeZone(@*when* datetime, @*timeZoneId* int)`

Parameters

when
  The local time.

timeZoneId
  The time zone ID. `-100` can be used to indicate `ServerLocal.`

Return Value
Returns the UTC time as a `datetime` value.

Related Topics
TimeZoneToUtc

Deploying Reports

Conceptually, deploying a custom report on a Industrial Application Server system involves the following tasks:

- Create a default data source for a data source type in Industrial Application Server. This automatically adds a linked server.

- Use a SQL script to create any database objects needed for the report. For example, a view might be replicated in the ArchestrA Reporting database that points to the views in the target database through the linked server.

- Deploy the report to the SQL Server Report Server.

The **ArchestrA Report Deployment** utility facilitates this process. Using this utility, you can deploy an existing report package to your local Industrial Application Server system. The utility uses an existing Shared Data Source, or it can create a new Shared Data Source type and associated Shared Data Source when deploying the reports.

The report package doesn't contain specific information about database servers and names. Instead, it contains placeholders that are replaced with specific information when the report is deployed.

Note To deploy the report package, you must select the XML file contained in the existing deployment package.

The general tasks for packaging and deploying a report are as follows:

1 Create the report. The report should only rely on views in the ArchestrA Reporting database. It should not refer directly to the target database that contains the data you want to report on.

2 Create a SQL script file that replicates any necessary views from the target database to the ArchestrA Reporting database. The SQL script does not refer to a specific server or database name. Instead, it uses placeholders that are replaced with the actual linked server information at deployment. For more information, see Creating Database Objects on page 245.

3 Create a configuration file for the ArchestrA Reports Deployment utility. The configuration file specifies where your report file is located, where it should be placed in

the Reporting Services folder structure, and where the SQL script file from step 2 is located. For more information, see Creating a Configuration File on page 247.

4   Run the ArchestrA Reports Deployment utility on the Wonderware Information Server.The utility specifies the configuration file and information for the linked server that should be used or created. For more information, see Deploying Reports Using the ArchestrA Reports Deployment Utility on page 251.

If necessary, the utility creates a linked server using the information you provided. It executes the SQL script, replacing the placeholders with the actual linked server information. Finally, it uploads the specified report to the specified location.

Creating Database Objects

If your report requires additional items in the reporting database (for example, views or tables), you can create a SQL script that creates these objects. When you deploy your report, the **ArchestrA Reports Deployment** utility automatically runs this script.

Your script can contain the following placeholders. When the script file is executed, these placeholders are replaced with the specific information that you provided when you started the utility.

Placeholder	Description
%ReportsDatabase%	The name of the reporting database.
%ReportsNode%	The node name of the reporting database.
%SourceDatabase%	The database name for the linked server that you provided when running the utility.
%SourceNode%	The node name for the linked server that you provided when running the utility.
%SourceUser%	The user name for the linked server that you provided when running the utility.

Placeholder	Description
%SourcePassword%	The password for the linked server that you provided when running the utility.
%SourceName%	The name for the linked server that you provided when running the utility.
%SourcePrefix%	The prefix needed to refer to a table or view in the database specified by the linked server. This is the linked server name followed by the database name (for example, `LinkedServer1.MyDatabase`).

For example, your script could include the following SQL statement:

```
CREATE VIEW ProdPerf_Location as select * from
  %SourcePrefix%.dbo.ProdPerf_Location
```

When you run the utility, specifying "Server1" as the name of the linked server and "ProdDB" as the database name, the placeholder is replaced, and the following command is run:

```
create view ProdPerf_Location as select * from
  Server1.ProdDB.dbo.ProdPerf_Location
```

This statement creates a "pass-through" view that points to the original view, which is located in a different database on a different physical host. Because the pass-through view only refers to the linked server name, but not to a specific host name, you could move the database to a different host and edit the linked server definition accordingly. The replicated view would still work.

For more flexibility, you can rewrite the same statement as follows:

```
create view ProdPerf_Location as select * from
  OPENQUERY(%SourceName%,'select * from
  ProdPerf_Location')
```

Note Changing the database name only works for views using OPENQUERY to specify the database.

In this case, the following command is run:

```
create view [dbo].[ProdPerf_Location] as select * from
  OPENQUERY(Server1,'select * from ProdPerf_Location')
```

In this case, because the view doesn't refer to a specific host name or database name, you could change both the physical host as well as the database name. As long as you update the linked server definition accordingly, the view still works.

Sample report packages are located at `C:\Program Files\Wonderware\SuiteVoyager\ArchestrAReports\Samples`.

Caution Using OPENQUERY can have a severe performance impact on the Report Server. Check with your SQL Server Administrator before running the command.

Creating a Configuration File

For each set of reports that you want to deploy using the ArchestrA Reports Deployment utility, you create a configuration file in XML format. The configuration file contains the following information:

- Any Report items, such as Reports, Models, Folders and so on, to be deployed to the SQL Report Server

- Any custom SQL script file to process against the reporting database (to replicate views etc.)

The following sections describe the structure and elements of the configuration file. For a sample, see Sample Configuration File on page 250.

Configuration File Structure

A configuration file has the following structure:

```
<XML header/>

<ReportSources>
    <SourceDatabase>
        <WebConfig>
        </WebConfig>
        <ReportServer>
        </ReportServer>
        <Reporting>
            <Folder>
                <Report/>
                <Model/>
            </Folder>
        </Reporting>
    </SourceDatabase>
</ReportSources>
```

- The `ReportSources` element contains one schema. For more information, see ReportSources XML Element on page 248.

- The `SourceDatabase` element contains one source database, represented by the `SourceDatabase` XML element. For more information, see SourceDatabase XML Element on page 248.

- The `SourceDatabase` element contains information on the following:

  a Information on the SQL script that should be run when deploying the report. This information is represented by the `ReportServer` XML element. For more information, see ReportServer XML Element on page 249.

  b Information on the reporting items that should be deployed. This information is represented by the `Reporting` XML element. For more information, see Reporting XML Element on page 249.

- The `ReportServer` element contains any of the following:

  a Folders that should be created under the ArchestrA Reporting base folder. This information is represented by the `Folder` XML element.

  b Report and/or model files that should be uploaded. This information is represented by the `Report` and `Model` XML sub-elements.

  A `Folder` element can contain `Report`, `Model`, or other `Folder` elements. This allows you to create folder trees. For more information, see Reporting XML Element on page 249.

For a sample configuration file, see Sample Configuration File on page 250.

ReportSources XML Element

This element references the `aaReportsSchema.xsd` used for reporting. It has one required attribute:

- `xmlns`: Specifies the `aaReportsSchema.xsd` schema namespace to be used.

The configuration file can only contain a single `ReportSources` element.

SourceDatabase XML Element

This element defines a source database. It is the container for three other elements:

- `ReportServer`: Specifies the SQL script that should be run when deploying the report. For more information, see ReportServer XML Element on page 249.

- `Reporting`: Specifies the reporting items that should be deployed. For more information, see Reporting XML Element on page 249.

It has one attribute:

- `name`: Specifies the name of the database. Used for informational purposes only.

WebConfig XML Element

This element is required and should be empty.

ReportServer XML Element

This element is required and can contain zero or one `Deploy` elements. The `Deploy` element specifies the SQL script that should be run when deploying the report.

- `Deploy`: Use this element to specify the path to the file in the `file` attribute. For example, to use a file named "DeployScript.sql," specify `<Deploy file="DeployScript.sql" />`.

Reporting XML Element

This element is required and can contain zero or more `Folder`, `Report`, and `Model` sub-elements.

Use this element to specify the reporting items that should be deployed.

- `Folder`: Creates a folder. Specify the folder name and description using the `name` and `description` attributes. For example, to create a folder named "Folder 1" with a description of "My first folder," specify `<Folder name="Folder 1" description="My first folder"></Folder>`.

- `Report`: Uploads a report file. Use the `name` attribute to specify the name under which the report should appear in Industrial Application Server. Specify the file path and report description using the `file` and `description` attributes. For example, to upload the report file "Report1.rdl" using a name of "My Report 1" with a description of "My first report," specify `<Report name="My Report 1" file="Report1.rdl" description="My first report" />`.

- `Model`: Uploads a model file. Use the `name` attribute to specify the name under which the model should appear in Industrial Application Server. Specify the file path and model description using the `file` and `description` attributes. For example, to upload the model file "Model1.smdl" using a name of "My Model 1" with a

description of "My first model," specify `<Model name="My Model 1" file="Model1.smdl" description="My first model" />`.

`Folder` sub-elements can contain `Report` elements, `Model` elements, and other `Folder` elements. This allows you to create folder trees. Each item is created in the folder that corresponds to its `Folder` parent element. Items that don't have a `Folder` parent element are created in the ArchestrA Reporting root folder.

For example, the following sample fragment uploads a report to the base folder, creates a folder named **Support** with a subfolder named **Models**, and uploads a model to the **Models** folder.

```
<Report name="Top-level report" file="TopReport.rdl" description="Report
stored in the base folder"/>

<Folder name="Support" description="Folder for support files">
   <Folder name="Models" description="Folder for model files">
      <Model name="Support Model" file="SupModel.smdl" description="Semantic
   Model for top-level report"/>
   </Folder>

</Folder>
```

Sample Configuration File

A simple configuration example file might look like this:

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

<ReportSources xmlns = "aaReportsSchema.xsd">
   <SourceDatabase name="InSQL">
      <WebConfig/>
      <ReportServer>
         <Deploy file="insqldeploy.sql" />
      </ReportServer>
      <Reporting>
         <Folder name="Historian" description="Folder for Historian Reports">
            <Report name="Group Period" file="GroupPeriodReport.rdl"
         description="Historian Group Period Report"/>
            <Model name="Historian Model" file="InSQL.smdl"
         description="Semantic Model for Historian"/>
         </Folder>
      </Reporting>
   </SourceDatabase>

</ReportSources>
```

When you use this configuration file for deployment, the following happens:

1 A folder named "Historian" is created under the ArchestrA Reporting base folder in SQL Server Reporting Services. The report file **GroupPeriodReport.rdl** and the model file **InSQL.smdl** are uploaded to this folder.

2 The SQL script file **insqldeploy.sql** is executed against the ArchestrA Reporting database.

Deploying Reports Using the ArchestrA Reports Deployment Utility

When you start the ArchestrA Reports Deployment utility (`aaReportDBConfig.exe`) without passing any parameters, a graphical interface appears that lets you specify deployment information and start deployment.

To deploy a report using the utility

To successfully deploy a report, you must configure security configuration settings required to connect with the aaReports database. You can select Windows Authentication, or SQL Authentication.

If Windows Authentication is used in both dialog boxes, security delegation must be enabled from Active Directory. If SQL Authentication is used in both dialog boxes, the SQL Server node security user credentials are used.

If the first dialog box is set to SQL Authentication, and the second dialog box is set to Windows authentication, the SQL Server user's credentials are used during the configuration process to access the Data Source Server.

1   Start the ArchestrA Reports Deployment utility from the **Wonderware/Information Server** group of the Windows **Start** menu. The **ArchestrA Reports Database Configuration** dialog box appears with the **aaReports Database** page active.
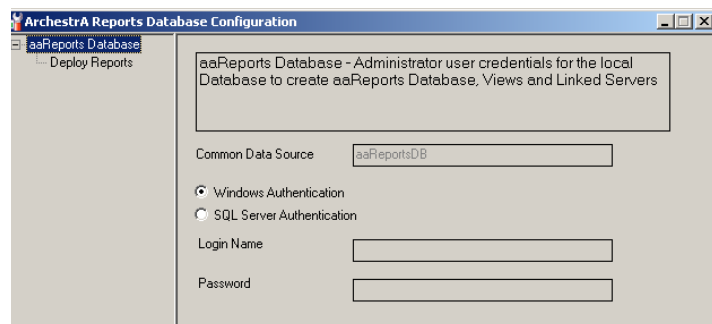
2   Specify the administrator credentials for connecting to the ArchestrA Reporting database.

*   **Windows Authentication** uses permissions supplied by the Active Directory.

*   If you selected **SQL Server Authentication**, specify the credentials of a SQL Server administrator account in the **Login Name** and **Password** boxes.

3 In the tree-view in the left pane, click **Deploy Reports**. The **Deploy Reports** page appears.

4 Specify whether to use an existing linked server for report deployment or to create a new one.

- Select **Existing Shared Data Source** if you want to deploy your report using an existing data source defined in Industrial Application Server.

- Select **Create New Shared Data Source Type and Default Data Source** if you want to create a new data source type, a default data source for that type, and a corresponding linked server.

5 If you selected **Existing Shared Data Source**, click the desired data source type in the **Existing SDS Type** list. In the **Default Data Source** area, the connection information for the default data source of the selected type appears.

6 If you selected to create a new data source type, enter its name in the **New SDS Type** box. In the **Default Data Source** area, enter the connection information for the new data source and linked server.

7 In the **Page Transform** list, specify whether the deployed report(s) should be converted to a different page size.

8 In the **Configuration File** box, enter the path to the .xml configuration file that you want to use for deployment. Click **Browse** to browse for the file.

9   Click **Deploy**.

The ArchestrA Reports Deployment utility deploys your report(s) based on the information specified in the deployment file.

Preparing for Report Execution from Industrial Application Server and IndustrialSQL Server

You can execute reports from Industrial Application Server or IndustrialSQL Server. Before executing reports from either source:

- Configure local or network printers.

- Configure Snapshot reporting.

- Import the Reports Library

Configure Printers

You can print your reports from the local printer or from one or more network printers. Add a local or network printer using standard printer configuration steps, on the portal machine.

Note Printing is always executed from the Wonderware Information Server node.

Modify the web.config File for Printer Configuration

The web.config file contains the element key values for any printers. It must be modified to include any local or network printers configured on the Wonderware Information Server node.

To modify the web.config file

1   Locate the web.config file and open it using Notepad. The default location is
`C:\Inetpub\wwwroot\Wonderware\ArchestraReports\web.config`

2 Locate the `<add key="PrinterMapping" value.../>` line and add the printer domain and printer name using the format shown in the following graphic. Separate multiple printer names using a comma.

The following graphic shows two printers.

3 Save and close the file.

WARNING! **Do NOT save the file as a .txt file.**

Configure Snapshot Reporting

You can trigger snapshot reports from both Industrial Application Server and IndustrialSQL Server.

To ensure successful snapshot reporting, you must configure the aaReports Shared Data Source with the correct credentials.

To configure Wonderware Information Server for Snapshot Reports

1   On the Wonderware Information Server node, open Wonderware Information Server and navigate to **Administration/Report Manager/ArchestrA Reports/aaReports**.
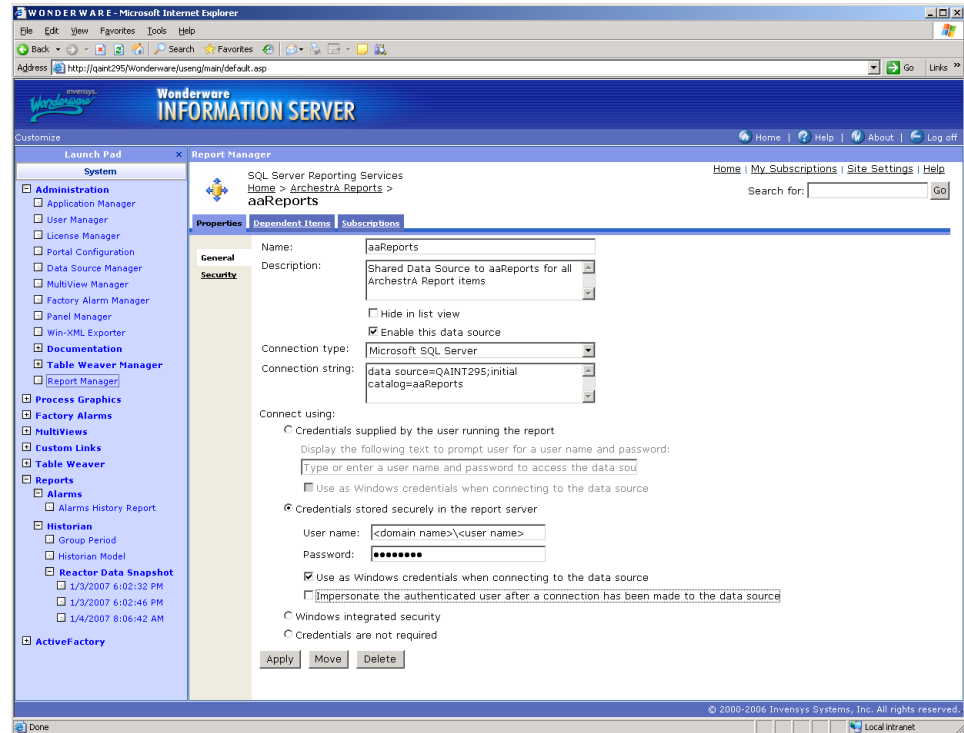
2   Click the **Credentials stored securely in the report server** option and type the Domain/User Name and Password as shown in the previous graphic.

3   Click the **Use as Windows credentials when connecting to the data source** option, and **Apply**.

Executing Reports from Industrial Application Server

You can trigger snapshots, and export and print parameterized reports by using Industrial Application Server object scripts.

Once you have imported the script function library, a number of object classes are available for use in Industrial Application Server scripts.

Import the ArchestrAReportsScripts.dll

The necessary objects for executing reports are provided as a separate library. To use them, import the reports library object first.

To import the reports library for Industrial Application Server

1 Open the Industrial Application Server IDE.
On the main menu, click **Import/Script Function Library**.

2 Select `ArchestrAReportsScripts.dll` file. It is located on the installation CD at `.\ArchestrAReportsLibrary\IAS`.

3 Click **Open**.

4 Acknowledge the Success message by clicking **OK**.

The following sections explain the methods and properties of these objects. For examples of how to use them, see Industrial Application Server Report Execution Script Samples on page 265.

Your script should perform the following actions in order to successfully execute a report:

- The script must be run **Asynchronously**. This is to ensure a large print operation will not impede your Application Engine execution cycles.

- Open a connection to the report server.

- Get an instance of the report you want to execute.

- Specify any required parameters and the report format.

- Trigger the report.

- Check the status of the report execution until the report succeeds.

- Clean up internal data structures.

ArchestrA.Reports.ReportServer Class

`ReportServer` objects have the following methods:

- Dispose Method

- GetParameterizedReport Method

- GetSnapshotReport Method

- Open Method

Dispose Method

This method disposes of the internal data structures for a `ReportServer` instance.

Syntax

```
Dispose();
```

Remarks

This method has no parameters or return value.

GetParameterizedReport Method

This method returns an report instance of the `ParameterizedReport` class.

Syntax

```
GetParameterizedReport(string reportPath);
```

Parameters

reportPath
  The full path to the report. For example, "/ArchestrA Reports/Alarms/Alarm History Report".

Return Value

If successful, a `ParameterizedReport` instance of the requested report is returned.

GetSnapshotReport Method

This method returns an report instance of the `SnapshotReport` class.

Syntax

```
GetSnapshotReport(string reportPath);
```

Parameters

reportPath
  The full path to the report. For example, "/ArchestrA Reports/Alarms/Alarm History Report".

Return Value

If successful, a `SnapshotReport` instance of the requested report is returned.

Open Method

This method specifies the report server node and base URL used to generate reports. Use this method to initialize the connection before requesting a report instance.

Syntax

```
Open(string url);
```

Parameters

url

The URL to the base folder used for ArchestrA Reporting. For example:
http://NODENAME/Wonderware/ArchestrAReports

Return Value

Returns True if the connection was established; otherwise, returns False.

Archestra.Reports.SnapshotReport Class

`SnapshotReport` objects have the following properties and methods:

- Dispose Method

- LastErrorString Property

- Status Property

- Timestamp Property

- Trigger Method

Dispose Method

This method disposes of the internal data structures for a `SnapshotReport` instance.

Syntax

```
Dispose();
```

Remarks

This method has no parameters or return value.

LastErrorString Property

This property returns an error message when a report creation request has failed (that is, if the Status property contains `Fail` or the Trigger method returns False).

Return Value

Returns a string.

Related Topics

Status Property
Trigger Method

Status Property

This property returns the current state of the `SnapshotReport` instance.

Return Value

Returns a `ReportStatus` value. For more information, see ReportStatus Enumeration on page 264.

Remarks

If the status is `Fail`, check the LastErrorString property for detailed error information.

Related Topics

LastErrorString Property

Timestamp Property

This property returns the timestamp of the report snapshot if it was successfully created (that is, if the Status property of the report instance contains `Success`).

Return Value

Returns a string.

Related Topics

Status Property

Trigger Method

This method triggers the creation of a report snapshot on the report server.

Syntax

```
Trigger();
```

Return Value

Returns True if a request for a report snapshot was successfully submitted to SQL Server Reporting Services. Returns False if an error occurred, for example, a snapshot is already in progress for this object. In case of an error, check the LastErrorString property for the error message.

Remarks

Each `SnapshotReport` instance allows only one report to be in progress at a time. That is, you can't generate multiple snapshots concurrently. To check if the creation of a snapshot has been completed, use the Status property.

Related Topics

LastErrorString Property
Status Property

Archestra.Reports.ParameterizedReport Class

`ParameterizedReport` objects have the following properties and methods:

- Dispose Method

- FileSave Method

- FileSaveServer Method

- LastErrorString Property

- PrintServer Method

- SetParameter Method

- Status Property

Dispose Method

This method disposes of the internal data structures for a
`ParameterizedReport` instance.

Syntax

`Dispose();`

Remarks

This method has no parameters or return value.

FileSave Method

This method executes the report and saves the results on the
local computer.

Syntax

`FileSave(ReportFormat *format*, string *fileName*);`

Parameters

format
  The format in which the report should be saved. For more
  information, see ReportFormat Enumeration on page 264.

fileName
  The full path and file name, including extension, where the
  report should be saved on the local computer. For example:
  C:\Reports\Summary.pdf. If no path is specified, the report
  is saved in the default directory of the owner of the
  ArchestrA Bootstrap service. Usually, this is the
  `<Windows>\System32` folder. If no extension is specified, an
  appropriate extension is added based on the specified report
  format.

Return Value

Returns True if a request for executing the report was
successfully submitted to SQL Server Reporting Services.
Returns False if an error occurred, for example, report
generation is already in progress for this object. In case of an
error, check the LastErrorString property for the error
message.

Remarks

Each `ParameterizedReport` instance allows only one report to be in progress at a time. That is, you can't generate multiple reports concurrently. To check if the creation of a snapshot has been completed, use the Status property.

Related Topics

LastErrorString Property

Status Property

FileSaveServer Method

This method executes a report and saves the results in a folder on the Industrial Application Server website.

Syntax

```
FileSaveServer(ReportFormat format, string fileName,
  string folderName);
```

Parameters

format
  The format in which the report should be saved. For more information, see ReportFormat Enumeration on page 264.

fileName
  The file name, including extension, under which the report should be saved. For example: Summary.pdf. If no extension is specified, an appropriate extension is added based on the specified report format.

folderName
  The folder name on the server. For example: SavedReports. Specify NULL to save the report in the default folder. To save the report, the folder must exist on the web site and the user must be a member of the aaReportsPowerUsers or aaReportsAdministrators groups. For more information, see Understanding Reporting Security on page 227.

Return Value

Returns True if a request for executing the report was successfully submitted to SQL Server Reporting Services. Returns False if an error occurred, for example, report generation is already in progress for this object. In case of an error, check the LastErrorString property for the error message.

Remarks

Each `ParameterizedReport` instance allows only one report to be in progress at a time. That is, you can't generate multiple reports concurrently. To check if the creation of a snapshot has been completed, use the Status property.

Related Topics
> LastErrorString Property
> Status Property

LastErrorString Property

This property returns an error message when a report creation request has failed (that is, if the Status property contains `Fail` or one of the methods involved in generating reports returns False).

Return Value

Returns a string.

Related Topics
> FileSave Method
> FileSaveServer Method
> PrintServer Method
> SetParameter Method
> Status Property

PrintServer Method

This method executes a report and prints the results on a specified printer.

Syntax

```
PrintServer(string printerName, bool landscape, Margins
  reportMargins);
```

Parameters

printerName
> The logical name of the printer where the report should be printed. The printer mapping is defined in the web.config file. For more information, see Configuring Reporting Options on page 225.

landscape
> The orientation of the printed report. Specify True for landscape, False for portrait.

reportMargins
> The margins of the printed report. This parameter requires an object of the `Margins` system class. The `Margins` object has four properties: `Top`, `Bottom`, `Left`, and `Right`. Each property specifies the width of the respective margin in hundredths of an inch.

Return Value

Returns True if a request for executing the report was successfully submitted to SQL Server Reporting Services. Returns False if an error occurred, for example, report

generation is already in progress for this object. In case of an error, check the LastErrorString property for the error message.

Remarks

Each `ParameterizedReport` instance allows only one report to be in progress at a time. That is, you can't generate multiple reports concurrently. To check if the creation of a snapshot has been completed, use the Status property.

Related Topics

LastErrorString Property

Status Property

SetParameter Method

This method is used to set a report parameter, supply the parameterName, and the parameterValue.

Syntax

```
SetParameter(string parameterName, string
  parameterValue);
```

Parameters

parameterName
  The name of the report parameter.

parameterValue
  The value for the report parameter.

Return Value

Returns True if the parameter was set successfully. Returns False if an error occurred. In case of an error, check the LastErrorString property for the error message.

Remarks

To specify more than one value for a multi-value parameter, call this method once for each value.

The parameter name and value are not validated until the report is executed.

Character-type parameters with a fixed length may require trailing spaces to be considered valid.

If a report parameter has a list of available labels and values, you must specify the value as the parameter name, not the label.

To specify a date/time value, use any format supported by the Microsoft .NET 2.0 DateTime structure.

Related Topics

LastErrorString Property

Status Property

This property returns the current state of the `ParameterizedReport` instance.

Return Value

Returns a `ReportStatus` value. For more information, see ReportStatus Enumeration on page 264.

Remarks

If the status is `Fail`, check the LastErrorString property for detailed error information.

Related Topics

LastErrorString Property

ReportFormat Enumeration

This enumeration specifies available formats for saving an executed report.

Value	Description
CSV	Comma-Separated Value (CSV) file
Excel	Microsoft Excel spreadsheet file
MHTML	Multipart HTML (web archive) file
PDF	Adobe Portable Document Format (PDF) file
XML	eXtensible Markup Language (XML) file

ReportStatus Enumeration

This enumeration specifies status codes for a report instance that is being processed.

Value	Description
Unknown	An internal error has occurred.
NotStarted	The report has been initialized, but processing has not started.
InProgress	Report processing is currently underway.
Success	The report was created successfully.
Fail	Report processing failed.

Industrial Application Server Report Execution Script Samples

The following script samples show how to use the script functions together to save or print a report.

Additional sample scripts are located on the installation CD at \\ArchestrAReportsLibrary\IAS\Samples.

Note Snapshot reports use default values for all parameters. If you try to generate a report from a report with user-supplied parameters, the report does not execute, and an error is generated. It may be appropriate to create a linked report using Report Manager to allow you to set default values for all report parameters.

Executing a Snapshot Report

Note The ArchestrAReportsScripts.dll library file must be imported into your IAS Galaxy. See detailed import steps: To import the reports library for Industrial Application Server on page 256.

To generate a snapshot for a report, use a script like the following.

```
Dim reportServerName as string;
Dim reportNamePath as string;
Dim smsg as string;
Dim statusCounter as boolean;
Dim counter as integer;
Dim statusDelay as integer;
Dim ret as System.Boolean;
Dim reportServer as ArchestrA.Reports.ReportServer;
Dim snapshotReport as ArchestrA.Reports.SnapshotReport;

' make connection

reportServer = new ArchestrA.Reports.ReportServer;
reportServerName = "http://<YOUR WIS NODE NAME>/Wonderware/ArchestrAReports";
reportServer.Open(reportServerName);


' setup report path and name
reportNamePath = "/ArchestrA Reports/Historian/<YOUR REPORT NAME>";

LogMessage("******** Execute Snapshot.");

LogMessage("Executing to Report Server: " + reportServerName);

' Note:
' For parameterized reports add default parameters to the report.
' User data source credentials required to execute this report must be stored
' in the report server database, configure in the aaReports data source.

statusCounter = true;
statusDelay = 3000;
```

```
LogMessage("******* Trigger a snapshot, Report: " + reportNamePath + ".");

snapshotReport = reportServer.GetSnapshotReport(reportNamePath);
ret = snapshotReport.Trigger();

IF(ret == false) THEN

    smsg = "Snapshot trigger returned false - System Time: " +
                        System.DateTime.Now.ToString();
    smsg = smsg + " - Error Detail: " + snapshotReport.LastErrorString;
    LogMessage(smsg);
ELSE

    LogMessage("Successfully triggered report SnapShot - System Time: " +
                        System.DateTime.Now.ToString());
    LogMessage("******* Start status check. ");
    counter = 1;
    WHILE(statusCounter == true)
        IF(snapshotReport.Status == ArchestrA.Reports.ReportStatus.InProgress)

                    THEN
            LogMessage("SnapShot - InProgress - Pass# " + counter.ToString());
        ELSEIF(snapshotReport.Status == ArchestrA.Reports.ReportStatus.Success)

                    THEN
            LogMessage("Success - TimeStamp: " + snapshotReport.TimeStamp);
            statusCounter = false;
        ELSEIF(snapshotReport.Status == ArchestrA.Reports.ReportStatus.Fail)

                    THEN
            LogMessage("Failed - Pass# " + counter.ToString() +

                        " - Error Detail: " + snapshotReport.LastErrorString);
            statusCounter = false;
        ELSEIF(snapshotReport.Status ==

                        ArchestrA.Reports.ReportStatus.NotStarted)

                    THEN
            LogMessage("Not Started - Pass# " + counter.ToString());
        ELSEIF(snapshotReport.Status == ArchestrA.Reports.ReportStatus.Unknown)

                    THEN
            LogMessage("Unknown - Pass# " + counter.ToString());
        ELSE
            LogMessage("Default Null Unknown - Pass# " + counter.ToString());
        ENDIF;
        System.Threading.Thread.Sleep(statusDelay);
        counter = counter + 1;
        ' after 40 loops checking status, aborting
        IF(counter > 40) then
            statusCounter = false;
            LogMessage("Aborting status check....");
        ENDIF;
    ENDWHILE;
ENDIF;
snapshotReport.Dispose();
LogMessage("******* End of Script Execution.");

reportServer.Dispose();
```

Executing a Parameterized Report and Saving It to a Local Location

Note The ArchestrAReportsScripts.dll library file must be imported into your IAS Galaxy. See detailed import steps: To import the reports library for Industrial Application Server on page 256

To execute a parameterized report and save the results on the local computer, use a script like the following.

```
Dim reportServerName as string;
Dim reportNamePath as string;
Dim reportExportName as String;
Dim enumTypeValue as integer;
Dim statusPassCount as integer;
Dim statusDelay as integer;
Dim doStatusPass as boolean;
Dim reportStoragePath as string;
Dim reportName as string;
Dim sMsg as string;
Dim fileFullName as string;
Dim reportServer as ArchestrA.Reports.ReportServer;
Dim parameterReport as ArchestrA.Reports.ParameterizedReport;
Dim snapshotReport as ArchestrA.Reports.SnapshotReport;
Dim ret as boolean;
Dim statusMaxPasses as integer;
Dim nodeName as string;
Dim dateNow as System.DateTime;
Dim storageDir as string;

statusMaxPasses = 40;

statusDelay = 3000;

nodeName = "<YOUR WIS NODE NAME>";

' make connection

reportServer = new ArchestrA.Reports.ReportServer;

reportServerName = "http://" + nodeName + "/Wonderware/ArchestrAReports";

ret = reportServer.Open(reportServerName);

LogMessage("******** Connecting to Report Server node");

IF(ret) THEN
    LogMessage("Successfully connected to: " + nodeName + ".");

ELSE
    LogMessage("Unable to connect to: " + nodeName + ".");

ENDIF;

' Save file local storage location

storageDir = "C:\Archestra\";

LogMessage("******** Execute Local Save");

LogMessage("Executing to Report Server: " + reportServerName);

doStatusPass = true;

' report name path
```

```
reportName = "Group Period";
' assemble the file path name
reportNamePath = "/ArchestrA Reports/Historian/" + reportName;
' assemble the export file storage location with report name
reportStoragePath = storageDir + reportName;
' Note: Group Period report cannot be exported to Excel format
fileFullName = reportStoragePath + ".CSV";
enumTypeValue = ArchestrA.Reports.ReportFormat.CSV;
' get an instance of the report
parameterReport = reportServer.GetParameterizedReport(reportNamePath);
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
' send Tagname parameter to report
ret = parameterReport.SetParameter("TagName", "SysTimeHour");
if (ret) then
    LogMessage("TagName parameter successfully sent to report.");
ELSE
    LogMessage("Error - unable to send TagName parameter to report: " +
                      parameterReport.LastErrorString);
ENDIF;
' call the save method
ret = parameterReport.FileSave(enumTypeValue, fileFullName);
IF (ret == false) THEN
    LogMessage("Error: - export call not succesfful: " +
                      parameterReport.LastErrorString);
ELSE

    LogMessage("Export call successfully sent to report.");
    doStatusPass = true;
    statusPassCount = 1;
    ' loop to check the status of the export file
    WHILE(doStatusPass)
       IF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Success)
                     THEN
          LogMessage("Save - Pass#" + statusPassCount.ToString() +
                     "Successfully exported and saved locally as: " +
                        fileFullName);
          doStatusPass = false;
       ELSEIF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Fail)
                     THEN
          LogMessage("Save - Pass#" + statusPassCount.ToString() + " Status:
                     Failed - Error Detail: "
                     + parameterReport.LastErrorString);
          doStatusPass = false;
       ELSEIF(parameterReport.Status ==
                     ArchestrA.Reports.ReportStatus.InProgress) THEN
          LogMessage("Save - Pass#" + statusPassCount.ToString() + " Status:
```

```
                                InProgress");
        ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.Unknown) THEN
           LogMessage("Save - Pass#" + statusPassCount.ToString() + " Status:

                        Unknown");
        ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.NotStarted) THEN
           LogMessage("Save - Pass#" + statusPassCount.ToString() + " Status:

                        Not Started");
        ELSE
           LogMessage("Save - Pass#" + statusPassCount.ToString() + " Status:

                        Unknown - " + parameterReport.Status.ToString() + " -
                          Error Detail: " + parameterReport.LastErrorString);
        ENDIF;
        ' delay between each status check
        System.Threading.Thread.Sleep(statusDelay);
        ' check if status takes too long to get a successful save
        statusPassCount = statusPassCount + 1;
        IF(statusPassCount > 40) THEN
           doStatusPass = false;
           LogMessage("Aborted status check..... ");
        ENDIF;
     ENDWHILE;
     parameterReport.Dispose();
ENDIF;

LogMessage("*********** End of Script Execution ");

' clean up the old data structures

reportServer.Dispose();
```

Executing a Parameterized Report and Saving It to a Remote Location

To execute a parameterized report and save the results on a remote computer, use a script like the following.

```
Dim reportServerName as string;
Dim reportNamePath as string;
Dim enumTypeValue as integer;
Dim statusPass as integer;
Dim statusDelay as integer;
Dim doStatusPass as boolean;
Dim fileName as string;
Dim reportName as string;
Dim sMsg as string;
Dim fileFullName as string;
Dim exportedFileName as string;
Dim reportServer as ArchestrA.Reports.ReportServer;
Dim parameterReport as ArchestrA.Reports.ParameterizedReport;
Dim snapshotReport as ArchestrA.Reports.SnapshotReport;
Dim ret as boolean;
Dim statusMaxPasses as integer;
Dim nodeName as string;
Dim folderName as string;
```

```
statusMaxPasses = 40;

statusDelay = 3000;

nodeName = "<YOUR NODE NAME>";

folderName = null;

' make connection

reportServer = new ArchestrA.Reports.ReportServer;

reportServerName = "http://" + nodeName + "/Wonderware/ArchestrAReports";

ret = reportServer.Open(reportServerName);

LogMessage("******** Connecting to Report Server node");

IF(ret) THEN
    LogMessage("Successfully connected to: " + nodeName + ".");

ELSE
    LogMessage("Unable to connect to: " + nodeName + ".");
ENDIF;

LogMessage("******** Execute Server Export");

LogMessage("Executing to Report Server: " + reportServerName);

doStatusPass = true;


' assemble the save file name and file type

reportName = "Group Period";

fileFullName = "\" + reportName + ".PDF";

reportNamePath = "/ArchestrA Reports/Historian/" + reportName;

enumTypeValue = ArchestrA.Reports.ReportFormat.PDF;


' get an instance of the report

parameterReport = reportServer.GetParameterizedReport(reportNamePath);

LogMessage("Save FilePathName: " + fileFullName);

LogMessage("Save format type: " + enumTypeValue.ToString());


' parameterized report save parameters, call the FileSave method
' with parameters, the export format type and full path file name to use.
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
' send Tagname parameter to report

ret = parameterReport.SetParameter("TagName", "SysTimeHour");

IF (ret) then
    LogMessage("TagName parameter successfully sent to report.");

ELSE
    LogMessage("Error - unable to send TagName parameter to report: " +
                        parameterReport.LastErrorString);

ENDIF;

ret = parameterReport.FileSaveServer(enumTypeValue, fileFullName, folderName);

sMsg = "Report [Export Type and file Path\Name] saved, command returned: " +
```

```
                                    ret.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (ret == false) then
    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ELSE
    LogMessage(sMsg);
    statusPass = 1;
    ' loop to check the status of the export file
    WHILE(doStatusPass)
       IF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Success)

                        THEN
          exportedFileName = fileFullName;
          exportedFileName = exportedFileName.Replace("\", "");
          LogMessage("Export - Pass#" + statusPass.ToString() + " Successfully

                        exported and saved on Server as: " + exportedFileName);
          doStatusPass = false;
       ELSEIF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Fail)

                        THEN
          LogMessage("Export - Pass#" + statusPass.ToString() + " Status:

                        Failed - Error Detail: " +
                           parameterReport.LastErrorString);
          doStatusPass = false;
       ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.InProgress)

                        THEN
          LogMessage("Export - Pass#" + statusPass.ToString() + " Status:

                        InProgress");
       ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.Unknown) then
          LogMessage("Export - Pass#" + statusPass.ToString() + " Status:

                        Unknown");
       ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.NotStarted)

                        THEN
          LogMessage("Export - Pass#" + statusPass.ToString() +

                        " Status: Not Started");
       ELSE
          LogMessage("Export - Pass#" + statusPass.ToString() + " Status: Null

                        Unknown - " + parameterReport.Status.ToString() + " -
                           Error Detail: " + parameterReport.LastErrorString);
       ENDIF;
       ' delay between each status check
       System.Threading.Thread.Sleep(statusDelay);

       ' check if status takes too long to get a successful save
       statusPass = statusPass + 1;
       IF(statusPass > statusMaxPasses) THEN
          doStatusPass = false;
          LogMessage("Aborted status check..... ");
       ENDIF;
```

```
    ENDWHILE;
    parameterReport.Dispose();
ENDIF;
LogMessage("*********** End of Script Execution ");

' clean up the old data structures
reportServer.Dispose();
```

Printing From Industrial Application Server

Printing from Industrial Application Server (IAS) requires:

- The IAS Bootstrap must be installed on the Wonderware Information Server node. Only the Bootstrap is needed.

- A Platform and any other objects containing your printing script, such as AppEngine, Area or UserDefined Object (UDO) must be deployed on your Wonderware Information Server node. In the Platform, identify the Wonderware Information Server node.

  The printing script may be located in any of the deployed objects, including the Platform engine. However, it is most efficient to use the script on a child object for faster object redeployment.

Note Ensure the Network Account User is the same on both the GR node and the Wonderware Information Server node.

- The ArchestrAReportsScripts.dll library file must be imported into your IAS Galaxy.

Note See detailed import steps: To import the reports library for Industrial Application Server on page 256

The following script example contains report parameters and generates a print job defining the report layout as "portrait."

```
Dim reportServerName as string;
Dim reportNamePath as string;
Dim enumTypeValue as integer;
Dim statusPass as integer;
Dim dateNow as System.DateTime;
Dim dateStart as System.DateTime;
Dim retPrintReport as boolean;
Dim statusDelay as integer;
Dim margins as Archestra.Reports.aaReportingService.Margins;
Dim doStatusPass as boolean;
Dim reportStoragePath as string;
Dim reportName as string;
Dim sMsg as string;
Dim fileFullName as string;
Dim fileType as integer;
Dim reportServer as ArchestrA.Reports.ReportServer;
Dim parameterReport as ArchestrA.Reports.ParameterizedReport;
Dim ret as boolean;
Dim statusMaxPasses as integer;
```

```
Dim nodeName as string;
Dim retFileSave as boolean;
Dim landscape as boolean;

statusMaxPasses = 40;
statusDelay = 3000;
nodeName = "<YOUR WIS NODE NAME>";
landscape = true;
' DateTimes
dateNow = System.DateTime.Now;
dateStart = dateNow;
dateStart = dateStart.AddHours(-24);

' set report margins

margins = new Archestra.Reports.aaReportingService.Margins();
margins.top=20;
margins.bottom=20;
margins.left=200;
margins.right=200;

' set report name and path

reportName = "Group Period";
reportNamePath = "/ArchestrA Reports/Historian/" + reportName;
reportServer = new ArchestrA.Reports.ReportServer;
reportServerName = "http://" + nodeName + "/Wonderware/ArchestrAReports";

' open a connection to the report
ret = reportServer.Open(reportServerName);

IF(ret) then LogMessage("Successfully connected to: " + nodeName + ".");

ELSE LogMessage("Unable to connect to: " + nodeName + ".");
ENDIF;

' get an instance of the report
parameterReport = reportServer.GetParameterizedReport(reportNamePath);

' Apply tagname parameters

retFileSave = parameterReport.SetParameter("TagName", "SysTimeHour");

sMsg = "Report [Group] parameter saved, command returned: " +
                      retFileSave.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (retFileSave) THEN
   LogMessage(sMsg);

ELSE
   sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
   LogMessage(sMsg);
ENDIF;

retFileSave = parameterReport.SetParameter("TagName", "SysTimeMin");

sMsg = "Report [Group] parameter saved, command returned: " +
                      retFileSave.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF(retFileSave) THEN
   LogMessage(sMsg);
```

```
ELSE
    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ENDIF;

retFileSave = parameterReport.SetParameter("TagName", "SysTimeSec");

sMsg = "Report [Group] parameter saved, command returned: " +
                        retFileSave.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (retFileSave) THEN
    LogMessage(sMsg);
ELSE

    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;

LogMessage(sMsg);
ENDIF;

' Apply StardateTime and EndDateTime

retFileSave = parameterReport.SetParameter("StartDateTime",
dateStart.ToString());

sMsg = "Report [Group] parameter saved, command returned: " +
retFileSave.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (retFileSave) THEN
    LogMessage(sMsg);
ELSE

    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ENDIF;

retFileSave = parameterReport.SetParameter("EndDateTime", dateNow.ToString());

sMsg = "Report [Group] parameter saved, command returned: " +
                        retFileSave.ToString() + " - ";

sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (retFileSave) THEN
    LogMessage(sMsg);
ELSE

    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ENDIF;

' Apply TimeZoneId

retFileSave = parameterReport.SetParameter("TimeZoneId", "-100");
sMsg = "Report [Group] parameter saved, command returned: " +

                        retFileSave.ToString() + " - ";
sMsg = sMsg + "System Time: " + System.DateTime.Now.ToString();

IF (retFileSave) THEN
    LogMessage(sMsg);
```

```
ELSE
    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ENDIF;

' Replace <PRINTERNAME> with the name of the printer set in the web.config file

retPrintReport = parameterReport.PrintServer("<PRINTERNAME>", landscape,
margins);

' check status

doStatusPass = true;

IF (retPrintReport == false) THEN
    sMsg = sMsg + " - Error: " + parameterReport.LastErrorString;
    LogMessage(sMsg);
ELSE
    LogMessage(sMsg);
    statusPass = 1;
    ' loop to check the status of the export file
    WHILE(doStatusPass)
        IF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Success)

                        THEN
            LogMessage("Print - Pass#" + statusPass.ToString() + " successfully

                        printed report: " + reportNamePath);
            doStatusPass = false;
        ELSEIF(parameterReport.Status == ArchestrA.Reports.ReportStatus.Fail)

                        THEN
            LogMessage("Print - Pass#" + statusPass.ToString() +

                        " export status: Failed - Error Detail: " +

                        parameterReport.LastErrorString);
            doStatusPass = false;
        ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.InProgress)

                        THEN
            LogMessage("Print - Pass#" + statusPass.ToString() + " export status:

                        InProgress");
        ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.Unknown)

                        THEN
            LogMessage("Print - Pass#" + statusPass.ToString() +

                        " export status: Unknown");
        ELSEIF(parameterReport.Status ==

                        ArchestrA.Reports.ReportStatus.NotStarted)

                        THEN
            LogMessage("Print - Pass#" + statusPass.ToString() + " export status:

                        Not Started");
        ELSE
            LogMessage("Print - Pass#" + statusPass.ToString() + " export status:

                        Unknown - " + parameterReport.Status.ToString() + "

                        - Error Detail: " + parameterReport.LastErrorString);
```

```
        ENDIF;
        ' delay between each status check
        System.Threading.Thread.Sleep(statusDelay);


        ' check if status takes too long to get a successful save
        statusPass = statusPass + 1;
        IF(statusPass > statusMaxPasses) THEN
            doStatusPass = false;
            LogMessage("Aborted status check..... ");
        ENDIF;
    ENDWHILE;
ENDIF;

margins = null;
parameterReport.Dispose();

reportServer.Dispose();
```

Executing Reports from IndustrialSQL Server Events

You can execute and print parameterized and snapshot reports by using IndustrialSQL Server events. Configure the event actions with SQL statements that execute reports on the Wonderware Information Server.

To execute Wonderware Information Server reports using IndustrialSQL Server, you must configure each server to communicate with the other. Communication between nodes is provided by running several configuration scripts on each node.

The following steps assume that Wonderware Information Server and IndustrialSQL Server are installed on different nodes.

Running the scripts on different nodes ensures the following:

- The IndustrialSQL Server node generates report snapshots and performs report exporting.

- The Wonderware Information Server prints the reports.

The necessary functions for executing reports are provided as separate libraries. To use them, install the libraries first.

Executing Snapshots and Exporting Reports

The following configuration task is necessary on the IndustrialSQL Server node.

To configure the IndustrialSQL Server node for Snapshot and exported reports

1   Copy the `InSqlEvents.dll` and the `InSqlEvents.XmlSerializers.dll` files to a local directory on the IndustrialSQL Server node.

   The .dlls are located on the installation CD at: `.\ArchestrAReportsLibrary\Historian`.

2   From Microsoft SQL Management Studio, locate and open the **ConfigureInSQLForAAReports.sql** file. It is located on the installation CD at: `.\ArchestrAReportsLibrary\Historian`.

3   Set the `@AssemblyPath` variable to the local directory containing the .dlls.

4   Execute the query. The script configures the required assemblies in the **Runtime** database.

5   Use an IndustrialSQL Server Event System action to execute a snapshot or export a report, using a Generic SQL Action script.

   The following event script example creates a snapshot report:

```
/* This script will create a snapshot of a WIS report from an InSQL Generic SQL
Action Event */

EXEC ReportsTriggerSnapshot

@url = 'http://Wonderware/ArchestrAReports',
@path = '/ArchestrA Reports/Historian/<YOUR REPORT NAME>'
```

Printing IndustrialSQL Server Reports

Print all your reports from the Wonderware Information Server node. The following information describes configuration on both the Wonderware Information Server and the IndustrialSQL Server nodes.

To configure the Wonderware Information Server for report printing

1   Copy the `InSqlEvents.dll` and the `InSqlEvents.XmlSerializers.dll` files to a local directory on the Wonderware Information Server node.

   The .dlls are located on the installation CD at: `.\ArchestrAReportsLibrary\Historian`.

2   From Microsoft SQL Management Studio, locate and open the **ConfigureInSQLForAAReportsPrinting.sql** file. It is located on the installation CD at: `.\ArchestrAReportsLibrary\Historian`.

3   Set the `@AssemblyPath` variable to the local directory containing the .dlls.

4   Execute the query. The script configures the required assemblies in the **aaReports** database.

To configure the IndustrialSQL Server node for printing on the Wonderware Information Server node

1   On the IndustrialSQL Server node, create a Linked Server pointing to the Wonderware Information Server node. Using the **New Linked Server** window, do the following:

   a   In the **General** page, type the Linked Server name. The Linked Server name must be the network node name of the Wonderware Information Server.

   a   Click the **SQL Server** Server type option.

   b   In the **Security** page, click the **Be made using this security context** option and type the remote login and password. For example, `aaReportsUser/pwReportsUser`.

   c   In the **Server Options** page, change the **Rpc** and **Rpc Out** values to **True**.

2   Configure an event to trigger the report.

For example, you could configure a "Leading Edge" event that detects a discrete event, such as a water valve closing. The Event action script could look like the following example:

```
/* This script will print a simple WIS report from an InSQL Generic Action
Event */

EXEC <LINKEDSERVERNODENAME>.aaReports.dbo.ReportsPrintServer

@url = 'http://<LINKEDSERVERNODENAME>/Wonderware/ArchestrAReports',

@path = '/ArchestrA Reports/Historian/<YOUR REPORT NAME>',

@parameters = '',

@printername = 'Default',

@landscape = 0,
@reportmargins = 'top=25,bottom=25,left=25,right=25'
```

SQL Functions for Executing Reports

A number of additional SQL functions are provided by the .dlls for use in event actions. The following sections explain each of these functions. For examples of how to use them, see Examples for Executing Reports from IndustrialSQL Server on page 283.

Use the following SQL functions to execute and print reports from an event action on the IndustrialSQL Server historian:

ReportsFileSave

This function executes a report and saves the results on the local computer.

Syntax

```
ReportsFileSave(@url nvarchar(255), @path
  nvarchar(255), @parameters nvarchar(4000),
  @reportFormat nvarchar(10), @localPath nvarchar(255))
```

Parameters

url

The URL to the base folder used for ArchestrA Reporting. For example:

```
http://localhost/Wonderware/ArchestrAReports
```

path

The path of the report to be executed. For example:

```
/ArchestrA Reports/Alarms/Alarm History Report
```

parameters

A comma-separated list of parameters to pass to the report. Parameter values containing commas must be enclosed in double quotes. To pass a double quote as part of a value, prefix it with a backslash (\). To pass a backslash, use two backslashes (\\). To specify multiple parameter values, specify the parameter multiple times. To specify a date/time value, use any format supported by the Microsoft .NET 2.0 DateTime structure.

The following example parameter string specifies four TagName values (SysTimeHour, SysTimeMin, Has,Comma,Tag and Has\Backslash\Tag), a StartDate value of 7:42 AM on August 12, 2006, and a Text value of "Hello, World!":

```
@parameters='TagName=SysTimeHour,TagName=SysTime
Min,TagName="Has,Comma,Tag",TagName=Has\\Backsla
sh\\Tag,StartDateTime=08/12/2006
07:42:00,Text="\"Hello, World!\""
```

reportFormat

The format in which the report should be saved. Valid values are 'CSV', 'Excel', 'MHTML', 'PDF' and 'XML'. For more information, see ReportFormat Enumeration on page 264.

localPath

The full path and file name, including extension, where the report should be saved on the local computer. For example: C:\Reports\Summary.pdf. If no path is specified, the report is saved in the default directory of the owner of the InSQL Event service. Usually, this is the `<Windows>\System32` folder.

Return Value

Returns True if the report file was created. Returns False if an error occurred.

ReportsFileSaveServer

This function executes a report and saves the results in a folder on the Industrial Application Server website.

Syntax

```
ReportsFileSaveServer(@url nvarchar(255), @path
  nvarchar(255), @parameters nvarchar(4000),
  @reportFormat nvarchar(10), @serverFile
  nvarchar(255), @serverFolder nvarchar(255))
```

Parameters

url

The URL to the base folder used for ArchestrA Reporting. For example:
http://localhost/Wonderware/ArchestrAReports

path

The path of the report to be executed. For example:
/ArchestrA Reports/Alarms/Alarm History Report

parameters

A comma-separated list of parameters to pass to the report. Parameter values containing commas must be enclosed in double quotes. To pass a double quote as part of a value, prefix it with a backslash (\). To pass a backslash, use two backslashes (\\). To specify multiple parameter values, specify the parameter multiple times. To specify a date/time value, use any format supported by the Microsoft .NET 2.0 DateTime structure.

The following example parameter string specifies four TagName values (SysTimeHour, SysTimeMin, Has,Comma,Tag and Has\Backslash\Tag), a StartDate value of 7:42 AM on August 12, 2006, and a Text value of "Hello, World!":

```
@parameters='TagName=SysTimeHour,TagName=SysTime
Min,TagName="Has,Comma,Tag",TagName=Has\\Backsla
sh\\Tag,StartDateTime=08/12/2006
07:42:00,Text="\"Hello, World!\""
```

reportFormat

The format in which the report should be saved. Valid values are 'CSV', 'Excel', 'MHTML', 'PDF' and 'XML'. For more information, see ReportFormat Enumeration on page 264.

serverFile

The file name, including extension, under which the report should be saved. For example: Summary.pdf. If no extension is specified, an appropriate extension is added based on the specified report format.

serverFolder

The folder name on the server. For example: SavedReports. Specify NULL to save the report in the default folder. To save the report, the folder must exist on the web site and the user must be a member of the aaReportsPowerUsers or aaReportsAdministrators groups. For more information, see Understanding Reporting Security on page 227.

Return Value

Returns True if the report file was created. Returns `False` if an error occurred.

ReportsPrintServer

This method executes a report and prints the results on a specified printer.

Syntax

```
ReportsPrintServer(@url nvarchar(255), @path
  nvarchar(255), @parameters nvarchar(4000),
  @printerName nvarchar(255), @landscape bit,
  @reportMargins nvarchar(255))
```

Parameters

url

The URL to the base folder used for ArchestrA Reporting. For example:
http://localhost/Wonderware/ArchestrAReports

path

The path of the report to be executed. For example:
/ArchestrA Reports/Alarms/Alarm History Report

parameters

A comma-separated list of parameters to pass to the report. Parameter values containing commas must be enclosed in double quotes. To pass a double quote as part of a value, prefix it with a backslash (\). To pass a backslash, use two backslashes (\\). To specify multiple parameter values,

specify the parameter multiple times. To specify a date/time value, use any format supported by the Microsoft .NET 2.0 DateTime structure.

The following example parameter string specifies four TagName values (SysTimeHour, SysTimeMin, Has,Comma,Tag and Has\Backslash\Tag), a StartDate value of 7:42 AM on August 12, 2006, and a Text value of "Hello, World!":

```
@parameters='TagName=SysTimeHour,TagName=SysTime
Min,TagName="Has,Comma,Tag",TagName=Has\\Backsla
sh\\Tag,StartDateTime=08/12/2006
07:42:00,Text="\"Hello, World!\""
```

printerName
The logical name of the printer where the report should be printed. The printer mapping is defined in the **web.config** file. For more information, see Configuring Reporting Options on page 225.

landscape
The orientation of the printed report. Specify True for landscape, False for portrait.

reportMargins
The margins of the printed report. Specify a string in the following format:

@reportMargins='top=25,bottom=25,left=25,right=25'

Each number specifies the width of the respective margin in hundreths of an inch.

Return Value
Returns True if the report was printed. Returns False if an error occurred.

ReportsTriggerSnapshot
This function triggers the creation of a report snapshot on the report server.

Syntax
```
ReportsTriggerSnapshot(@url nvarchar(255), @path
  nvarchar(255))
```

Parameters

url
The URL to the base folder used for ArchestrA Reporting. For example:
```
http://localhost/Wonderware/ArchestrAReports
```

path
The path of the report to be executed. For example:
```
/ArchestrA Reports/Alarms/Alarm History Report
```

Return Value

Returns True the report snapshot was created. Returns False if an error occurred.

Examples for Executing Reports from IndustrialSQL Server

Printing an Wonderware Information Server (WIS) report from IndustrialSQL Server requires the following:

- A Linked Server to the WIS server node.

- Assemblies (functions) in the aaReports database. The script executes from an IndustrialSQL Server Event tag. The Event tag calls a function in the aaReports database of your WIS server.

For detailed configuration steps, see Preparing for Report Execution from Industrial Application Server and IndustrialSQL Server on page 253.

The following scripts show how to use the script functions together to export, save or print a report.

Exporting a Parameterized Report to the Wonderware Information Server Node

The following SQL script executes a parameterized report and saves the results as a MHTML file on the Wonderware Information Server computer.

```
DECLARE @endTime as datetime
DECLARE @beginTime as datetime
DECLARE @url as nvarchar(255)
DECLARE @path as nvarchar(255)
DECLARE @reportFormat as nvarchar(5)
DECLARE @parameters as nvarchar(4000)
DECLARE @reportTagName as nvarchar(32)
DECLARE @timePart nvarchar(23)
DECLARE @serverFile nvarchar(255)
DECLARE @serverFolder nvarchar(255)

SET @endTime=GetDate()

SET @beginTime=dateadd(mi, -720, @endTime)

--Replace "<WISNODENAME>" with the WIS Server name

SET @url='http://<WISNODENAME>/wonderware/ArchestrAReports'

SET @path='/ArchestrA Reports/Historian/Group Period'

SET @serverFolder='SavedReports'

SET @reportTagName='SysTimeMin'

SET @parameters='StartDateTime="'+convert(nvarchar(23), @beginTime,
126)+'",EndDateTime="'+convert(nvarchar(23), @endTime,
126)+'",TagName='+@reportTagName+',TimeZoneId=-100'

SET @reportFormat='MHTML'
```

```
--SET @reportFormat='CSV'

--SET @reportFormat='XML'

--SET @reportFormat='Excel'

--SET @reportFormat='PDF'

SET @timePart=convert(nvarchar(23), @endTime, 120)

SET @timePart=replace(@timePart, ':', '-')

SET @serverFile='InSQL_SavedReports_' + @timePart + '.'  + @reportFormat

--SET @serverFile='InSQL_SavedReports_' + @timePart + '.XLS' -- if excel
EXEC dbo.ReportsFileSaveServer @url, @path, @parameters, @reportFormat,
@serverFile, @serverFolder
```

Triggering a Snapshot Report

The following SQL script creates a report snapshot and places it in a file.

```
DECLARE @url as nvarchar(255)
DECLARE @path as nvarchar(255)

--Replace "<WISNODENAME>" with the WIS Server name

SET @url='http://<WISNODENAME>/wonderware/ArchestrAReports'

--Replace "<REPORTNAME>" with the name of a report

SET @path='/ArchestrA Reports/<REPORTNAME>'
EXEC dbo.ReportsTriggerSnapshot @url, @path
```

Exporting a Parameterized Report to Local Node

The following SQL script executes a parameterized report and saves the results as a PDF file on the local computer.

```
-- declare variables for parameters

DECLARE @endTime as datetime

DECLARE @beginTime as datetime

DECLARE @beginTimeText as nvarchar(23)

DECLARE @endTimeText as nvarchar(23)


DECLARE @url as nvarchar(255)

DECLARE @path as nvarchar(255)

DECLARE @reportFormat as nvarchar(5)

DECLARE @parameters as nvarchar(4000)

DECLARE @localPath as nvarchar(255)

DECLARE @reportTagName as nvarchar(32)


-- set report times and convert to text

SET @endTime = GetDate()

SET @beginTime = dateadd(mi, -30, @endTime)

SET @beginTimeText = convert(nvarchar(23), @beginTime, 126)

SET @endTimeText = convert(nvarchar(23), @endTime, 126)
```

```
-- set the report server URL and report path
SET @url = 'http://MyServer1/Wonderware/ArchestrAReports'
SET @path='/ArchestrA Reports/Historian/Group Period'


-- set the parameters
SET @reportTagName='SysTimeMin'
SET @parameters='StartDateTime="' + @beginTimeText + '",EndDateTime="' +
@endTimeText + '",TagName=' + @reportTagName + ', TimeZoneId=-100'
SET @reportFormat='PDF'
SET @localPath='C:\Archestra\TagSummaryExport' + '.' + @reportFormat


-- execute the report
EXEC dbo.ReportsFileSave @url=@url, @path=@path, @parameters=@parameters,
@reportFormat=@reportFormat, @localPath=@localPath
```

Printing a Parameterized Report

The following SQL script executes a parameterized report and prints the results to a designated printer.

```
DECLARE @endTime as datetime
DECLARE @beginTime as datetime
DECLARE @beginTimeText as nvarchar(23)
DECLARE @endTimeText as nvarchar(23)
DECLARE @url as nvarchar(255)
DECLARE @path as nvarchar(255)
DECLARE @parameters as nvarchar(4000)
DECLARE @reportTagName as nvarchar(32)
DECLARE @reportMargins as nvarchar(255)
DECLARE @printerName as nvarchar(100)
DECLARE @landscape as bit

SET @reportMargins = 'top=20,bottom=0,left=20,right=0'

SET @endTime = GetDate()

SET @beginTime = dateadd(mi, -30, @endTime)

SET @beginTimeText = convert(nvarchar(23), @beginTime, 126)

SET @endTimeText = convert(nvarchar(23), @endTime, 126)

--Replace "<WISNODENAME>" with the WIS Server name

SET @url = 'http://<WISNODENAME>/Wonderware/ArchestrAReports'

SET @path='/ArchestrA Reports/Historian/Group Period'

SET @reportTagName='SysTimeMin'

SET @parameters='StartDateTime="' + @beginTimeText + '",EndDateTime="' +
@endTimeText + '",TagName="' + @reportTagName +'"'

SET @reportTagName='SysTimeHour'

SET @parameters=@parameters + ',TagName="' + @reportTagName + '"'

SET @parameters=@parameters + ', TimeZoneId=-100'

-- Replace <'PRINTERNAME'> with the printer name defined in the web.config file
```

```
SET @printerName= '<PRINTERNAME>'

SET @landscape = 0

--Replace "<LINKEDSERVER>" with the linked server name

EXEC <LINKEDSERVER>.aaReports.dbo.ReportsPrintServer @url, @path, @parameters,
@printerName, @landscape, @reportMargins
```

Executing Reports via a URL

You can execute reports using a URL, for example, to open a parameterized report from a Table Weaver content unit.

To execute a report using a URL

◆ Call the `ExecuteReport.aspx` page in the `ArchestrAReports` subfolder of the Industrial Application Server virtual directory. Pass the full path to the report in the SQL Server Reporting Services folder structure using the `ReportPath` parameter. Pass any other report parameters as additional URL parameters in the `name=value` format.

For example, assume you want to call a report named "My Report 1" in the ArchestrA Reporting base folder. The Industrial Application Server is installed on the server named "Server1" using the virtual directory "Wonderware." The report has five parameters of different data types: integer1, boolean1, float1, string1, and datetime1. To call the report and pass a value to each parameter, use the following URL:

```
http://Server1/Wonderware/ArchestrAReports/ExecuteReport.aspx?ReportPath=/Arch
estrA Reports/My Report 1&boolean1=true&integer1=100&string1=New
String&datetime1=12/5/2006 10:10:10 AM&float1=3.1415
```

Enabling Secure Socket Layer (SSL) for ArchestrA Reports

When you want to provide reports outside the company 'net, for example from home or other external locations, use Secure Socket Layers.

This section assumes you are familiar with the process of creating and providing certificates for SSL. It describes the manual configurations necessary for ArchestrA reports.

On the Wonderware Information Server node, modify the following config files:

web.config file

◆ Change the `ReportServer` and `ReportManager` values from `http://...` to `https:/...`

RSReportServer.config

◆ Change the following value to `https://`:

```
<UrlRoot>https://d1.internal.boost.net/ReportServer</UrlRoot>
```

RSWebApplication.config

1 Change the following value to `https://`:

```
<ReportServerUrl>https://d1.internal.boost.net/ReportServer</ReportServerUrl>
```

2 Remove the `ReportServerVirtualDirectory` value.

Glossary

access control list	A list of user accounts and user groups and their privileges that is associated with a particular resource.
access panel	An access panel is a named navigation tree that is displayed in the Launch Pad area of the Wonderware Information Server and can be assigned to different users. Multiple access panels can be displayed in the Launch Pad.
Active Server Pages (ASP)	Active Server Pages (ASP) is an environment that allows you to build applications that include scripts, HTML pages, and ActiveX components. Active Server Pages do not have to be compiled before they run. The Wonderware Information Server uses Active Server Pages for the visualization of distributed alarms over the intranet/Internet and for ad-hoc IndustrialSQL Server queries for reports and trending.
asymmetric encryption	Asymmetric encryption is a data security mechanism in which one key encrypts and a different key decrypts.
back door	A back door is a security hole in a compromised system that allows continued access to the system by an intruder, even if the original attack is discovered.
Bastion host	A Bastion host is a designated Internet firewall system specifically armored and protected against attacks.
binding	Binding is an IP address:port number combination that Internet Information Server associates with a server certificate.
browser	A web browser is a software application that locates and opens web pages over the Internet/intranet. An example of a web browser is Internet Explorer.
certification authority	A certification authority is a mutually-trusted, third-party company that issues certificates for digital IDs.

circuit-level gateway	A circuit-level gateway is a specialized function that relays TCP connections without performing any additional packet processing or filtering.
client certificate	A client certificate is piece of digital ID for the users accessing your site. It contains information about the user and is "signed" with a digital signature from the certification authority that issued it.
component	A component is a portion of an application, such as an ASP page, OCX, and so on. Components work together to deliver features.
Component Object Model (COM)	The Component Object Model (COM) is a way for software components to communicate with each other, even between different computers using different operating systems. COM is based on the use of encapsulated objects that communicate through defined interfaces.
content unit	The basic unit that could be processed to get the defined content. A self contained definition unit comprising of an instance of a data source, a query, optionally a link, a KPI, and a display.
data source	The data source defines the connection information to a database, including the database host name, database name, user name, password, and other optional parameters.
default web site	A default web site is the web site that is bound to port 80.
definition unit	A generic term used for various definition units of TableWeaver subsystem.
definition unit list	The list of definition unit names for one of the six subcomponents of the content unit.
digital certificate	A digital certificate resides on the web server and communicates the web site's authenticity to client web browsers, so that the clients know that they are communicating with a non-fraudulent site. Also, digital certificates use SSL to encrypt the data that is exchanged between the server and clients.
digital signature	A digital signature is a hash of a message that is encrypted with the sender's private key.
display	Definition unit that captures the how to visualize aspect of Data.

Extensible Markup Language (XML)	Extensible Markup Language (XML) is a specification for web documents that allows developers to create custom tags. These custom tags enable the definition, transmission, validation, and interpretation of the data contained within them. XML allows for the separation of the actual content from the attributes that describe the content, such as the structure.
Extensible Stylesheet Language (XSL)	Extensible Stylesheet Language (XSL) is a specification that applies a template to web pages to describe how they appear. Additional features specify how web pages print and the ability to transfer XML documents across different applications.
firewall	An Internet firewall is a system or group of systems that enforces an access control policy between an organization's network and the Internet.
hashing	Hashing is the process where a copy of a plain text message is run through a mathematical operation that results in a hash value (usually 160 bits long). It is computationally infeasible to derive the original message from the hash value.
hyperlink	A hyperlink is a portion of clickable text on a web page that points to another web page, a web site, an integrated application, or some other object, such as a report or a document.
Internet Information Server (IIS)	Microsoft Internet Information Server (IIS) is designed to allow you to design, build and manage web sites and applications and also publish and share data over the intranet/Internet. The Wonderware Information Server is dependent on the capabilities of Microsoft Internet Information Server.
IP address	An IP address is a 32-bit Internet protocol address to identify a computer on a TCP/IP network. An IP address is normally written as four decimal numbers delimited by periods (.). For example, 153.171.133.12
IP router	An IP router is a computer, or other device, that "knows" which IP addresses it services or routes to.
key bit-length (or bit-strength)	The key bit-length is the length, in binary bits, of a key. Messages encrypted by longer keys are significantly harder to break than with shorter keys.
key pair	A key pair is a pair of unique values that establish an SSL connection, encrypt data being transmitted, or both. In public key cryptography, there is a private key and a public key. Messages that the private key encrypts can only be decrypted with the public key, and vice-versa.

KPI	A visual indicator that indicates the specific state of the data. With the context of Wonderware Information Server, a KPI is an image or an color cube that indicates the condition of each data.
Launch Pad	The Launch Pad is an area of the Wonderware Information Server that contains one or more access panels for browsing the web site pages and applications.
link	A link refers directly to an integrated application, another web site or content unit.
manufacturing information site	A manufacturing information site is a web site that aggregates information from multiple facility computers and displays it to a client user with a common interface and navigation tools. Resources are provided to enable search capabilities, data analysis, process visualization and interaction, and e-mail.
navigation panel	A browsable hierarchy of links to web pages, applications, and other web sites.
node	A node is an element on the hierarchical tree structure, and may be an intermediate node or a leaf node. A leaf node contains a link to an application, another web site, or some other object.
panel access list	The panel access list is the list of users or groups assigned to a particular access panel instance. The list defines which domain users see and have access to that panel.
navigation tree	A navigation tree is a browsable hierarchy of links to web pages, applications, and other web sites. A navigation tree can be customized and named.
network ID	A network ID is a base IP address that is used as a starting point from which to compare the IP addresses of incoming requests.
node	1) A node is an item on a navigation tree, and may be an intermediate node or a "leaf" node. A "leaf" node contains a link to an application, another web site, or some other object, such as a report or a document. 2) "Node" is another term for a computer running a Wonderware application. For example, an InTouch node.
packet filtering	Packet filtering is a mechanism that allows a router to make a permit/deny decision for each packet. The decision is based on the packet header information that is made available to the IP forwarding process.

proxy service	A proxy service is special-purpose, application-level code installed on an Internet firewall gateway. The proxy service allows the network administrator to permit or deny specific applications or specific features of an application.
public key encryption	Public key encryption is a common encryption method that uses an asymmetric key pair to encrypt and decrypt messages.
query	Definition unit that captures the what aspect of data.
report package	An XML file that defines the various report items that need to be deployed to the SQL Reporting Server.
roles	A role is a single unit against which you can apply user permissions. System roles are used throughout the site to define and limit a functionality for users. System roles may also be used by integrated applications, along with the specific application roles. An application role specifies what user can use a particular integrated application. These roles are configured and assigned to users just like any other role in the web site, but they are unique to the application that defined them; they cannot be used with any other application or by the main web site security mechanism.
Secure Socket Layer (SSL)	Secure Socket Layer (SSL) is a protocol for secure connections over the intranet/Internet. SSL provides server and client authentication, data encryption, and message integrity.
server certificate	A server certificate is a digital ID for your server. It contains information about the server and is signed with a digital signature from the certification authority that issued it. It also contains a key used in forming an SSL connection. You must have a server certificate bound to your server to use SSL.
session key	A session key is an encryption key created during the SSL connection establishment. This key is known only to the user and the server and is used for symmetric encryption.
SharePoint	Microsoft SharePoint is part of the Microsoft Office family. It is an enterprise portal product that provides a collaborative work environment and online publishing in a number of standard formats. SharePoint also has other enterprise portal features, such as a search engine, version control, reporting, and other features.
subnet mask	A subnet mask is a number that specifies which bits of the network ID is used in a bit-wise AND operation with IP addresses that accompany requests.

symmetric encryption	Symmetric encryption is a data security mechanism in which the same key is encrypts and decrypts messages.
uniform resource locator (URL)	A Uniform Resource Locator (URL) is an address that specifies where a particular resource is located on the intranet/Internet. For example, http//www.wonderware.com.
Vector Markup Language (VML)	Vector Markup Language is an XML application by which graphical elements and primitives are rendered by Internet Explorer. Using this technology, the InTouch Win-XML Exporter generates a set of instructions to the Internet Explorer rendering engine to paint InTouch graphics in a browser.
web parts	A web part is a self-contained component that can be used within a digital dashboard. These objects can be just about anything that can be executed or displayed in an Internet browser.
web server	A computer with server software installed on it that delivers web pages to an intranet/Internet.

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