IBM InfoSphere Information Server Manager
Version 11 Release 3

User's Guide

IBM

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Contents

Chapter 1. Overview of InfoSphere Information Server Manager

You can use the IBM® InfoSphere® Information Server Manager (the deployment tool) to move, deploy, and control your IBM InfoSphere DataStage® and QualityStage® assets.

The InfoSphere Information Server Manager is a deployment tool that helps you manage your jobs and related assets. In a typical environment, you implement your data transformation solutions across several systems, and control the promotion of assets between these systems. At its simplest, your environment might contain development, test, and production systems. The deployment tool is installed on a Windows computer, and you can connect to all of your systems from the same Manager.

You can use the deployment tool for the following tasks:

- Viewing your InfoSphere DataStage and QualityStage assets on different metadata repositories
- Creating packages of assets that you can build and deploy on an iterative basis
- Performing simple exports and imports of assets
- Submitting assets to a source control system

You can also manage your InfoSphere DataStage and QualityStage jobs and related assets by using the `istool` commands.

System life cycle

You can use the IBM InfoSphere Information Server Manager to help you implement a system life cycle for your IBM InfoSphere DataStage and QualityStage applications and associated assets.

Collections of related InfoSphere DataStage and QualityStage assets, such as jobs and shared containers, are referred to as an application. As for all software applications, InfoSphere DataStage and QualityStage applications must be developed and maintained under a life cycle methodology to ensure quality.

The basic life cycle methodology for InfoSphere DataStage and QualityStage applications is concerned with the development, test, release, and maintenance of the applications. This life cycle has a minimum of these phases:

1. Development and maintenance
2. Testing
3. Production

You can implement a system life cycle based on this model, but incorporating more phases, for example:

1. Development and maintenance
2. Integration testing
3. Quality assurance
4. User acceptance testing
5. Production

Architecture for development, test, and production

You can place your development, test, and production systems to implement a life cycle for your IBM InfoSphere DataStage applications.

The best practice is to have a separate physical environment for each phase in the life cycle. The development, test, and production systems have separate physical environments.

You can also implement a mixed system, with the development and test systems sharing a single physical environment, and the production system in a separate physical environment.

Do not share the development, test, and production systems in a common physical environment.

The physical environment for each phase in the life cycle can be a loosely coupled cluster (massively parallel processing environment (MPP), grid, cluster) rather than a single computer.

Each phase has one or more projects to hold the assets. Move the assets between different phases by transferring between these projects using the source control system.

Implementing the deployment life cycle

You can define a process to implement a life cycle for your IBM InfoSphere DataStage applications.

About this task

The process defines the responsibilities or roles of the various personnel that are involved in the life cycle. The description of the process does not cover any formal paperwork that an organization might require. The description focuses on the process of moving assets through the life cycle.

Procedure

1. Developer: Develop and maintain new assets such as jobs, custom operators, routines, and sequences in a development project. Thoroughly unit test the assets. Fix failing tests and make enhancements. Be sure to update the job description, which is where the change log is kept for an asset.
2. Developer: Send the individual assets to the source code system. Include an appropriate comment that describes the change when you submit to the source control system. An asset is serialized as an archive file, known as an artifact. The name of the artifact is based on the asset name.
   - It provides the lowest level of granularity.
   - It avoids storing the same asset more than once in the source control system.
   - It prevents any unintentional overlaying of assets when you retrieve the assets from the source control system.
3. Developer or Administrator: Define and build deployment packages to create a snapshot of assets with executables. You can rebuild a deployment package at any time to incorporate the latest versions of the assets, and then deploy the package to a target system.

4. Developer or Administrator: Submit the baseline package files to source code system.
5. Integration Tester: Deploy the packages of controlled assets and executables into the alpha test environment.
6. Integration Tester: Run the integration tests in the alpha environment and evaluate the results. If the tests fail, go back to step 1. If the tests succeed, continue to the next step.
7. Integration Tester: Label the package files for promotion to beta test. Notify the Quality Assurance Tester that the assets are ready for beta test.
8. Quality Assurance Tester: Retrieve the package files for the beta test from the source code system and deploy them to the beta test project.
9. Quality Assurance Tester: Run the QA tests and evaluate the results. If the tests fail, go back to the step 1. If the tests succeed, continue to the next step.
10. Quality Assurance Tester: Label the package files as ready for production. Notify the Production Manager that the assets are ready for release.
11. Production Manager: Ensure that a system backup is made of target production project. The backup provides a means to recover from problems introduced by the changed code. Retrieve the package files that are labeled for production and deploy them into the production environment. The assets are now deployed in the production environment.

Chapter 2. Getting started in InfoSphere Information Server Manager

Before you can move assets or submit them to the source control system, you must connect to the metadata repository that contains the assets and locate them.

You can connect to several different metadata repositories from the same InfoSphere Information Server Manager. You can browse the repository view to locate the various assets that you want to work with in these repositories. You can use search facilities to locate particular assets. You can also open a job to look at its design (although you cannot open individual stages or change job or stage properties).

Starting the InfoSphere Information Server Manager and adding a domain

When you start the IBM InfoSphere Information Server Manager, your first task is to add a domain.

About this task

You can then use the domain to connect to the Services Tier that the IBM InfoSphere DataStage and QualityStage from which you want to deploy assets connects to.

Procedure

1. In the **Start** menu, select **Start** > **All Programs** > **IBM InfoSphere Information Server** > **Information Server Manager**.
2. In the repository tree, right-click and select **Add Domain**. The Add Domain dialog opens.
3. In the Add Domain dialog, specify the domain, user, password, and whether the password is saved.

   By default, the **Save Password** setting is cleared. You can change the default password setting by changing the **Save Password** option in the Preferences dialog.

   Changing the **Save Password** setting in the Preferences applies to all subsequent invocations of the Add Domain dialog. Changing the **Save Password** setting in the Add Domain dialog applies only to the specified domain. If the **Save Password** setting was previously enabled, then the password is remembered.
4. After the connection information has been established, expand the list of available projects and package definitions on the domain and select a project.
5. If you need to reconnect to a disconnected domain, right-click on it and select **Connect**. Alternatively, you can double-click the disconnected domain in the repository tree. If a valid password has been previously saved for that domain, InfoSphere Information Server Manager connects without prompting. If there is no previously saved password, the Edit Domain window opens and you are prompted to enter a password.

Working in the metadata repository

The IBM InfoSphere Information Server Manager displays a view of the metadata repository in a tree structure.

Each domain that you add represents a connection to a metadata repository. You expand the domain to view a node for each of the InfoSphere Information Server engines that share the metadata repository. You expand each engine to view the InfoSphere DataStage and QualityStage projects that belong to that engine. Expand the projects to view the folders that contain the assets that you want to work with.

The repository view also displays deployment packages. You can expand the Packages to view the package definitions that were created on that domain and stored in that metadata repository.

The repository tree is the starting point for deployment and source control tasks. You can also work on the assets themselves from the repository tree.

Viewing asset properties

View the properties of any asset in the Repository view.

About this task

The properties give details of asset name, location, and creation and modification dates.

Procedure

1. Right-click on the item in the Repository view.
2. Select **Show Properties**.

What to do next

You can also view properties from the Search Results window, Package Editor window, Source Control view, Export Editor window, or Import Editor window.

Viewing job or shared container designs

View a job or shared container design in the Repository view.

About this task

You can view the design of a job or a shared container. You cannot make changes, or view the properties of individual stages within the job or shared container. You can also view designs in the Search Results window, the Package Editor window, the Export Editor window, or the Source Control view.

Procedure

1. Double-click the job or shared container, or right-click it and select **Open**.
2. Use the icons on the editing toolbar at the top-right corner of the window to zoom in, zoom out, or restore the image to its actual size.

Searching in the InfoSphere Information Server Manager

The IBM InfoSphere Information Server Manager has a search box in the upper-right corner of the application window.

About this task

You can use the search box to perform simple searches of the metadata repository associated with the domain that you are currently viewing. You can also search the help topics for the InfoSphere Information Server Manager.

Procedure

1. Type the search string in the search box. You can type partial strings, for example searching for REP might return results for asset names DEPREP.IPO, FRPREP.ICO, and so on.
2. Select **Metadata Repository** or **Help Search** from the drop-down menu to the right of the search box.
3. Click the search icon to perform the search and display results in the Search window.
4. If the search returns more results than can be displayed in the Search window, click **Show more** in the Search window title bar to scroll through the results.

Advanced searching in the InfoSphere Information Server Manager

You can perform advanced searches of the metadata repository. You can specify search criteria to perform a more specific search.

Procedure

1. Open a search window by doing one of the following steps:
   - Click the search icon next to the search box in the title bar.
   - Select **Search** from the pop-up menu on the Repository view.
2. Construct your advanced search by selecting search criteria from the drop-down lists. Use the plus ⊕ and minus ⊖ buttons to add or remove search criteria. If you do not specify a specific metadata repository to search, the repository associated with the domain that you are currently viewing is searched.
3. Click the search button to perform the search and display results in the Search window.
4. If the search returns more results than can be displayed in the Search window, click **Show more** in the Search window title bar to scroll through the results.
5. If you have previously performed advanced searches in this window, use the arrow buttons in the Search window title bar to navigate through different sets of search results.

Deleting assets

You can delete jobs from the metadata repository by using the IBM InfoSphere Information Server Manager.

About this task

You can delete jobs from the metadata repository by using the InfoSphere Information Server Manager. You cannot delete other types of asset because there might be dependencies on them.

You can delete jobs from the Repository view and the Search Results window.

Procedure

1. Select the job that you want to delete.
2. Right click and select **Delete**.

Tutorial: Deploying assets with the InfoSphere Information Server Manager

This tutorial teaches you the basic skills that you need to use the IBM InfoSphere Information Server Manager to create and deploy a package.

Introduction

This tutorial walks you through the creation and deployment of a package.

The aim of the tutorial is to get you familiar with deployment in the IBM InfoSphere Information Server Manager. The tutorial guides you through the cycle of defining a package, building it, and deploying it. The tutorial then guides you through building and deploying the package again after some of the assets that it contains are changed.

The setup process involves importing some sample assets into an IBM InfoSphere DataStage and QualityStage project, and you include these assets in your deployment package.

Learning objectives

As you work through the tutorial, you learn how to do the following tasks:
- Connect to the metadata repository of InfoSphere Information Server and import the tutorial data to a DataStage and QualityStage project.
- Create a package and add assets to it.
- Build the package.
- Deploy the package to a target project.
- Rebuild the package after some changes were made to the assets it contains.
- Redeploy the package to the target project.

If you have access to a second InfoSphere Information Server instance, you can do an additional task and deploy the package to this second instance.

Time required

This tutorial takes approximately 60 minutes to finish. If you explore other concepts that are related to this tutorial, it might take longer to complete.

Audience

New users of the InfoSphere Information Server Manager who are familiar with InfoSphere DataStage and QualityStage.

System requirements

The tutorial requires the following hardware and software:
- InfoSphere Information Server Manager installed on a Windows platform.

- IBM InfoSphere DataStage clients installed on a Windows computer (can be the same computer where you have the InfoSphere Information Server Manager installed).
- Connection to a computer that hosts the services tier for InfoSphere Information Server.
- Optionally, connection to a second computer that hosts the services tier for another installation of InfoSphere Information Server.

Prerequisites

Complete the following tasks before starting the tutorial:
- Obtain DataStage developer privileges from the InfoSphere DataStage administrator.
- Confirm that the InfoSphere DataStage administrator created two projects for you to work in. They first project is named Develop, and the second project is named Test.
- Set up the tutorial data as described in the first lesson.

Module 1: Setting up the tutorial

This module explains how to set up the data needed for this tutorial.

Learning objectives

As you work through the module, you learn how to do the following tasks:
- Connect to the metadata repository of InfoSphere Information Server and import the tutorial data to a DataStage and QualityStage project.

Lesson 1.1: Copying tutorial data

Before you begin the tutorial, you must copy the data that you intend to use to a folder and import it.

To set up the tutorial:
1. Open the installation media on the client computer where you installed IBM InfoSphere DataStage.
2. Create a folder on your client computer and name it `dep_exercise`.
3. From the installation media, copy the `\TutorialData\DataStage\ dep_exercise.isx` file to the `dep_exercise` folder.

Lesson 1.2: Starting the InfoSphere Information Server Manager and adding a domain

The first step is to start the IBM InfoSphere Information Server Manager and connect to a metadata repository.

The domain is used to connect to the metadata repository holding the DataStage and QualityStage assets that you want to package and deploy.

To start the InfoSphere Information Server Manager and connect to a metadata repository:
1. Click **Start** > **Programs** > **IBM InfoSphere Information Server** > **IBM InfoSphere Information Server Manager**.
2. In the Repository view of the Information Server Manager application window, right-click and click **Add Domain**.

3. Specify the application server, user, password, and whether the password is saved.
4. Click **OK** to connect to the domain and to the metadata repository.

The InfoSphere Information Server Manager is now ready for you to import the tutorial data.

Lesson checkpoint:

In this lesson, you started the IInfoSphere Information Server Manager.

You learned the following tasks:
- How to start the InfoSphere Information Server Manager
- How to add a domain and use it to connect to a metadata repository

Lesson 1.3: Importing the tutorial data

Before you can start the package and deploy module, you must import the assets to be packaged.

When you package and deploy with of the IBM InfoSphere Information Server Manager, you define a package that can easily be updated whenever assets change. You store the package on the computer that hosts the services tier for the InfoSphere Information Server. You can also use a simple export mechanism to write assets to an archive file. The archive file is stored on the Windows computer where the InfoSphere Information Server Manager is installed. This tutorial imports the tutorial data from an archive file that is named dep_exercise.isx.

To import the tutorial data:
1. In the Repository navigation tree, right-click the domain that contains the project to which you want to import the assets and click **Import**.
2. Browse for the dep_exercise.isx file that you copied in an earlier lesson. Click **Open** and view details of the assets that the archive file contains.
3. Click **Import** to open the Import window.
4. Select Test as the target project.
5. Click **OK** to import the assets to the Test project.

The InfoSphere Information Server Manager is now ready for you to start work.

Lesson checkpoint:

In this lesson, you imported the tutorial data.

You learned the following task:
- How to import assets from an archive file

Module 2: Creating and Deploying a package

This module teaches you how to create and deploy a package.

Learning objectives

As you work through the tutorial, you learn how to do the following tasks:
- Create a package and add assets to it.
- Build the package.

- Deploy the package to a target project.
- Rebuild the package after some changes were made to the assets it contains.
- Redeploy the package to the target project.

If you have access to a second InfoSphere Information Server instance, you can do an additional task and deploy the package to this second instance.

Lesson 2.1: Creating deployment packages

You define a package that contains the assets that you want to deploy.

You create a deployment package and specify which assets you want to include in your package. You can choose to include dependent assets in the package, to export design assets only, job executables only, or both design assets and job executables.

To create the deployment package:

1. Open the Package window by selecting a domain to which you are connected in the Repository tree and doing one of the following tasks:
   - Click **File** > **New** > **Package** from the main menu.
   - Right-click, and click **New** > **Package** from the pop-up menu.
2. Select the following assets from the repository tree and drag them to the Package window:
   - dep_assets/job1
   - dep_assets/job2
   - dep_assets/seqjob
   - dep_assets/shcont1
   - dep_assets/shcont2

   In this tutorial, you copy assets from a single IBM InfoSphere DataStage and QualityStage project to add to your package. You can also add assets from multiple projects to your package. If you have multiple InfoSphere Information Server engines that use the services tier to which you are connected, you can add assets from projects that are associated with different engines.
3. In the **Selected Items** tab, expand the view of selected folders to see the assets that are included in the package.
4. View the dependent items for the job1 job by right-clicking on job1 in the Package window and selecting **View Dependent Items**.
5. View the package creation options by clicking the **Options** tab on the Package window. Select the following options:
   - **Include executables**
   - **Include designs**
   - **Include dependent items**
6. Enter the following text into the **Package description** field: Deployment package containing assets from the deployment tutorial
7. Save your package. Name the package dep_exercise_pack. The package is saved as an asset in the metadata repository. You can view the package in the packages section of the repository tree.

Lesson checkpoint:

In this lesson, you created a deployment package.

You learned the following tasks:
- How to define assets to be included in a deployment package
- How to set the options for the package and provide a description
- How to save the package to the metadata repository

Lesson 2.2: Building deployment packages

After you define a package and save it in the metadata repository, you build the package to create a package file. You can then use the package file to deploy the packaged assets.

When you define a package, you identify the assets that you want the package to contain. When you build the package, copies of the assets are added to the package file. So, the assets are included in the deployment package as they are at the time of the build, not at the time the package was defined.

To build the deployment package:
1. Click **Build** in the Package window.
2. Specify the label `exercise_build1` and add the comment `very first build`.
3. Click **OK** to build the package.
4. When the build is finished, click the **History** tab. You can see the details of the build that you just did.

Lesson checkpoint:

In this lesson, you built a deployment package.

You learned the following tasks:
- How to build a deployment package
- How to specify a build label and add a comment to that build

Lesson 2.3: Deploying packages to a different project

You deploy the package to move the assets to another project in the same metadata repository.

You can use the IBM InfoSphere Information Server Manager to move assets between projects in the same metadata repository in a controlled and reproducible manner.

To deploy the package to another project:
1. Click **Deploy** in the Package window.
2. Select the Test project from the **Project name** list.
3. Select **exercise_build1** in the **Build label** list.
4. Click **OK** to deploy the package.
5. When the deploy operation is finished, click **OK** in the Deploy Results window.
6. Click the **History** tab in the Package window, and note that the **Deployed on Server** field now contains the details of the project that you deployed the package to.

Lesson checkpoint:

In this lesson, you deployed a package to a different project.

You learned the following tasks:
- How to deploy a package to a different project
- How to view deployment details in the history of the package

Lesson 2.4: Changing assets and redeploying packages

After an asset in your project changes, you can rebuild the package that contains that asset and redeploy the package.

To build the deployment package:
1. Open an IBM InfoSphere DataStage and QualityStage Designer client and attach to the Develop project.
2. Open the Job1 job, add an annotation, and then save the job and exit the Designer client.
3. In the IBM InfoSphere Information Server Manager, ensure that the Package window is showing the dep_exercise_pack package.
4. Click **Build**.
5. Specify the label **exercise_build2** and add the comment `updated build`.
6. Click **OK** to rebuild the package.
7. When the build is finished, click the **History** tab. Right-click on **exercise_build2** and select **Compare with Previous Build**.
8. In the lower half of the Package window, compare the left pane with the right pane. In the right pane you can see Job1 displayed in green, because Job1 is the asset that changed between your first build and your second build.
9. Click **Deploy** in the Package window title bar.
10. Do the following steps:
    a. Select the Test project from the **Project name** list.
    b. Select **exercise_build2** from the **Build label** list.
    c. Select the **Replace existing items** option.
11. Click **OK** to deploy the package to the target project.
12. Refresh the Test project in the Repository view.
13. Double-click the job named Job1, and verify that it now contains the annotation that you added to the job in the Develop project.

Lesson checkpoint:

In this lesson, you rebuilt a deployment package, where the assets it contained changed, and deployed it to the target project again.

You learned the following tasks:
- How to rebuild a deployment package
- How to compare different builds of a package
- How to redeploy the package to the target project

Lesson 2.5: Deploying packages to a different instance of InfoSphere Information Server

In real-world environments, your development, test, and production projects are located on different systems. This tutorial walks you through deploying your package to a project on a separate IBM InfoSphere Information Server instance.

You can connect to several different InfoSphere Information Server systems from a single InfoSphere Information Server Manager. You add a domain in the InfoSphere Information Server Manager to connect to each system. You can then expand the domain in the repository tree and view the InfoSphere Information Server engines and associated projects, assets, and packages.

In this tutorial, you save the package as a file to a directory on your local Windows computer. You then deploy the assets from this file to the target metadata repository. This technique is called the deploy-from-file method. An alternative method transfers the package file to a defined deployment directory on the target system and deploys the assets from there. This technique is called the deploy-from-domain method.

To deploy your package to a different InfoSphere Information Server instance:

1. In the Package window for your package, click **Send**.
2. In the Save As window, select a directory on your local Windows computer to save the package file to, and click **Save**.
3. Add a domain and connect to the target InfoSphere Information Server instance.
4. Select the new domain in the repository tree, right-click and click **Deploy Package From** > **File**.
5. Browse to the directory where you saved your package file, select the package file, and click **Open**.
6. In the new Package window that opens, click **Deploy** and select the target project from the **Project name** list and a build from the **Build label** list.
7. Click **OK** to deploy the assets to the target project.

Lesson checkpoint:

In this lesson, you deployed assets to a project on a different InfoSphere Information Server system.

You learned the following tasks:

- How to save a deployment package to a directory on the local Windows computer.
- How to deploy the assets in that package to a project on a different InfoSphere Information Server instance.

Tutorial summary

From the lessons in this tutorial, you learned about deployment in the IBM InfoSphere Information Server Manager.

Lessons learned

By completing this tutorial, you learned how to:

- Connect to the metadata repository of InfoSphere Information Server and import the tutorial data to a DataStage and QualityStage project.

- Create a package and add assets to it.
- Build the package.
- Deploy the package to a target project.
- Rebuild the package after some changes were made to the assets it contains.
- Redeploy the package to the target project.

Tutorial: Controlling asset source with the InfoSphere Information Server Manager

This tutorial teaches you the basic skills that you need to use the IBM InfoSphere Information Server Manager to help you implement source control for your InfoSphere DataStage and QualityStage assets.

Introduction

This tutorial walks you through using the IBM InfoSphere Information Server Manager to help you implement source control for your IBM InfoSphere DataStage and QualityStage assets.

This tutorial assumes that you use the CVS source control system. If you use a different source control system you can adapt the tutorial. Differences between different source control systems are in the Team menu, and your source control system commands that are in the Team menu. It is not an aim of the tutorial to teach you basic source control methodology.

Learning objectives

As you work through the tutorial, you learn how to do the following tasks:
- Connect to the metadata repository of InfoSphere Information Server and import the tutorial data to an InfoSphere DataStage and QualityStage project.
- Configure your InfoSphere Information Server Manager by importing a previously defined source control project so that the deployment tool can connect to your source control system.
- Submit an asset to the source control system
- Resubmit an updated asset to the source control system.
- Restore your updated asset in the metadata repository with the original version from the source control system.

Time required

This tutorial takes approximately 60 minutes to finish. If you explore other concepts that are related to this tutorial, it might take longer to complete.

Audience

New users of IBM InfoSphere Information Server Manager who are familiar with InfoSphere DataStage and QualityStage and with the CVS source control system.

System requirements

The tutorial requires the following hardware and software:
- InfoSphere Information Server Manager that is installed on a Windows platform.

- IBM InfoSphere DataStage and QualityStage clients on a Windows computer (which can be the same computer where you have InfoSphere Information Server Manager installed).
- Connection to a computer that hosts the services tier for InfoSphere Information Server.
- Connection to a CVS source control system.

Prerequisites

Complete the following tasks before starting the tutorial:
- Obtain DataStage developer privileges from the InfoSphere DataStage administrator.
- Confirm that the administrator created a source control project for you to work in.
- Obtain connection details for your source control system.
- Set up the tutorial data as described in the first lesson.

Module 1: Setting up the tutorial

This module explains how to set up the data needed for this tutorial.

Learning objectives

As you work through the module, you learn how to do the following tasks:
- Connect to the metadata repository of an InfoSphere Information Server system and import the tutorial data to an InfoSphere DataStage and QualityStage project.

Lesson 1.1: Copying tutorial data

Before you begin the tutorial, you must copy the data to be used to a folder and import it.

To set up the tutorial:
1. Open the installation media on the client computer where you installed IBM InfoSphere DataStage.
2. Create a folder on your client computer and name it `dep_exercise`.
3. From the installation media, copy the `\TutorialData\DataStage\dep_exercise.isx` file to the `dep_exercise` folder.

Lesson 1.2: Starting the InfoSphere Information Server Manager and adding a domain

The first step is to start the IBM InfoSphere Information Server Manager and connect to a metadata repository.

The domain is used to connect to the metadata repository holding the IBM InfoSphere DataStage and QualityStage assets that you want to submit to the source control system.

To start the InfoSphere Information ServerManager and connect to a metadata repository:
1. Select **Start** > **Programs** > **IBM InfoSphere Information Server** > **IBM InfoSphere Information Server Manager**.

2. In the Repository view of the InfoSphere Information Server Manager application window, right-click, and click **Add Domain**. The Add Domain window opens.

3. Specify the application server, user, password, and whether the password is saved.

4. Click **OK** to connect to the domain and to the metadata repository.

The InfoSphere Information Server Manager is now ready for you to import the tutorial data.

Lesson checkpoint:

In this lesson, you started the InfoSphere Information Server Manager.

You learned the following tasks:
• How to start the InfoSphere Information Server Manager
• How to add a domain and use it to connect to a metadata repository

Lesson 1.3: Importing the tutorial data

Before you can start the source control module, you must import the assets that you will package.

To import the tutorial data:
1. In the Repository navigation tree, right-click the domain that contains the project to which you want to import the assets and click **Import**.
2. Browse for the dep_exercise.isx file that you copied in an earlier lesson. Click **Open** and view details of the assets that the archive file contains.
3. Click **Import** to open the Import window.
4. Select Test as the target project.
5. Click **OK** to import the assets to the Test project.

The InfoSphere Information Server Manager is now ready for you to start work.

Lesson checkpoint:

In this lesson, you imported the tutorial data.

You learned the following task:
• How to import assets from an archive file

Module 2: Implementing source control

This module teaches you how to use the IBM InfoSphere Information Server Manager to implement source control for your IBM InfoSphere DataStage and QualityStage assets.

Learning objectives

As you work through the module, you learn how to do the following tasks:
• Configure your InfoSphere Information Server Manager by importing a previously defined source control project so that the Manager can connect to your source control system.
• Submit an asset to the source control system

- Update the asset in InfoSphere DataStage and QualityStage and resubmit the asset to the source control system.
- Replace your updated asset with the original version from the source control system.

Lesson 2.1: Importing the source control project from CVS

Before you can save assets to the source control system, you must import the source control project.

The IBM InfoSphere Information Server Manager uses a source control project to share assets with your IBM InfoSphere DataStage projects. To configure the InfoSphere Information Server Manager, an administrator must create the source control project and share the project under the source code control system. Sharing the project submits it to the source code control repository.

To import the source control project from CVS into your InfoSphere Information Server Manager workspace:

1. Select **Window** > **Show View** > **Source Control Workspace**.
2. Right-click and click **Import**.
3. Select **Projects from CVS** and click **Next**.
4. Specify details about the CVS repository that you want to connect to and click **Next**.
5. Select the **Use existing repository location** option, select the source control repository location from the list (if more than one location is offered, ask your administrator which one to select), and click **Next**.
6. Select the **Use an existing module** option and select the project to import from the list (the project has the same name as the domain that you are connected to), then click **Next**.
7. Select the **Check out as a project in the workspace** option.
8. Click **Finish** to import the project into your workspace.

Lesson checkpoint:

In this lesson, you imported a source control project into your workspace. You are now ready to start working with the source control system.

Lesson 2.2: Submitting jobs to the source control system

This lesson shows you how to submit some example jobs to the source control system.

When you design IBM InfoSphere DataStage jobs and move them through a product life cycle, it is a good practice to submit designs to a source control system, so you can control master copies and track changes. In this lesson, you submit one of the jobs in the IBM InfoSphere Information Server Manager tutorial data.

To submit a job:

1. Connect to the domain for the metadata repository where the example jobs are.
2. In the Repository view select the job1 job
3. Right-click the selected job, and click **Send to Source Control Workspace**. This action creates an archive version of the asset, known as an artifact, and writes that artifact to the source control project.

4. Right-click the selected job again, and click **Team** > **Commit** to commit the artifact to the source control system. If you are not already connected to the CVS repository, a window prompts you for authentication before you can check in the artifact.
5. In the Commit Files window, provide a comment and click **Finish**.

The job1 icon is annotated to show that the job is in CVS.

Lesson checkpoint:

You submitted a job to CVS.

You learned the following:
- How to send a job to the source control workspace
- How to commit the job in CVS
- How the job icon changes to illustrate that it is in CVS

Lesson 2.3: Updating jobs in the source control system

This lesson shows you how to update the job that you previously submitted to the source control system.

By default, executable files are sent to source control when you use the **Send to Source Control Workspace** command. If you do not want to include executable files in your source control, you must disable this option in the Source Control section of your client preferences.

If you update an asset that was previously submitted to the source control system, then you must update that asset in the source control system too. In this lesson you make a minor change to job1, and then resubmit it to CVS.

To upgrade the job:
1. Open job1 in the Designer client, add an annotation to the job, and then save the job.
2. Connect to the domain for the metadata repository where the example jobs are.
3. In the Repository view, select job1.
4. Right-click, and click **Send to Source Control Workspace**. This action sends an updated archive file of the asset to the source control workspace.
5. Right-click again, and click **Team** > **Commit** to commit the artifact to the CVS source control system. If you are not already connected to the CVS repository, a window prompts you for authentication before you can commit the artifact.
6. In the Commit Files window, provide a comment and click **Finish**.

The version number next to the job icon is incremented.

Lesson checkpoint:

You have submitted a job to CVS control.

You learned the following:
- How to send a job to the source control workspace
- How to commit the job in CVS

Lesson 2.4: Restoring jobs from the source control system

This lesson shows you how to restore the job to the metadata repository that you previously submitted to the source control system.

You might want to restore an asset from the equivalent artifact in the source control system. For example, if your metadata repository is damaged. Alternatively you might want to restore an asset from an earlier version in the source control system or from a different branch in the source control system.

To restore the job from CVS:

1. Open the job1 job in the Designer client, delete the annotation that you added in the previous lesson, and then save and close the job.
2. In the InfoSphere Information Server Manager, connect to the domain for the metadata repository where you want to restore the job to.
3. In the Repository view, select job1.
4. Right-click the select job, and click **Replace with** to select whether you want to replace the asset with the equivalent artifact or with an artifact from an alternative branch or version. For this tutorial, select **Replace with** > **Latest from HEAD** to restore the equivalent artifact. The **Replace with** action copies the selected artifact to the source control project.
5. Right-click the job again, and click **Replace from Source Control Workspace** to import the artifact from the source control workspace as an asset to the metadata repository.
6. Open job1 in the Designer client again, and note that the annotation is restored. If the annotation does not appear to be restored, restart the Designer client to see that the annotation is been restored.

Lesson checkpoint:

You restored a job from CVS to the metadata repository.

You learned how you can replace an asset in your metadata repository from the source control system.

Tutorial summary

From the lessons in this tutorial, you learned about using the IBM InfoSphere Information Server Manager to help you implement source control for your IBM InfoSphere DataStage and QualityStage assets.

Lessons learned

By completing this tutorial, you learned how to:

*   Connect to the metadata repository of InfoSphere Information Server and import the tutorial data to an InfoSphere DataStage and QualityStage project.
*   Configure your InfoSphere Information Server Manager by importing a previously defined source control project so that the deployment tool can connect to your source control system.
*   Submit an asset to the source control system
*   Resubmit an updated asset to the source control system.
*   Restore your updated asset in the metadata repository with the original version from the source control system.

Chapter 3. Overview of deployment

Use the IBM InfoSphere Information Server Manager to deploy IBM InfoSphere DataStage and QualityStage assets between projects on the same engine tier, or engine tiers on different InfoSphere Information Server instances.

InfoSphere Information Server Manager supports a model of separate systems that are used to develop, test, and run InfoSphere DataStage and QualityStage jobs. The tool facilitates this model by providing a secure, managed, and trackable method of moving assets between the different systems.

Deployment is an iterative process. You specify the assets that you want to deploy by defining a package. When you are ready to deploy, you build the package to produce a package file. If necessary, you copy the package file to the target deployment environment. You then deploy the package to move the assets to the target system. When the assets on the source system change, there is no need to redefine the package; all you need to do is rebuild, recopy, and redeploy the package.

When you define the deployment package, you can select assets from multiple InfoSphere Information Server engines and projects which share the same metadata repository. You can also select specific assets or folders to add all items contained in the folder.
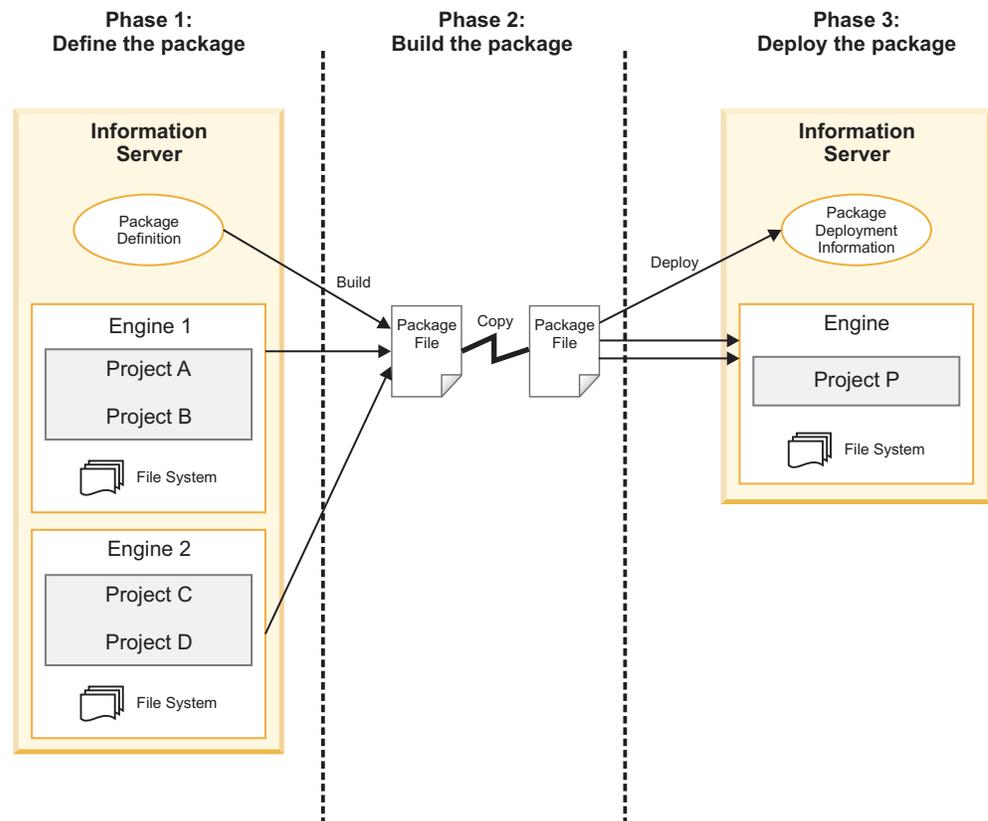

Figure 1. Package phases in the InfoSphere Information Server Manager

Deployment packages

To move assets between different projects or different systems, you first define a package that contains the assets that you want to move. The package is itself stored in the same metadata repository as the assets it contains.

After you have defined a package, you build it. The build process creates a package file which contains the assets and which can be used to deploy the assets. Whenever the assets change on the source system, you can rebuild the package.

You specify labels for the builds, and can supply comments to help track the information.

The various builds of the package are maintained, so that you can revert to an earlier version of the assets by deploying an earlier build of the package.

Basic deployment scenario

This topic provides an example deployment scenario involving IBM InfoSphere DataStage and QualityStage assets.

In a basic deployment scenario, a set of InfoSphere DataStage and QualityStage assets is moved from a development environment to a test or production environment. The assets make up some or all of an application, but are not necessarily dependent on each other. The assets that make up the set might be developed by different users, possibly in different InfoSphere DataStage and QualityStage projects.

The set of assets is deployed as a unit to a single target system and a single DataStage and QualityStage project. However, the set of assets can be deployed many times to many systems or projects as it moves through its life cycle. The target system or systems might not allow the compilation of jobs so options are available to package execution-ready assets.

Deployment workflow

The workflow for deploying assets by using the IBM InfoSphere Information Server Manager might involve more than one user.

In tightly controlled environments with limited access to the target and source systems, a developer performs definition and build steps to write the package to the file system. A production manager (or any user with access to the required target project and the build package) then applies the package to a project on the target system.

Deployed assets are typically read-only in every environment except development. If an error is discovered in a test or production environment that requires a change to an asset, or if an improved implementation of a specific asset (such as a InfoSphere QualityStage ruleset) is created, then the change is made in the development environment and applied to an existing package by rebuilding the package. The updated package can be deployed into an existing project, replacing the corresponding assets.

There might be a requirement to revert to an earlier version of a deployment. In this case a previous build of the package is deployed, replacing the corresponding assets.

The following diagram shows the workflow of a created package:
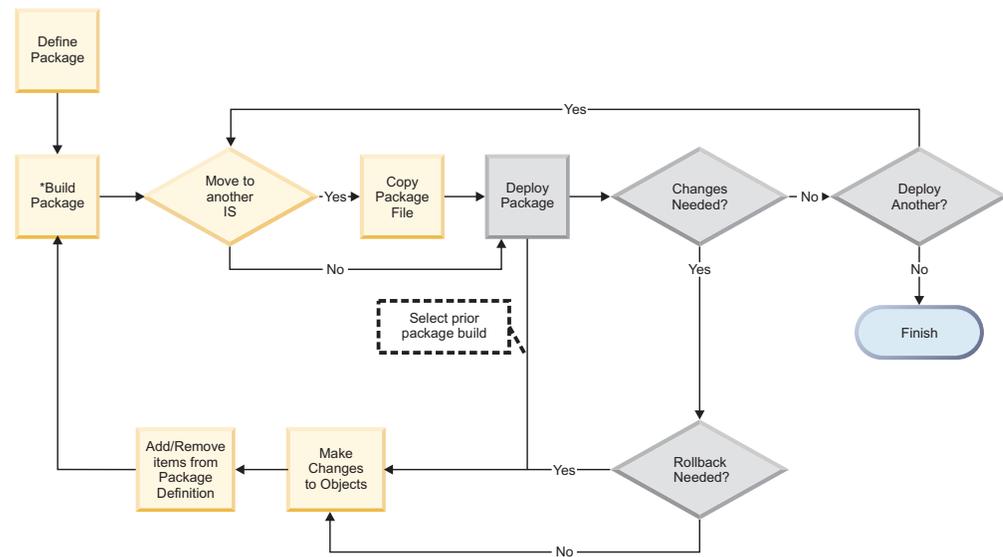
Figure 2. Deployment package workflow

Deployable assets

You can deploy most types of IBM InfoSphere DataStage and QualityStage assets with IBM InfoSphere Information Server Manager.

You can add the following types of assets to your deployment packages:
- Data elements
- Data connections
- IMS databases
- IMS viewsets
- Jobs (mainframe, parallel, sequence, and server)
- Machine profiles
- Routines (mainframe, parallel, and server)
- Shared containers (parallel and server)
- Table definitions
- Transforms
- Custom folders (external files in the InfoSphere DataStage and QualityStage project directory)
- QualityStage rule sets
- QualityStage match specifications
- Parallel custom stages, build stages, and wrapper stages
- Parameter sets

You can also deploy job executables, which might be required where your target domain can only run jobs and not compile them. These executables only work if certain conditions are met (the runtime environment must be compatible).

Defining the deployment package

You must define the deployment package before you build or deploy the package.

About this task

The package definition is like a contents list for the package. You specify the assets that you want the package to contain in the package definition, which is itself stored as an asset in the metadata repository. You can open the package definition at any time to add or remove assets. When you later build the package, the IBM InfoSphere Information Server Manager assembles the assets that you specified in the package definition into a package file. You can then deploy the assets to the target location from the package file.

Procedure

1. Open the Package window by selecting a domain to which you are connected in the repository tree and doing one of the following tasks:
   - Select **File** > **New** > **Package** from the main menu.
   - Select **New** > **Package** from the pop-up menu.
2. To add items to the package definition, drag the items from the repository tree to the Selected Items tab of the Package window. Alternatively, you can right-click on the items in the Repository view or Search window, click **Copy**, then right-click in the Selected Items tab of the Deployment Package window, and click **Paste**.
3. In the Selected Items tab, expand the view of selected folders to see the assets that are included in the package.
4. To view dependent items for a single item or multiple items, right-click that asset and click **View Dependent Items**.
5. To include additional files from a project file system into the package definition, right-click in the Selected Items tab, then click **Add External Folder**. You can place any files that you want to include with your package in a folder in the project folder, and then select that folder. You could, for example, use this feature to package some simple test data for your jobs.
6. To view the package creation options, click the Options tab on the Deployment Package window. You can use the options to write a package description, and include job designs, executables, or dependent items in the package.
7. When you define the package contents and options, click **Save** and specify a name for the package. The package appears as an asset in the packages section of the repository tree. You can then open the package and modify it by adding or deleting assets.
8. You can create folders in the packages section of the repository tree to help organize your packages. To create a folder:
   a. Select the **Packages** node in the repository tree.
   b. Right-click and click **New** > **Folder**
   c. In the New Folder window, specify a name for the folder and click **OK**.

Results

After you have created a package definition as an asset in the metadata repository, you can perform standard operations on the package definition, such as deleting, moving, copying, or renaming it.

Deleting package definitions

You can delete a package definition or a package folder from the repository tree.

Procedure

1. Right-click the package definition or the folder in the repository tree.
2. Click **Delete**.

Moving package definitions

You can move a package definition between folders in the repository tree.

Procedure

1. Right-click the package definition in the repository tree.
2. Click **Move**.
3. In the Move items window, select the destination folder and click **OK**.

Copying package definitions

You can copy a package definition and paste it under the packages node, or in a folder in the packages node. Use this feature as a way of replicating an existing package definition.

Procedure

1. Right-click the package definition that you want to copy.
2. Click **Copy**.
3. Right-click on the packages node, or on the target folder, and click **Paste**.
4. Rename the package definition as required.

Renaming package definitions

You can rename a package definition in the repository tree.

Procedure

1. Right-click the package definition that you want to rename.
2. Click **Rename**.
3. In the Rename window, type the new name and click **OK**.

Setting the build and deploy paths

Set the build path to specify the location where the package file is created when a package is successfully built. If you are deploying a package from one system to another, set the deploy path on the target system to specify the location where you copy the package file. In a clustering environment, set the build and deploy paths to shared directories that are accessible from every cluster node.

Procedure

1. Connect to the domains where you want to build and deploy packages.
2. Click **File** > **Preferences**
3. Click **Packages** in the navigation tree.
4. Select your domain from the **Domain** list.
5. Enter the **Build path**.
6. If you are planning to deploy a package from a source system to this system, enter the **Deploy path**.

Building deployment packages and viewing build histories

Before you can deploy a package, you must build it. You can use the build history to track the state of a package.

About this task

After you have defined a package, you can build it to produce a package that is ready for deployment. You can rebuild existing packages and redeploy them when the items that they contain are changed. Use the build history to track the state of a package.

If you rebuild an existing package, you can choose to replace the entire package or just update the items in the package that have changed since the last build.

If you choose to replace the existing package, the package is completely rebuilt and its prior build history is deleted.

Items are pulled into the build in their state at the time of the build, not in their state at the time the package was defined.

Procedure

1. Click **Build** in the Package window. The Build Package window opens, where you specify a label and comment for the build.
2. If you want to completely replace an existing package, select the **Replace existing package** option.
3. Click **OK** to build the package.
4. When the build is finished, click the History tab. The History view displays a list of package builds that were either created on the domain, or deployed to the domain.
5. To compare the contents of a build with its previous build, right-click on the build name and select **Compare with Previous Build**.
6. To compare the contents of two different builds, highlight both build names, right-click, and select **Compare Selected Builds**. Differences between the two builds are shown in the bottom part of the window. The left-side view shows the older version, and the right-side view shows the newer version of the build.

    On the right-side view, items in green indicate that these new items were added in the latest build. Items shown in blue indicate that these items were modified.

    On the left-side view, items in red indicate that these items were deleted from the newer version of the build.

    These colors settings are the default. You can customize the colors in the Preferences menu by selecting **Package**, then **History Comparison Colors** in the navigation view.
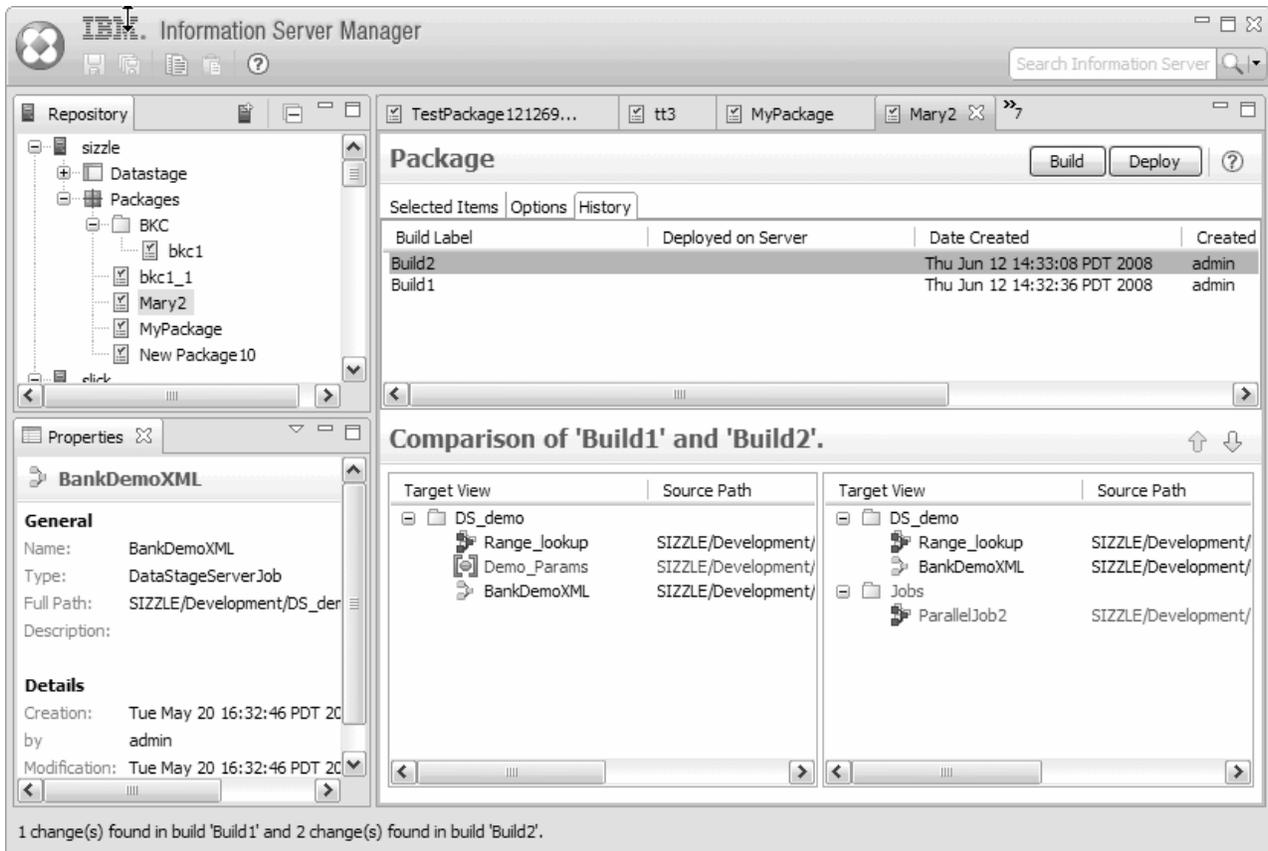
Figure 3. Deployment package comparison view

> **Note:** In the status bar of the IBM InfoSphere Information Server Manager screen is the number of changes found within the chosen builds.

Deploying packages

After you have defined and built a package that contains IBM InfoSphere DataStage and QualityStage assets, you can deploy that package by using the deployment tool.

You can deploy packages to different projects on the same InfoSphere DataStage and QualityStage system, or you can deploy to different InfoSphere DataStage and QualityStage systems.

Where you are implementing a life cycle procedure, you can use the IBM InfoSphere Information Server Manager to deploy packages to development, test, and production systems. In this scenario, you might require that different users package the assets on the source system, and deploy them to the target system.

Deploying packages: Single system model

In this model, a single user creates the package and deploys it to a different project on the same IBM InfoSphere DataStage and QualityStage system. You can deploy any package in the Repository view to the target project if the package has been built, and if you have the authority to import into the target project.

Procedure

1. At the top of the Package window, click **Deploy**.
2. In the Deploy Package window, specify the target project and the particular build that you want to deploy to that project. If more than one build exists, you see a drop-down list of the builds available for deployment.
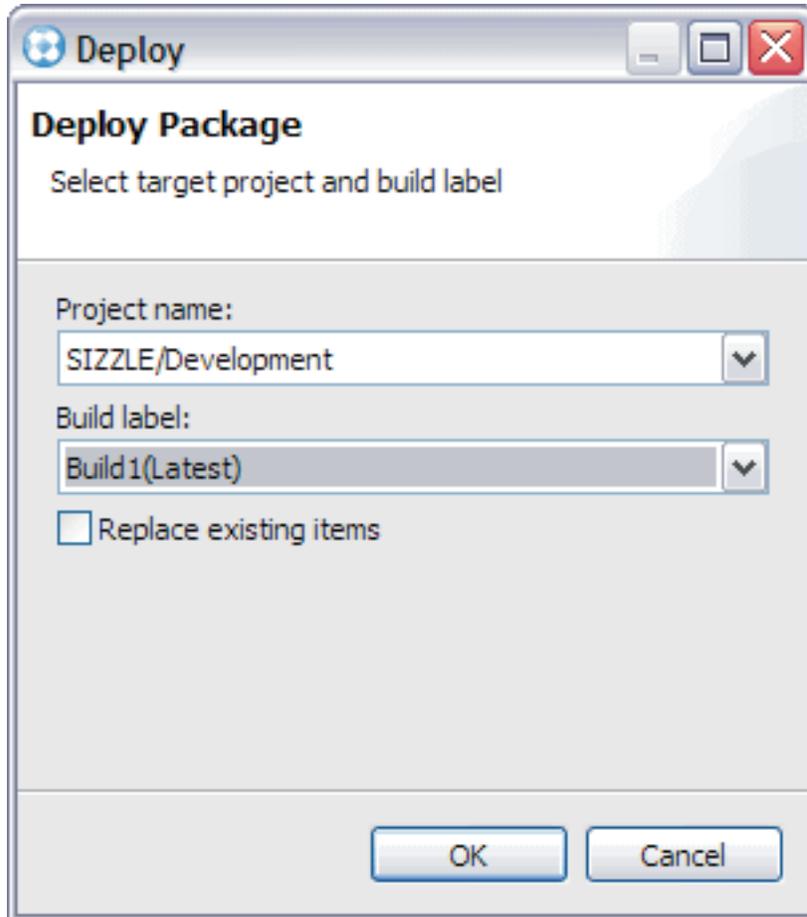
Figure 4. Deploy Package window

3. If required, select the **Replace existing items** option to overwrite items in the target project.
4. After verifying your settings, click **OK**, and the package is deployed to the target project.

   When the deployment is complete, a Deploy Results window opens, displaying the status of the deployment. In this window, you can view the deployment details, copy the details to a clipboard, or click **OK** to proceed.

Deploying packages: Multiple system, single user model

In this model, a user creates the package from assets on one IBM InfoSphere DataStage and QualityStage system, and then deploys the package to a separate DataStage and QualityStage system.

About this task

This model is typically used where a life cycle is implemented between development, test, and production systems, but access to each system is not restricted and a single user can connect to all the domains representing these systems.

There are two stages in this package and deploy model: one to create and build the package on the source system, and one to deploy the package directly to the target system.

To create and build the package on the source system:

1. Connect to the domain that represents the source DataStage and QualityStage system.
2. Create a package from assets on the source DataStage and QualityStage system, and build the package.
3. In the Package window, click **Send** in the top right corner.
4. In the Save As dialog, browse to a location to save the package file to. If possible, browse to the deployment directory on the target server, and save the file to that location. (A deployment directory for each domain that you added to IBM InfoSphere Information Server Manager is specified in the Preferences window. The deployment directory is on the computer that hosts the services tier corresponding to that domain, which can be a Windows, UNIX, or Linux platform.)

To deploy a package to a separate target DataStage and QualityStage system:

1. If you could not send the package file directly to the target system deploy directory, copy the file now.
2. Connect to the domain that represents the target DataStage and QualityStage system.
3. In the Repository view, right-click the domain representing the target system and click **Deploy Package From** > **Domain**. The Open Package from File dialog opens, where you select a package file to deploy. The Package window then opens for the package that you selected.
4. Click **Deploy** to open the Deploy Package dialog. Select the target project and the build that you want to deploy and click **OK**. The package contents are deployed to the target project.
5. To view the package build and deployment history, click the History tab.

Deploying packages: Multiple system, multiple user model

In this model, a user creates the package from assets on one IBM InfoSphere DataStage and QualityStage system, while another user deploys the package to a separate DataStage and QualityStage system.

About this task

There are two stages in this package and deploy model: one to create and build the package on the source system, and one to copy the package file to the target system and deploy it.

To create and build the package on the source system:

1. Connect to the domain that represents the source DataStage and QualityStage system.

2. Create a package from assets on the source DataStage and QualityStage system, and build the package.
3. In the Package window, click **Send** in the top right corner.
4. In the Save As dialog, browse to a location to save the package file to.

To deploy a package to a separate target DataStage and QualityStage system:
1. Copy the package file to a directory on the target system.
2. Connect to the domain that represents the target DataStage and QualityStage system.
3. In the Repository view, right-click the domain representing the target system and select **Deploy Package From** > **File**. Browse for the package file to deploy and click **Open** to open selected package file in the Package window.
4. Click **Deploy** to open the Deploy Package dialog. Select the target project and the build that you want to deploy and click **OK**. The package contents are deployed to the target project.
5. To view the package build and deployment history, click the History tab.

Chapter 4. Importing and exporting assets

You can use the IBM InfoSphere Information Server Manager to export or import IBM InfoSphere DataStage and QualityStage assets.

You can move assets between projects without having to perform a full deployment. This movement is useful in cases where there is a subset of project assets that must be populated in a secondary environment. Importing and exporting assets in this way is like creating a `.dsx` file from the InfoSphere DataStage and QualityStage Designer client.

Exporting assets

You can use the IBM InfoSphere Information Server Manager to export assets to an archive file.

About this task

Use the InfoSphere Information Server Manager to export assets to an archive file. The archive file is stored on the Microsoft Windows computer on which the InfoSphere Information Server Manager is running. You can then import the assets in the archive file to any project that you can connect to by using the InfoSphere Information Server Manager.

Important: If you use InfoSphere Information Server Manager to export a job design (.isx file), export the design time information and the runtime information separately.

If you export the design time information and the runtime information together in the .isx file, you cannot import these components separately. You must import the full contents of the .isx file.

Additionally, if you import the .isx file into a project where the runtime information already exists, the existing runtime information is lost.

Procedure

1. Connect to the domain that represents the InfoSphere DataStage and QualityStage system containing the assets you want to export.
2. Right-click the project or any assets in that project that you want to export, and then select **Export** to open the Export Archive window. You can drag additional assets into the Export Archive window.
3. If required, click the **Options** tab and specify that executables, designs, and dependent items are to be included in the export.
4. When your list is complete, click **Export**.
5. In the Export dialog, specify the target location for the archive file.
6. Click **Save**.

Importing assets

You can use the IBM InfoSphere Information Server Manager to import assets to a specific project.

About this task

You can import all the assets from an archive file to which the assets have previously been exported.

When you import assets, the folder structure matches the hierarchy of the assets in the metadata repository view. You can select the parent folder where the imported folder structure is created, but you cannot create your own folder structure.

Important: If you use InfoSphere Information Server Manager to export a job design (.isx file), export the design time information and the runtime information separately.

If you export the design time information and the runtime information together in the .isx file, you cannot import these components separately. You must import the full contents of the .isx file.

Additionally, if you import the .isx file into a project where the runtime information already exists, the existing runtime information is lost.

Procedure

1. Right-click the domain that contains the project to which you want to import the assets and click **Import**.
2. Browse for a file to import in the Select file to import dialog. Click **Open** to open the Import Archive window and view details of the assets that the archive file contains.
3. Click **Import** to open the Import dialog.
4. Select the target project and set the option to replace any existing items.
5. Click **OK** to import the assets to the specified target project.

Viewing the log

View the logs from IBM InfoSphere Information Server Manager from the log view in the InfoSphere Information Server.

The Web-based log view that tracks InfoSphere Information Server activity shows complete manager log entries, including timestamps and any related messages.

To view the import and export logs:

1. In the InfoSphere Information Server Web console, click the **Administration** tab.
2. In the **Administration** tab, go to Log management.
3. Click **Log views**. You then have the option to view import, export, and deployment logs.

Chapter 5. Source control of InfoSphere DataStage and QualityStage assets

You can use the IBM InfoSphere Information Server Manager deployment tool to manage your IBM InfoSphere DataStage and QualityStage jobs and associated assets in your source control system.

The deployment tool gives you direct access to these source control systems: Concurrent Versions System (CVS), IBM Rational ClearCase®, and IBM Rational Team Concert™.

In a typical DataStage and QualityStage development environment, multiple developers connect to the same InfoSphere Information Server system, and so to the same metadata repository. Each developer works on their own Windows computer that has the InfoSphere DataStage and QualityStage clients installed. If developers want to submit the assets they develop to the source control system, they can install the deployment tool on the same computer as these clients.

The deployment tool uses an Eclipse workspace, referred to as the source control workspace, as a local transfer area for assets being submitted to the source control system.

Submitting an asset from the metadata repository to your source control system is a two-step process:
1. You send the asset to the source control workspace. The deployment tool creates an archive file from the asset, then writes the archive file to the source control workspace.
2. You send the artifact to the source control system. The deployment tool submits the asset archive, known as an artifact, to the source control repository.

Restoring an asset in the metadata repository from the version in the source control repository is a two-step process:
1. You replace the artifact in the source control workspace. The deployment tool retrieves the asset archive, known as an artifact, from the source control repository.
2. You replace the asset in the metadata repository. The deployment tool imports the artifact from the source control project as an asset in the metadata repository.

The conceptual relationship between the metadata repository, the deployment tool, and the source control repository is illustrated in the following figure:
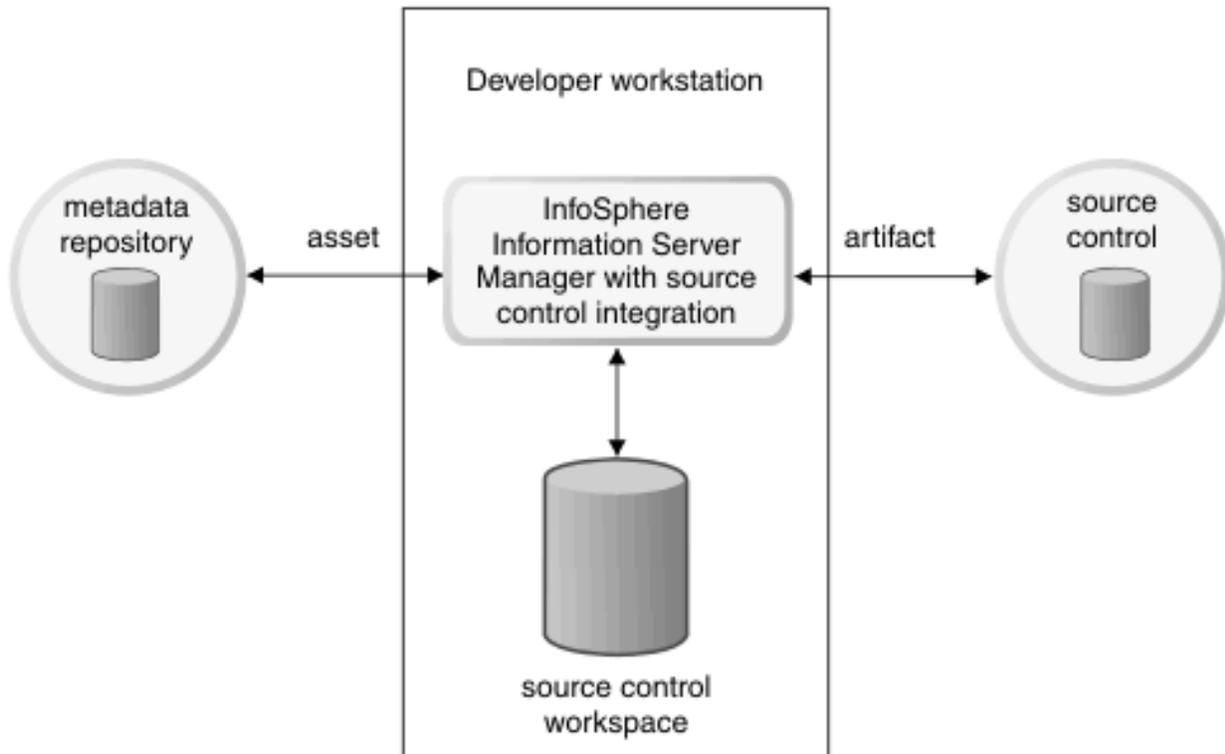
Figure 5. Relationship between metadata repository, InfoSphere Information Server Manager, and source control repository

Installing Rational ClearCase

Install IBM Rational® ClearCase into the IBM InfoSphere Information Server Manager to be used as your source control system.

About this task

The Rational ClearCase Remote Client for Eclipse enables you to use Rational ClearCase as a team services provider when working in the Eclipse workbench environment. For more information about Rational ClearCase Remote Client for Eclipse, see About the Rational ClearCase Remote Client for Eclipse.

Install Rational ClearCase Remote Client for Eclipse on the Windows computer of every developer who wants to submit the assets they develop to the source control system.

Procedure

1. Start the InfoSphere Information Server Manager.
2. Click **Help** > **Install New Software**.
3. Enter the Web address of your ClearCase Web Server, and press **Enter**. For example, `http://computername/ccrc/update`, where `computername` is your ClearCase Web Server. Wait for a few seconds while the list of features to install is refreshed.

4. Expand **Rational ClearCase Remote Client**, and ensure that **Rational ClearCase Remote Client for Eclipse** is the only selected feature. Click **Next**.
5. Read and accept the license agreement. Click **Next**.
6. Click **Finish** to download the Rational ClearCase Remote Client for Eclipse feature.
7. Click **Install** to install the Rational ClearCase Remote Client for Eclipse feature.
8. Click **Yes** to restart the InfoSphere Information Server Manager.

Installing Rational Team Concert

Install IBMRational Team Concert into the IBM InfoSphere Information Server Manager to be used as your source control system.

About this task

The Rational Team Concert Client for Eclipse enables you to use Rational Team Concert as a team services provider when working in the Eclipse workbench environment. For more information about Rational Team Concert Client for Eclipse, see Rational Team Concert.

Install Rational Team Concert Client for Eclipse on the Windows computer of every developer who wants to submit the assets they develop to the source control system.

Procedure

1. Download the Rational Team Concert Client 3.0.x p2 Install Repository from the Rational Team Concert website.
2. Extract the compressed file to an empty directory.
3. Start the InfoSphere Information Server Manager.
4. Click **Help** > **Install New Software**.
5. Add the directory you extracted the compressed file into as a repository.
   a. Click **Add**.
   b. Click **Local**.
   c. Select the directory you extracted the compressed file into, and click **OK**.
   d. Click **OK**.
6. Select the Rational Team Concert Client Feature, and click **Next**.
7. Read and accept the license agreement. Click **Finish** to install the Rational Team Concert Client for Eclipse.
8. Click **Restart Now** to restart the InfoSphere Information Server Manager.

Basic source-control scenario for jobs and associated assets

This basic source-control scenario illustrates how you use the IBM InfoSphere Information Server Manager for source control of your IBM InfoSphere DataStage and QualityStage assets.

In this scenario, you submit an InfoSphere DataStage job to the IBM Rational ClearCase source control system. Later, you want to change the job design, and so you change the design in the Designer client, and check the changed job back in.

Typically, you deal with more complex source control scenarios. This scenario illustrates the basic workflow of using the InfoSphere Information Server Manager for source control.

By default, executable files are included inside the archives that are sent to source control when you use the **Send to Source Control Workspace** command in this scenario. If you do not want to include executable files in your artifacts for source control, you must disable this option in the Source Control section of your client preferences.

The following steps describe the basic scenario:

1. The InfoSphere Information Server Manager gives you a view of your IBM InfoSphere DataStage project in the metadata repository. Browse the metadata repository to locate the job that you want to submit to the source control system.

2. In the InfoSphere Information Server Manager, select the job in the Repository tab, and select **Send to Source Control Workspace**. A file that contains the job is created in the source control project, ready to submit to Rational ClearCase. The file is a compressed archive file.

3. Rational ClearCase detects a new file in the source control project and opens the Add Resources to Source Control window. Click **Apply** in this window to add your job to Rational ClearCase. The icon representing this job in the InfoSphere Information Server Manager Repository tab changes to show that the job is now under source control.

4. You decide to change the job design.

5. In the Designer client, open your job, make the required changes, and save the job.

6. In the InfoSphere Information Server Manager, select the job in the Repository tab. Click **Send to Source Control Workspace** to update the archive file that contains your job in the source control project. Rational ClearCase detects the updated file which is checked-out automatically.

7. Select **Team** > **Check In** to check the archive file that contains your job back into Rational ClearCase.

    The Eclipse Team menu gives you direct access to the Rational ClearCase menu items from within the InfoSphere Information Server Manager.

The scenario is similar for whatever source control system that you use, although there might be some minor operational differences.

If you have selected the **Auto check-in local changes** preference in IBM Rational Team Concert, clicking **Send to Source Control Workspace** also updates your Rational Team Concert repository. Click **Team** > **Deliver** to make your changes available to other rational Team Concert users.

CVS does not have the concept of checking assets in and out, but rather you commit assets to CVS. Also, CVS does not automatically detect when an artifact is added to the source control project.

This scenario illustrates some important considerations about using the InfoSphere Information Server Manager for source control:

*   You submit a file containing the assets that you want to control to the source control system, not the assets themselves.

- There is no lock that is put on the assets in the metadata repository. The assets can be edited outside of the control of the source control system. You must put your own process in place to prevent assets becoming out of step with their controlled version.
- You can use the source control system directly from within the InfoSphere Information Server Manager. You access menus and windows that belong to the source control system by using **Team** menus.

Navigating assets and their annotations

The IBM InfoSphere Information Server Manager provides a view of assets in the metadata repository, and a view of artifacts in the source control workspace. The assets and artifacts are shown with annotations to show their source control status.

Procedure

1. Open the Repository tab in the InfoSphere Information Server Manager by

   selecting **Home** from the home menu .
2. From the domain connection at the top of the tree, you can view the InfoSphere Information Server engine tiers that connect to the services tier that is represented by the domain.
3. Under each engine tier, see the InfoSphere projects that exist on that engine tier.
4. Open each project to view the folders and assets that the project contains. The assets that are submitted to the source control system are marked with annotations.
5. Open the Workspace tab for the source control by clicking **Window** > **Show View** > **Source Control Workspace**. The Workspace tab shows the artifacts after the assets are sent to the source control project. The artifact annotation shows whether an artifact has been submitted to the source control system.
6. Optional: Open views and perspectives that are associated with your source control system from within the InfoSphere Information Server Manager. Source control views and perspectives are available from the **Window** menu, and from

   the home menu when the Workspace tab is open.

Configuring source control for the InfoSphere Information Server Manager

An administrator must perform some configuration tasks before you can use IBM InfoSphere Information Server Manager to submit IBM InfoSphere DataStage and QualityStage assets to a source control system. To enable source control, you must configure the InfoSphere Information Server Manager.

Before you begin

You must be an Administrator on the computer where the InfoSphere Information Server Manager is installed.

If a user without administrator privileges wants to use the InfoSphere Information Server Manager to submit assets to the source control system, then the user must import the source control project that is created and shared by the administrator into their InfoSphere Information Server Manager workspace.

About this task

The configuration tasks are the same regardless of which source control system you use to control assets. The InfoSphere Information Server Manager uses a source control project to share assets with your source control system. This project is different from IBM InfoSphere DataStage and QualityStage projects.

Procedure

1. Connect to an IBM InfoSphere Information Server domain.
2. Create a source control project that has the same name as that domain.
3. Share the source control project under your chosen source code control system.
4. When you share the project, the project itself is submitted to the source control repository.

Creating source control projects

You must create a source control project and share it in the source control system.

Before you begin

Before you can create and share a source control project, you must first connect to the required domain. The domain gives you access to the metadata repository that contains the IBM InfoSphere DataStage and QualityStage assets that you want to control.

You must have the Suite Administrator role to create a source control project.

About this task

The source control project is the staging area between the InfoSphere Information Server Manager and the source control system. When you create the source control project, you create a link between the metadata repository and the source control system.

When you have assets in different metadata repositories on different domains, you create a separate source control project for each domain.

Procedure

1. In the Repository view of the InfoSphere Information Server Manager, select the domain that you want to create a source control project for.
2. Right-click the selected domain, and click **Integrate Source Control** from the pop-up menu.
3. Select **Share project under source control after successful project creation** to automatically launch the share project procedure after the source control project is created.
4. Click **OK** to create the source control project.

Sharing source control projects

After you create a source control project, you must share it on your source control system.

Before you begin

You must first create a source control project.

Procedure

1. To open the Share Project window, if you did not select **Share project under source control after successful project creation**, do the following steps:

   a. In the Repository tab of the InfoSphere Information Server Manager, select the domain that you want to share a source control project for.

   b. Right-click the selected domain, and click **Team** > **Share Project** from the pop-up menu.

2. Follow the prompts to share the project. The exact steps that you do are specific to the source control system.

Importing source control projects to your workspace

Before you can submit assets to source code control, you must import the source control project into your own source control workspace in IBM InfoSphere Information Server Manager.

Before you begin

An administrator must have created a source control project and shared it under source control.

About this task

The source control project in your source control workspace is used as a local transfer area for assets being submitted to the source control system.

Procedure

1. Click **Window** > **Show View** > **Source Control Workspace**.

2. To import the source control project from CVS into your source control workspace, right-click in the Source Control view and click **Import**.

3. To import the source control project from IBM Rational ClearCase into your source control workspace:

   a. Click **Window** > **Open Perspective** > **Other** > **ClearCase**.

   b. Navigate to the source control project in the ClearCase Navigator window.

   c. Right-click on the project and click **Import** > **Import Project into Workspace**.

4. To import the source control project from IBM Rational Team Concert into your source control workspace:

   a. Right-click in the Pending Changes view, and click **Create a new repository workspace**.

   b. Select the stream that contains the source control project, and click **Next**.

   c. Enter a name and description for the repository workspace, and click **Next**.

   d. Select **Use current repository**, and click **Next**.

   e. Set the **Read Access Premission**, and click **Next**.

   f. Clear the **Load repository workspace after creation** option, and click **Finish**. The repository workspace is created.

   g. On the Team Artifacts view, right-click the new repository workspace and click **Load**.

   h. Select **Find and load Eclipse projects**, and click **Next**.

   i. Select the source control project, select the sandbox, and click **Finish**. The repository workspace is loaded into the source control workspace.

Providing source control for assets

You can use the CVS or IBM Rational ClearCase source control systems for source control of your IBM InfoSphere DataStage and QualityStage design assets.

Before you begin

When several developers work with the same InfoSphere DataStage and QualityStage system and submit assets to the source control system, you must synchronize your source control project to ensure that it is up-to-date with the source control repository.

About this task

You use the InfoSphere Information Server Manager for source control of design assets.

Submitting assets to a source control system

You can use the IBM InfoSphere Information Server Manager to submit your IBM InfoSphere DataStage and QualityStage assets to a source control system.

Before you begin

By default, executable files are included inside the archives that are sent to source control when you use the **Send to Source Control Workspace** command. If you do not want to include executable files in your artifacts for source control, you must disable this option in the Source Control section of your client preferences.

Procedure

1. In the Repository view, select the asset that you want to submit to source control.
2. Right-click the asset, and click **Send to Source Control Workspace**. This action creates an archive version of the asset, known as an artifact, and writes that artifact to the source control project.
3. Right-click the asset again, and click the **Team** command to commit the artifact to the source control system. (The exact command depends on the type of the source control system.)

Updating assets in source control

When you update an IBM InfoSphere DataStage and QualityStage asset, you must also upgrade the version in the source control system. You can update an asset in the source control system by using the Repository view.

Before you begin

By default, executable files are included inside the archives that are sent to source control when you use the **Send to Source Control Workspace** command. If you do not want to include executable files in your artifacts for source control, you must disable this option in the Source Control section of your client preferences.

Procedure

1. Select the asset that you updated in IBM InfoSphere DataStage.

2. If you are using the Repository view, right-click the asset, and click **Send to Source Control Workspace**. This action sends an updated archive file of the asset to the source control project.

3. If you are using the Source Control Workplace view, right-click the asset, and click **Replace From Metadata Repository**. This action sends an updated archive file of the asset to the source control project.

4. Right-click the asset again, and click **Team** to send the artifact created from the asset to the source control system. The exact command depends on the type of source control system.

Restoring assets from the source control system

You might need to restore an asset from the source control system to overwrite the version in the metadata repository.

About this task

You might want to restore an asset from the equivalent artifact in the source control system (if, for example, your metadata repository is damaged). Alternatively you might want to restore an asset from an earlier version in the source control system or from a different branch in the source control system.

Restored assets are placed in a folder structure that matches the hierarchy of the assets in the metadata repository view.

Procedure

1. Select the asset that you want to restore.

2. If you are using the Repository view, right-click the asset, and click **Replace with** to select whether you want to replace the asset with the equivalent artifact or with an artifact from an alternative branch or version. If you choose to replace from another branch or version, an additional window opens to enable you to specify details. The **Replace with** action copies the selected artifact to the source control project.

3. If you are using the Source Control Workplace view, right-click the asset, and click **Replace with** to select whether you want to replace the asset with the equivalent artifact or with an artifact from an alternative branch or version. The **Replace with** action copies the selected artifact to the source control project.

4. If you are using IBM Rational Team Concert, there are two other ways to restore an asset.
   - Restoring an asset on the History view:
     a. Right-click the asset, and click **Team** > **Show History**.
     b. Right-click the change set to be restored, and click **Load**.
   - Reversing a change set on the History view:
     a. Right-click the asset, and click **Team** > **Show History**.
     b. Optionally, right-click the change set to be restored, and click **Open In Change Explorer** to verify the contents of the change set.
     c. In the History view, right-click the change set to be restored, and click **Reverse**. A patch, known as a reverse change set is added to the Pending Changes view.
     d. Right-click the reverse change set, and click **Merge into Workspace.**

5. Right-click the asset again, and click **Replace from Source Control Workspace** to import the artifact from the source control project as an asset in the metadata repository.

Locking and unlocking artifacts

If you are using IBM Rational Team Connect, you can lock and unlock artifacts.

Procedure

1. Open the Repository view.
2. To lock an artifact, right-click the artifact and click **Team** > **Lock**. The artifact is locked in the Rational Team Concert repository.
3. To unlock an artifact, right-click the artifact and click **Team** > **Unock**. The artifact is unlocked in the Rational Team Concert repository.

Clearing a source control workspace

If you are using IBMRational Team Connect, you can clear your source control workspace.

Procedure

1. Open the Pending Changes view.
2. Right-click the repository workspace and click **Unload**. The source control workspace is cleared, and the Repository view no longer shows any source control icons.

Appendix A. Product accessibility

You can get information about the accessibility status of IBM products.

The IBM InfoSphere Information Server product modules and user interfaces are not fully accessible.

For information about the accessibility status of IBM products, see the IBM product accessibility information at http://www.ibm.com/able/product_accessibility/ index.html.

Accessible documentation

Accessible documentation for InfoSphere Information Server products is provided in IBM Knowledge Center. IBM Knowledge Center presents the documentation in XHTML 1.0 format, which is viewable in most web browsers. Because IBM Knowledge Center uses XHTML, you can set display preferences in your browser. This also allows you to use screen readers and other assistive technologies to access the documentation.

The documentation that is in IBM Knowledge Center is also provided in PDF files, which are not fully accessible.

IBM and accessibility

See the IBM Human Ability and Accessibility Center for more information about the commitment that IBM has to accessibility.

Appendix B. Contacting IBM

You can contact IBM for customer support, software services, product information, and general information. You also can provide feedback to IBM about products and documentation.

The following table lists resources for customer support, software services, training, and product and solutions information.

Table 1. IBM resources

Resource	Description and location
IBM Support Portal	You can customize support information by choosing the products and the topics that interest you at www.ibm.com/support/ entry/portal/Software/ Information_Management/ InfoSphere_Information_Server
Software services	You can find information about software, IT, and business consulting services, on the solutions site at www.ibm.com/ businesssolutions/
My IBM	You can manage links to IBM Web sites and information that meet your specific technical support needs by creating an account on the My IBM site at www.ibm.com/account/
Training and certification	You can learn about technical training and education services designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills at http://www.ibm.com/training
IBM representatives	You can contact an IBM representative to learn about solutions at www.ibm.com/connect/ibm/us/en/

Appendix C. Accessing the product documentation

Documentation is provided in a variety of formats: in the online IBM Knowledge Center, in an optional locally installed information center, and as PDF books. You can access the online or locally installed help directly from the product client interfaces.

IBM Knowledge Center is the best place to find the most up-to-date information for InfoSphere Information Server. IBM Knowledge Center contains help for most of the product interfaces, as well as complete documentation for all the product modules in the suite. You can open IBM Knowledge Center from the installed product or from a web browser.

Accessing IBM Knowledge Center

There are various ways to access the online documentation:
- Click the **Help** link in the upper right of the client interface.
- Press the F1 key. The F1 key typically opens the topic that describes the current context of the client interface.

   Note: The F1 key does not work in web clients.
- Type the address in a web browser, for example, when you are not logged in to the product.

   Enter the following address to access all versions of InfoSphere Information Server documentation:

   `http://www.ibm.com/support/knowledgecenter/SSZJPZ/`

   If you want to access a particular topic, specify the version number with the product identifier, the documentation plug-in name, and the topic path in the URL. For example, the URL for the 11.3 version of this topic is as follows. (The ⇒ symbol indicates a line continuation):

   `http://www.ibm.com/support/knowledgecenter/SSZJPZ_11.3.0/⇒`
   `com.ibm.swg.im.iis.common.doc/common/accessingiidoc.html`

   Tip:

   The knowledge center has a short URL as well:

   `http://ibm.biz/knowctr`

   To specify a short URL to a specific product page, version, or topic, use a hash character (#) between the short URL and the product identifier. For example, the short URL to all the InfoSphere Information Server documentation is the following URL:

   `http://ibm.biz/knowctr#SSZJPZ/`

   And, the short URL to the topic above to create a slightly shorter URL is the following URL (The ⇒ symbol indicates a line continuation):

   `http://ibm.biz/knowctr#SSZJPZ_11.3.0/com.ibm.swg.im.iis.common.doc/⇒`
   `common/accessingiidoc.html`

Changing help links to refer to locally installed documentation

IBM Knowledge Center contains the most up-to-date version of the documentation. However, you can install a local version of the documentation as an information center and configure your help links to point to it. A local information center is useful if your enterprise does not provide access to the internet.

Use the installation instructions that come with the information center installation package to install it on the computer of your choice. After you install and start the information center, you can use the **iisAdmin** command on the services tier computer to change the documentation location that the product F1 and help links refer to. (The ⇒ symbol indicates a line continuation):

Windows
```
IS_install_path\ASBServer\bin\iisAdmin.bat -set -key ⇒
com.ibm.iis.infocenter.url -value http://<host>:<port>/help/topic/
```

AIX® Linux
```
IS_install_path/ASBServer/bin/iisAdmin.sh -set -key ⇒
com.ibm.iis.infocenter.url -value http://<host>:<port>/help/topic/
```

Where <host> is the name of the computer where the information center is installed and <port> is the port number for the information center. The default port number is 8888. For example, on a computer named server1.example.com that uses the default port, the URL value would be http://server1.example.com:8888/help/topic/.

Obtaining PDF and hardcopy documentation

- The PDF file books are available online and can be accessed from this support document: https://www.ibm.com/support/docview.wss?uid=swg27008803 &wv=1.
- You can also order IBM publications in hardcopy format online or through your local IBM representative. To order publications online, go to the IBM Publications Center at http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss.

Appendix D. Providing feedback on the product documentation

You can provide helpful feedback regarding IBM documentation.

Your feedback helps IBM to provide quality information. You can use any of the following methods to provide comments:

- To provide a comment about a topic in IBM Knowledge Center that is hosted on the IBM website, sign in and add a comment by clicking **Add Comment** button at the bottom of the topic. Comments submitted this way are viewable by the public.
- To send a comment about the topic in IBM Knowledge Center to IBM that is not viewable by anyone else, sign in and click the **Feedback** link at the bottom of IBM Knowledge Center.
- Send your comments by using the online readers' comment form at www.ibm.com/software/awdtools/rcf/.
- Send your comments by e-mail to comments@us.ibm.com. Include the name of the product, the version number of the product, and the name and part number of the information (if applicable). If you are commenting on specific text, include the location of the text (for example, a title, a table number, or a page number).

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Table 2. Use of cookies by InfoSphere Information Server products and components

Product module	Component or feature	Type of cookie that is used	Collect this data	Purpose of data	Disabling the cookies
Any (part of InfoSphere Information Server installation)	InfoSphere Information Server web console	• Session • Persistent	User name	• Session management • Authentication	Cannot be disabled
Any (part of InfoSphere Information Server installation)	InfoSphere Metadata Asset Manager	• Session • Persistent	No personally identifiable information	• Session management • Authentication • Enhanced user usability • Single sign-on configuration	Cannot be disabled

Table 2. Use of cookies by InfoSphere Information Server products and components (continued)

Product module	Component or feature	Type of cookie that is used	Collect this data	Purpose of data	Disabling the cookies
InfoSphere DataStage	Big Data File stage	• Session • Persistent	• User name • Digital signature • Session ID	• Session management • Authentication • Single sign-on configuration	Cannot be disabled
InfoSphere DataStage	XML stage	Session	Internal identifiers	• Session management • Authentication	Cannot be disabled
InfoSphere DataStage	IBM InfoSphere DataStage and QualityStage Operations Console	Session	No personally identifiable information	• Session management • Authentication	Cannot be disabled
InfoSphere Data Click	InfoSphere Information Server web console	• Session • Persistent	User name	• Session management • Authentication	Cannot be disabled
InfoSphere Data Quality Console		Session	No personally identifiable information	• Session management • Authentication • Single sign-on configuration	Cannot be disabled
InfoSphere QualityStage Standardization Rules Designer	InfoSphere Information Server web console	• Session • Persistent	User name	• Session management • Authentication	Cannot be disabled
InfoSphere Information Governance Catalog		• Session • Persistent	• User name • Internal identifiers • State of the tree	• Session management • Authentication • Single sign-on configuration	Cannot be disabled
InfoSphere Information Analyzer	Data Rules stage in the InfoSphere DataStage and QualityStage Designer client	Session	Session ID	Session management	Cannot be disabled

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