Rhythmyx

Multi-Server Manager

5.7

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Rhythmyx uses Mozilla's JavaScript C API. See ***http://www.mozilla.org/source.html*** (http://www.mozilla.org/source.html) for the source code. In addition, see the ***Mozilla Public License*** (http://www.mozilla.org/source.html).

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C HAPTER 1

About Rhythmyx Multi-Server Manager and Archive Installation

The Rhythmyx Multi-Server Manager helps you install a Rhythmyx CMS or portions of a Rhythmyx CMS from a source server to a target server. The Multi-Server Manager guides you through each step of the installation process including selecting elements to install, packaging the elements in an archive, and installing the archive's contents on the target server.

You can use the Rhythmyx Multi-Server Manager to migrate Rhythmyx elements from a development server to a QA, test, or production server, or from a production server to a development or test server. Some of the scenarios in which you could use it include:

- initially installing Rhythmyx from a development server to a production server;

- migrating changes in applications from a development server to a production server;

- migrating content from a production server to a development server so that you can perform testing on live data;

- sending applications and required files to Rhythmyx Technical Support or Professional Services for problem resolution or application of new functionality.

The Multi-Server Manager is a stand-alone tool that functions as a client and interacts with the target and source servers. The Rhythmyx installer loads it with other client tools into the Rhythmyx root directory.

How Multi-Server Manager Installation Works

When you create an archive, the Multi-Server Manager copies it to the client (Multi-Server Manager machine), so you can create an archive on a server and install it at a later time on a different server, as long as the target server has the same version and build as the archive.

To install Rhythmyx elements with the Multi-Server Manager, you do not have to run the source and target servers at the same time. You can specify what to install on the source server, save the data in a file on the Multi-Server Manager, and install it on the target server at a later time.

Prior to using the Multi-Server Manager:

- Install and configure Rhythmyx on your source and target servers.
- Make sure that the builds and versions of Rhythmyx on both servers are the same. The Multi-Server Manager will not perform an installation otherwise.

Limitations

- The Multi-Server Manager cannot install some elements of a source server, including:
    - Loadable handlers. The Multi-Server Manager warns you and does not allow installation if any loadable handlers that exist on the source server are missing on the target server.
    - Exit classes in the server classpath that are installed at the system level. The Multi-Server Manager warns you and does not allow installation if any exit classes that exist on the source server are missing on the target server.
    - Roles and Role members. The Multi-Server Manager only installs source server Roles that do not already exist on the target server. It does not install Members of Roles.
    - Security providers for user or group entries in ACL lists for applications, and the users contained within the security providers. The security providers should exist on the target server with the same name, and should be able to authenticate the same users or groups as it can on the source server. The Multi-Server Manager does not check for security providers on the target server.
    - Extension configuration files that are not stored in the resources directory of the extension. NOTE: You may create a User Dependency package that includes one of these files.
    - Backend credentials.
    - The server ACL.
    - Database objects other than Table Schemas.
    - System applications.

- Because of the Multi-Server Manager's installation limitations, it is not intended to be used for backing up Rhythmyx; however, you can back up any installable elements using the Multi-Server Manager. To fully back up Rhythmyx, use *standard backup techniques* (see "The Development Environment" on page 111).

- Because of the Multi-Server Manager's installation limitations, it is not intended to be used for Rhythmyx source control.

- Tables are the only database objects that the Multi-Server Manager installs. The Multi-Server Manager discovers views, but lists them as (non-installable) server dependencies and labels them as Table Schemas.

- Rhythmyx does not lock your server while you are creating or installing an archive. To avoid errors, users should not access your server while you are running the Create Archive/Descriptor Wizard or the Archive Installation Wizard.

- Installation using the Rhythmyx Multi-Server Manager is not equivalent to Publishing with Rhythmyx. Do not attempt to use the Rhythmyx Multi-Server Manager to publish public content to a Web site or other destination.

- You cannot roll back after installation. Once you install an archive on your sever, you cannot uninstall it.

- If you are installing to Rhythmyx Version 4.5, manually flush the server cache after installing to prevent older versions of applications from being published. The server cache does not automatically flush after you complete an installation.

- The Multi-Server Manager does not recognize or duplicate specific blocks of IDs that you give to elements on a source server. When the Multi-Server Manager adds new Rhythmyx elements to a target server (without mappings to target elements), it assigns them new IDs sequentially.

- If your installation modifies a target server workflow to have fewer states, target server content items in the states that you remove are orphaned. See *Troubleshooting* (on page 137) for a procedure for moving the orphaned content into an existing state.

Package Types

During installation, you select which parts of Rhythmyx, or *Package Types,* on your source server you want to install on your target server.

A *Package* consists of the specific elements that you "package" for installation. For example, a Package for a content type would have the Package Type of Content Type and would include the elements: the specific content type and the specific content editor application.

Dependencies refers to the elements that make up a Package. Dependencies can be elements (such as exits and applications) that other elements require to function properly. For example, a Content Type Package has as its required dependencies the content type registration, the content editor application, and may optionally include the applications and exits that the content editor application uses.

Ancestors are elements, such as files or exits, that are not part of a Package but are affected by its dependencies. For example, if a content type is associated with a community, the community is an ancestor of that Content Type's Package because it is not part of the Package but is affected by changes to its elements.

The Rhythmyx Multi-Server Manager includes the required dependencies of a Package Type in a Package. You indicate which optional dependencies and ancestors to include. For more about dependencies and ancestors, see Include Element Dependencies or Ancestors.

The order in which a Package lists Package Types is important, because dependencies of elements must be installed before the elements that use them. See Add Elements to the Archive for the recommended order of Package Types in a Package.

The following table lists all of the Package Types and their dependencies.

Package Type	Rhythmyx Elements automatically included in the Package	Notes
Action Menu	▪ the Action Menu definition; ▪ any Action Menus that include the specified Action Menu as a child.	Only available when you select Package Types from a Rhythmyx 5 source server.
Community Definition	▪ the Community registration but not any of the CMS elements associated with the Community.	
Component	▪ the component registration; ▪ the component application; ▪ the component's slot definitions.	

Package Type	Rhythmyx Elements automatically included in the Package	Notes
Content	In the Add Elements to the Archive dialog, you choose the Types of Content Items to include. When you choose dependencies, you check which Content Items of these Types to include. For the Content Items that you check, the Multi-Server Manager includes: ▪ the Content Item's entry in CONTENTSTATUS, CONTENTSTATUSHISTORY, CONTENTAPPROVALS, and CONTENTADHOCUSERS tables; ▪ content data; ▪ child data; ▪ inline links; ▪ optionally, related content items.	Review the Content Package Type's limitations before installing it.
Content Assembler	▪ the content assembler application; ▪ variant registrations of the variants that reference the content assembler application.	
Content List	▪ the content list registration.	
Content Type	▪ the content type registration; ▪ the content editor application.	
Content View	▪ the content view definition.	Only available when you select Package Types from a Rhythmyx 5 source server.
Context	▪ the Context definition	
Custom	Any of the following: ▪ applications; ▪ extensions; ▪ shared groups; ▪ system definitions; ▪ system definition overrides; ▪ table schemas; ▪ table data; ▪ user dependencies – files from the Rhythmyx root that the Multi-Server Manager does not list as dependencies.	For experienced users only. If the user requires more control than the Multi-Server Manager offers for one of the Package types or a dependency is not included in the dependency map, a user may create a custom Package and select any of the custom Rhythmyx elements.
Display Format	▪ the Display Format definition.	Only available when you select Package Types from a Rhythmyx 5 source server.

Package Type	Rhythmyx Elements automatically included in the Package	Notes
Entire Community	- the Community registration; - all of the Rhythmyx elements (content types, workflows, roles, and variants) associated with the Community except components; - all of the required dependencies of these Rhythmyx elements.	The Multi-Server Manager does not automatically install associated interface components with a community because a large number of interface components may be associated with a community but do not need to be installed. You must determine the interface components that have been modified and install them as separate Packages.
Folder	In the Add Elements to the Archive dialog, you choose the Sites and/or Folders main node. When you choose dependencies, you check which folders within the main node to include. For the Folders that you check, the Multi-Server Manager includes: - the Folder definition; - the Display Format definition for the Folder; - all Translation Relationships in the Folder; - optionally, the Content Items in the Folder.	Only available when you select Package Types from a Rhythmyx 5 source server.
Folder Tree	- the main Folder; - all of the selected Folder's sub-folders; - all Folder and sub-folder Display Format definitions; - all Translation Relationships in the Folders and sub-folders.	Only available when you select Package Types from a Rhythmyx 5 source server.
Keyword	the Keyword definition	
Locale	- the locale definition; - the GlobalErrorMessages.js file for the Locale; - the images for the Locale; - the template.css file for the Locale.	Only available when you select Package Types from a Rhythmyx 5 source server.
Relationship Definition	the Relationship definition.	Only available when you select Package Types from a Rhythmyx 5 source server.
Site	- the Site registration. - context variables.	
Slot	the Slot definition.	

Package Type	Rhythmyx Elements automatically included in the Package	Notes
Workflow	▪ the Workflow definition; ▪ all dependencies of the Workflow definition.	

You cannot create a Location Scheme Package. To include a Location Scheme in an archive, create a package for an associated Site and include the Location Scheme as a shared dependency.

You can also include Roles as shared dependencies of other components. If the Role already exists on the target server, the Multi-Server Manager does not install it. If the Role does not exist on the target server, the Multi-Server Manager installs it, but does not include the users (Members) associated with the Role, since users on the target server most likely differ from those on the source server.

Content Items to Deploy with Multi-Server Manager

Multi-Server Manager allows you to deploy Content Items from one server to another, but you should only use this function for deploying implementation Content Items (such as Navigation Content Types) from development or staging servers to production servers.

Never develop regular Content Items on a development or staging server and then deploy them to a production server using the Multi-Server Manager. Multi-Server Manager does not resolve inline links or inline Variants within the text of these Content Items and the links will be broken on the target server.

C H A P T E R   2

Using the Multi-Server Manager Interface

The Rhythmyx Multi-Server Manager window consists of a **Server Groups Tree**, a **Status Bar**, a **Details Pane**, and a **Menu Bar**.
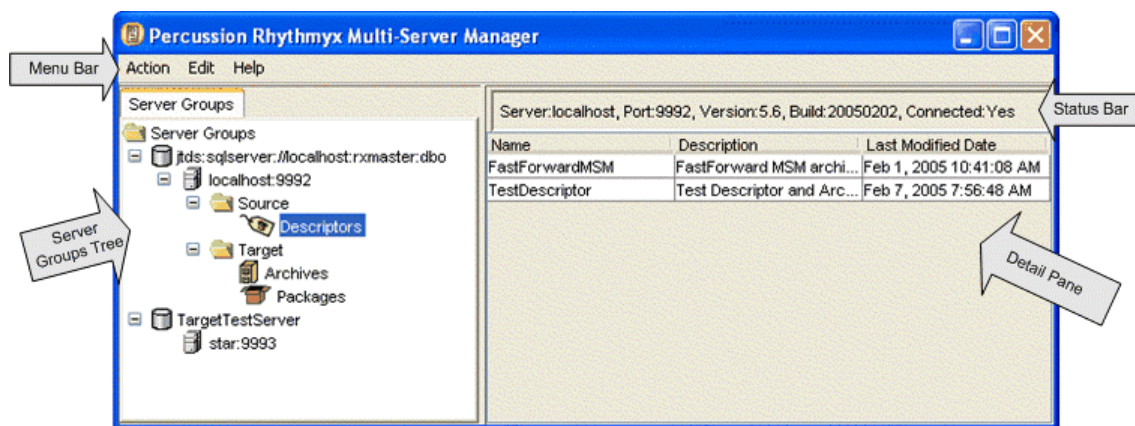
Figure 1: Multi-Server Manager Interface

Server Groups Tree

The **Server Groups Tree** displays all of the servers registered with your Rhythmyx Multi-Server Manager. The top nodes are the servers' Rhythmyx repositories. Below each repository node is a server name node, and below that are nodes for Source and/or Target elements on the server if they exist. A Source node with a **Descriptors** node under it is present if you have saved any descriptor files on the server. A Target node with an **Archives** node and a **Packages** node under it is present if you have installed any archives on the server.

If you save your *login credentials* (see "Connect to Server" on page 26), when you click an unconnected server node, the Multi-Server Manager automatically connects you to it. Right-click on the server name node to open a Server Action menu.
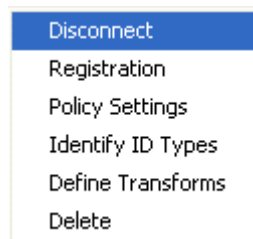
Figure 2: Server Action Menu

The Server Action menu includes the following options:

- Disconnect/Connect
    - Connect - Connect client (Multi-Server Manager) to the server or open the Connect to Server dialog.
    - Disconnect - Disconnects the server from the client (Multi-Server Manager).
- Registration - edit the registration of the server.
- Policy Settings - Set Rhythmyx application policy settings. The selected server will give these settings to all applications installed on it.
- Identify ID Types - Specify ID Types for all server objects on the selected server.
- Define Transforms - Map elements and DBMS credentials for the selected server.
- Delete - Delete the server registration and removes the node and its contents from the table.

Status Bar

When you select a repository node, the **Status Bar** displays repository information:
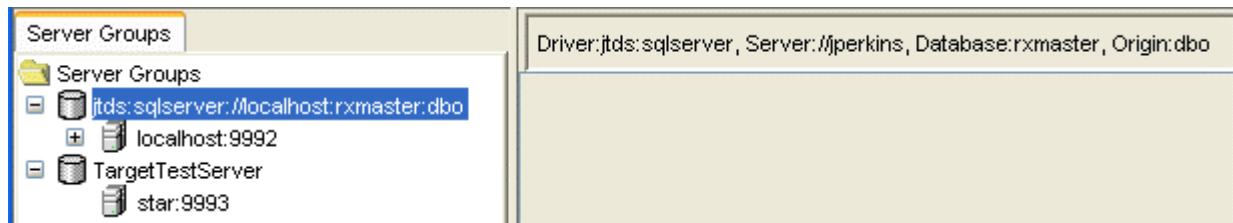
Figure 3: Status Bar displaying repository information

When you select a server node or any node below the server node, the **Status Bar** displays server information:
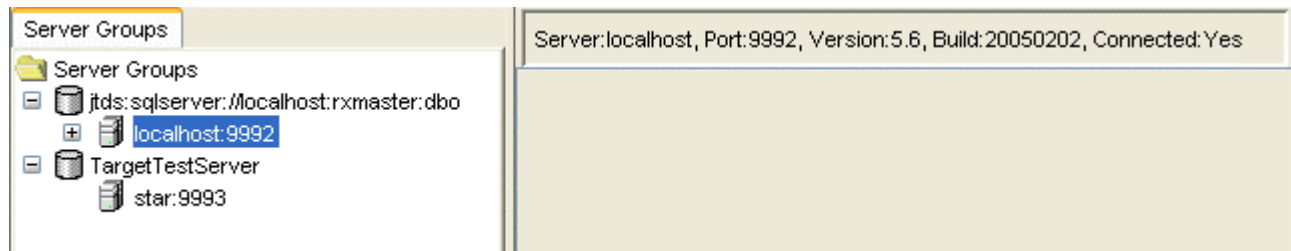
Figure 4: Status Bar displaying Server information

Menu Bar

The Menu Bar displays links to three drop-down menus:

- Action menu
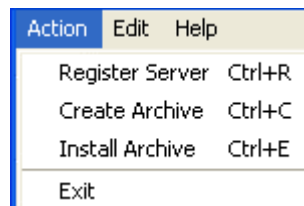
Figure 5: Action Menu

The Action menu includes the following options:

- *Register Server* - Register a server with the Multi-Server Manager.

- *Create Archive* - Open the Create Archive/Descriptor Wizard. Disabled (gray) if no servers are registered.

- *Install Archive* - Open the Install Archive Wizard. Disabled (gray) if no servers are registered.

- *Exit* - Close the Rhythmyx Multi-Server Manager.

- Edit menu

You must select a server node to enable options in the Edit Menu.
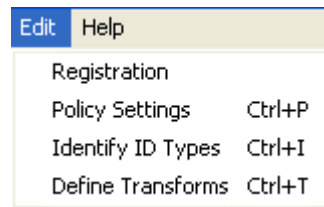
Figure 6: Edit Menu

The Edit menu includes the following options:

- *Registration* - Edit the registration of the server.

- *Policy Settings* - Set Rhythmyx application policy settings on the selected server. These settings will apply to all applications installed on the server. Enabled only if the server is connected.

- *Identify ID Types* - Specify ID Types for all hard-coded IDs in server objects on the selected server. Enabled only if the server is connected.

- *Define Transforms* - Map elements and DBMS credentials for the selected server and the target server. Enabled only if the server is connected.

- Help Menu
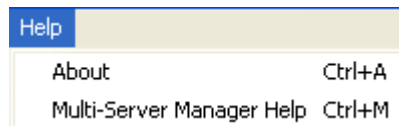
Figure 7: Help Menu

The Help menu lets you display the Rhythmyx build and release and opens the online Rhythmyx Multi-Server Manager Help.

- *About* - Display the Rhythmyx build and release.

- *Multi-Server Manager Help* - Open Multi-Server Manager online help.

Details Pane

The **Details Pane** displays information about the node selected in the **Server Groups Tree**. Click on a **Descriptors**, **Archives** or **Packages** node to see details about it in the **Details Pane**.

The possible views in the **Details Pane** are

- **Descriptors View**
- **Archives View**
- **Packages View**

Descriptors View

Descriptors are files that store information for creating archives. When you select a **Descriptors** node in the **Server Groups Tree**, the Multi-Server Manager displays Descriptors view in the **Details Pane**. Descriptors view displays the name, description, and last modified date for each descriptor on that server. You can sort on any of the column headings by clicking it. Clicking the column repeatedly toggles the sort between ascending and descending order.
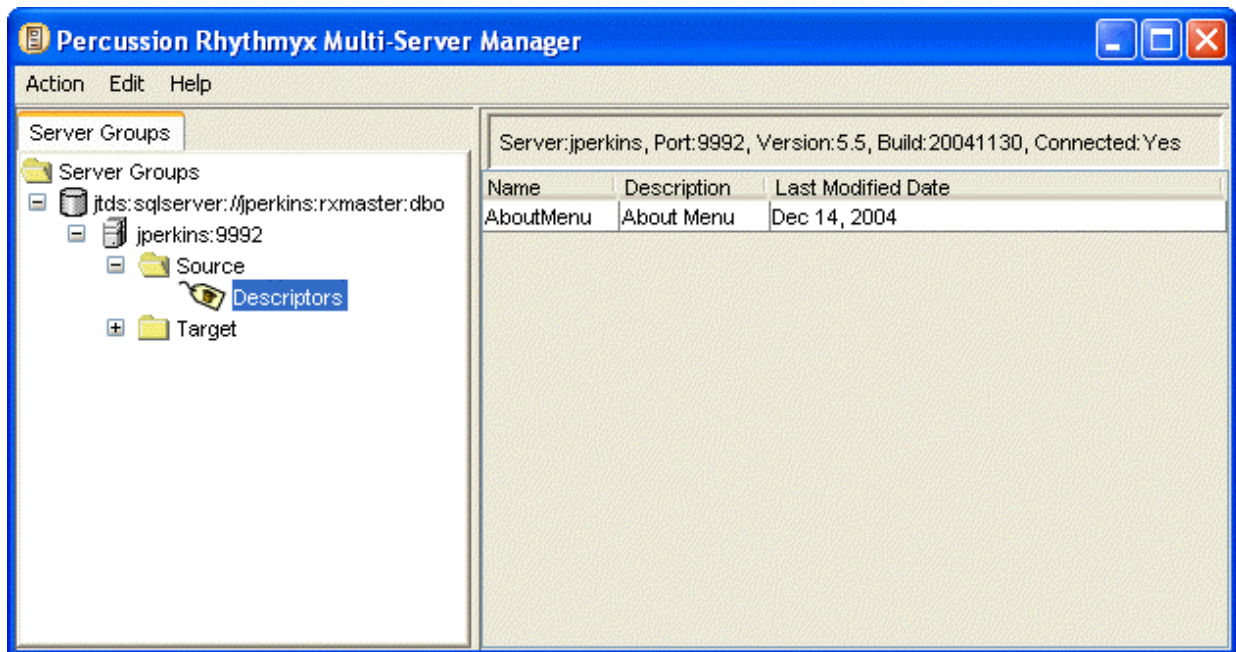
Figure 8: Descriptors View

Right-click on a descriptor row to view a Descriptor Action menu:

Figure 9: Descriptor Action Menu

Menu options:

- *Create Archive* - Opens the Create Archive/Descriptor Wizard to the **Choose Create Mode Dialog** (see "Choose Create Mode" on page 58). Skips the **Choose a Server and/or Descriptor Dialog** (see "Choose a Server and/or Descriptor" on page 57) because it uses the server and descriptor that you selected in the Multi-Server Manager Window.
- *Delete* - Deletes the descriptor from the server and removes the row from Details view.
- *Install* - Opens the Install Archive Wizard with the name of the last archive created using this descriptor. If the Multi-Server Manager cannot find the archive, it displays a warning and lets you proceed to the Wizard to choose an archive.

Archives View

Archives are the files that carry Packages from the source server to the target server. When you click an Archives node in the **Server Groups Tree**, the Multi-Server Manager displays the Archives view in the **Details Pane**. For each archive installed on the server, Archives view displays:

- archive name
- installation date
- source server
- Rhythmyx version
- Rhythmyx build

If you re-install an archive, rows appear for each of its installations in the view. If you overwrite an archive by using its name when creating a new archive, the former archive's listing is deleted from this view.

You can sort on any of the column headings by clicking it. Clicking the column repeatedly toggles the sort between ascending and descending order.
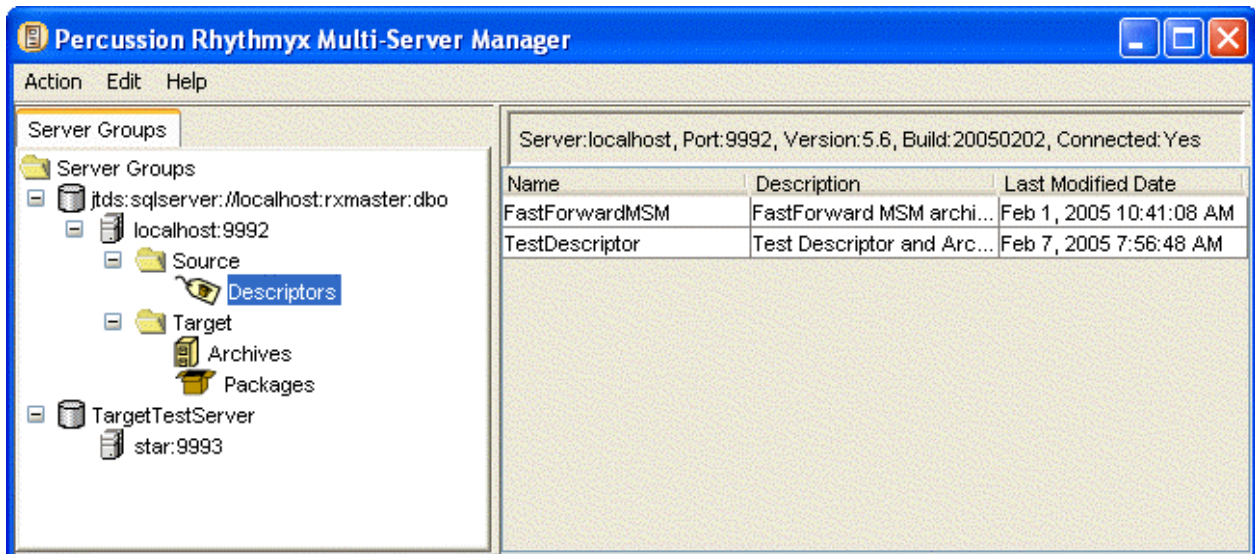
Figure 10: Archives View

Double-click an archive row to view its *Archive Summary* (see "Reviewing Archives" on page 101).

Right-click an archive row to view an Archive Action menu:
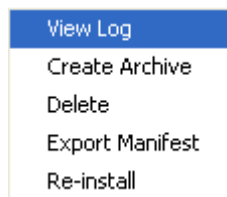
Figure 11: Archive Action Menu

Menu options:

- *View Log* - Opens the ***Archive Summary*** (see "Reviewing Archives" on page 101).

- *Create Archive* - Lets you repackage elements previously installed from the selected archive without having to redefine the archive contents. Opens the ***Create Archive/Descriptor Wizard*** (see "Create Archive or Descriptor" on page 77).

- *Delete* - Deletes the archive and its packages from the server. Removes all rows representing the archive in Archives view and all packages installed from the archive in Packages View.

- *Export Manifest* - A manifest is a file that describes the contents of an archive. This option opens a File Browser window so that you can save the manifest to a file.

- *Re-install* - Opens the Install Archive Wizard to the ***Choose Installation Mode*** (see "Select an Archive and Server Dialog" on page 83) dialog so that you can re-install the archive on the target server as previously.

Packages View

Packages are the elements and their dependents that you list together in an archive and install on a target server. When you click a Packages node in the **Server Groups Tree**, the Multi-Server Manager displays the Packages View in the **Details pane**. For each package installed on the server, Packages View displays:

- package name
- package type
- description
- archive name
- installation date
- source server
- Rhythmyx version
- Rhythmyx build.

If you re-install a package, rows appear for each of its installations in the Packages view. If you overwrite an archive by using its name when creating a new archive, the overwritten archive's package listings are deleted from this view.

You can sort on any of the column headings by clicking it. Clicking the column repeatedly toggles the sort between ascending and descending order.
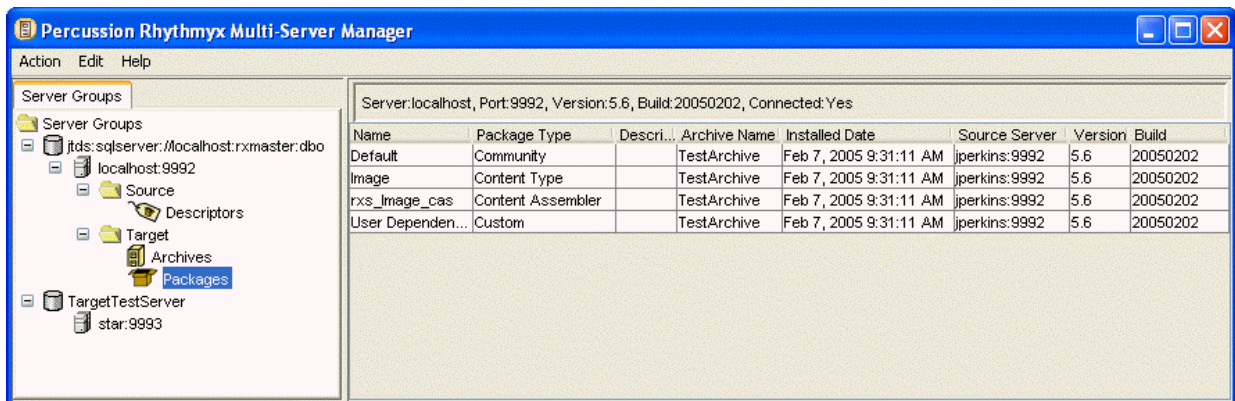
Figure 12: Packages View

Double-click a package row to view its ***package log***.

Right-click a package row to view a Packages Action menu:

Figure 13: Packages Action Menu

Menu options:

- *Export* – Opens a File Browser window so that you can save the package log to a file.

C H A P T E R 3

Installation Check List

The Multi-Server Manager provides all the necessary dialogs and Wizards for installing a CMS or portions of a CMS from a source to target Rhythmyx server. The following table lists the steps necessary for initial set up and installation in the first column, and the Multi-Server Manager dialog or Wizard for completing the step in the second column. Click on a step to see a detailed procedure. Click on a dialog or Wizard to see a topic describing how to use it.

To install Rhythmyx elements using the Multi-Server Manager:

Step	Multi-Server Manager Dialog or Wizard
1. Register the source and target servers.	Edit/New Rhythmyx Server Registration
2. Identify Rhythmyx elements referenced by Rhythmyx server objects.	Identify ID Types dialog
3.Map Rhythmyx elements and DBMS credentials on the source server to corresponding elements and credentials on the target server.	*Define Transforms dialog* (see "Define Transforms for <Server:Port>" on page 43)
4. Specify the elements of the source Rhythmyx system to include in your archive and create the descriptor and/or archive.	Create Archive/Descriptor Wizard
5. Specify which Packages in your archive to install on the target server and complete installation.	*Install Archive Wizard* (see "Installing an Archive" on page 79)

C H A P T E R   4

Maintaining Rhythmyx Server Registrations

Before you can create or install an archive, you must register the servers you want to maintain. Registration lets the Multi-Server Manager connect to the source and target servers and identify their configurations.
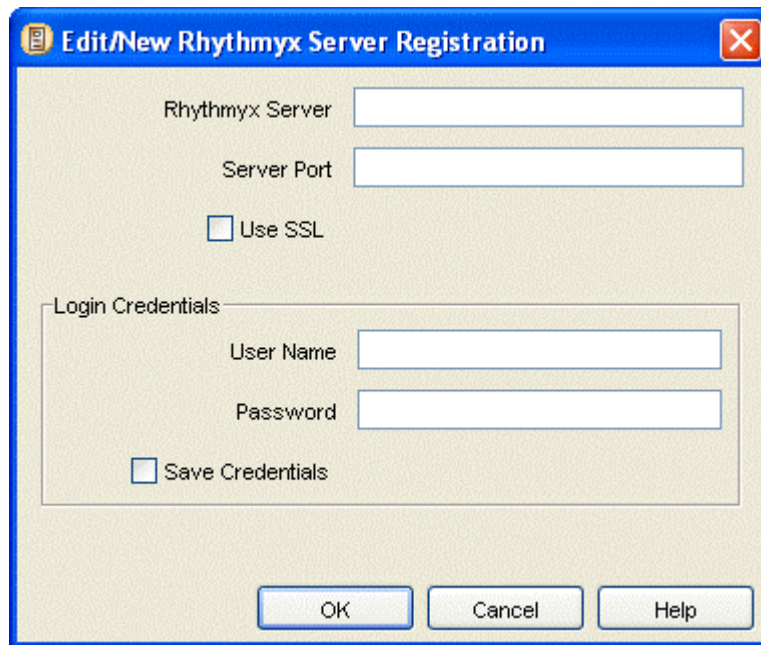
Server Registration and Maintenance Dialogs

Rhythmyx uses the following dialogs to create and maintain server registrations:

- Edit/New Rhythmyx Server Registration (see "***Edit/New Rhythmyx Server Registration***" below)
- Repository Alias (see "***Repository Alias***" on page 25)
- Repository Change (see "***Repository Change***" on page 26)
- Connect to Server (see "***Connect to Server***" on page 26)

Edit/New Rhythmyx Server Registration

Use the Edit/New Rhythmyx Server Registration dialog to register a server or edit one that you have already registered. Access this dialog by selecting *Action > Register Server* in the Multi-Server Manager Window.

Figure 14: Edit/New Rhythmyx Server Registration Dialog

Edit/New Rhythmyx Server Registration dialog fields:

Rhythmyx Server - the name of the Rhythmyx server to register with the client system Multi-Server Manager).

Server Port - the port number on which the Rhythmyx server is listening.

Use SSL - when this checkbox is checked, the client runs over an SSL connection. NOTE: If you check this checkbox, the Server Port must support SSL or you cannot connect.

User Name - your username for logging in to the Rhythmyx server.

Password - your password for logging in to the Rhythmyx server.

Save Credentials - when this checkbox is checked, the Multi-Server Manager saves the credentials entered in **User Name** and **Password** so that you will not have to enter them from the Multi-Server Manager when connecting to the specified server.

Repository Alias

When you enter a new server registration in the Edit/New Rhythmyx Server Registration dialog and when you change the server repository through the Repository Change dialog, the Multi-Server Manager displays the Repository Alias dialog, which prompts you to enter an alias name. The alias name is the identifier for the repository that the Multi-Server Manager uses in the **Server Groups Tree**.

Figure 15: Enter Repository Alias Dialog

Repository Alias dialog fields

Alias Name - the repository alias name.

Repository Change

If you attempt to connect to a server or edit its registration, but its repository has changed since you last connected to it or entered or edited its registration information, the Multi-Server Manager displays a confirmation dialog for changing the repository associated with the server.
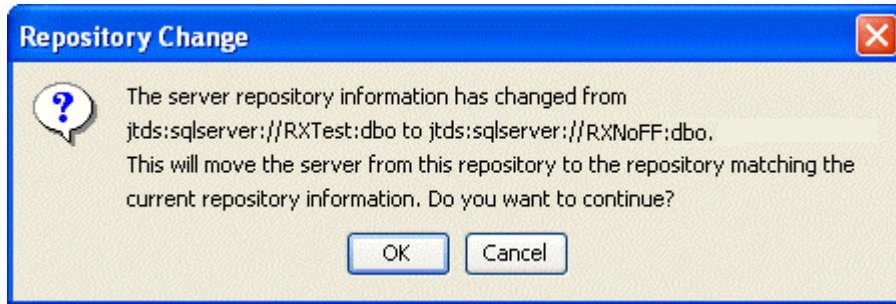
Figure 16: Repository Change Dialog

After you click [**OK**], the Multi-Server Manager displays the Repository Alias dialog.

Connect to Server

The Multi-Server Manager attempts to connect you to a registered server when:

- ▪ you right-click the server in the Server Groups Tree and choose *Connect*;

- ▪ you select the server in the Server Groups Tree and choose an action, such as *Identify ID Types*, that requires that the server be registered;

- ▪ you are performing an action through a dialog that requires choosing a server, and the server you choose is not connected.

If you have not already saved your username and password, the Connection to Server dialog prompts you to enter your username and password for logging in to the server.
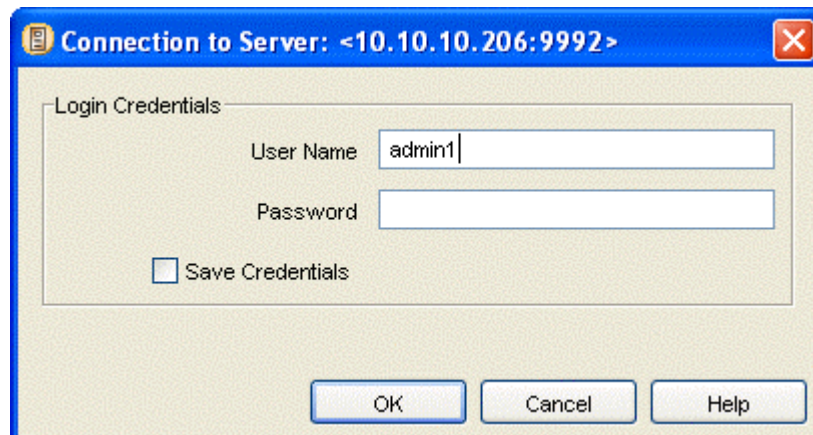
Figure 17: Connection to Server Dialog

Connection to Server dialog fields:

User Name - your username for logging in to the CMS server;

Password - your password for logging in to the CMS server;

Save Credentials - when this checkbox is checked, Rhythmyx saves the credentials entered in **User Name** and **Password** so that you will not have to enter them again when connecting to the selected server through the Multi-Server Manager.

Server Registration Maintenance Procedures

Registering a Server

To register a server:

1   In the Multi-Server Manager Window, select *Action > Register Server*.

The Multi-Server Manager opens the Edit/New Rhythmyx Server Registration dialog.

2   In **Rhythmyx Server**, enter the server name.

3   In **Server Port**, enter the port on which the server is listening.

4   If you are using an SSL connection, check **Use SSL**.

5   Optionally, in **User Name**, enter your username for logging in to the server.

6   Optionally, in **Password**, enter your password for logging in to the server.

7   If you want the Multi-Server Manager to save your username and password so you do not have to reenter them each time you connect to this server, check **Save credentials**.

If you save your credentials, the Multi-Server Manager automatically connects you to the server when you click on its node in the **Server Groups Tree**.

8   Click [**OK**].

The Multi-Server Manager displays the Enter Repository Alias dialog.

9   Enter a repository alias and click [**OK**].

The Multi-Server Manager registers the server.

Editing a Server Registration

To edit a server registration:

1   In the **Server Groups Tree**, select a server node and:

- In the **Menu Bar**, select *Edit > Registration.*

OR

- Right-click the server node and select *Registration*.

2   The Multi-Server Manager displays the current registration information in the Edit/New Rhythmyx Server Registration dialog.

3   Optionally, change the **Server Port**, **Use SSL**, **User Name**, or **Password**. You cannot change the **Rhythmyx Server**.

4   If you want the Multi-Server Manager to save your username and password so you do not have to reenter them each time you connect to this server, check **Save credentials.**

5   Click [**OK**].

If the repository associated with the server has not changed, the Multi-Server Manager saves the edited registration.

If the repository associated with the server has changed since you added or edited the server or connected to it, the Multi-Server Manager displays the Repository Change dialog.

If the Multi-Server Manager displays the Repository Change dialog:

6   Click [**OK**] to continue or [**Cancel**] to return to the previous dialog and make any corrections.

 If you click [**OK**] in the Repository Change dialog, the Multi-Server Manager checks for the repository's alias name. If it does not find one, it displays the Repository Alias dialog.

7   In the Repository Alias dialog, enter an **Alias Name**.

8   Click [**OK**] to save the server registration changes or [**Cancel**] to return to the Edit/New Rhythmyx Server Registration dialog.

The Multi-Server Manager saves the server registration changes and changes the view in the **Server Groups Tree** to display the server represented by the new repository.

Connecting to a Server

To connect to a server:

1   In the **Server Groups Tree**, right-click a server node and select *Connect*.

The Multi-Server Manager displays the ***Connect to Server dialog*** (see "Connect to Server" on page 26) if you did not save your log-in credentials.

If the Multi-Server Manager displays the Connect to Server dialog:

a)   Enter your **User Name** and **Password** for connecting to the server.

b)   If you want the Multi-Server Manager to save your username and password, so that you do not have to reenter them each time you access the server, check **Save these login credentials**.

c)   Click [**Connect**].

If the repository associated with the server has not changed since you added or edited the server or connected to it, the Multi-Server Manager connects you to the server and expands it in the **Server Groups Tree**.

If the repository associated with the server has changed since you last connected to the server, the Multi-Server Manager displays the Repository Change dialog.

If the Multi-Server Manager displays the Repository Change dialog:

a)   Click [**OK**] to continue or [**Cancel**] to return to the previous dialog and make any corrections.

If you click [**OK**] in the Repository Change dialog, the Multi-Server Manager checks for the repository's alias name. If it does not find one, it displays the Repository Alias dialog.

b)   In the Repository Alias dialog, enter an **Alias Name**.

c) Click [**OK**] to continue or [**Cancel**] to return to the Edit/New Rhythmyx Server Registration dialog.

The Multi-Server Manager connects you to the server, changes the view in the **Server Groups Tree** to display the server represented by the new repository, and expands the server in the **Server Groups Tree**.

Maintaining Server Policy Settings

The Rhythmyx Multi-Server Manager assigns default settings called Server Policy Settings that will affect the applications installed on the server.   The Server Policy Settings are Application Logging, Application Tracing, and Application Activation. By default, the Multi-Server Manager disables Application Logging and Application Tracing for all applications and enables Application Activation, so that all applications will be active after installation. You can change the defaults in the Server Policy Settings dialog.

To change Server Policy Settings:

1   In the Multi-Server Manager Window, select *Edit > Policy Settings* or right-click the Server Repository Node in the **Server Groups Tree** and select *Edit Policy Settings*.

The Multi-Server Manager displays the Server Policy Settings dialog.
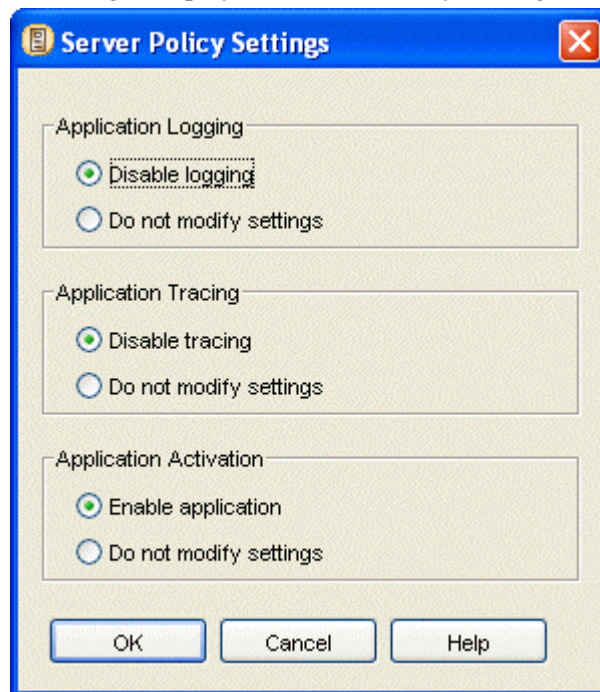
Figure 18: Server Policy Settings Dialog

2   The default setting for **Application Logging** is *Disable logging*. This setting disables logging for all applications after they are installed. To use the current logging settings for each application, select *Do not modify settings*.

3   The default setting for **Application Tracing** is *Disable tracing*. This disables tracing for all applications after they are installed. To use the current tracing settings for each application, select *Do not modify settings*.

4   The default setting for **Application Activation** is *Enable application*. This activates all applications after they are installed. To use the current activation settings for each application, select *Do not modify settings*.

5   Click [**OK**].

The Multi-Server Manager saves the Server Policy Settings.

C H A P T E R   5

About Mapping Elements and DBMS Credentials and Identifying ID Types

To install certain parts of Rhythmyx with the Multi-Server Manager, you must enter some information manually.

Rhythmyx Elements

Your source server includes various elements that you may be installing, such as content types, variants, slots and workflows. Each of these has an identifier, such as CONTENTTYPEID, VARIANTID, SLOTID, and WORKFLOWAPPID. The same elements may or may not exist on the target server. If they do exist on the target server, they may have different identifiers. For example, a Content Type named Article may be CONTENTTYPEID 3 on the source server and CONTENTTYPEID 5 on the target server. You must indicate this manually to the Multi-Server Manager. As another example, a Variant named HomePage may be VARIANTID 4 on the source server and may not exist on the target server. The Multi-Server Manager must add it during installation. You must also indicate this manually to the Multi-Server Manager.

DBMS Servers and Credentials

Each source server is connected to a DBMS repository that has a server name and other credentials that may be included in the server's applications. Some of the applications may refer to other DBMS servers and credentials. When you install applications onto the target server, the source server name and credentials are automatically changed in applications to the target server name and credentials. But the Multi-Server Manager does not know how to change other DBMS servers and credentials in applications. You must indicate this manually to the Multi-Server Manager.

Identifier Types

Server objects on your source server, such as files and exits, may contain identifiers for Rhythmyx elements that are hard-coded. For example, an XML field in an application may be mapped to a value of 5. The Multi-Server Manager cannot know if the application is referring to VARIANTID 5, SLOTID 5 or another element with ID 5. You must manually indicate the element type of the identifier so that the Multi-Server Manager knows which element is represented by "5". If the Multi-Server Manager knows that "5" represents VARIANTID 5, it can give you the option of installing VARIANTID 5. It can also make appropriate changes to the application if this element is mapped to another element on the target server (for example, if source VARIANTID 5 = target VARIANTID 3, the Multi-Server Manager knows to change the value mapped to the XML field from 5 to 3 in the application).

Identifying hard-coded identifiers types in server objects (see "Identifying Types of Elements" on page 37)

When to Map Elements and DBMS Credentials and Identify ID Types

The Multi-Server Manager provides dialogs for entering Rhythmyx element mappings, DBMS credential mappings and ID types from the Multi-Server Manager Window. In addition, it may display the dialog for entering ID types in the Create Archive/Descriptor Wizard, and it may display the dialog for entering element and DBMS credential mappings in the Archive Installation Wizard. When you access the dialogs from the Multi-Server Manager Window, you can enter ID types and mappings for all elements and applications on the server; when you access the dialogs from a Wizard, you can only add ID Types or mappings for elements and applications selected in the Wizard and edit ID Types and mappings for all elements and applications on the server. Regardless of where you enter the mappings or ID types, the Multi-Server Manager saves them on the server, so you do not have to reenter them unless you want to make changes. NOTE: To create mappings, you must also select a target server.

The dialogs that you can access from the Multi-Server Manager Window allow an implementer to set up all mappings and ID types for a server prior to creating and installing archives.   By creating all your manual settings initially, you make installation easier because you only have to map and set ID types for newly added elements when you create and install archives using the wizards. In addition, you allow users without knowledge of Rhythmyx elements and applications to install using the wizards with the settings that you have already created.

NOTE: Users always have the option of changing existing ID types and mappings in the wizards.

Mapping Source and Target Rhythmyx Elements

If you are installing elements such as content types and variants for the first time, you can copy the source elements (the target server gives them a new identifier (ID number)) to the target server; however, if you are installing source server elements to a target server that already contains some Rhythmyx elements, the names and identifiers of elements may not match. You may have the same elements on both servers, but they may have different identifiers and possibly, different names.

Examples:

Source Server Sample Element		Target Server Sample Element	User Action
Article content type, CONTENTTYPEID= 301	is the same as	Article content type, CONTENTTYPEID=303	Map CONTENTTYPEID 301 on the source server to CONTENTTYPEID 303 on the target server.
Published HTML Page variant, VARIANTID= 5	is the same as	Published HTML Page variant, VARIANTID= 5	Map VARIANTID 5 on the source server to VARIANTID 5 on that target server.
Quick Publish Workflow, WORKFLOWAPPID = 6	Does not exist on target server.		Add Quick Publish Workflow, WORKFLOWAPPID 6, to the target server Target server will add it and give it a new WORKFLOWAPPID.

For each element type, you must either manually map the source and target identifiers so the Multi-Server Manager knows which target element represents each source element or specify that it should be added as a new element. The Multi-Server Manager provides the *Element Maps tab of the Define Transforms dialog* (see "Define Transforms for <Server:Port> Element Maps Tab" on page 46) for you to add, edit, or delete Rhythmyx element mappings.

Mapping Source and Target DBMS Credential Names

Rhythmyx applications may reference DBMS servers and credentials other than the default DBMS server and credentials used by the source server. You must map the non-default server and credentials in the applications to the servers and credentials they should reference on the target server. The Multi-Server Manager provides the *DBMS Credential Maps tab of the Define Transforms dialog* (see "Define Transforms for <Server:Port> DBMS Credential Map Tab" on page 43) for you to add, edit, or delete DBMS credential mappings.

Identifying Types of Elements

Rhythmyx server objects (such as applications and exits) may contain hard-coded identifiers that reference Rhythmyx elements, such as variants and content types. For example, the rxs_AutoIndex_cas application identifies a variant as 337.
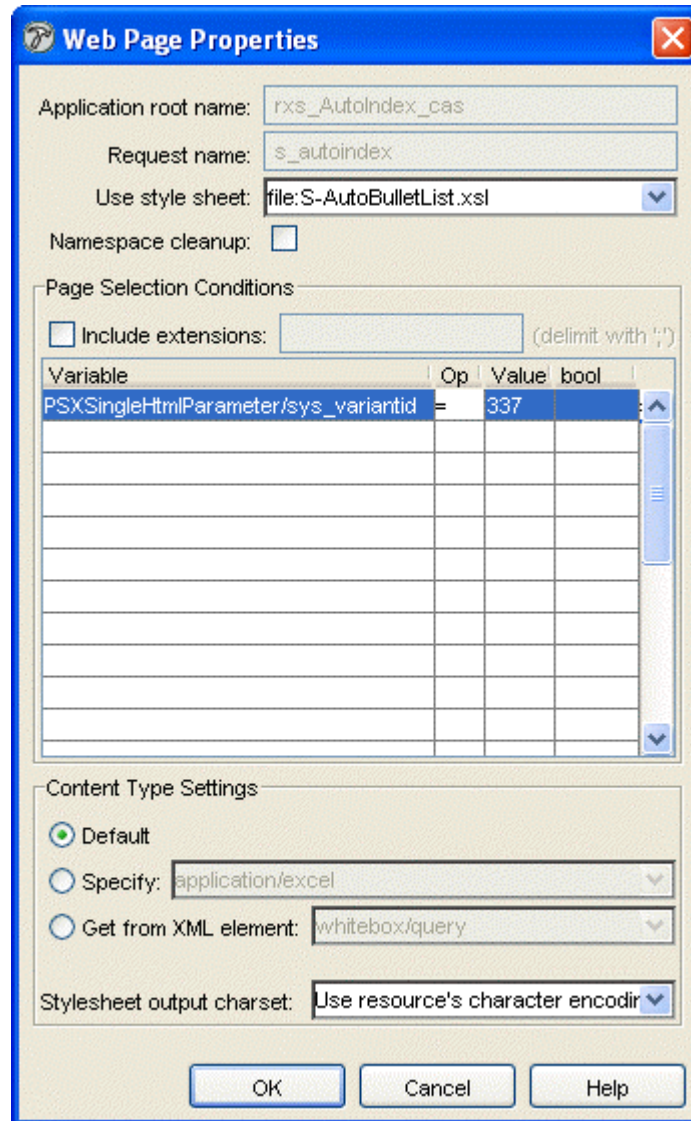
Figure 19: Web Page Properties Dialog

The Multi-Server Manager needs you to specify what type of Rhythmyx element the 337 represents for two reasons:

- To see if the 337 is mapped to a different value in your *source/target element mappings* (see "Mapping Source and Target Rhythmyx Elements" on page 35). The Multi-Server Manager does not know if 337 represents a CONTENTTYPEID, VARIANTID, WORKFLOWAPPID, or any other ID type. You must specify its ID type (in this case Variant Definition for VARIANTID) so that it can check the element mappings. If you have mapped VARIANTID 337 on the source server to VARIANTID 407 on the target server, the Multi-Server Manager locates the mapping and changes the value in the application before installation.

- To give you the option of including VARIANTID 337 as a dependency. This application must have access to VARIANTID 337 to run correctly. If you identify 337 as a VARIANTID, the Multi-Server Manager later gives you the option of including VARIANTID 337 in the Package.

The Multi-Server Manager provides the *Identify ID Types dialog* (see "Identify ID Types" on page 67) for you to identify ID types of hard-coded identifiers.

Identify ID Types Dialog

The Rhythmyx Multi-Server Manager provides the Identify ID Types dialog for specifying ID types of hard-coded identifiers in applications and other installable server objects. The Multi-Server Manager locates and displays all hard-coded identifiers in each installable server object of the selected CMS or Package, and prompts you to specify each identifier's ID type, such as *Variant Definition*, *Content Type Definition*, or *Not an id*.

The Identify ID Types dialog is accessible from the Multi-Server Manager Window and the Create Archive/Descriptor Wizard. If the objects that you are installing do not contain hard-coded identifiers, the Identify ID Types dialog does not appear in the Create Archive/Descriptor Wizard.
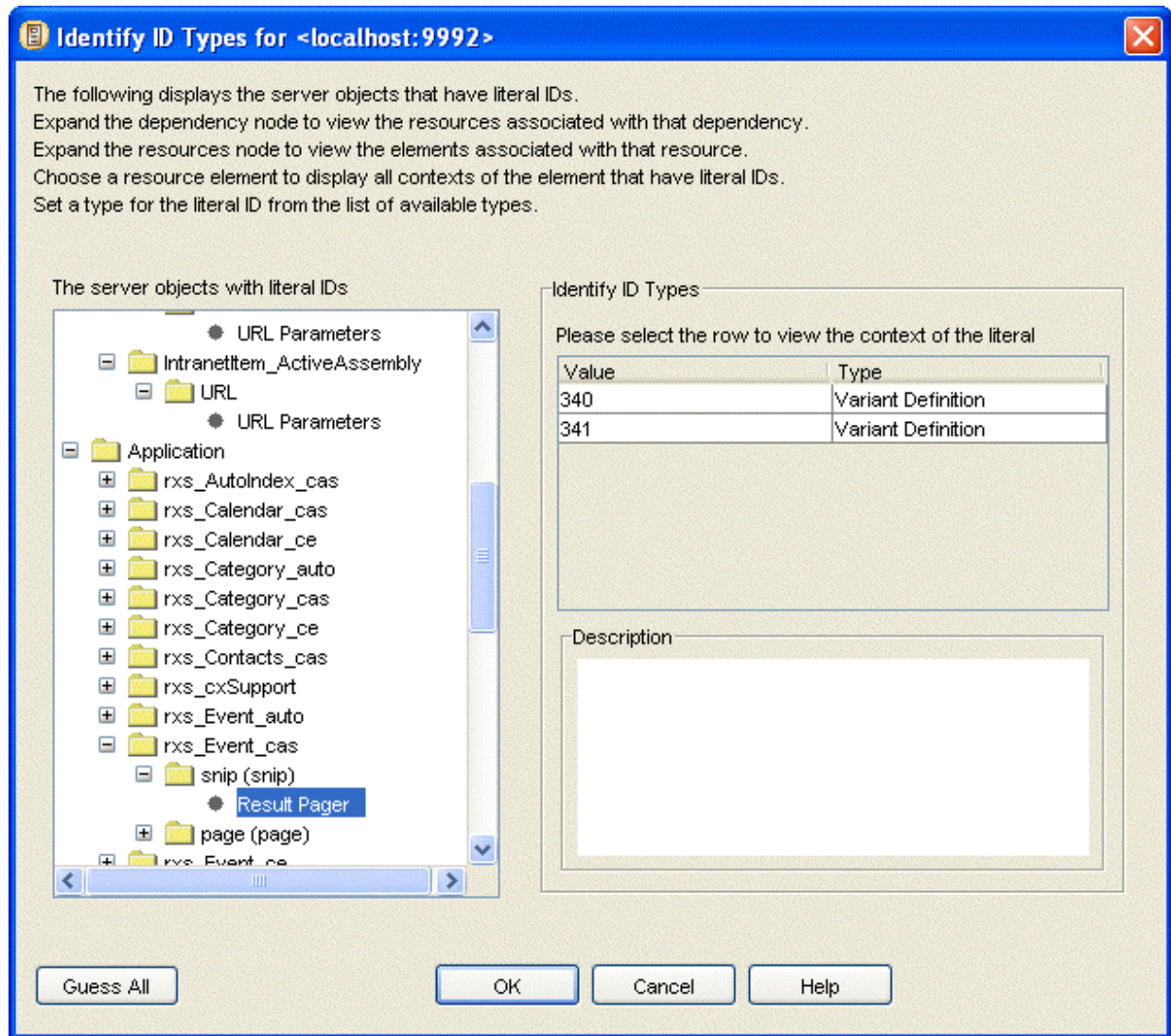
Figure 20: Identify ID Types Dialog

The Identify ID Types dialog displays a tree of all elements in installable server objects on the selected server or package that have literal (hard-coded) identifiers. Each server object expands to display its resources. Each resource expands to display elements that may contain literal identifiers. Click on an element to view its hard-coded identifiers in the **Value** column of the **Identify ID Types** table.

For example, in the graphic, the rxs_Event_cas application is a installable server object that expands to display the snip resource which expands to display the Result Pager element. The Result Pager node is selected and the **Identify ID Types** table displays its literal identifiers, 340 and 341, in the **Value** column. If you click on an ID in the **Value** column a description of the identifier's location in the element displays in the **Description** box as a hint of its ID type. See ***Reading Descriptions in the Identifying ID Types Dialog*** (see "Reading Descriptions in the Identify ID Types Dialog" on page 40) for help interpreting the information in this box. If you cannot interpret the information, you can open the element (In the example, in the Rhythmyx Workbench open the rxs_Event_cas application. Then open the XSL resource to see how it uses identifier 340). In the Multi-Server Manager, click in the **Type** row to access a drop list of all possible ID Types and select an ID Type.

Click the [**Guess All**] button to have the Multi-Server Manager guess as many of the ID Types as possible. Multi-Server Manager guesses ID Types based on exact or partial names of elements. In addition, if an element has the value of 0, Multi-Server Manager guesses *Not an ID*. Otherwise, Multi-Server Manager does not guess, and you must manually enter the ID Type.

Reading Descriptions in the Identify ID Types Dialog

The ***Identify ID Types dialog*** (see "Identify ID Types" on page 67) provides a **Description** box that describes the context of an ID **Value** (identifier) selected in the **Identify ID Types** table. The information in the box describes where the value appears to help you determine its ID Type. The following table shows some descriptions that you may see and explains how to interpret them.

Element in tree	Description in dialog	Interpretation
Mapper in assembler application resource	the param #0 "144" in the extension call "Java/global/percussion/contentassembler/ sys_casGeneratePubLocation" in the "Backend" part of the data mapping with Back-end "sys_casGeneratePubLocation(144, ,)" and XML "PSXXmlField/NewsPage/publocation"	You must identify the ID type of the first parameter passed to the UDF sys_casGeneratePubLocation. Either: open the resource's mapper in the application and double-click on the UDF to open its properties and find the first parameter's type. OR: In the Extensions Reference section of the online help, look up the UDF sys_casGeneratePubLocation and check the definition of the parameter. In this case, the ID Type is a Variant Definition.
Result pager in assembler application resource	the value side of the conditional "PSXParam/sys_variantid = 141 AND" in the result page "PromoLink.xsl"	You must identify the ID Type of the HTML parameter sys_variantid. The parameter name (sys_variantid) indicates that it is a Variant Definition.

Element in tree	Description in dialog	Interpretation
Field Mapper in content editor application resource	the param "maxlength" in the control "sys_EditBox" in the UISet in the display mapping with fieldRef "sys_title" in the display mapper with id "0" and fieldSetRef "main"	You must identify the ID Type of the value set equal to the maxlength parameter. "maxlength" indicates that you are specifying a length, not an ID, so the type is Not an id.

Specifying ID Types

To identify ID Types:

1   Either:

- ▪   Right-click the Server Repository Node and select *Identify ID Types*.

OR

- ▪   Select the Server Repository Node and select *Edit > Identify ID Types* in the **Menu Bar**.

The Multi-Server Manager displays the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67). The dialog displays a tree of all Rhythmyx elements in installable server objects that have literal (hard-coded) identifiers.

NOTE: You can access a similar mode of this dialog in the Create Archive/Descriptor Wizard.

2   Follow the steps in Using the Identify ID Types dialog.

3   Click [**OK**].

Rhythmyx stores all of the ID Types and will send them to the target server when you install the archive.

Using the Identify ID Types Dialog

To have Multi-Server Manager guess ID types of literal (hard-coded) identifiers in server objects:

1   In the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67), click [**Guess All**].

Multi-Server Manager guesses ID Types based on exact or partial names of elements. In addition, if an element has the value of 0, Multi-Server Manager guesses "Not an ID". Otherwise, Multi-Server Manager does not guess, and you must manually specify the ID Type.

To manually specify the ID types of literal (hard-coded) identifiers in server objects:

1   In the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67), expand the **Server Objects Tree**.

When fully expanded, the tree displays all Rhythmyx elements in the objects that have literal identifiers.

2   Select an element.

The Multi-Server Manager displays its literal identifiers in the **Value** column of the table under **Identify ID Types**. If you specified its ID Type previously, it displays the ID Type in the **Type** column.

3   Click an identifier in the **Value** column.

The Multi-Server Manager displays a description of its context within the selected element in the **Description** box.

4   Double-click in the **Type** column to access a drop list of all possible types and select a type. If the literal value does not represent an ID, select *Not an id*.

Repeat these procedures until you have specified the types for all of the identifiers in the server objects listed.

Define Transforms for <Server:Port>

The Rhythmyx Multi-Server Manager provides the Define Transforms dialog for creating maps of Rhythmyx elements and of non-default DBMS credential values specified in applications. This dialog is available from the Multi-Server Manager Window and the Install Archive Wizard. It has two tabs: the DBMS Credentials tab and the Element Maps tab.

The Multi-Server Manager saves the maps on the target server and uses them during installation.

Define Transforms for <server:port> DBMS Credential Maps Tab (see "Define Transforms for <Server:Port> DBMS Credential Map Tab" on page 43)

Define Transforms for <server:port> Element Maps Tab (on page 46)

Define Transforms for <Server:Port> DBMS Credential Map Tab

The Multi-Server Manager provides the DBMS Credential Maps tab of the Define Transforms dialog for you to add, edit, or delete mappings of non-default DBMS credentials specified in applications on the source server. This Multi-Server Manager only displays this dialog if you have at least two servers registered.

If you access the dialog from the Install Archive Wizard, the Wizard searches through the applications that you have selected for installation, and lists their references to non-default DBMS credentials. You can modify these listings. If you access the Define Transforms dialog through the Install Archive Wizard and are not installing applications that access non-default DBMS Credentials, the DBMS Credentials tab does not appear. The dialog in the Wizard also includes an Advanced option that lets you change source/target server mappings that the archive does not use; this allows you to make credentials available for mappings that the archive uses.

When you access this dialog from the **Server Groups Tree**, the Multi-Server Manager does not guess or search for non-default credential references in source applications as it does in the Install Archive Wizard. You must add all of them.
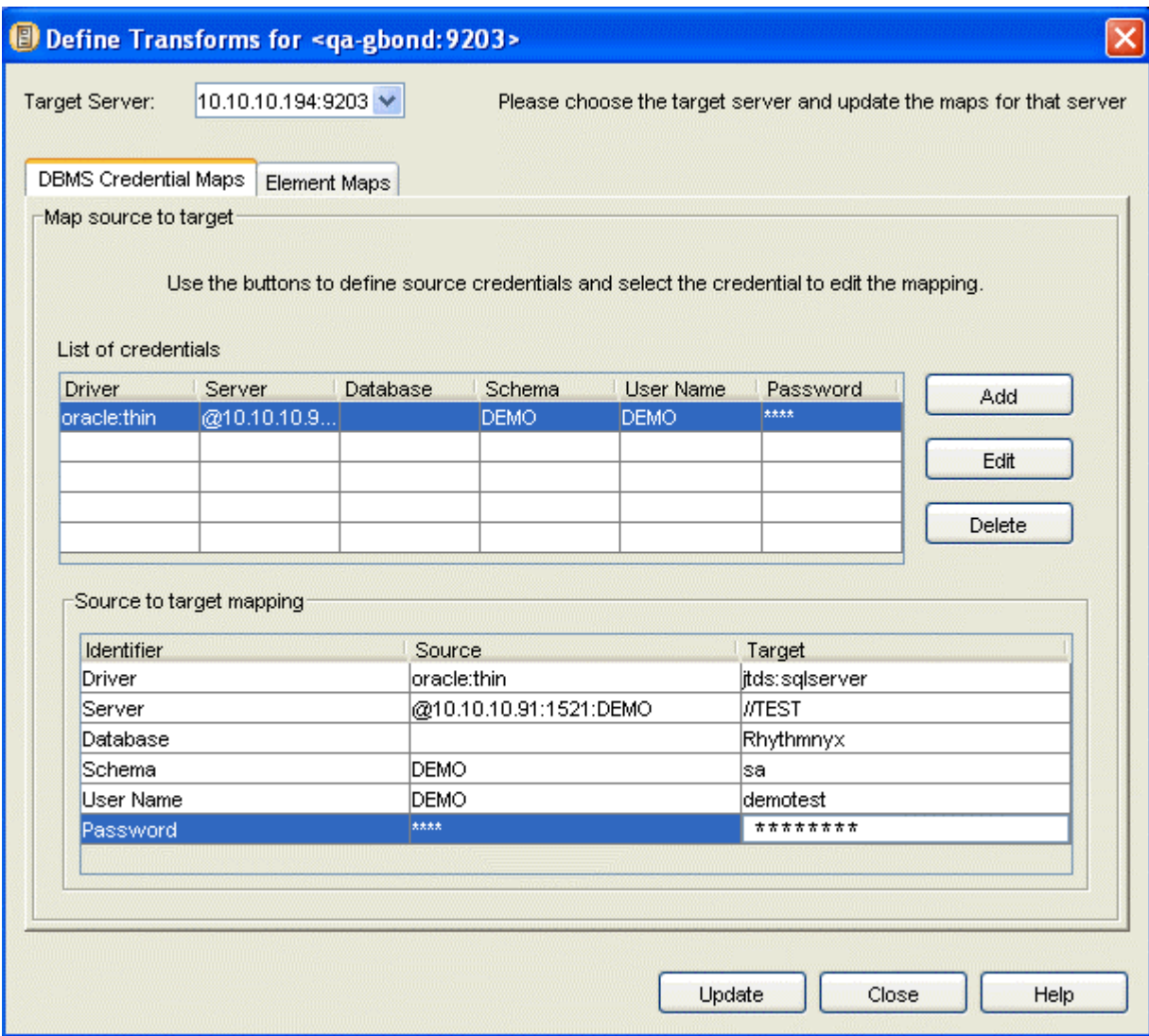
Figure 21: Define Transforms Dialog, DBMS Credential Maps Tab

In the DBMS Credentials Map tab, you add source server credentials to the **List of credentials** table, then map the source credentials to target credentials in the **Source to target mapping** table. Select a target server from the list of registered servers in the **Target Server** drop list at the top of the dialog.

Define Transforms dialog, DBMS Credential Maps tab fields

Under **List of credentials**

Driver (non-editable) - name of source server driver;

Server (non-editable) - name of source server;

Database (non-editable) - name of source server database;

Schema (non-editable) - name of source server database schema;

Username (non-editable) - username for logging in to source server;

Password (non-editable) - password for logging in to source server;

Under **Source to target mapping**

Identifier fields (non-editable) - type of credential;

Source fields (non-editable) - source value for credential;

Target fields - target value for credential.

Edit/Add DBMS Credential

In the ***DBMS Credential Maps tab of the Define Transforms dialog*** (see "Define Transforms for <Server:Port> DBMS Credential Map Tab" on page 43), when you click [**Add**] or click a row in the **List of credentials** and click [**Edit**], The Multi-Server Manager displays the Edit/Add DBMS Credential dialog. This dialog lets you insert or change source DBMS credentials.
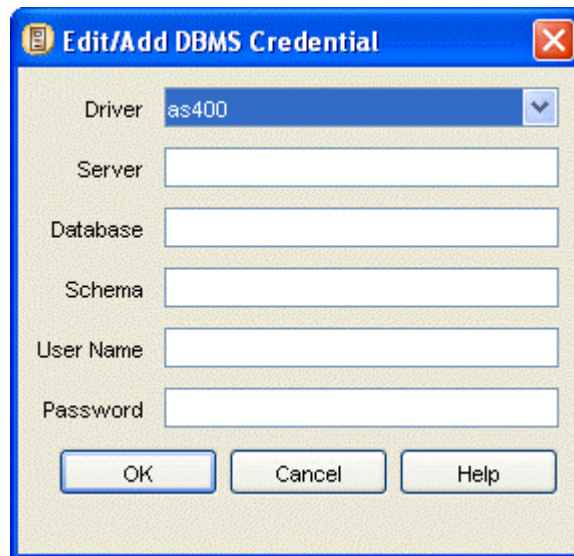
Figure 22: Edit/Add DBMS Credential Dialog

If you are editing, the selected credentials display in the fields for you to change. If you are adding, the fields appear blank for you to fill in.

Edit/Add DBMS Credential fields

Driver - source server driver. The drop list includes all drivers for back-end connections configured for your server;

Server - source server name;

Database - source server database name;

Schema - source server database schema;

User Name - your username for logging in to source server;

Password - your password for logging in to source server.

Define Transforms for <Server:Port> Element Maps Tab

The Multi-Server Manager provides the Element Maps tab of the Define Transforms dialog for you to add, edit, or delete Rhythmyx element mappings. The Element Maps tab lists elements that Rhythmyx knows by ID numbers, such as content types and slots. It lists the element names for your reference; you are actually mapping the identifiers.
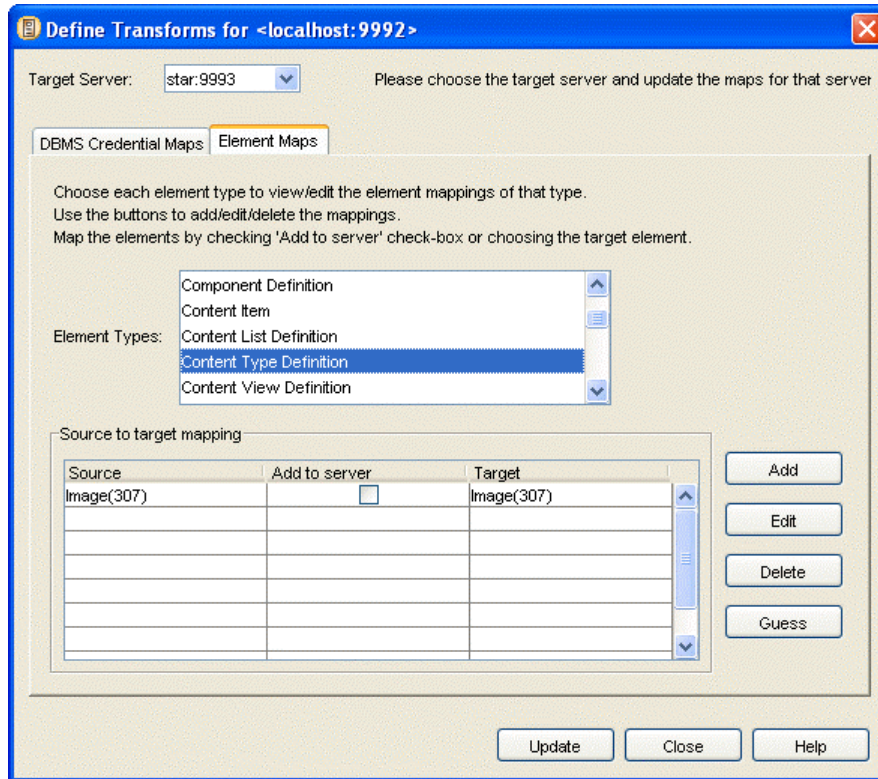
Figure 23: Define Transforms Dialog, Element Maps Tab

Select a target server from the list of registered servers in the **Target Server** drop list at the top of the dialog. Then select a type in the **Element Types** list, and add or edit its mappings in the **Source to target mapping** table.

Because you must map parent elements before mapping child elements, the Multi-Server Manager lists parent elements before child elements in the **Element Types** list. For example, Workflows are parent elements of States and are listed before them. To avoid getting error messages, map element types in the order they appear in the list.

If you access this dialog through the Install Archive Wizard, when you select an **Element Type**, the Multi-Server Manager lists all elements of that type in the selected element in the **Source: Name(id)** column. If you select an element in this column and click [**Guess**], the Multi-Server Manager either finds a match for it on the target server and lists the element in the **Target: Name(id)** column or does not find a match and checks the **Add to server** check box to indicate that the source element will be added to the target server. You can change the guesses if they are incorrect. When accessed through the Wizard, the dialog also includes a [**Guess All**] button that causes the Multi-Server Manager to guess mappings for all elements for all **Element Types.**

If you access the Define Transforms dialog through the Install Archive Wizard and no Rhythmyx elements require mapping, the Element Maps tab does not appear.

If you access this dialog through the Multi-Server Manager Window, when you select an **Element Type**, the Multi-Server Manager lists all elements of that type on the source server in the **Source** column. If you click [**Guess**] , the Multi-Server Manager finds matches or checks the **Add to server** check box for all of the listed elements. The dialog accessed through the Multi-Server Manager Window also provides [**Add**] and [**Edit**] buttons for accessing the Edit/Add Mapping dialog and the [**Delete**] button for deleting mappings.

The dialog in the Wizard also includes an Advanced option that lets you change source/target server mappings that the archive does not use; this allows you to make elements available for mappings that the archive uses.

Define Transforms dialog, Element Maps tab fields

Target Server - drop list of target servers;

Element Types (non-editable) - all source Rhythmyx elements that require mappings;

Source (non-editable) - source value of element;

Add to server - check to copy element from source to target; automatically checked if you select blank in the **Target** column;

Target - target value for element.

Edit/Add Mapping

In the *Element Maps tab of the Define Transforms dialog* (see "Define Transforms for <Server:Port> Element Maps Tab" on page 46), when you click [**Add**] or click a row in the Map source to target table and click [**Edit**], the Multi-Server Manager displays the Edit/Add Mapping dialog. This dialog lets you add and edit mappings.
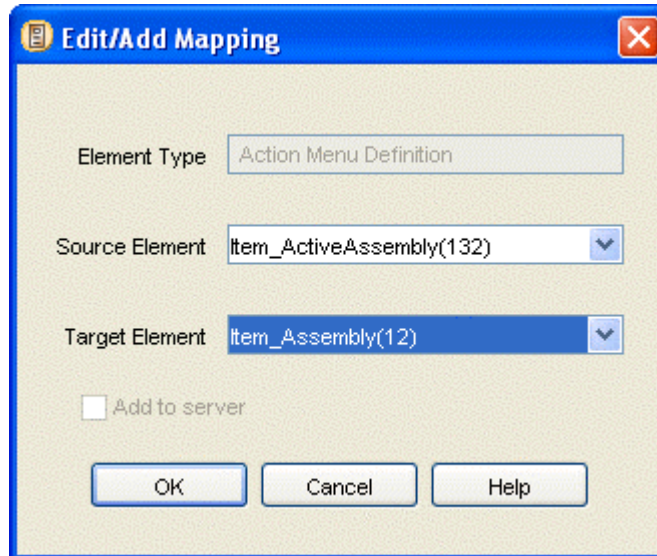
Figure 24: Edit/Add Mapping Dialog

Edit/Add Mapping fields

Element Type (non-editable) - element type selected in **Element Types** list;

Source Element - source element name and identifier;

Target Element - target element name and identifier;

Add to server - check to add new name and identifier to the target server.

If you are adding, all elements for the **Element Type** on the source and target server appear in the **Source Element** and **Target Element** drop lists. When you select a **Source Element**, if a **Target Element** with the same name exists, the dialog displays it in the **Target Element** field; otherwise it checks the **Add to server** check box.You can change the automatic selections.The **Target Element** drop list includes a blank field; if you choose this field, the Multi-Server Manager automatically checks the **Add to server** check box.

If you are editing, the selected source and target elements display in the fields, but you can only change the **Target Element**.

NOTE: States are listed with parent workflows. You must map the parent workflow before mapping the state or the Multi-Server Manager displays an Error dialog.
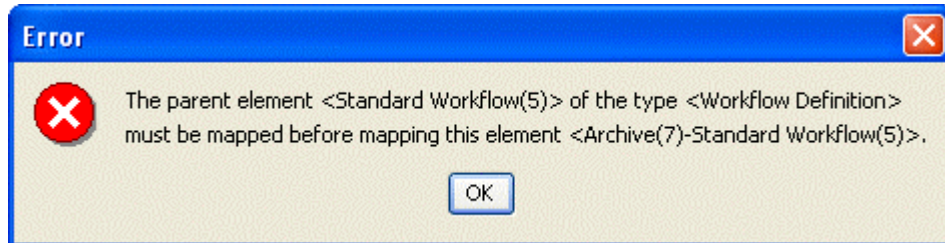
Figure 25: Error Dialog

Source to Target Transform Procedures

The Define Transforms dialogs let you map DBMS credentials and element names, and add, edit, and delete DBMS credentials and element name mappings.

Mapping DBMS Credentials

To map DBMS Credentials

1   In the **Server Groups Tree** of the Rhythmyx Multi-Server Manager

▪   right-click a server repository node and select *Define Transforms*

OR

▪   click a server repository node and select *Edit > Define Transforms* in the Menu Bar.

The Multi-Server Manager displays the ***DBMS Credential Maps tab of the Define Transforms dialog*** (see "Define Transforms for <Server:Port> DBMS Credential Map Tab" on page 43). The dialog does not include information in the **List of credentials** table the first time it opens.

NOTE: You can access a similar mode of this dialog through the Install Archive Wizard.

2   Select a target server in the **Target Server** drop list.

3   *Click [***Add***] to add credentials.* (see "Adding DBMS Credentials" on page 50)

4   Select the row that you added.

The Multi-Server Manager displays the source DBMS credentials and a drop list of possible target DBMS drivers in the **Source to target mapping** table.

5   Select a target driver and enter values for all of the other target credentials.

6   Repeat steps 3 and 4 until you have mapped all non-default credentials.

7   *To edit a row that you added to the* **List of credentials** *table, select the row and click [***Edit***].* (see "Editing a DBMS Credential" on page 51)

8   *To delete a row that you added to the* **List of credentials** *table, select the row and click [***Delete***] .* (see "Deleting a DBMS Credential" on page 51)

9   Click [**Update**].

The Multi-Server Manager saves your DBMS credential mappings and sends them to the target server during installation.

Adding DBMS Credentials

To add source DBMS Credentials:

1   Follow step 1 and step 2 of *Mapping DBMS Credentials* (on page 50).

2   Click [**Add**].

The Multi-Server Manager displays the Edit/Add DBMS Credential dialog.

3   Select a Driver and enter the other credential values.

4   Click [**OK**].

The Multi-Server Manager displays the new credentials in the **List of credentials** table.

Editing a DBMS Credential

To edit source DBMS Credentials:

1   Follow step 1 and step 2 of *Mapping DBMS Credentials* (on page 50).

2   Select a row of credentials in the **List of credentials** table and click [**Edit**].

The Multi-Server Manager displays the Edit/Add DBMS Credential dialog.

3   Change any of the credential values.

4   Click [**OK**].

The Multi-Server Manager displays the changed credentials in the **List of credentials** table.

Deleting a DBMS Credential

To delete source DBMS Credentials:

1   Follow step 1 and step 2 of *Mapping DBMS Credentials* (on page 50).

2   Select a row of credentials in the **List of credentials** table and click [**Delete**].

The Multi-Server Manager removes the row from the **List of credentials** table.

Mapping Elements

To map elements:

1   In the **Server Groups Tree** of the Rhythmyx Multi-Server Manager:

▪   right-click a server repository node and select *Define Transforms*

OR

▪   click a server repository node and select *Edit > Define Transforms* in the **Menu Bar**.

The Multi-Server Manager displays the DBMS Credential Maps tab of the *Define Transforms dialog* (see "Define Transforms for <Server:Port>" on page 43).

2   Click the Elements Maps tab.

The Multi-Server Manager displays the *Elements Maps tab* (see "Define Transforms for <Server:Port> Element Maps Tab" on page 46). NOTE: You can access a similar mode of this dialog through the Install Archive Wizard.

3   Click an **Element Type**.

NOTE: **Element Types** are listed in the order in which you should map them, so begin with the first **Element Type** in the list.

If you have already mapped elements of this type, the mappings display in the **Source to target mapping** table.

4   Click [**Guess**].

The Multi-Server Manager lists all elements of this type on the source server in the **Source** column. If it can find a target server element with a matching name, it lists it in the **Target** column. If it cannot find a matching target element, it checks the **Add to server** check box. You can edit the Multi-Server Manager's guesses.

5   *To add a mapping, click [***Add***].*   (see "Adding an Element Name Mapping" on page 52)

6   If a source element is mapped to a target element in the table, but you want to add it to the target server instead, check the **Add to server** check box.

The Multi-Server Manager automatically changes the **Target** field to blank.

7   *To edit a mapping, select its row in the table and click [***Edit***].* (see "Editing an Element Name Mapping" on page 53)

8   *To delete a mapping, select its row in the table and click [***Delete***].*

9   Complete steps 3 through 9 for the next **Element Type** in the list. Continue until you have mapped all **Element Types**.

10 Click [**Update**].

Adding an Element Name Mapping

To add an element name mapping:

1   Follow steps 1 through 3 of *Mapping Elements* (on page 51).

2   Click [**Add**].

The Multi-Server Manager displays the Edit/Add Mapping dialog. **Element Type** displays the element type selected in the Element Maps tab. **Source Element** and **Target Element** display drop lists of all elements of that type on each server.

3   Select a **Source Element**.

The Multi-Server Manager guesses the matching **Target Element** and displays it in the **Target Element** drop list or checks the **Add to server** check box.

4   Optionally, change the **Target Element** or select blank to add the source element to the target server.

If you select blank, the Multi-Server Manager automatically selects the **Add to server** check box.

5   Click [**OK**].

The Multi-Server Manager displays the new mapping in the **Source to target mapping** table.

Editing an Element Name Mapping

To edit an element name mapping:

1   Follow steps 1 through 3 of *Mapping Elements* (on page 51).

2   Select a row in the **Source to Target Mapping** table and click [**Edit**].

The Multi-Server Manager displays the Edit/Add Mapping dialog with the values from the selected mapping entered in the fields.

3   Select a new **Target Element** or select blank.

If you select blank, the Multi-Server Manager automatically checks the **Add to server** checkbox to add the **Source Element** to the target server.

4   Click [**OK**].

The Multi-Server Manager displays the edited mapping in the **Source to target mapping** table.

Deleting an Element Name Mapping

1   Follow steps 1 through 3 of *Mapping Elements* (on page 51).

2   Select a row in the **Source to target mapping** table and click [**Delete**].

The Multi-Server Manager removes the selected mapping from the **Source to target mapping** table.

C H A P T E R   6

Creating and Editing Archives and Generating Deployment Descriptors

An archive is a file on which a installation Package or set of installation packages are stored from a source server and installed on a target server. A descriptor is a file that lists the Packages to be included in the archive and their settings.

The Multi-Server Manager provides the Create Archive/Descriptor Wizard to guide you through the process of defining a descriptor and/or creating an archive. The Wizard always guides you through the process of creating a descriptor, but it gives you the option of saving the descriptor, creating an archive from it, or both. If you save the descriptor, you can modify it or reuse it to create an archive.
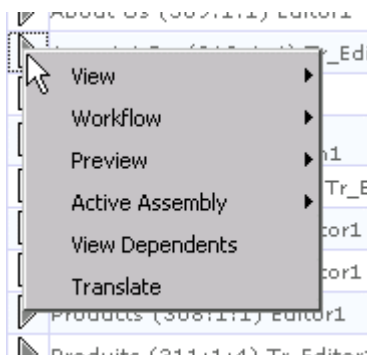

Figure 26: Action Menu

Warning: Do not allow users to modify design elements on your server while you are running this Wizard; the server's contents must remain static for the Wizard to function correctly.

Create Archive/Descriptor Wizard steps:

Step	Create Archive/Descriptor Wizard dialog
1. Choose a server and, optionally choose a descriptor.	*Choose a Server and/or Descriptor dialog* (see "Choose a Server and/or Descriptor" on page 57)
2. Choose whether or not to modify types already specified for Rhythmyx elements.	*Choose Create Mode dialog* (see "Choose Create Mode" on page 58)
3. Select Rhythmyx elements to install.	*Add Elements to the Archive dialog* (see "Add Elements to the Archive" on page 59)

Step	Create Archive/Descriptor Wizard dialog
4. Modify or add types specified for Rhythmyx elements	*Identify ID Types dialog* (see "Identify ID Types" on page 67)
5. Choose which dependencies of elements to install.	*Include Element Dependencies or Ancestors dialog* (see "Include Element Dependencies or Ancestors" on page 69)
6. Create an archive and/or a descriptor.	*Create Archive or Descriptor dialog* (see "Create Archive or Descriptor" on page 77)

Open the Create Archive/Descriptor Wizard in one of the following ways:

- In the **Menu Bar** of the Multi-server Manager Window, choose *Action > Create Archive*. Use this method to create a new descriptor or archive.
- In the **Descriptors View**, right-click a row for a descriptor and select *Create Archive*. The Wizard skips the first dialog. Use this method to use an existing descriptor but get the most recent versions of the elements that you plan to install from the source server.
- In Archives View, right-click on the row of a descriptor or archive and choose, Create Archive. The Wizard skips the first dialog. Use this method to repackage elements previously installed from the selected archive without having to redefine the archive contents.

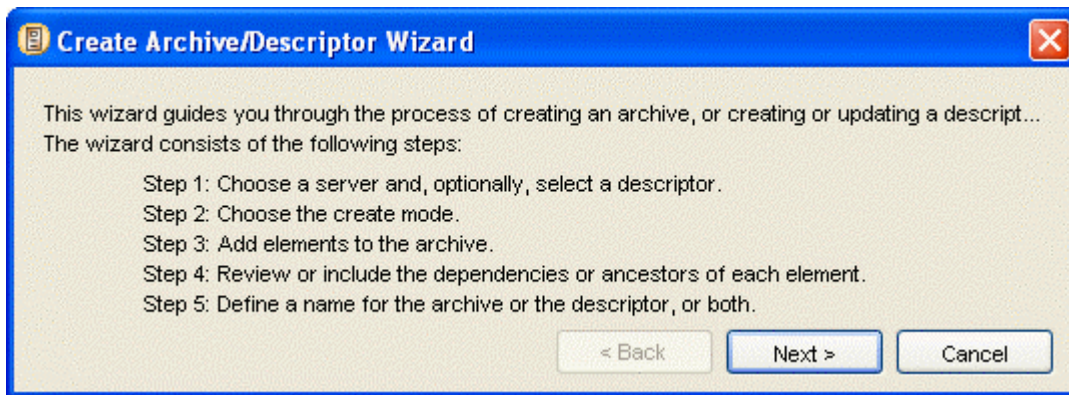The first screen of the Wizard describes the functions of each dialog:

Figure 27: Create Archive/Descriptor Wizard, first screen

Click [**Next**] to proceed to the *Choose a Server and/or Descriptor dialog* (see "Choose a Server and/or Descriptor" on page 57).

Choose a Server and/or Descriptor

The Choose a Server and/or Descriptor dialog of the Create Archive/Descriptor Wizard prompts you to specify your source server and optionally, an existing descriptor name. If you enter the Wizard through Descriptors View, the Multi-Server manager uses the selected descriptor's name and server and skips this dialog.

Figure 28: Create Archive/Descriptor Wizard, Choose a Server and/or Descriptor Dialog

To complete the Choose a Server and/or Descriptor dialog:

1 Select a server in the **Server** drop list. Unconnected servers appear disabled (gray). If you select an unconnected server, a message instructs you to connect the server when you click [**Next**].

2 If you want to use an existing descriptor, check the **Use Existing Descriptor** check box.

The **Descriptor** drop list becomes enabled and displays existing descriptors on the server selected in **Server**.

In the **Descriptor** drop list, select a descriptor name.

3 Click [**Next>>**] to proceed to the ***Choose Create Mode dialog*** (see "Choose Create Mode" on page 58).

Choose Create Mode

The Choose Create Mode dialog prompts you to specify whether you want to proceed through the Create/Archive Wizard in *Typical* or *Custom* mode. *Typical* mode only takes you to the Identify ID Types dialog if hard-coded identifiers in server objects that you are installing are unidentified. *Custom* mode takes you to the Identify ID Types dialog to review and modify your ID types whenever you are installing server objects with hard-coded identifiers
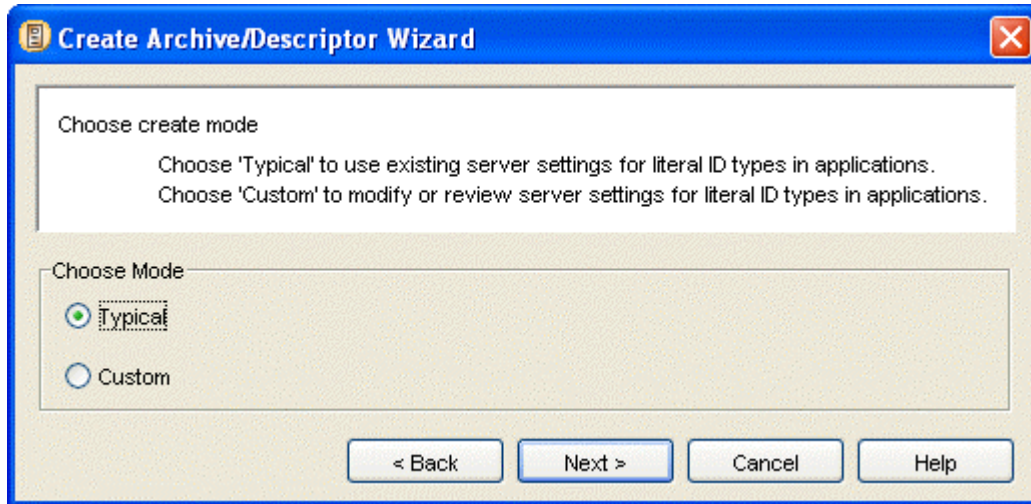

Figure 29: Create Archive/Descriptor Wizard, Choose Create Mode

To complete the Choose Create Mode dialog:

1 Choose *Typical* to proceed in the typical mode.

OR

Choose *Custom* to proceed in the custom mode.

2 Click [**Next>>**] to proceed to the ***Add Elements to the Archive dialog*** (see "Add Elements to the Archive" on page 59) of the Wizard.

Add Elements to the Archive

The Add Elements to the Archive dialog lets you select the Rhythmyx elements to include in your descriptor. If you specified an existing descriptor in the *Choose a Server and/or Descriptor dialog* (see "Choose a Server and/or Descriptor" on page 57), the Add Elements to the Archive dialog lists its content in the **Elements to Package** list and lets you edit the list. If you did not specify a descriptor in the Choose a Server and/or Descriptor dialog, the Add Elements to the Archive dialog helps you create a descriptor.

NOTE: If you specified an existing descriptor that has elements that are no longer present on the server, the Wizard does not list the elements in the **Elements to Package** list and displays a notification. It also notifies you if dependencies of the elements that you are installing are no longer present on the server.
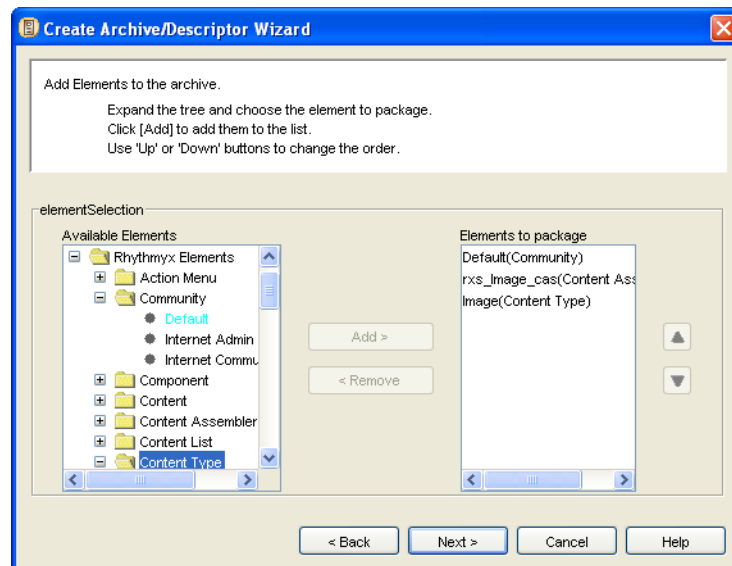

Figure 30: Create Archive/Descriptor Wizard, Add Elements to the Archive Dialog

The **Available Elements** tree lists all *Rhythmyx Elements* and *Custom Elements* on the server. When expanded, *Rhythmyx Elements* displays all the Package Types present on the server. When you expand each Package Type, it displays the names of all of the Rhythmyx elements of that Type (for example, if the Content Types on your system were Article, Image, and Web Page, it would display *Article*, *Image* and *Web Page* under the Package Type Content Type). You can include any of these Rhythmyx elements in your descriptor. See Package Types for a description of the required elements included with each of these (for example, when you select a Content Editor, the Multi-Server Manager includes the content editor application and the content type registration).

When expanded, *Custom Elements* displays *Applications*, *Extensions*, *Shared Groups*, *System Definitions*, *System Definition Overrides*, *Table Schemas*, *Table Data*, and *User Dependencies*. When you expand any of these element nodes except *User Dependencies*, the tree displays all names of existing installable elements of these types on the server. You can package these elements individually from the *Custom Elements* list.

The *User Dependencies* node allows you to create a package for including installable elements that are not listed in the **Available Elements** tree. Use it to include any files on the server. When you expand the *User Dependencies* node, it displays another node that you can click to add a User Dependencies element in the **Elements to Package** list. You cannot add the specific user dependencies in this dialog, use the Include Element Dependencies or Ancestors dialog to add them.

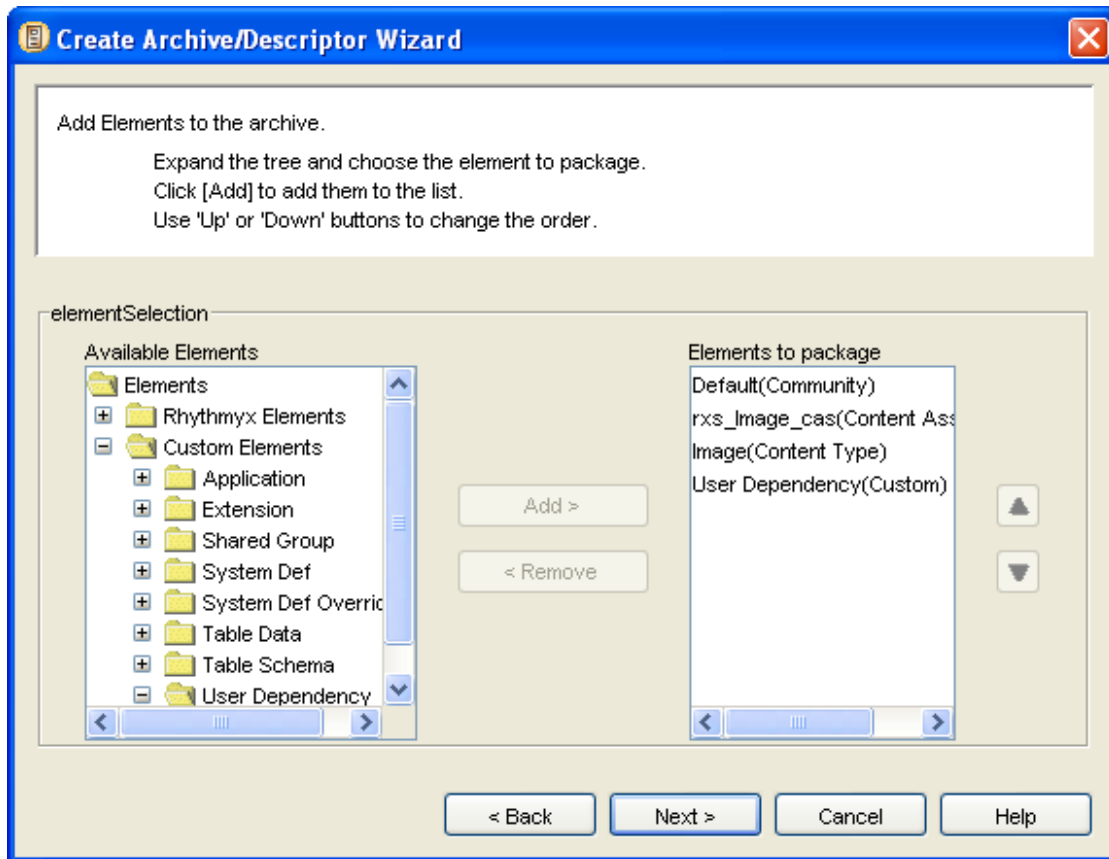You may select elements in the **Available Elements** tree individually or multi-select them.

Figure 31: Adding a User Dependency

NOTE: Only add Custom Elements if you are an experienced user.

IMPORTANT: The order in which you list elements (Packages) under **Elements to Package** is the order in which the Multi-Server Manager will install them on the target server. If an element and one of its dependencies are in separate Packages, always install the dependency's Package before the Package of the element that requires it.   For example, if a content type is associated with a workflow, install the workflow Package before the content type Package, so that when you install the content type, it can locate the workflow.

The recommended order for listing Package Types in a Package is:

1. Custom Elements

2. Workflows

3. Content Types

4. Slots

5. Content Assemblers

6. Content Lists

7. Sites

8. Components

9. Community Definitions

10. Content Views

11. Action Menus

12. Relationship Definitions

13. Display Formats

14. Locales

15. Folders

16. Content

17. Keywords (as stand alone Packages)

18. Contexts (as stand alone Packages)

NOTE: When you package an Entire Community, the Multi-Server Manager does not order the packages in the recommended order.

To complete the Add Elements to the Archive dialog:

1 Expand the *Rhythmyx Elements* tree and *Custom Elements* tree.

2 For each element that you want to include in your Package, click the element name and click [**Add>**].

   If the element is listed under *Communities*, the Wizard prompts you to choose *Community Definition* or *Entire Community*. If you select multiple Communities, your choice applies to all Communities selected. See the table entries for Community Definition and Entire Community in Package Types for descriptions of these choices.

   The Wizard moves the element name to the **Elements to Package** list.

3 If you want to add one or more user-defined dependencies, click *User Dependency* in the *Custom Elements* tree. It expands to display a *User Dependency* sub-node. Click the sub-node and click [**Add**]. User Dependency appears in the **Elements to Package** list. You can add the user defined dependencies in the Include Element Dependencies or Ancestors dialog.

4 If you want to change the order in which you will install an element, select it in the **Elements to Package** list and click [**Up**] or [**Down**].

5 If you want to remove an element from the **Elements to Package** list, click it, and select [**<Remove**].

6 Click [**Next>>**] to proceed.

If you selected *Custom* in the ***Choose Create Mode dialog*** (see "Choose Create Mode" on page 58) or some of your literal identifier types are unspecified, the Identify ID Types dialog is next; otherwise, the Include Element Dependencies or Ancestors dialog is next.

Add Elements to the Archive

The Add Elements to the Archive dialog lets you select the Rhythmyx elements to include in your descriptor. If you specified an existing descriptor in the ***Choose a Server and/or Descriptor dialog*** (see "Choose a Server and/or Descriptor" on page 57), the Add Elements to the Archive dialog lists its content in the **Elements to Package** list and lets you edit the list. If you did not specify a descriptor in the Choose a Server and/or Descriptor dialog, the Add Elements to the Archive dialog helps you create a descriptor.

NOTE: If you specified an existing descriptor that has elements that are no longer present on the server, the Wizard does not list the elements in the **Elements to Package** list and displays a notification. It also notifies you if dependencies of the elements that you are installing are no longer present on the server.
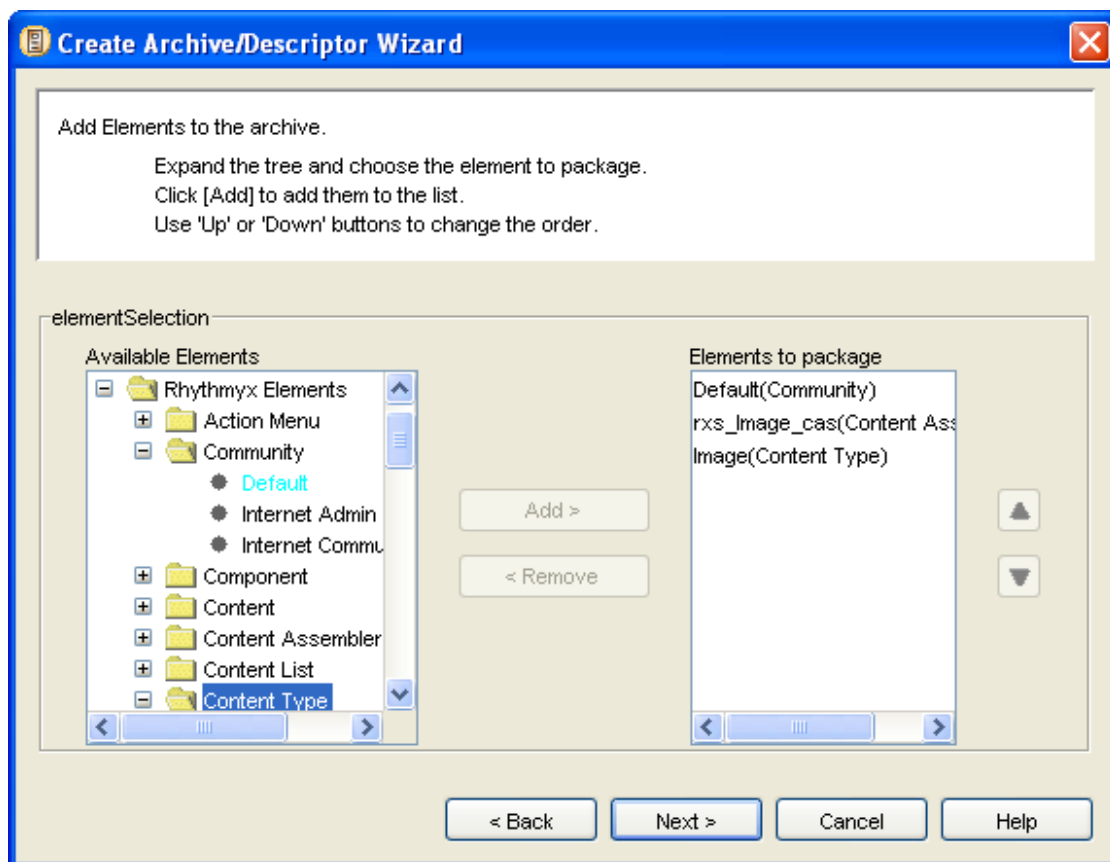

Figure 32: Create Archive/Descriptor Wizard, Add Elements to the Archive Dialog

The **Available Elements** tree lists all *Rhythmyx Elements* and *Custom Elements* on the server. When expanded, *Rhythmyx Elements* displays all the Package Types present on the server. When you expand each Package Type, it displays the names of all of the Rhythmyx elements of that Type (for example, if the Content Types on your system were Article, Image, and Web Page, it would display *Article*, *Image* and *Web Page* under the Package Type Content Type). You can include any of these Rhythmyx elements in your descriptor. See Package Types for a description of the required elements included with each of these (for example, when you select a Content Editor, the Multi-Server Manager includes the content editor application and the content type registration).

When expanded, *Custom Elements* displays *Applications*, *Extensions*, *Shared Groups*, *System Definitions*, *System Definition Overrides*, *Table Schemas*, *Table Data*, and *User Dependencies*. When you expand any of these element nodes except *User Dependencies*, the tree displays all names of existing installable elements of these types on the server. You can package these elements individually from the *Custom Elements* list.

The *User Dependencies* node allows you to create a package for including installable elements that are not listed in the **Available Elements** tree. Use it to include any files on the server. When you expand the *User Dependencies* node, it displays another node that you can click to add a User Dependencies element in the **Elements to Package** list. You cannot add the specific user dependencies in this dialog, use the Include Element Dependencies or Ancestors dialog to add them.

You may select elements in the **Available Elements** tree individually or multi-select them.
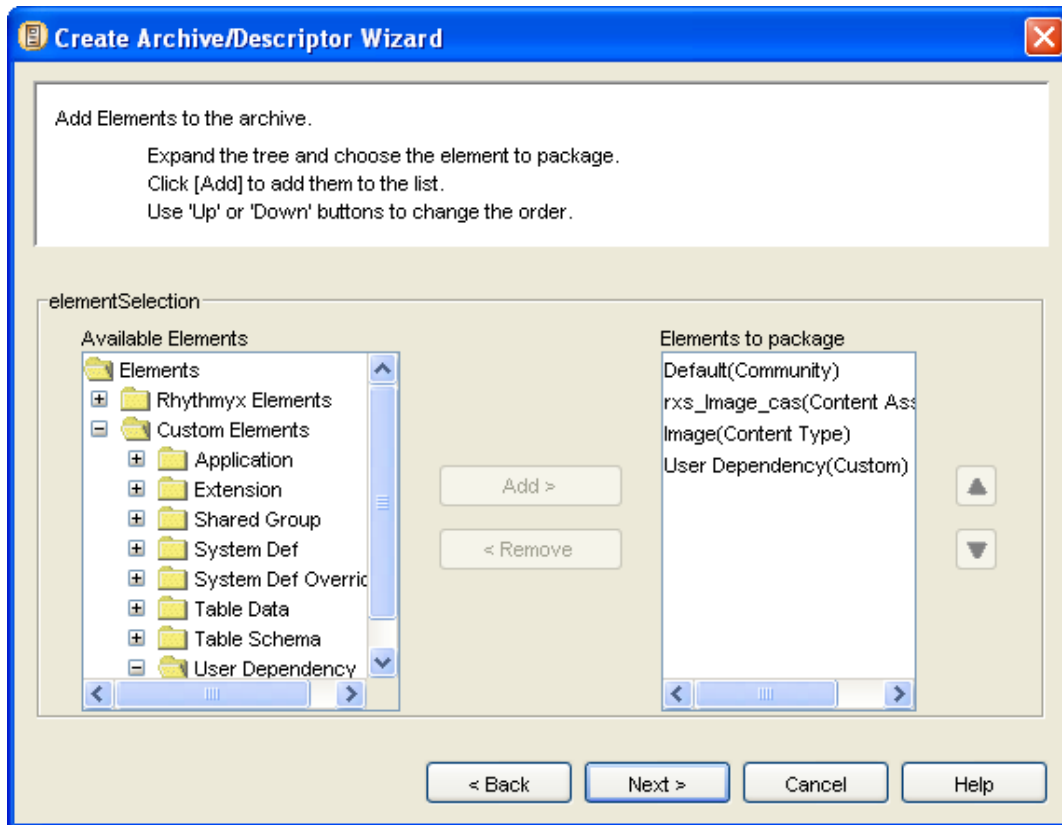

Figure 33: Adding a User Dependency

NOTE: Only add Custom Elements if you are an experienced user.

IMPORTANT: The order in which you list elements (Packages) under **Elements to Package** is the order in which the Multi-Server Manager will install them on the target server. If an element and one of its dependencies are in separate Packages, always install the dependency's Package before the Package of the element that requires it. For example, if a content type is associated with a workflow, install the workflow Package before the content type Package, so that when you install the content type, it can locate the workflow.

The recommended order for listing Package Types in a Package is:

1. Custom Elements

2. Workflows

3. Content Types

4. Slots

5. Content Assemblers

6. Content Lists

7. Sites

8. Components

9. Community Definitions

10. Content Views

11. Action Menus

12. Relationship Definitions

13. Display Formats

14. Locales

15. Folders

16. Content

17. Keywords (as stand alone Packages)

18. Contexts (as stand alone Packages)

NOTE: When you package an Entire Community, the Multi-Server Manager does not order the packages in the recommended order.

To complete the Add Elements to the Archive dialog:

1   Expand the *Rhythmyx Elements* tree and *Custom Elements* tree.

2   For each element that you want to include in your Package, click the element name and click [**Add>**].

If the element is listed under *Communities*, the Wizard prompts you to choose *Community Definition* or *Entire Community*. If you select multiple Communities, your choice applies to all Communities selected. See the table entries for Community Definition and Entire Community in Package Types for descriptions of these choices.

The Wizard moves the element name to the **Elements to Package** list.

3   If you want to add one or more user-defined dependencies, click *User Dependency* in the *Custom Elements* tree. It expands to display a *User Dependency* sub-node. Click the sub-node and click [**Add**]. User Dependency appears in the **Elements to Package** list. You can add the user defined dependencies in the Include Element Dependencies or Ancestors dialog.

4 If you want to change the order in which you will install an element, select it in the **Elements to Package** list and click [**Up**] or [**Down**].

5 If you want to remove an element from the **Elements to Package** list, click it, and select [**<Remove**].

6 Click [**Next>>**] to proceed.

If you selected *Custom* in the ***Choose Create Mode dialog*** (see "Choose Create Mode" on page 58) or some of your literal identifier types are unspecified, the Identify ID Types dialog is next; otherwise, the Include Element Dependencies or Ancestors dialog is next.

Identify ID Types

The Identify ID Types dialog in the Create Archive/Descriptor Wizard functions identically to the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67) that you access from the Server Groups Tree, except it displays the server objects with identifiers from the descriptor.

- ▪ If you selected *Typical* in the Choose Create Mode dialog, this dialog initially displays only Packages without ID Types specified, so that you can add them. Packages without ID Types specified have a red exclamation point ❗ beside them. As you specify the ID types, the exclamation points disappear, but the Packages remain in the list.

- ▪ If you selected *Custom* in the Choose Create Mode dialog, this dialog displays both Packages without ID Types specified and Packages with ID Types specified so that you can both add and change ID Types. The Packages without ID Types specified have red exclamation points ❗ beside them until you specify the ID Types.

When you select a **Package**, the **Server objects with literal ids** tree displays its objects.
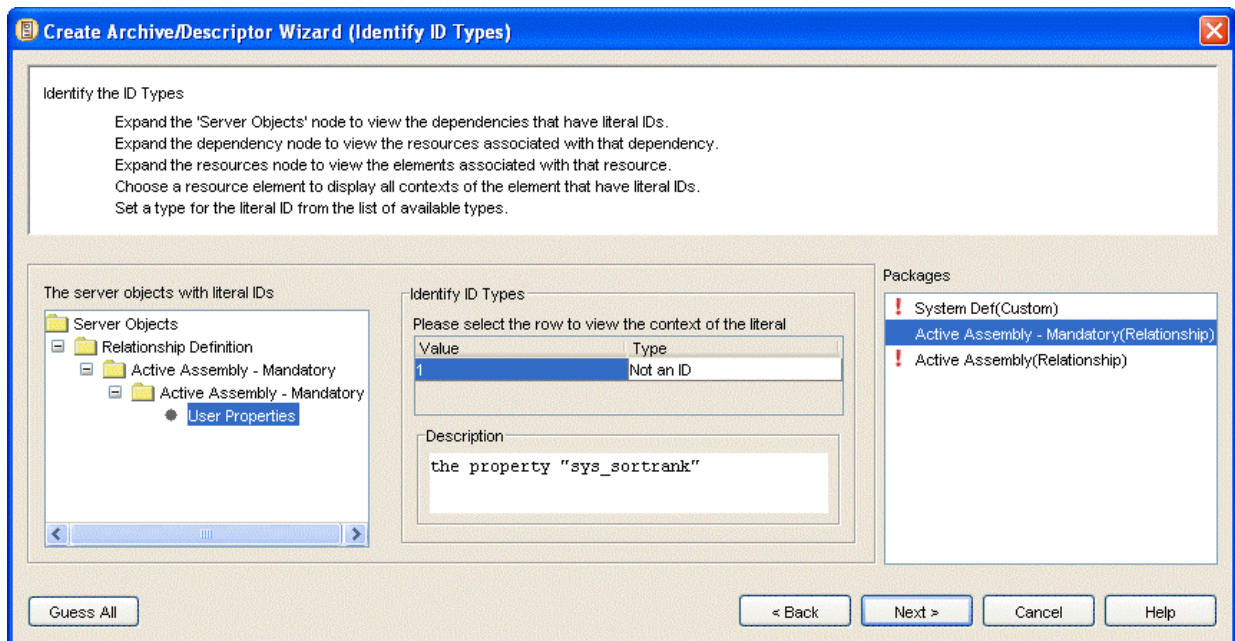
Figure 34: Create Archive/Descriptor Wizard, Identify ID Types Dialog

To understand the function of ID Type specification, see ***Identifying Types of Elements*** (on page 37).

To have Multi-Server Manager guess ID types:

1   In the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67), click [**Guess All**].

Multi-Server Manager guesses ID Types based on exact or partial names of elements. If an element has the value of 0, Multi-Server Manager guesses *Not an ID*. Otherwise, Multi-Server Manager does not guess, and you must manually specify the ID Type.

To manually specify ID types:

1 Click an element under **Packages**.

Server Objects with literal (hard-coded) identifiers for the element display in the **Server objects with literal ids** tree.

2 Follow the steps in Using the Identify ID Types dialog.

3 Repeat steps 1 and 2 for all elements under **Packages**.

4 Click [**Next**] to proceed to the *Include Element Dependencies or Ancestors dialog* (see "Include Element Dependencies or Ancestors" on page 69).

Include Element Dependencies or Ancestors

The Include Dependencies or Ancestors dialog lets you specify the dependencies or ancestors that you want to include in your descriptor with the Rhythmyx elements that you have chosen, and lets you specify user defined dependencies. If you are performing a *Custom* archive creation, you can also edit the ID Types in server objects associated with dependencies.
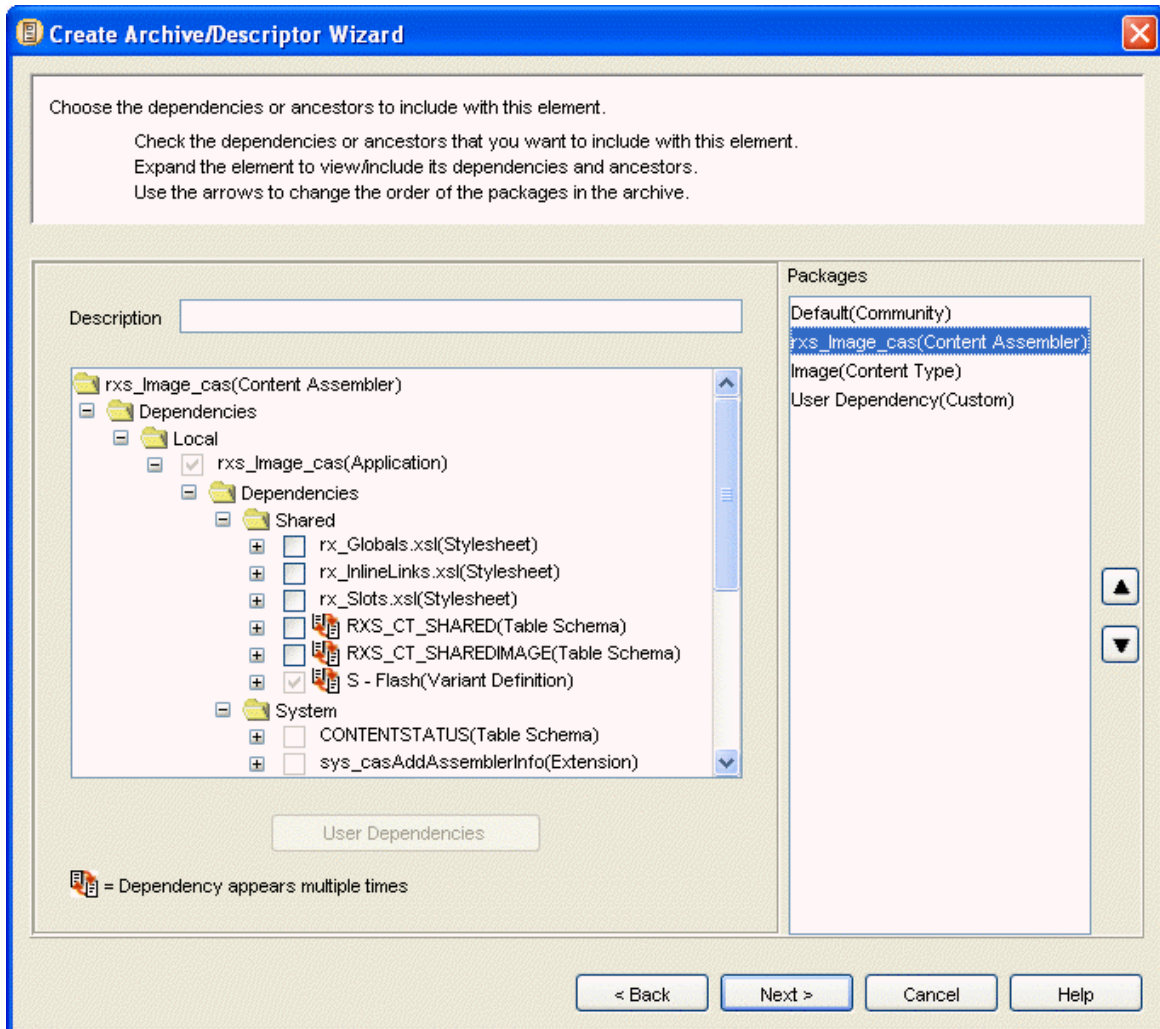
Figure 35: Include Element Dependencies or Ancestors Dialog

The Include Dependencies or Ancestors dialog displays each element that you have included in the descriptor under **Packages**. When you select an element under **Packages**, the dialog displays a tree of the dependencies for the element. A main node is included for each of the Dependency types (local, shared, server, system, user defined) present in the element list. Expand these nodes to see the dependency elements and their dependencies and ancestors. Each dependency may have any of the other dependency types, which are listed below it. Check boxes next to dependency and ancestor names indicate your options for including them in Packages:

- a checked, disabled check box indicates that you are including a dependency by default.
- an unchecked, disabled check box indicates that you cannot include a dependency, but it is required on the target server
- a checked or unchecked, enabled check box indicates that you may choose whether or not to include a dependency. If you do not include it, it should be present on the target server.

Each dependency type and ancestors are treated differently in the tree:

Dependency Type	Description	Appearance in Dependency Tree	Example
Local	Dependencies that make up the Package for an element and must be installed with it.	Checked, disabled check boxes.	For a Content Type Package, the content type registration, and the content editor application are local dependencies .
Shared	Installable dependencies that are installed with Rhythmyx, must be present for an element to function properly, but are not a required part of its Package. They are "shared" because they may be dependencies of other Packages.	Unchecked, enabled check boxes (allow you to optionally include them in package).	A workflow is a shared dependency of a content editor application that uses it not because it is a part of the content editor's Package, but because the content editor requires it for proper functioning.
System	Elements that are installed with Rhythmyx and must be present on the target server for a Package to function correctly, but cannot be installed by the Multi-Server Manager. System dependencies usually begin with the prefix sys_.	Unchecked, disabled check boxes.	The sys_relatedContentTable control is a system dependency of the Article content editor application. It is a non-installable element installed with Rhythmyx that the application requires to function.

Dependency Type	Description	Appearance in Dependency Tree	Example
Server	Elements that are not installed with Rhythmyx but must be present on the target server for a Package to function correctly. They cannot be installed by the Multi-Server Manager.	Unchecked, disabled check boxes.	A handler that you added to your Rhythmyx system and is required to process a Rhythmyx extension and a role are server dependencies.
User Defined	Files used by elements in a Package that the Multi-Server Manager does not discover, but the user specifies.	You can add User Defined dependencies to a Package or as an independent Package under User Dependencies. A User Dependencies is only available if you added a custom User Dependency element in the Select Packages to Install dialog.	The Rxw2ktidy.properties is a user dependency for the sys_xdTextCleanUp exit if the Multi-Server Manager does not identify it as a shared dependency. If you include table data, the Multi-Server Manager installs all rows from the source table: ▪ If the table does not have a primary key, the Multi-Server Manager inserts all source table rows into the target table. ▪ If the table has a primary key, the Multi-Server Manager updates target table rows with matching source table rows, and inserts non-matching source table rows into the target table.

Dependency Type	Description	Appearance in Dependency Tree	Example
Ancestors	Elements outside a dependency's Package that use the dependency. The Multi-Server Manager cannot locate as ancestors server objects which have undefined ID Types. To locate all possible ancestors, you must specify ID Types for all elements on the server with literal identifiers	Enabled check boxes (allow you to optionally include them in package).	In a dependency tree for the Article content editor application, the sys_xdTextCleanUp exit appears as a dependency. The Brief content editor application is an ancestor of the sys_xdTextCleanUp exit because it also depends on it.

The Multi-Server Manager cross checks for dependencies within and between an archive's packages. In the Include Dependencies or Ancestors dialog, dependencies that appear multiple times are preceded by the icon .

Checking or unblocking its check box in one location affects it in all locations. For example, in the following graphic, the Admin Role appears as a checked shared dependency under both the rxs_Image_ce and the rxs_Support_ce application nodes. If you uncheck the Admin Role node below rxs_Image_ce, the node below rxs_Support_ce automatically becomes unchecked. (This is also true across packages; a dependency checked in one package is automatically checked in other packages.) During installation, the Multi-Server Manager verifies if it has already installed a dependency,and does not install the dependency each time it finds it.
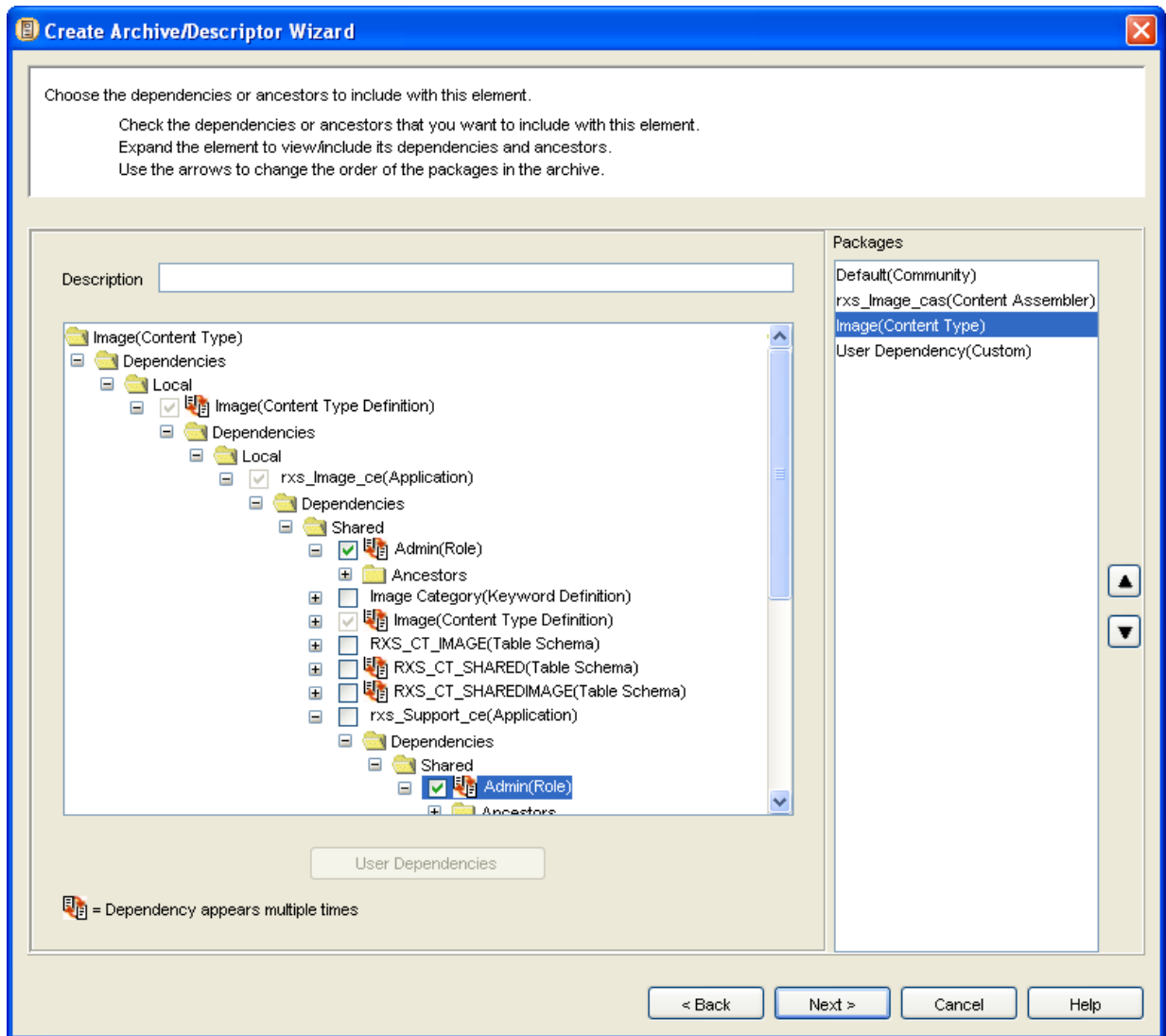
Figure 36: The Admin Role dependency is checked each time it appears.

To complete the Include Element Dependencies or Ancestors dialog:

1   Click an element under **Packages**.

2   In **Description**, optionally enter a comment about the package that will display under the **Description** heading in **Packages View** after the package is installed.

3   Fully expand the Dependency tree.
NOTE: Expanding ancestors may be slow due to the length of the search required.

4   Check the check boxes of any Shared Dependencies or Ancestors that you want to include in your descriptor.

5   If you check a shared Dependency that can stand alone as a Package Type, such as a workflow, a confirmation dialog pops up.
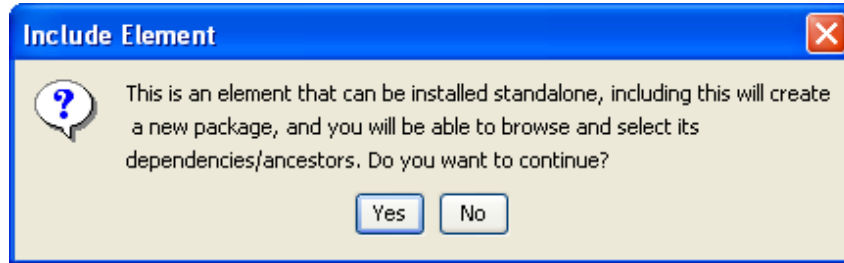
If you confirm adding the Dependency, **Packages** displays the new element name. When you click the new element under **Packages**, it displays a dependency tree for the element, and you can check optional dependencies. Dependencies do not appear under the element name in the original view. NOTE: The Multi-Server Manager orders the new dependency package before the "parent" package so that the parent can access the dependency after it installs. Do not move the new package after the "parent" package.

If you uncheck a shared Dependency that is a Package Type, the Wizard prompts you to confirm its removal, and removes it from the **Packages** list.

6   If you expand or check a Dependency that does not have ID Types defined, the Wizard displays an *Identify ID Type dialog* (see "Identify ID Types" on page 67). Specify the ID Types for the Dependency.

7   If you are in *Custom* archive creation mode and if user-defined Dependencies are supported by any of the dependencies in the tree, when you select the dependency, the [**User Dependencies**] button becomes enabled. If you want to add user-defined Dependencies, click [**User Dependencies**]. The Wizard displays a file browser that lets you select files from the server root. After you select a file, the Wizard includes the user-defined dependency below the selected element wherever it appears in the Dependency tree.

8   If you are in *Custom* archive creation mode, the [**Edit ID Types**] button is available. To edit or review ID Types, click the [**Edit ID Types**] button. The Wizard displays the *Identify ID Types dialog* (see "Identify ID Types" on page 67) for all server objects with literal identifier references in the Dependency tree. Edit the ID Types.

9   Repeat steps 2 through 8 for all of the elements listed under **Packages**.

10 If you added a User Dependencies custom element in the *Add Elements to the Archive dialog* (see "Add Elements to the Archive" on page 59), **Packages** lists User Dependencies. To add an independently installable user defined dependency (one that is not included in another Package), click User Dependencies under **Packages**.

Select the *User Dependency (Custom)* node and click the [**User Dependencies**] button to select a user-defined dependency from a file browser that displays the contents of the Rhythmyx root directory. After you select the file, it displays in the tree.
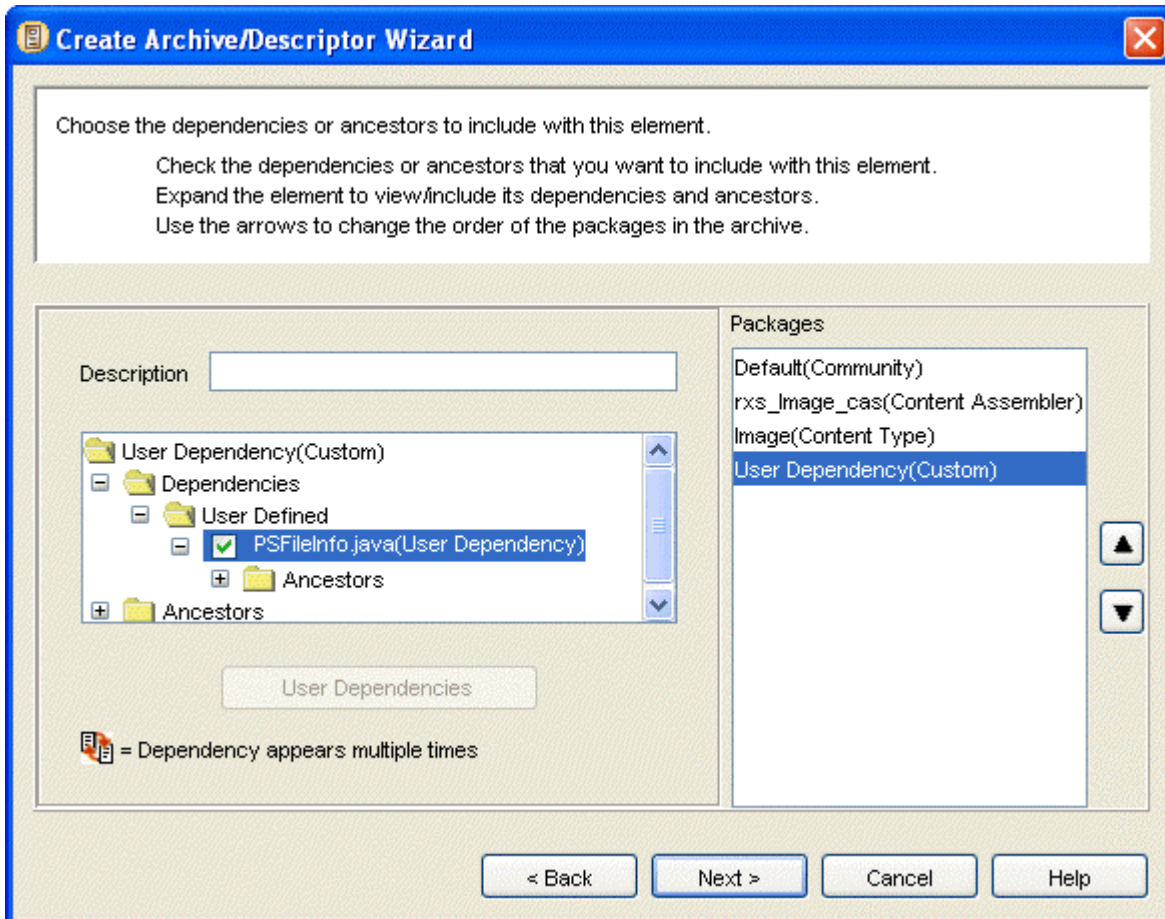

Figure 37: Adding a User Dependency

11 Click the arrows to the right of **Packages** to change the installation order of the elements in the descriptor. See *Add elements to the archive* (on page 59) for information about Package order.

12 Click [**Next>>**] to proceed to the *Create Archive or Descriptor dialog* (see "Create Archive or Descriptor" on page 77).

Choosing User Dependencies

After you click the [**User Dependencies**] button in the Include Element Dependencies or Ancestors dialog, a User Dependencies dialog opens:
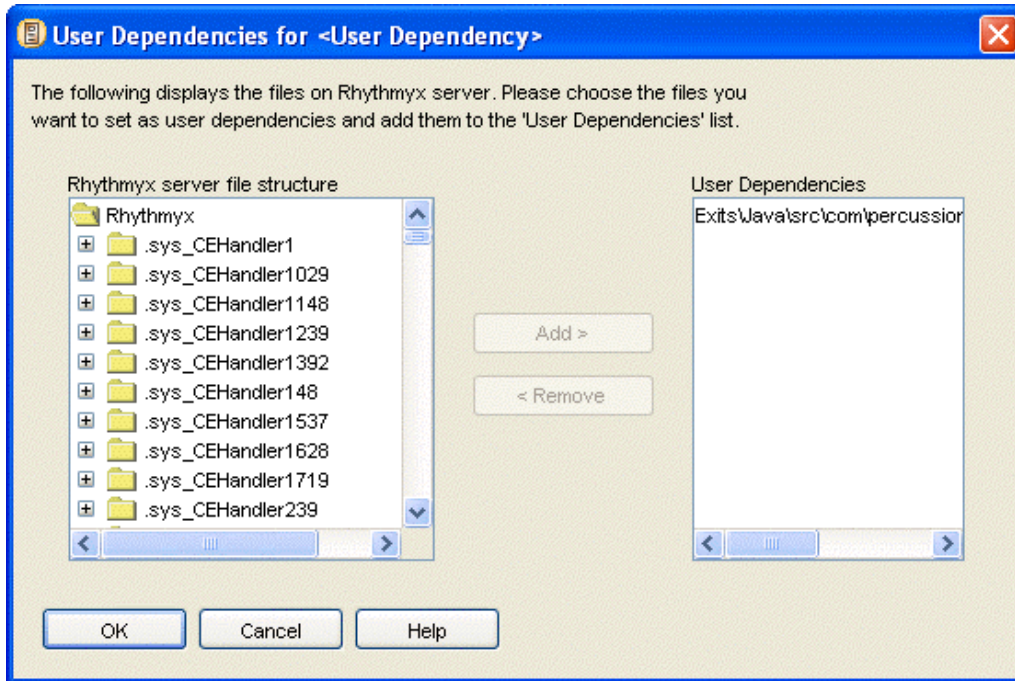
Figure 38: User Dependencies dialog

To add user dependencies:

1 In the file tree under *Rhythmyx server file structure*, navigate to a file that you want to add as user dependency.

2 Select the file.

The [**Add**] button becomes enabled.

3 Click [**Add**].

4 The *User Dependencies* box displays the file name.

5 Repeat steps 1 through 4 for each file that you want to add as a user dependency.

6 Click [**OK**].

The dialog closes and the Dependency Tree in the Include Element Dependencies or Ancestors dialog displays the user dependencies that you have added.

Create Archive or Descriptor

The Create Archive or Descriptor dialog lets you create an archive, save the descriptor that you have created, or both. If you selected an existing descriptor in the *Choose a Server and/or Descriptor dialog* (see "Choose a Server and/or Descriptor" on page 57), the descriptor name appears in the **Descriptor Name** field.
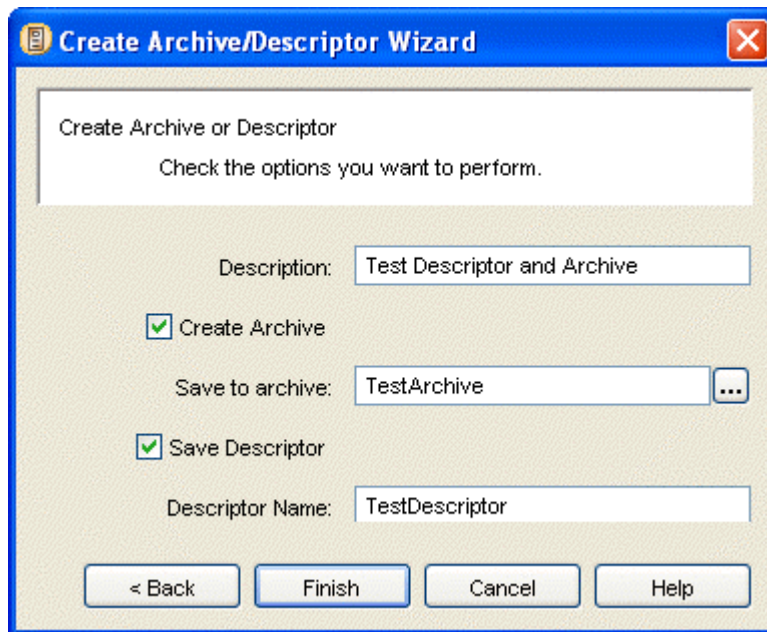
Figure 39: Create Archive/Descriptor Wizard, final dialog

To complete the Create Archive/Descriptor dialog:

1   In the **Description** field, optionally enter a description that will display under the Description heading in Descriptors View after you create the descriptor.

2   To create an archive, check the **Create Archive** check box.

The Wizard enables the **Save to Archive** field.

▪   Enter a name in the **Save to Archive** field.

3   To save the descriptor that you have created, check the **Save Descriptor** check box.

The Wizard enables the **Descriptor Name** field.

▪   Enter a name in the **Descriptor Name** field or leave the default name.

4   Click [**Finish**].

▪   If you have selected an existing descriptor name, the Wizard prompts you to confirm overwriting it.

▪   If you have selected an existing archive name, the Wizard prompts you to confirm overwriting it.

▪ If you have checked **Save Descriptor**, the Wizard saves the descriptor file on the source server and adds a Descriptor node to the **Server Groups Tree** in the Multi-Server Manager Window.

▪ If you have checked **Create Archive**, the Wizard displays the Archive Status dialog.
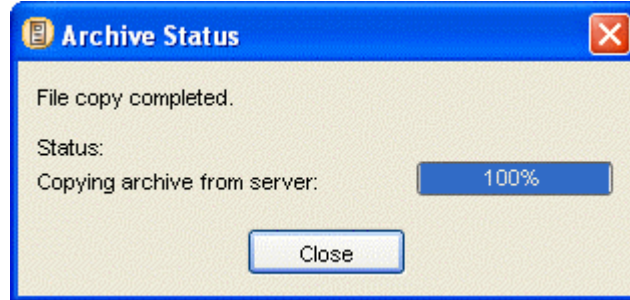
Figure 40: Archive Status dialog

The Multi-Server Manager creates the archive on the source server and then copies and saves it on the client (Multi-Server Manager machine). A progress bar tracks the creation of the archive on the source server and the copying of the archive onto the client. While the progress bars are active, you can click [**Cancel**].

After the archive is created, the Wizard changes the [**Cancel**] button to [**Close**]. Click [**Close**] to close the Create Archive/Descriptor Wizard.

C H A P T E R   7

Installing an Archive

Installing an archive involves preparing a target server for installation, and then using the Install Archive Wizard to choose the packages on the archive that you want to install and sending them to the target server.

Preparing a Target Server for Deployment

Prior to running the Install Archive Wizard, confirm that your target server is ready for installation. Check that you have met all of the conditions in the following list before installing:

- the version and build of Rhythmyx used to create the archive are installed on the target server;
- dependencies that are required on the target server but are not being installed with the archive are present on the target server;
- users have been notified not to work off the target server during the time that you plan to install;
- you have backed up your target server and repository in case archive installation causes system errors or instability.

Publishing Lock During Installation

Rhythmyx does not let you perform a publishing run and install an archive at the same time:

▪   When Rhythmyx begins installing an archive, it locks the server so that you cannot begin a publishing run until archive installation is complete. If Rhythmyx cannot lock the server, it suspends archive installation and performs the publishing run, then lets you resume archive installation from the point where you left off in the Wizard.

▪   When Rhythmyx begins a publishing run, it locks the server so that you cannot begin installing an archive until the publishing run is complete. If Rhythmyx runs multiple publishing runs, it waits until the final one is complete to remove the lock from the server.

Use the following console commands to view and manage locks:

▪   dump resources - The results include a <ServerLocks> element which displays active locks as follows:

```
<ServerLocks>
    <Lock id="0" locker="EnterpriseMgr:admin1" created="20030210
08:46:20">
        <Resources>
            <Resource>Publisher</Resource>
        </Resources>
    </Lock>
</ServerLocks>
```

When there is no locked resource, the element is empty. Note that a single lock may be holding more than one resource, but currently the Publisher is the only server resource that may be locked.

▪   clear server lock <lockid> - Releases a lock. <lockid> is the Lock id listed in the dump resources command, above. Only use this command if a process terminates abnormally and does not release a lock.

Using the Install Archive Wizard

The Install Archive Wizard helps you install an archive on a target server. Before beginning the Wizard, register the target server with the Rhythmyx Multi-Server Manager.

WARNING: Do not allow users to access your target server while you are running this Wizard; the server's contents must remain static for the Wizard to function correctly.

Install Archive Wizard steps:

Step	Create Archive/Descriptor Wizard dialog
1. Choose archive and target server.	*Select an Archive and Server dialog* (on page 83)
2. Choose whether or not to modify mappings already specified for Rhythmyx elements and DBMS credentials.	*Choose Installation Mode dialog* (see "Select an Archive and Server Dialog" on page 83)
3. Select packages from the archive to install.	*Add Packages to Install dialog* (see "Add Packages to Install" on page 85)
4. Modify or add element and DBMS credential mappings	Transforms dialog.
5. Specify whether or not to install packages and dependencies that cause warnings.	Specify an Action for Warning dialog
6. Review your installation selections and install them.	*Summary dialog* (see "Summary" on page 95)

Open the Wizard in one of the following ways:

- In the Multi-Server Manager Window, select *Action > Install Archive* in the **Menu Bar**.
- In the **Descriptors View**, right-click a Descriptor row and select *Install* in the menu that appears. The Wizard displays the name of the last archive created using the Descriptor but you may change it.
- In the **Archives View**, right-click an Archive row and select *Re-install* in the menu that appears. The Wizard requires you to install this archive on the same server as you installed it previously (it skips the first two dialogs).

Before opening the Install Archive Wizard, the Multi-Server Manager displays a dialog reminding you to back up your target server and repository.
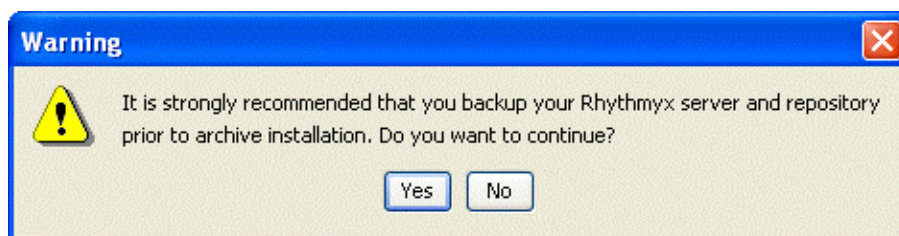
Figure 41: Backup warning

If you click [**Yes**], the Multi-Server Manager opens the first dialog of the Install Archive Wizard, which displays installation steps. (If you are installing from Archives View, the first dialog that opens is *Choose Installation Mode* (see "Select an Archive and Server Dialog" on page 83).)
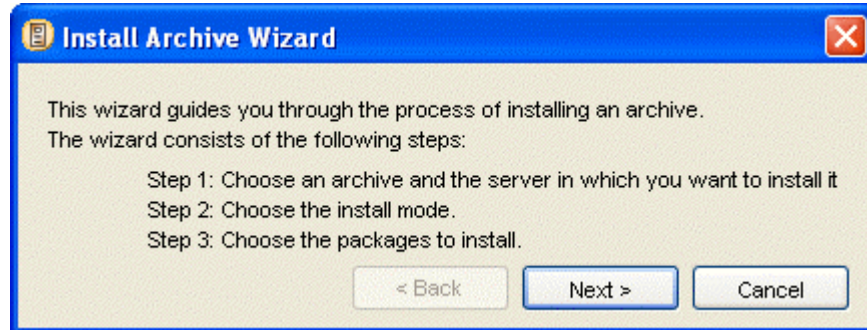
Figure 42: Install Archive Wizard, first dialog

Click [**Next>>**] to proceed to the *Select an Archive and Server dialog* (on page 83).

Select an Archive and Server Dialog

The Select an Archive and Server dialog lets you select an archive on the source server and the name of the target server. When it opens, it displays all registered servers as available target servers. Unconnected target servers are gray (disabled). If you select one of these servers, the Wizard prompts you to connect it.
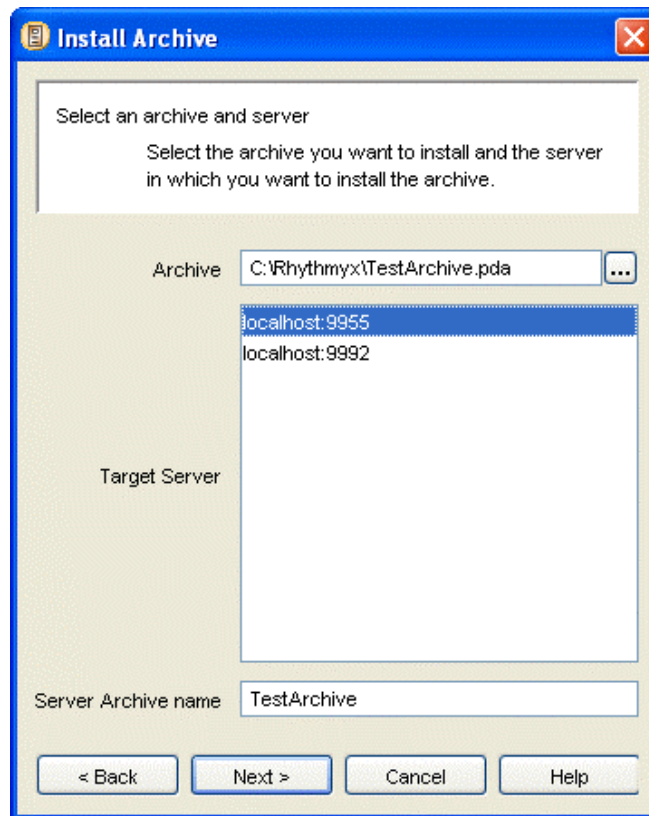
Figure 43: Install Archive Wizard, Select an Archive and Server Dialog

To complete the Select an Archive and Server dialog:

1   In **Archive**, enter the name of the archive on the client (Multi-Server Manager) that you want to install.

2   In **Target Server**, select a target server.

3   In **Server Archive Name**, enter a name for the archive on the target server. If you enter the name of an existing archive, the new archive overwrites the existing one.

4   Click [**Next>>**] to proceed to the *Choose Installation Mode dialog* (see "Select an Archive and Server Dialog" on page 83).

Choose Installation Mode Dialog

The Choose Installation Mode dialog prompts you to specify whether you want to proceed through the Wizard in *Typical* or *Custom* mode. *Typical* mode only takes you to the Transforms dialog if mappings are not complete. *Custom* mode always takes you to the Transforms dialog to review and modify your mappings.
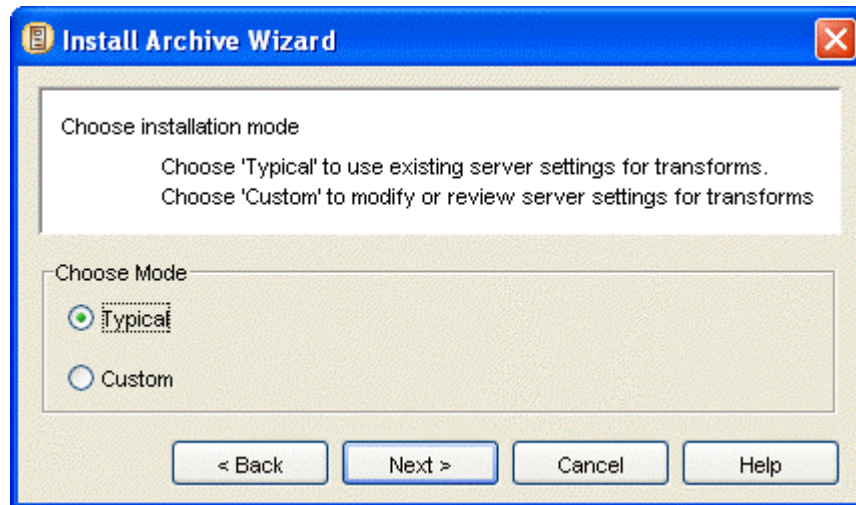
Figure 44: Install Archive Wizard, Choose Installation Mode Dialog

To complete the Choose Installation Mode dialog:

1   Choose *Typical* to proceed in the typical mode.

OR

Choose *Custom* to proceed in the custom mode.

2   Click [**Next>>**] to proceed to the *Add Packages to Install dialog* (see "Add Packages to Install" on page 85) of the Wizard.

Add Packages to Install

The Select Packages to Install dialog lets you select the packages in the archive that you want to install on the target server. When the dialog opens, it displays all the archive's packages under **Available Packages**, and the **Packages to install** list is empty. When you move packages from the **Available Packages** list to the **Packages to install** list, the packages remain in their original order (the order in which they are listed in the archive). Packages are installed on the target server in the order that they appear in the **Packages to install** list.
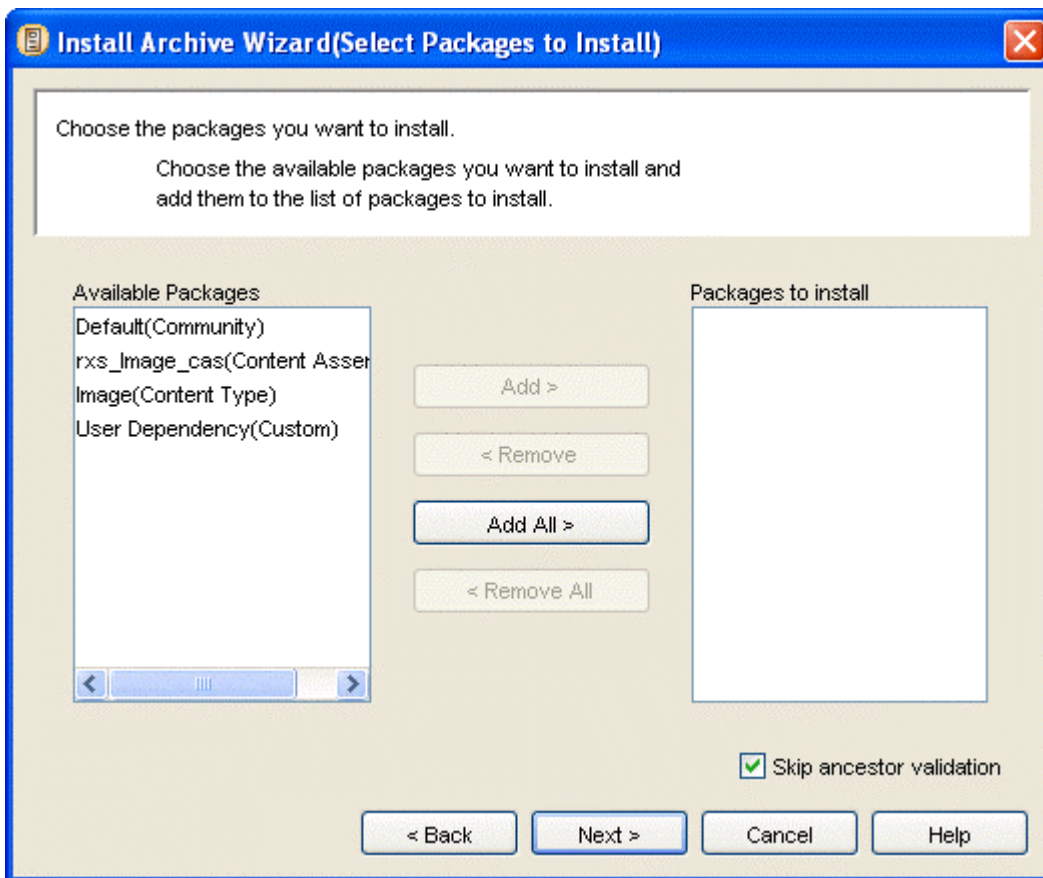
Figure 45: Install Archive Wizard, Select Packages to Install dialog

In Custom Mode, up and down arrows beside the **Packages to Install** list let users change the installation order of packages:
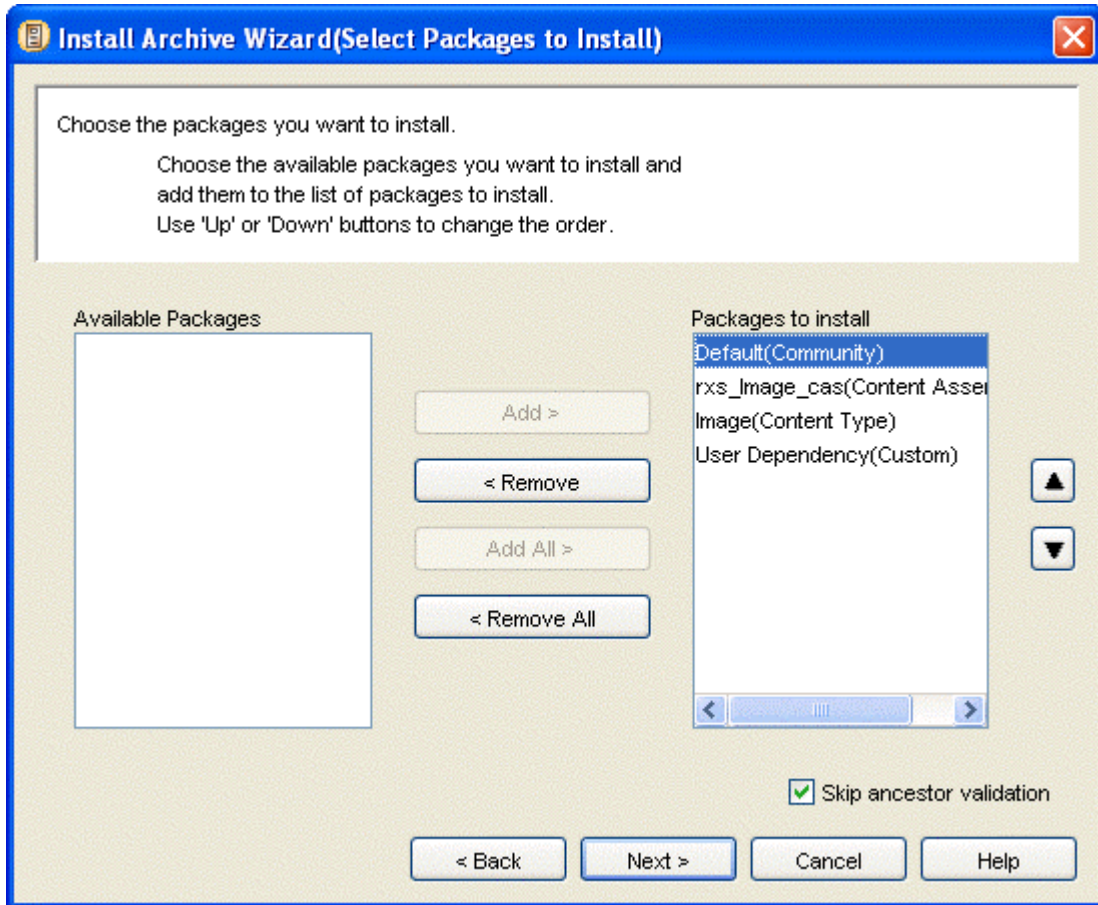
Figure 46: Add Packages to Install dialog in Custom Mode

To complete the Select Packages to Install dialog:

1   Move packages from the **Available Packages** list to the **Packages to install** list:

- To select a Package for installation, click the Package under **Available Packages** and click [**Add >**].

  The package name moves from the **Available Packages** list to the **Packages to install** list.

- To select all Packages for installation, click [**Add All >**].

  All package names move from the **Available Packages** list to the **Packages to install** list.

- To remove a Package from the **Packages to install** list, click the Package in the **Packages to install** list and click [**< Remove**].

  The package name moves from the **Packages to install** list to the **Available Packages** list.

- To remove all Packages from the **Packages to install** list, click [**< Remove All**].

  All package names move from the **Packages to install** list to the **Available Packages** list.

2   By default **Skip ancestor validation** is checked to increase the speed of installation. To indicate that the Wizard should perform ancestor validation prior to opening the Specify Actions for Warnings dialog, uncheck **Skip ancestor validation** at the bottom of the Select Packages to Install dialog.

3   If you are in Custom Mode, you can change the order of the packages in the **Packages to install** list if the existing order has caused installation to fail in the past or if you see a potential error in the installation order.

4   Click [**Next >>**] to move to the next dialog. If you selected a *Custom* installation mode or if some of your elements are not mapped, the Transforms dialog is next. Otherwise, the Specify Actions for Warnings dialog is next.

Transforms

If you have not mapped all of your elements or you selected *Custom* installation mode, you must complete the Transforms dialog. The dialog that appears functions similarly to the ***Define Transforms dialog that you access from the Multi-Server Manager Window*** (see "Define Transforms for <Server:Port>" on page 43), but it displays a **Packages** section listing each Package and does not have buttons for adding, editing, and deleting mappings or credentials.

- ▪ If you selected *Typical* installation mode, this dialog initially displays only Packages without required DBMS Credential or element mappings, so that you can add them. Packages without required mappings have a red exclamation point ❗ beside them. As you create the mappings, the exclamation points disappear, but the Packages remain in the list.

- ▪ If you selected *Custom* installation mode, this dialog displays both Packages without required DBMS Credential or element mappings and Packages with required DBMS Credential or element mappings so that you can both add and change them. Packages without required mappings have red exclamation points ❗ beside them until you create the mappings.

NOTE: If the objects in a package have no required DBMS credentials or elements to map, the DBMS Credential Maps tab or Elements Maps tab does not appear for the package. If none of the packages have elements or DBMS credentials to map, even if you choose *Custom* installation mode, the dialog does not appear.

For more about mapping (transforms) see *Mapping Source and Target DBMS Credential Names* (on page 36) and *Mapping Source and Target Rhythmyx Elements* (on page 35).
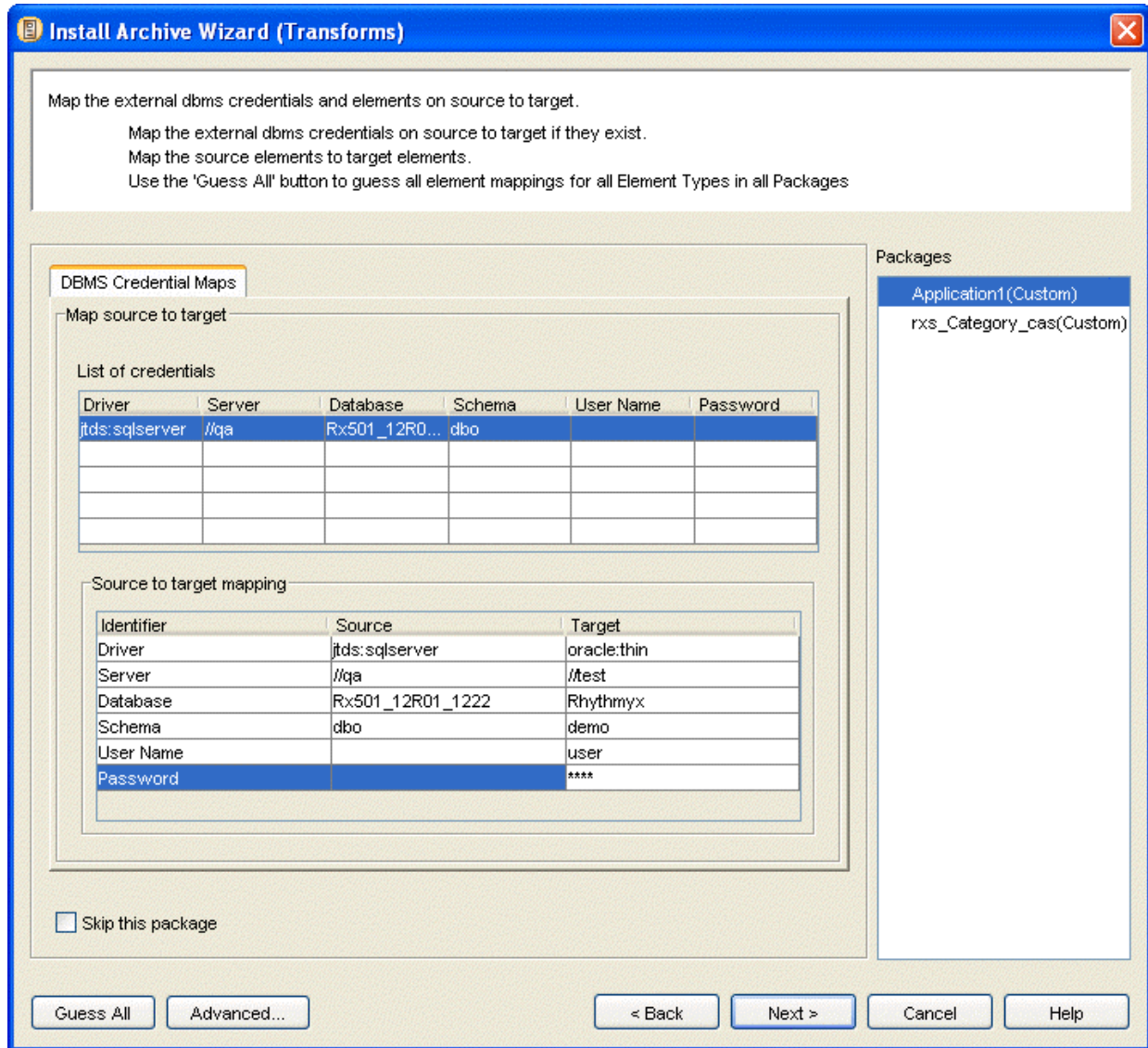
Figure 47: Install Archive Wizard, Transforms Dialog, DBMS Credential Maps Tab

To complete the DBMS Credential Maps tab of the Transforms dialog:

1   Click a Package under **Packages**.

The Multi-Server Manager searches through all applications referenced by the Package and lists all non-default DBMS credentials referenced by them in the **List of credentials** table. It also lists any that you added previously through this dialog.

2   Select a credential row in the **List of credentials** table.

The **Source to target mapping** table displays the source credential values and the target credential values if they exist. The **Target Driver** is a drop list of all drivers on the target server. Select a target driver.

3   Enter or change the other target credential values.

4   Check the **Skip this Package** check box to skip installation of this Package. This option is only available if the ID mappings on a package are incomplete. You may use this option if you do not know how to map any of the source and target credentials; if you do not check it, the Wizard requires you to map all of the credentials. If the ID Mappings on the package are complete, you cannot skip it. When you complete the ID mappings for a package, this option is disabled.

5   Click [**Advanced**] to go to the *Advanced Transforms dialog* (see "Advanced Transforms" on page 91). In this dialog, remove credentials from mappings that the archive does not use and add them to mappings that the archive uses.

6   Click the Element Maps tab to create or edit element mappings.
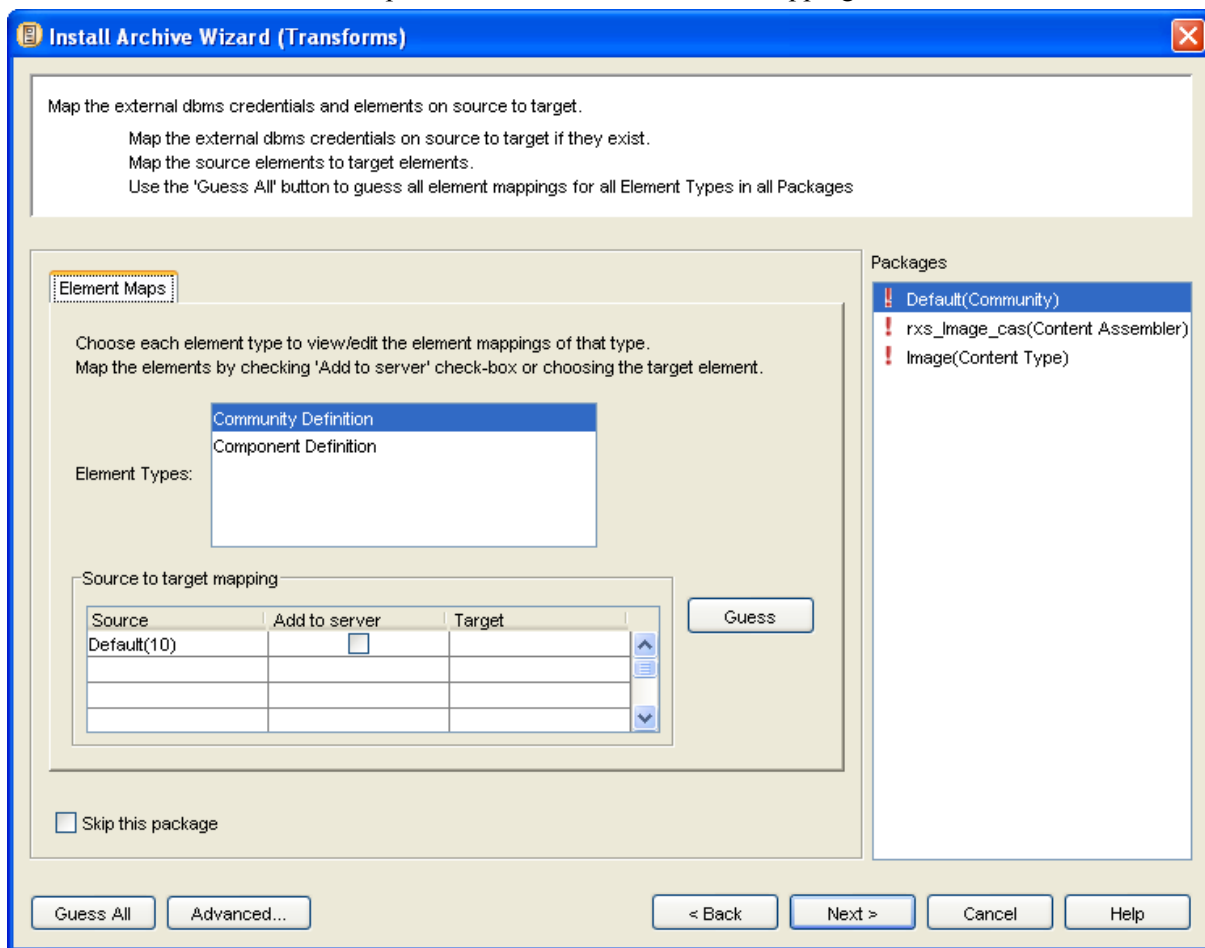
Figure 48: Install Archive Wizard, Transforms Dialog, Element Maps Tab

To complete the Element Maps tab of the Transforms dialog by having the Multi-Server Manager create mappings for you:

1   Click [**Guess All**].

The Multi-Server Manager creates mappings for all elements within all element types. You only have to click [**Guess All**] once.

The Multi-Server Manager searches for matches for unmapped source elements on the target server by searching on name. If it finds multiple matches by name, it searches for a matching ID. If it finds a matching ID, then it selects the element with the matching name and matching ID. If it does not find a matching ID, it selects the first element with a matching name that it found. The Multi-Server Manager lists the matching target element in the **Target** field. If it does not find a target element match, it checks the **Add to server** check box.

To complete the Element Maps tab of the Transforms dialog by manually creating mappings and/or having the Multi-Server Manager create mappings for all elements within Element Types:

1   Click a Package under **Packages**.

2   Click an **Element Type**.

The Multi-Server Manager displays elements of that type in the **Source** column. For elements that you have already mapped, it displays the complete mapping in the table.   For elements that you have not yet mapped, it displays the **Add to server** check box as unchecked and the **Target** fields as empty.

3   Click [**Guess**] for the Multi-Server Manager to search for matches for unmapped source elements on the target server by searching on name. If it finds multiple matches by name, it searches for a matching ID. If it finds a matching ID, then it selects the element with the matching name and matching ID. If it does not find a matching ID, it selects the first element with a matching name that it found. The Multi-Server Manager lists the matching target element in the **Target** field. If it does not find a target element match, it checks the **Add to server** check box.

4   To manually map source and target elements:

  ▪   Click the **Target** field to access a drop list. If an appropriate target element exists in the **Target** drop list for the source element, select the target element in the drop list.

  NOTE: You are mapping the identifiers (ID numbers), not the names. The names are included for reference.

  OR

  ▪   Check the **Add to server** check box to add the source element to the target (and automatically map the source identifier to the target identifier).

5   If you are using *Typical* installation mode, select all the entries under **Packages**, and check all of them for unmapped elements.

6   If you cannot determine how to map an element, you may check the **Skip this Package** check box to not install the package; if you do not check it, the Wizard requires you to map the elements.

7   Click [**Advanced**] to go to the *Advanced Transforms dialog* (see "Advanced Transforms" on page 91). In this dialog, remove elements from mappings that the archive does not use and add them to mappings that the archive uses.

8   Click [**Next**] to proceed to the Specify Action for Warnings (Dependency Validation) dialog.

Advanced Transforms

The Advanced Transforms dialog shows you incomplete mappings required by the archive and additional complete mappings between the source server and target server. This lets you change element and DBMS credential mappings between the source and target server other than those used in the archive. This is useful if you need to access a target element or DBMS credential that is already being used by another mapping.

For example, the following graphic shows an archive that is installing the Image and Generic Content Types from the source server to the target server. The dialog also displays the Event to Press Release mapping that has been created between the source and target servers although the archive does not use the mapping. If the user wants to map the Generic Content Type to the Press Release Content Type, in this dialog, the user can Delete the Event to Press Release mapping, and then map the Image Content Type on the source server to the Press Release Content Type on the target server.

If DBMS Transforms are defined for the archive, a DBMS Credential Maps tab appears as well.
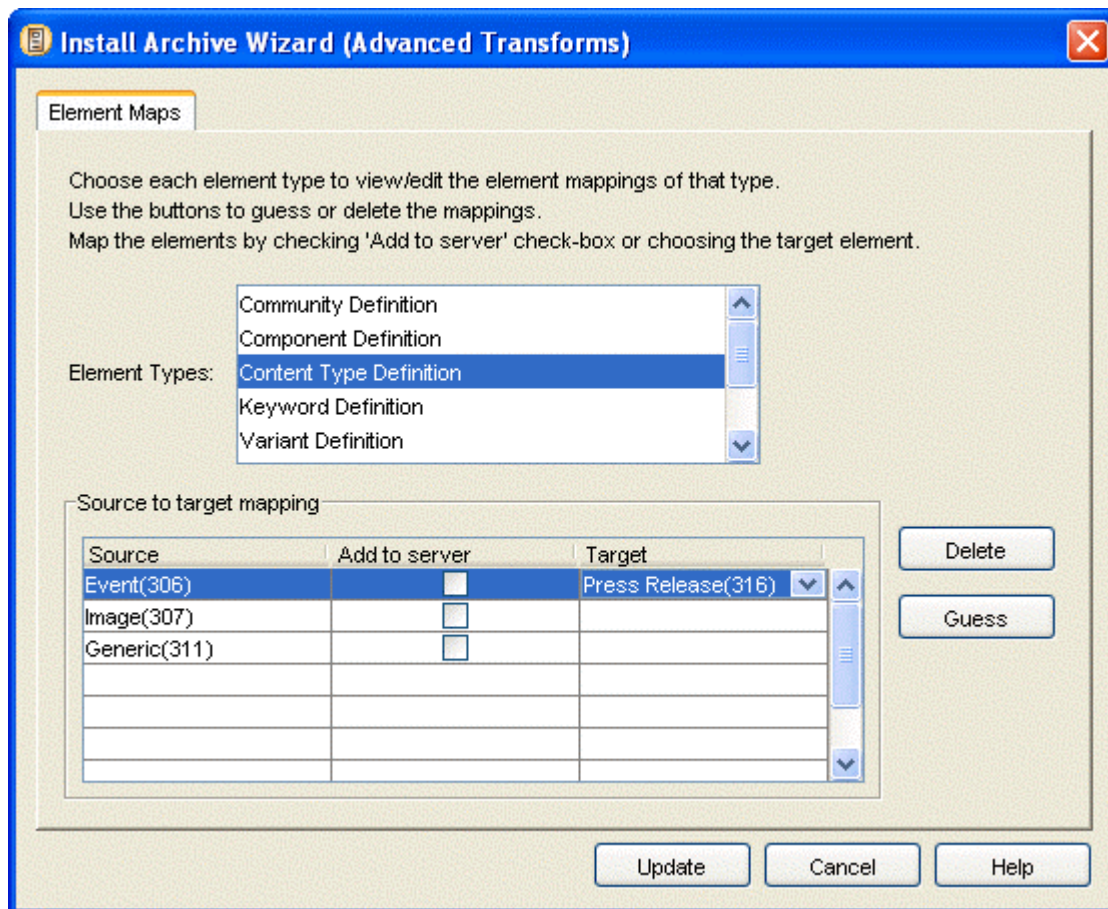
Figure 49: Install Archive Wizard, Advanced Transforms Dialog,

To map a previously mapped target element to one of an archive's source elements:

1   In the Install Archive Wizard's Transforms dialog, click [**Advanced**]

The Advanced Transforms dialog opens.

2   Select the **Element Type** that includes a mapping that you want to change.

Note that the previously mapped target server element is not available in the list of target elements to map to the source element.
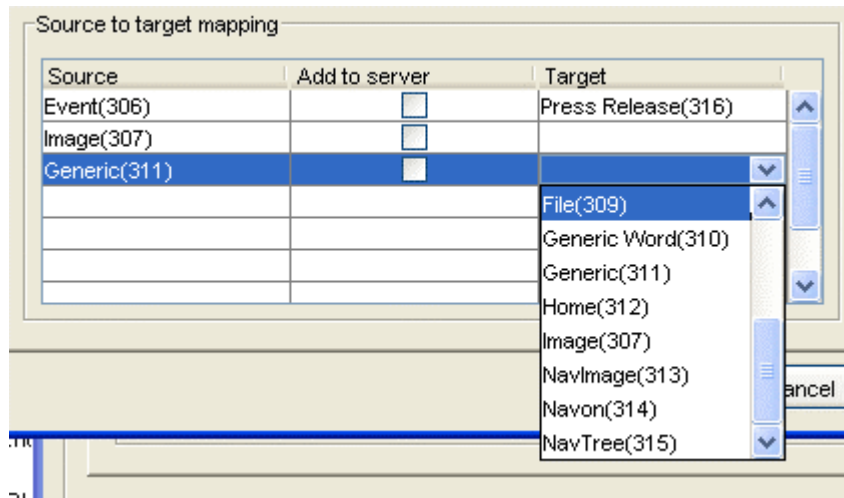
Figure 50: The target Press Release Content Type cannot be mapped to the source Generic Content Type.

3   Select the mapping that is not used by the archive (Event to Press Release in the example). Delete the mapping or change the target element.

Now the target element is available to be mapped to the source element.
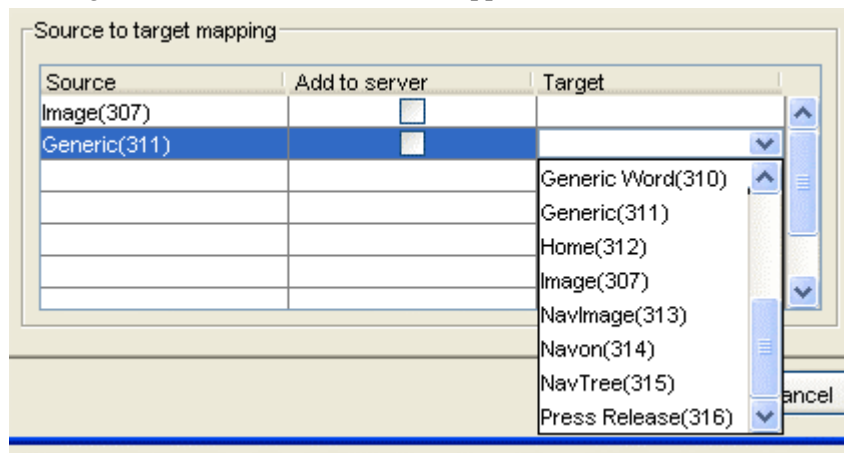
Figure 51: The target Press Release Content Type can now be mapped to the source Generic Content Type

4   Map the target element to the source element.

5   Click [**Update**].

Multi-Server Manager updates the mapping and returns to the Transforms dialog.

Specify Actions for Warnings

Before the Wizard opens the Specify Actions for Warnings dialog, it validates dependencies by checking for the presence of required and optional dependencies in the Packages and on the target server. The Wizard displays a progress bar for validation.
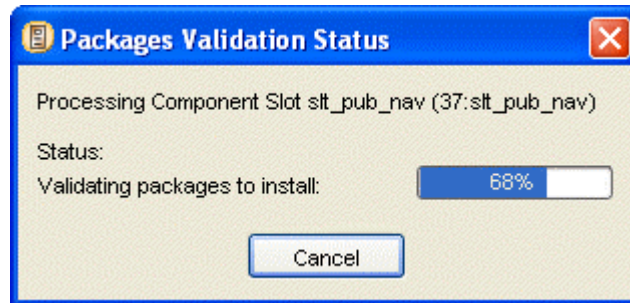
Figure 52: Package Validation Status Bar

When validation is complete, the dialog closes, and the Specify Actions for Warnings dialog opens. For each finding, it displays a warning message if the finding is not fatal and an error message if the finding is fatal. If a package validation does not result in a warning or error, it is not listed under **Packages.**
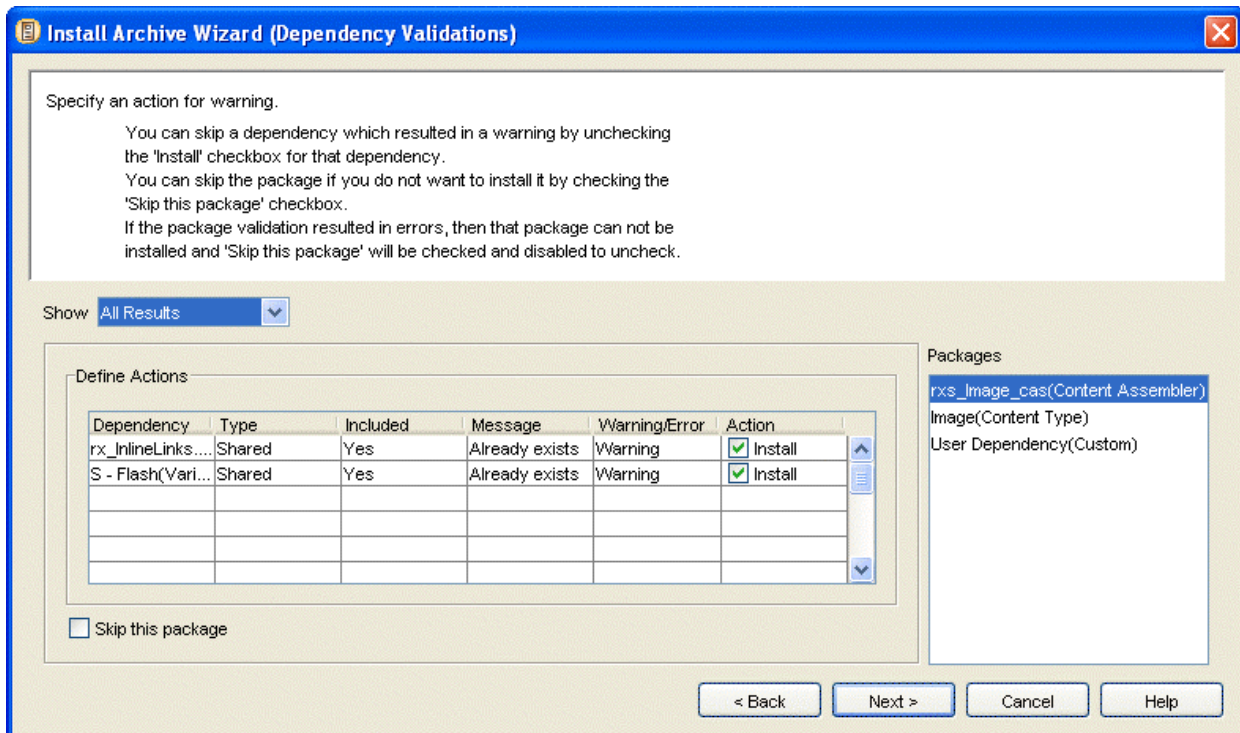
Figure 53: Install Archive Wizard, Dependency Validations Dialog

The Specify Actions for Warnings dialog includes a **Show** drop list that lets you choose the types of warnings and errors that you want to display.
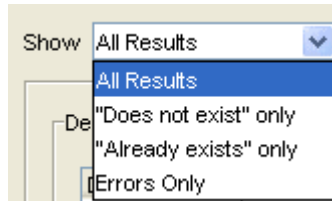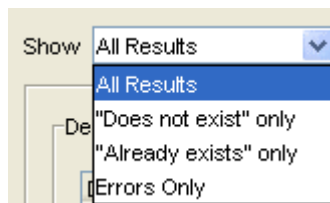

Figure 54: Show drop list

The Show options are:

- All Results - shows all warnings and errors;
- "Does not exist" only - shows only warnings and errors that indicate missing dependencies;
- "Already exists" only - shows only warnings that indicate that a dependency will be overwritten;
- Errors only - shows errors, but not warnings.

The **Packages** list only displays packages that have warnings or errors included in the **Show** option. If changing the **Show** option results in no Packages with errors or warnings, the dialog displays *There are no messages to display.*

Select each package to see the warnings or errors for it in the Define Actions table. The table displays the following:

Dependency - Dependency name;

Type - Dependency Type;

Included - Whether or not the dependency is included in the Package;

Message - Error or warning message;

Warning/Error - Whether the result is a warning or an error;

Action - Whether or not to install the Dependency (**Included** reflects this choice).

If validation results in any errors, you cannot install the Package. If validation results in warnings but not errors, you can choose whether or not to install the Package. If validation results in warnings or errors and includes optional dependencies, you can choose whether or not to install each optional dependency.

To complete the Specify an Action for Warning dialog:

1   Choose a **Show** option.

2   Under **Packages**, select a Package.

3   If the **Skip this Package** check box is enabled (because the Package has validation warnings but does not have validation errors, or because the ID mappings for the package are incomplete) check **Skip this Package** if you do not want to install the Package. If you want to install it, leave **Skip this Package** unchecked.

4   If any optional dependencies have an **Install** check box in the **Action** column (because the package has validation errors or warnings) check **Install** to install the dependency. Uncheck **Install** to skip installation of the dependency.

5   Complete steps 2 through 4 for all Packages.

6   Click [**Back**] to attempt to rectify the cause of warnings, errors, or validation results.

7   Choose another **Show** option, or click [**Next>>**] to continue to the *Summary dialog* (see "Summary" on page 95).

If you have chosen to install packages or dependencies with warnings, the Wizard prompts you to confirm continuing.
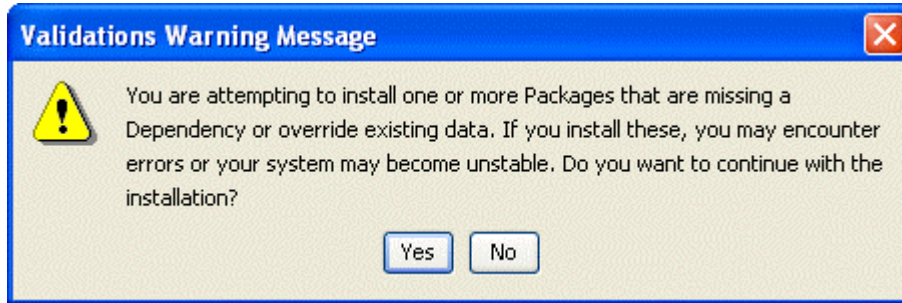
Figure 55: Validations Warning Message

8   Click [**Yes**] to continue to the *Summary dialog* (see "Summary" on page 95). Click [**No**] to continuing editing in the Specify Actions for Warnings dialog.

Summary

The Summary dialog displays your installation selections and lets you complete your archive installation. The **Packages to Install** list displays the Packages you have selected for installation. The **Warnings and Actions** table displays the actions you have selected for dependencies with warnings. The **Ancestors that will be affected by Installation** list displays ancestors that you have not selected for installation, but are affected by your dependencies.

The Summary dialog includes a **Show** drop list that lets you choose the types of errors and warnings that you want to display in the **Warnings and Actions** table.

Figure 56: Show drop list

The **Show** options are:

- *All Results* - shows all warnings and errors;
- *"Does not exist" only* - shows only warnings and errors that indicate missing dependencies;
- *"Already exists" only* - shows only warnings that indicate that a dependency will be overwritten;
- *Errors only* - shows errors, but not warnings.

NOTE: Unlike the **Packages** list in the Specify Actions for Warnings dialog, the **Packages to install** list in the **Summary** dialog displays all Packages whether or not they meet the criteria of the **Show** option.
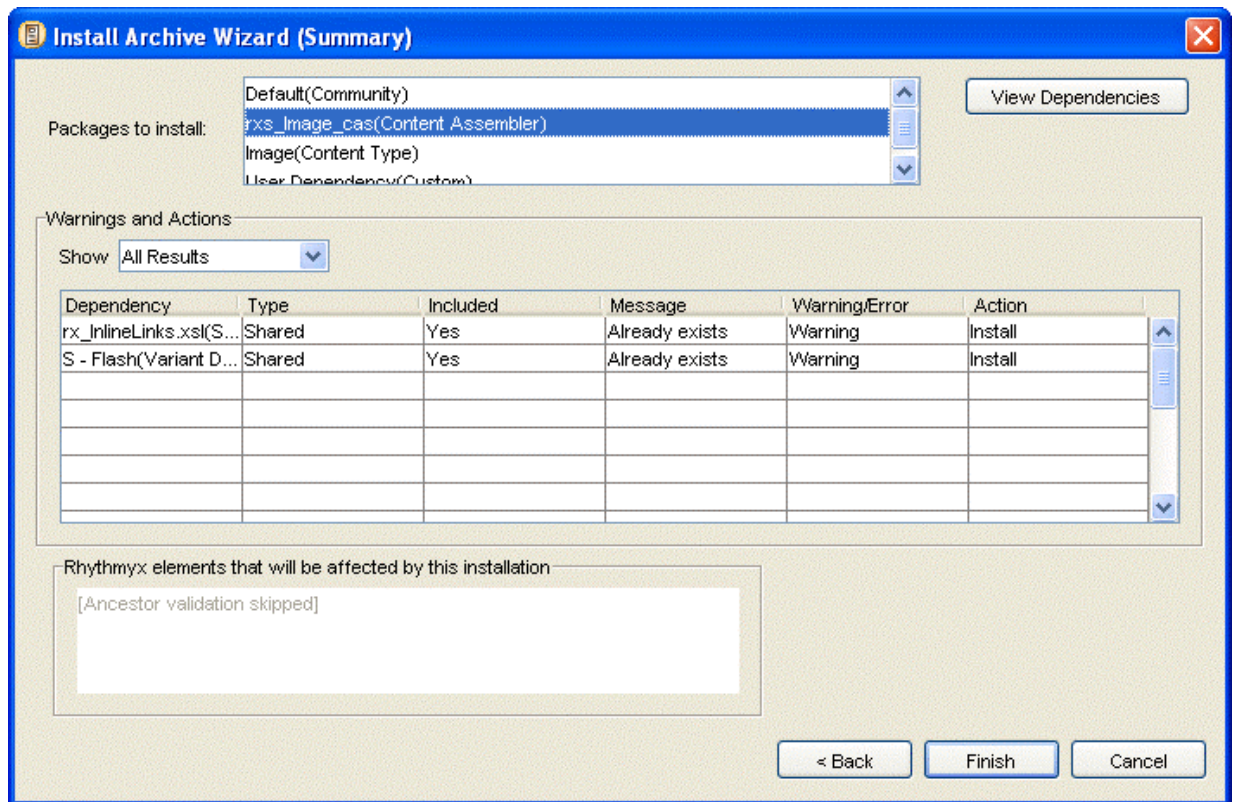
Figure 57: Install Archive Wizard, Summary Dialog

To complete the Summary dialog:

1   Choose a **Show** option.

2   Review the **Packages to Install**, **Warnings and Actions**, and **Ancestors** sections to make sure that you have made the correct selections. If you checked **Skip ancestor *v*alidation** *in the Add Packages* to Install dialog (see "Add Packages to Install" on page 85) the Ancestors section (**Rhythmyx elements that will be affected by this installation**) displays Ancestor validation skipped. Normally if a dependency being installed already exists on the target server, any ancestors not also being installed are listed here as being affected by the installation

3   Select a package in the **Packages to Install** list and click the [**View Dependencies**] button to view its dependency tree.

4   Click [**Finish**] to install the archive

OR

Click [**Back**] to attempt to rectify the cause of warnings or errors

OR

Click [**Cancel**] to cancel installation and exit the Wizard.

If you click [**Finish**], the Wizard displays an installation confirmation dialog.
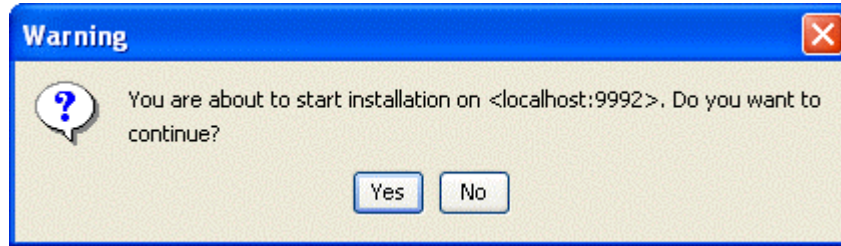
Figure 58: Installation Confirmation Dialog

5   Click [**Yes**] to install. The Wizard begins to install the archive on the target server and displays the Install Status dialog.
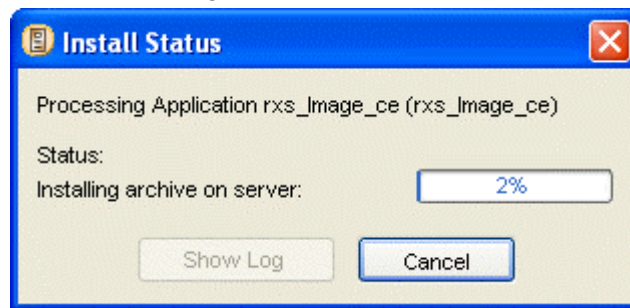
Figure 59: Install Status bar

The dialog lists the current installation action. The Status bar displays the progress of archive installation.

You can click [**Cancel**] at any time during installation to cancel. Warning: Canceling an installation in progress may leave your server in an unstable state.

6   When the installation is complete, the Wizard enables the [**Show Log**] button. Click the [**Show Log**] button to view the *archive installation log* (see "Reviewing Archives" on page 101).

When the Multi-Server Manager finishes installing the archive's contents on the target server, it adds Archive and Package nodes to the **Server Groups Tree** in the Multi-Server Manager Window.

Installation is now complete. After you restart the target server and open Rhythmyx you should be able to view the changes to your content editors, variants, Workbench applications and other Rhythmyx elements.

Archiving an Entire Rhythmyx System

The following procedure breaks down the steps required for installing everything on a test server to a production server. Follow this procedure to initially install Rhythmyx from a test server to a production server.

1   Alert Rhythmyx developers and administrators not to make changes on the source server, including the Rhythmyx Workbench, Server Administrator and browser interface during the time that you plan to create your archive.

2   Use the Identify ID Types dialog to identify all ID Types on the source server.

3   Use the Define Transforms dialog to define transforms (mappings) between the source and target servers.

4   To simplify the process, create separate archives for each Package Type in the following list:

a)   Custom elements, if they exist.

b)   Table schemas or data. For tables that are managed by content editors, package the table schemas. For tables that hold manually entered data, package the table data. In the *Add Elements to the Archive dialog* (see "Add Elements to the Archive" on page 59) , table schemas and data are listed under Custom Elements. NOTE: You may also package the table schemas as dependencies of Content Types and Content Assemblers.

c)   All Workflows and custom Workflow actions that appear as dependencies. The Multi-Server Manager cannot detect if properties files in your Rhythmyx directory are dependencies of Workflow actions. Include any properties files that are dependencies as User Dependencies.

d)   All Content Types, all of their local dependencies, and optionally, all of their shared dependencies including table schemas.

e)   All Slots and only their Variant Definition dependencies.

f)   All Content Assemblers, all of their local dependencies except Content Types, Slots, and Table Schemas, and optionally, all of their shared dependencies.

g)   Site or Content List elements. To determine whether to archive Site or Content List elements and which dependencies to archive with them, see *Managing Publishing Data with Multi-Server Manager*.

h)   Components that have been modified or are new than the target server, all of their local dependencies, and optionally, all of their shared dependencies. If you are installing more than 20 components, install them using multiple archives.

i)   All communities. When you include each community in the *Add Elements to the Archive dialog* (see "Add Elements to the Archive" on page 59), choose Community Definition. Do not package the Entire Community. Do not package any dependencies of the community.

j)   Content Views

k)   Action Menus

l)   Relationship Definitions

m) Display Formats

n)   Locales

o)   Folders

p)   Keywords (as stand alone Packages)

q)   Contexts (as stand alone Packages

r)   Any content that is required to be installed on the target server. If you are installing to a production server, content should be limited to a few items, if any, and may include items necessary for building site navigation. Only include related content if necessary.

5   Prepare the target server for archive installation.

s)   Configure source server security components on the target server. These components include security providers, roles, role subjects, and the server ACL.

t)   Configure target server DBMS connections if your applications reference a table outside the Rhythmyx repository.

u)   Add any source server custom JAR files to the CLASSPATH of the target server.

v)   Add any source server custom Request Handlers to the target server.

w) Add any source repository custom database objects other than table schemas to the target repository.   NOTE: This step may require custom table schemas to be present on the target server. In this case, complete this step after installing the table schema archive.

x)   If you are installing to a production server, alert content contributors that the production server will be unavailable during the time you have scheduled for archive installation and post-installation testing.

y)   Alert Rhythmyx developers and administrators not to make changes on the target server, including the Rhythmyx Workbench, Server Administrator and browser interface during the time that you plan to create your archive. (If the target server is a staging or production server, development work should only involve elements that the Multi-Server Manager does not handle.)

6.   Install the archive.

a)   Start the Multi-Server Manager.

b)   Register the target server.

c)   Install the archives in the order you created them in Step 2 and install any views (step iii, below).

i.   Custom Elements

ii.   Table Schema and Table Data

iii.   Any views used by the element types that follow. You cannot install views with the Multi-Server Manager, but must use a SQL script.

iv.   Workflows

v.   Content Types

      vi. Slots

      vii. Content Assemblers

      viii.   Sites or Content Lists

      ix. Components

      x.   Communities

      xi. Content Views

      xii. Action Menus

      xiii.Relationship Definitions

      xiv.Locales

      xv. Folders

      xvi.Content

      xvii. Keywords (as stand alone Packages)

      xviii. Contexts (as stand alone Packages)

7. Flush the server cache or restart the target server.

8. Modify transition notifications for custom cc lists to notify the correct target server users.

9. Set up or modify Publisher information to reflect the target server's Publisher.

10. Perform QA testing on the target server.

C H A P T E R   8

Reviewing Archives

After installing an archive, you should review its Archive Summary to make sure that your Packages installed successfully. Determine if the dependencies and mappings of Packages installed correctly by checking their *package logs*.

To access the Archive Summary dialog:

- In the Multi-Server Manager, select the Archives node of the target server in the **Server Groups Tree** to display the Archives View in the **Details Pane**. Locate the archive that you want to review and double-click it.

  OR

- From the *Install Status dialog* (see "Summary" on page 95) (the dialog that the Archive Installation Wizard displays during installation), click [**View Log**].

  The Multi-Server Manager displays the Archive Summary dialog with the Package Logs tab selected.
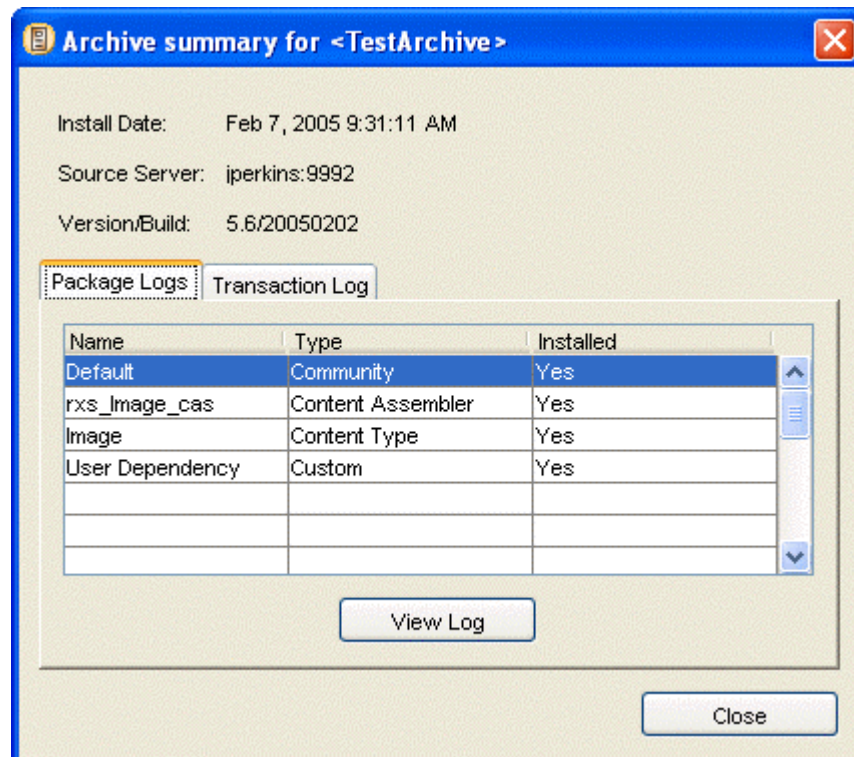
Figure 60: Archive Summary, Package Logs

In addition to the archive name, the installation date, the source server, and the Rhythmyx version and build, the Archive Summary displays the name and Package Type of each Package in the archive and lists its installation status. Successfully installed packages are listed in installation order. The possible values for *Installed* are:

- *Yes* - Multi-Server Manager successfully installed package.
- *No* - Multi-Server Manager did not attempt to install package. Either it skipped the package or did not install it because failure of an earlier package caused installation to stop.
- *Failed* - Multi-Server Manager attempted to install package, but failed.

Select a package and click the [**View Log**] button to display the ***package log***. (Packages with an Installed value of *No* do not have package logs.)

Click the Transaction Log tab to view the installation actions for all of the packages in the archive. For each element installed for each package, the Transaction Log tab displays the element's package, the element's dependency, the element name, the element type, and the installation action.
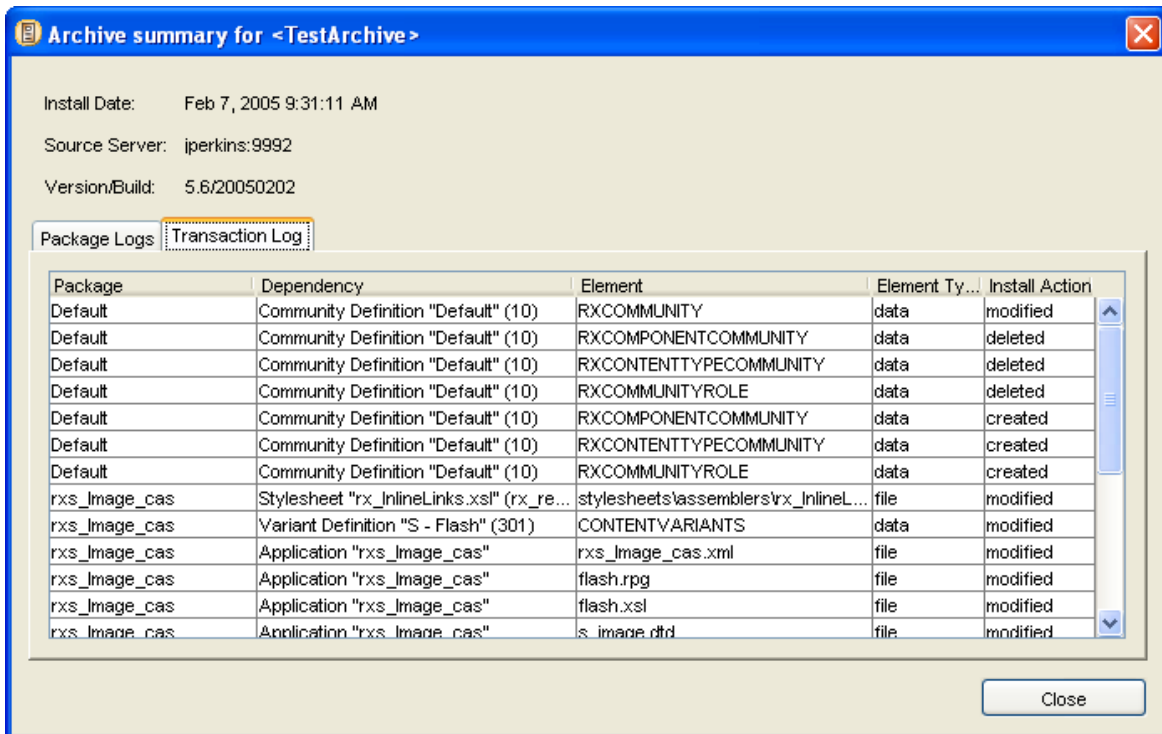
Figure 61: Archive Summary, Transaction Log

The possible Actions are:

- *created* - the Multi-Server Manager inserted a file or a table, or inserted new data into a table;
- *modified* - the Multi-Server Manager updated a file or rows in a table;
- *deleted* - the Multi-Server Manager deleted content in the database before inserting new content. The element is listed again in the table with a created action;
- *skipped* – installed in previous package. This dependency was listed in multiple packages. It was installed in a previous package, but is listed here because it also was included in this package.

Reviewing Installed Packages

Review the installation details of each installed Package by viewing its package log. The package log shows the dependencies installed, transforms (DBMS credential and element mappings), dependency validation warnings, and the installation actions on each element in a package.

You can access the package log through the *Archive Summary dialog* (see "Reviewing Archives" on page 101) or the Packages View of the Multi-Server Manager Window **Details Pane**.

- ▪ To access the package log through the Archive Summary dialog, select a Package and click [**View Log**].
- ▪ To access the package log through the Packages view, double-click a package row.

You can export or save a package log from Packages View or the Package Log dialog.

- ▪ To export a package log from Packages View, click the package, and select *Export*. The Multi-Server Manager displays a File Browser window for saving the package log to file.
- ▪ To export a package log from the Package Log dialog, click the [**Export**] button. The dialog displays a File Browser window for saving the package log to file.

The Package Log dialog has four tabs:

Main (see "Package Log Main Tab" on page 104)

Transforms (see "Package Log Transforms Tab" on page 105)

Informed Warnings (see "Package Log Informed Warnings Tab" on page 106)

Transaction Log (see "Package Log Transaction Log Tab" on page 107)

Package Log Main Tab

The Main tab of the Package Log displays the Package Type, archive name, installation date, source server, Rhythmyx version and build, and a read-only dependencies tree. Click the [**Export**] button to save the log to a file.
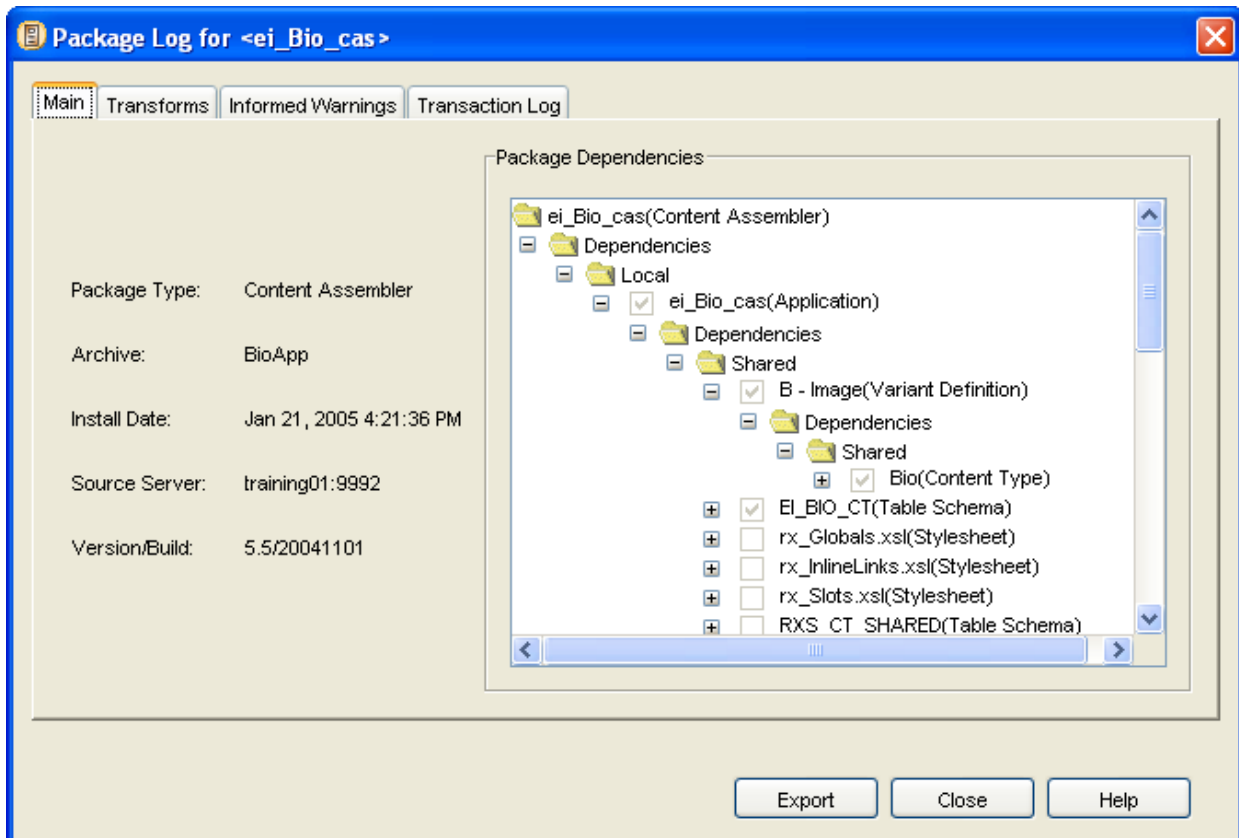
Figure 62: Package Log, Main Tab

Package Log Transforms Tab

The Transforms tab displays the transform maps (element and non-default DBMS credential mappings) as they appeared at the time this package was installed. Click the [**Export**] button to save the log to a file.

NOTE: This tab does not appear if the package has no mappings.
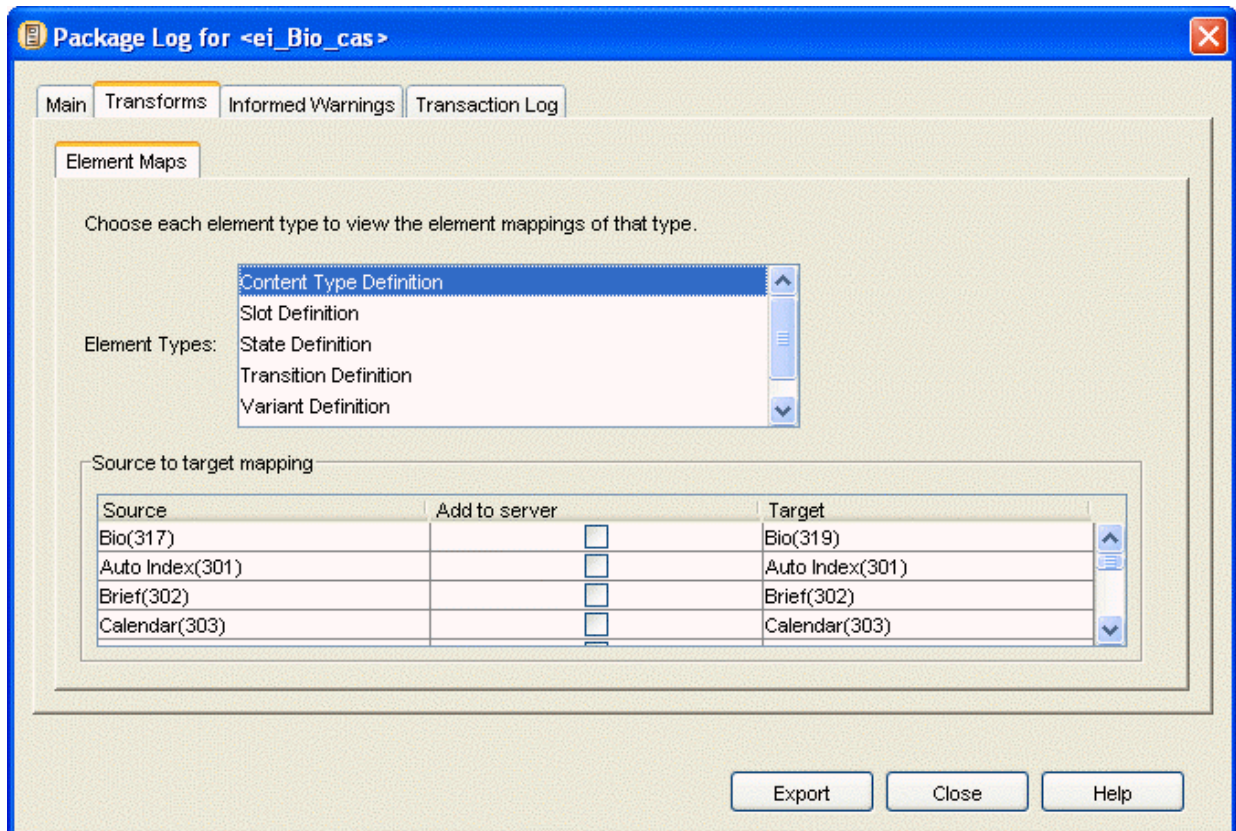
Figure 63: Package Log, Transforms Tab

Package Log Informed Warnings Tab

The Informed Warnings tab displays the validations warnings and the corresponding actions taken for the dependencies of this package. Click the [**Export**] button to save the log to a file.

NOTE: This tab does not appear if the package has no warnings.
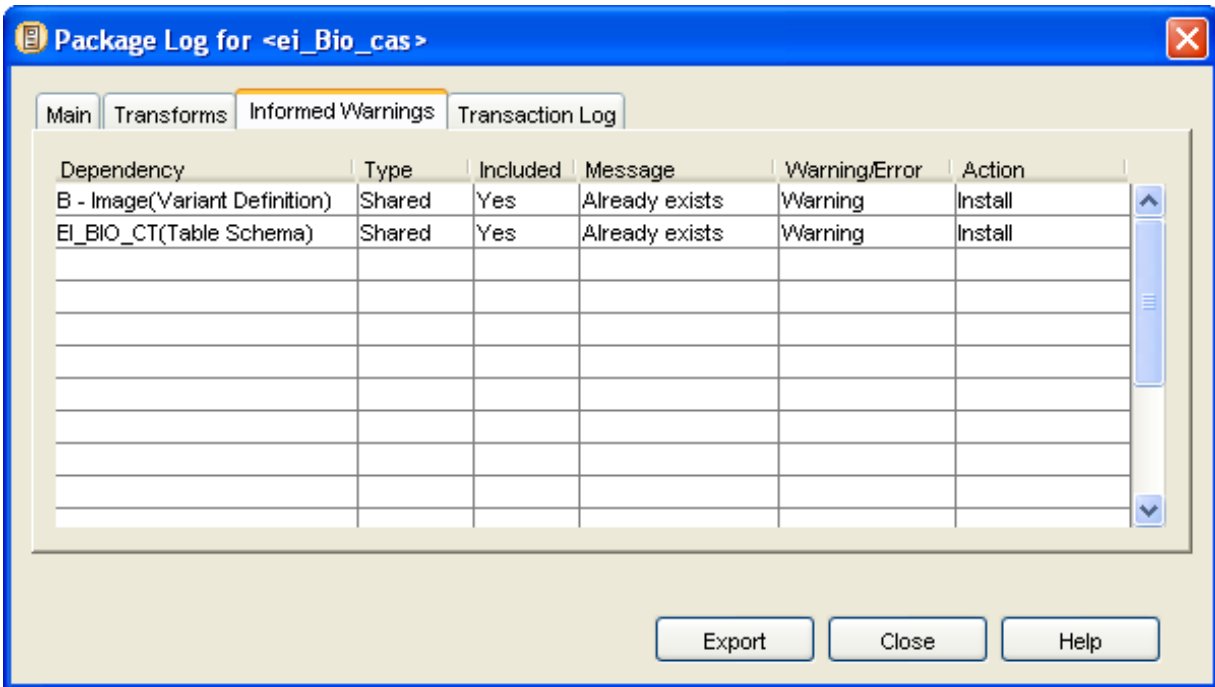
Figure 64: Package Log, Informed Warnings Tab

Package Log Transaction Log Tab

For each element installed for each dependency in the package, the Transaction Log tab displays the element's dependency, the element name, the element type, and the installation action.
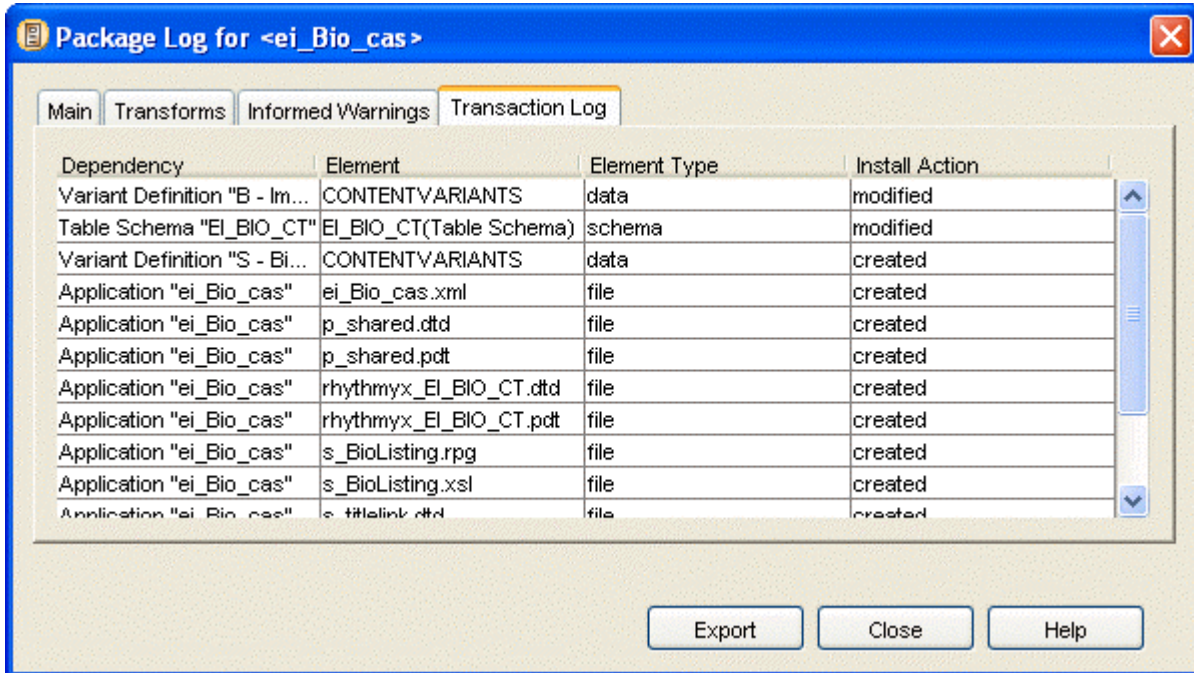
Figure 65: Package Log, Transaction Log Tab

The possible Actions are:

- *created* - the Multi-Server Manager inserted a file or a table, or inserted new data into a table;
- *modified* - the Multi-Server Manager updated a file or rows in a table;
- *deleted* - the Multi-Server Manager deleted content in the database before inserting new content. The element is listed again in the table with a created action;
- *skipped* – installed in previous package. This dependency was listed in multiple packages. It was installed in a previous package, but is listed here because it also was included in this package.

Click the [**Export**] button to save the log to a file.

You can also view a ***single log of all archive transactions*** (see "Reviewing Archives" on page 101).

C H A P T E R   9

Rhythmyx Multi-Server Manager Best Practices

1   Always back up your target Rhythmyx repository and file tree before installing with the Rhythmyx Multi-Server Manager. Use standard RDBMS and file tree back up procedures in conjunction with source control. Rhythmyx Multi-Server Manager installation is not a replacement for backup or source control.

2   Before attempting to install an archive, verify that all required security providers, and database credentials are present and properly configured on the target server. Installation does not proceed if any of these elements are missing and may result in errors if they are not properly configured.

3   Remove source test data that you do not need to install (for example, application registrations, content, workflow transition notification cc lists) before creating archives. Removing excess data helps prevent packaging of unnecessary elements and lengthy processing.

4   Acquire some Rhythmyx development experience and understand each Rhythmyx element and its relationship to its dependencies.

5   Create some test archives and install them on test or development servers.

6   If you develop the Rhythmyx applications that the Multi-Server Manager moves from a target to source server either create the archives or thoroughly document names and functions of the applications and their dependencies, so that administrators can easily create archives.

7   Use naming conventions for descriptors and archives so that Rhythmyx developers or administrators who did not create them may easily reuse them.

8   Order the Packages in an archive so that dependencies install before the elements that require them. For example, if a content editor uses a certain workflow, install the workflow first. The Multi-Server Manager attempts to order packages in this manner, but review the order in the Create Archive/Descriptor Wizard and make any necessary changes.

9   You can reduce processing time by including shared dependencies once per archive; however, if you choose to do this confirm that you have packaged the most current version of the shared dependency at least once.

10 The Multi-Server Manager does not lock the server against updates during installation. Alert content contributors and Rhythmyx administrators not to update the repository and perform registry changes while you are installing, and if possible, schedule installation at a time when these activities are minimal.

11 If you are installing Rhythmyx Version 4.5, flush the cache manually after installing an archive to prevent older versions of content items from being published. The cache does not automatically flush.

12 Modify staging and production servers with the Multi-Server Manager. Only modify elements manually   if the Multi-Server Manager does not install the elements requiring modification. See the limitations described in How Multi-Server Manager Installation Works for elements that the Multi-Server Manager does not install.

13 Use the ID Types dialog against the entire source server to save time during archive creation. The Create Archive/Descriptor Wizard locates Rhythmyx elements added to the source server after identifying types or not identified initially and prompts you for ID Type identification if necessary.

14 Use the Define Transforms dialog to create source/target mappings to save time during archive installation. The Install Archive Wizard locates Rhythmyx elements added to the source server after defining transforms and prompts you to create mappings if necessary.

The Development Environment

To ensure that your target server remains stable when you install elements from an archive, implement the recommended backup procedures, multi-tiered development environment, and security mechanisms.

System backup allows you to retrieve a recent working edition of your Rhythmyx system if archive installation causes target server instability.

- Regularly perform backup of your Rhythmyx filesystem and RDBMS.
- Depending on the size and required availability of your system, implement other disaster recovery mechanisms.

A multi-tiered development environment helps prevent archive installation from causing target server performance problems.

- Test servers let you test the effects of the installation process and the installed elements so that you can eliminate problems before installing to a production server.
- Hot standby servers provide instant backup to target servers if installation does cause failures.
- Firewalls prevent Multi-Server Manager users from accidentally installing to an insecure location.

To further avoid installation-related target server instability, only assign Administrator roles to users with an understanding of your development environment and your Rhythmyx system. Only users in Administrator roles can access the Multi-Server Manager.

Selecting an Archive Structure

Before you begin creating an archive with the Multi-Server Manager, plan the scope of the archive using the following guidelines. If elements that you want to install do not fit into the structure of the archive you have chosen, you should probably include them in a separate archive. For example, rather than packaging the elements for a community and the elements for a Rhythmyx enhancement into one archive, package them into two separate archives.

Archive Structure	Description
Entire Rhythmyx System	Archive everything possible in the Rhythmyx System. This is recommended for initial installations to a production server. See *Archiving an Entire Rhythmyx System*.
Minor Changes	Archive test server elements necessary for applying a bug fix or adding an enhancement, or archive production server elements to perform debugging or development. The Simple Example is structured as a minor change.
Site	Archive all elements required for a site to function, but no additional elements. Use this if your development environment is site-centric (if you develop for individual sites) or if you have different production servers for different sites.
Community	Archive all elements required for a community to function, but no additional elements. Use if your development environment is community-centric (if you develop for individual communities).

Managing Publishing Data with Multi-Server Manager

Multi-Server Manager provides two Rhythmyx elements, Sites and Content Lists, that can be used to move publishing information between servers.

- Use the Site element when creating an archive to be installed between two servers within the same development tier. Multi-Server Manager discovers all publishing related Rhythmyx elements as dependencies of the Site.

  The Site element includes everything related to publishing that site, including editions, publishers, content lists, contexts, and location schemes, in its dependency tree. If the target server uses the same Web server and Publisher for publishing as the source server, then it is easier to use the Site element. To choose the dependencies for the archive, in the Include Dependencies or Ancestors dialog, expand the dependency tree and include everything.

  Users most commonly archive the Site element when installing a publishing configuration across multiple servers.

- Use the Content List element when creating an archive to be installed between two servers in different development tiers. Multi-Server Manager does not discover other publishing related Rhythmyx elements as dependencies of the Content List.

  Since the Site element includes all elements related to publishing a site in its dependency tree, archiving it when installing between tiers could potentially result in errors. For example, if a production Publisher is installed on a development tier, development content could easily be published to a production server by accident. The Content List element includes the Content List registration and as a dependency, the Content List application only. By archiving a Content List, users avoid archiving publishing elements that might cause them to inadvertently publish content to the wrong site.

  Content Lists do not discover Contexts or Location Schemes as dependencies, but you should include them. Location Schemes are ancestors of the Variant Definition. Depending on how the Content List is configured, it may or may not discover a variant as a dependency.

  If the Content List has a Variant dependency, simply expand the Variant's ancestors to discover the Location Scheme. Once you find the Location Scheme(s), expand its ancestors to discover the Context(s).

  If the Content List does not have a Variant dependency, create (or re-create) an archive containing the relevant Content Assemblers. For each Variant definition, expand the ancestors and select the desired Location Scheme(s), then expand the Location Scheme's ancestors to discover the Context(s).

  After you install a Content List on a target server:

  - Configure the Publisher(s) to be used on this tier.
  - Configure the Site(s) to use the Publishers and the Web servers for this tier.

- Configure the Site-specific Context Variable(s). (If you installed Context Variables as dependencies of Content Assemblers, only preview site-specific Content Variable(s) are present.)

- Configure the Edition(s), assigning the installed Content Lists to the Site(s) configured for this tier.

C H A P T E R   1 0

Simple Example: Adding a New Field to a Content Editor

In this example, an implementer has Rhythmyx installed on a development server and a test server. The implementer adds a new field to the Brief Content Editor on the development server and creates a new Variant that displays the field. Then the implementer installs the changed Brief Content Type and the new Variant on the test server.

NOTE: The Brief Content Editor in this example is included in the FastForward sample implementation.

Initially, the Brief Content Editor on the source development server appears as:
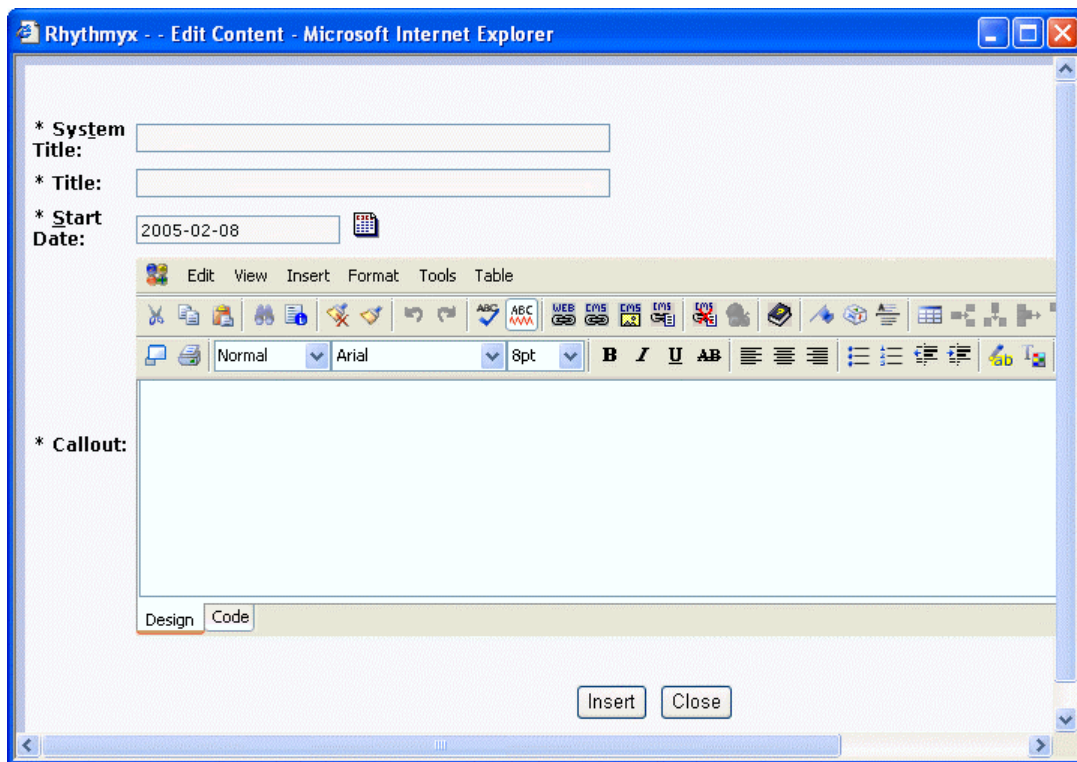
Figure 66: Original Brief Content Editor on source server

The Brief Content Editor is exactly the same on the target test server:
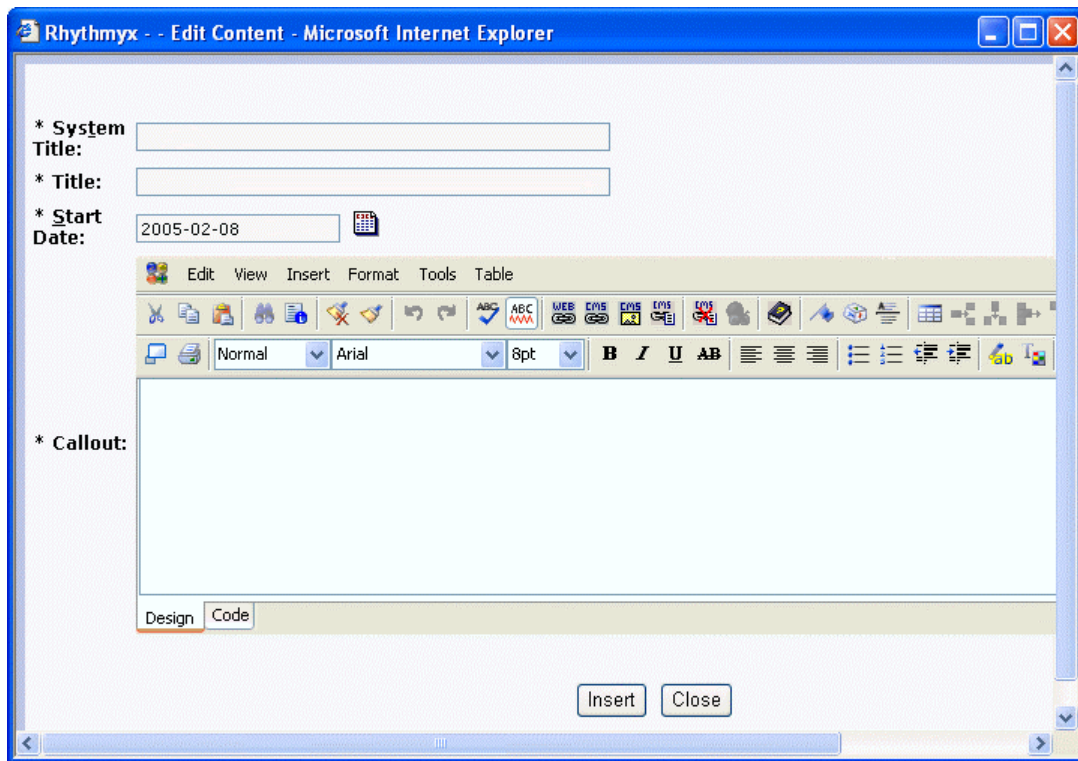
Figure 67: Original Brief Content Editor on source server

The implementer adds the **Topic** field to the Brief Content Editor on the development (source) server, so that now it appears as:
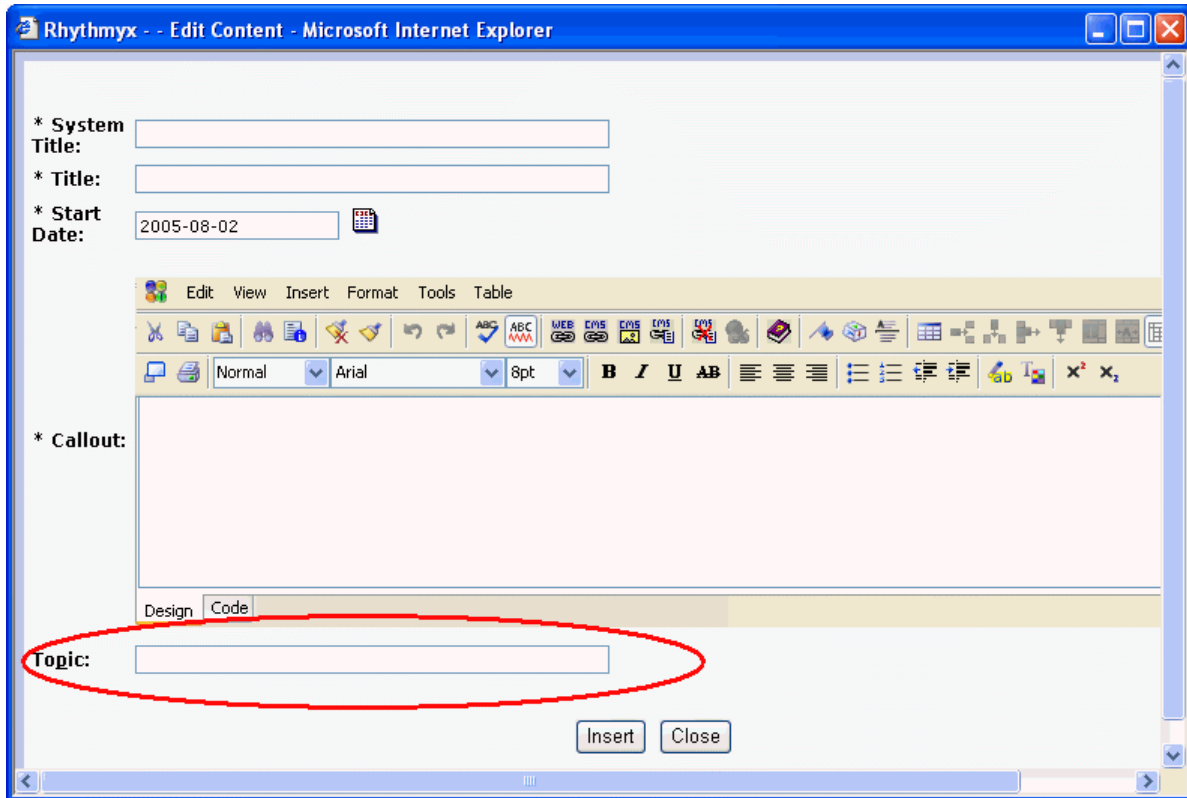
Figure 68: Brief Content Editor with Topic field added on Source Server

The implementer creates a new variant, S - CalloutAlt, to display the new Topic field. The implementer registers the S - CalloutAlt Variant, which has the ID of 378.

Figure 69: Alternate Callout Variant registration

The implementer adds the new variant to the rxs_Shared_cas assembler application in the Workbench and sets the conditional:

```
(if) PSSingleHtmlParameter/sys_variantid=378 (use) s_calloutAlt.xsl
```
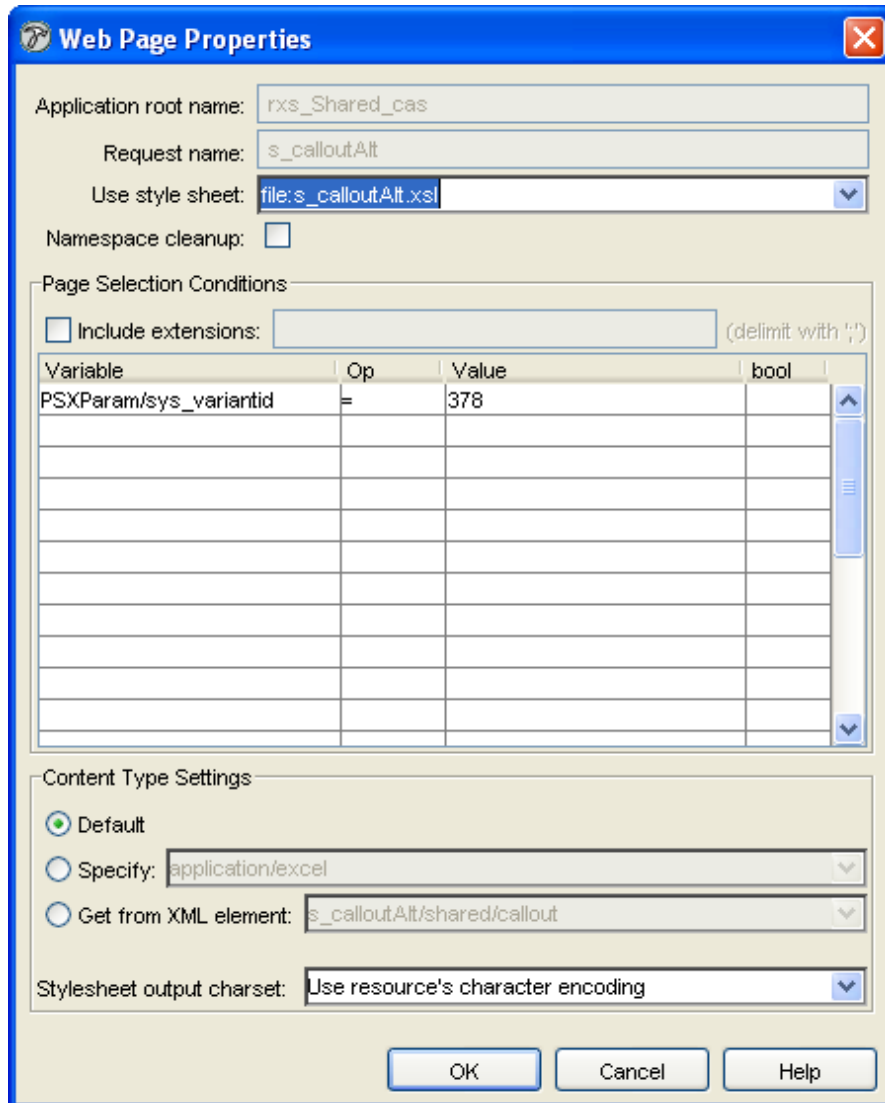

Figure 70: Condition for using Alternate Page Variant in assembler application

The s-CalloutAlt Variant now appears in Preview choices for Brief Content Items in Content Explorer.
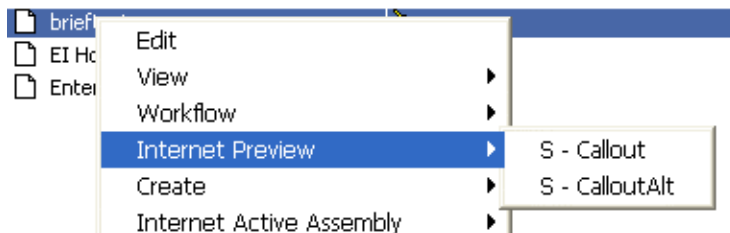
Figure 71: Variant Options in Article Content Editor on source server

Simple Example: Setting Up the Source and Target Servers

You install this new version of the Article Content Editor on the test (target) server using the following steps:

1   Start the Rhythmyx source (development) server and the Multi-Server Manager. Start the Multi-Server Manager using the `<Rhythmyx Root>/RhythmyxMultiServerManager.exe` file.

In this example, the source (development) server is already registered but the target (test) server is not.
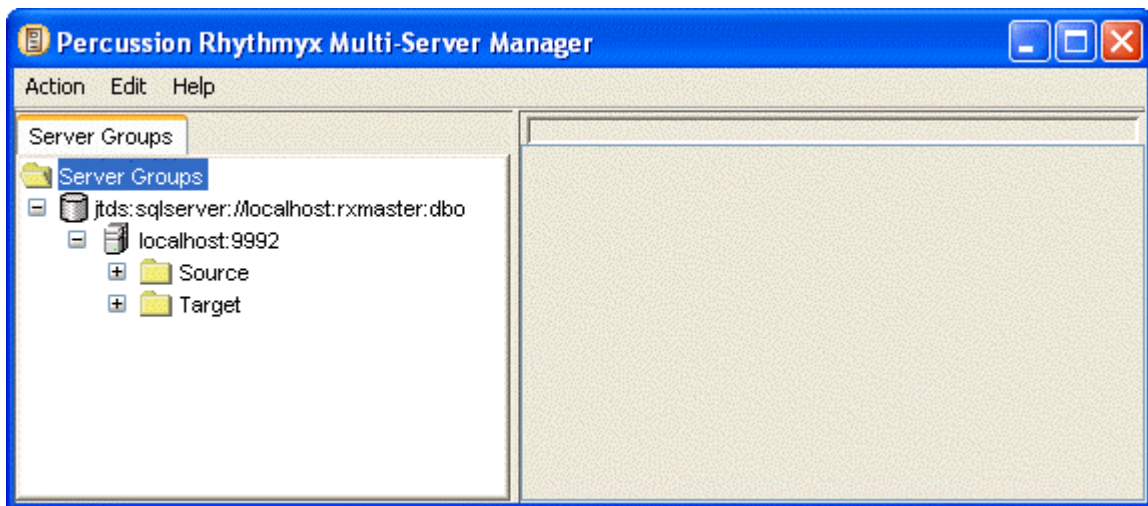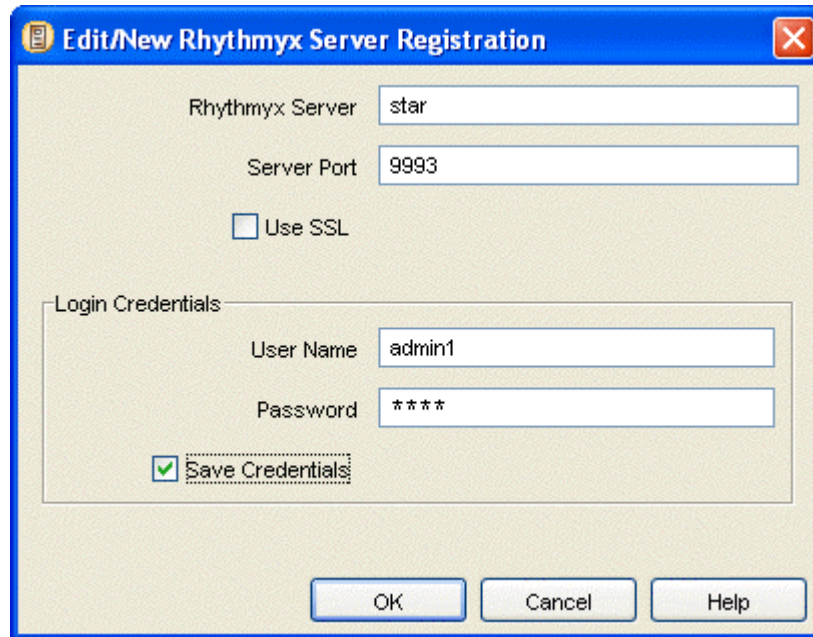
Figure 72: MSM Interface displaying reigstration of source server

2   To register the target (test) server, select *Action > Register Server*.

The Multi-Server Manager displays the Edit/New Rhythmyx Server Registration dialog.

Figure 73: Source Server Registration

3 In the Edit/New Rhythmyx Server Registration dialog, enter the target (test) server name and port in **Rhythmyx Server** and **Server Port**, and enter the login in name and password in **User Name** and **Password**. Leave **Use SSL** unchecked since you are not using a secure connection. Check **Save Credentials** so that you do not have to reenter them each time you connect to the server. Click [**OK**].

The Multi-Server Manager displays the **Enter Repository Alias** dialog.

Figure 74: Enter Repository Alias dialog

4 Leave the default repository **Alias Name** or enter a new one and click [**OK**].
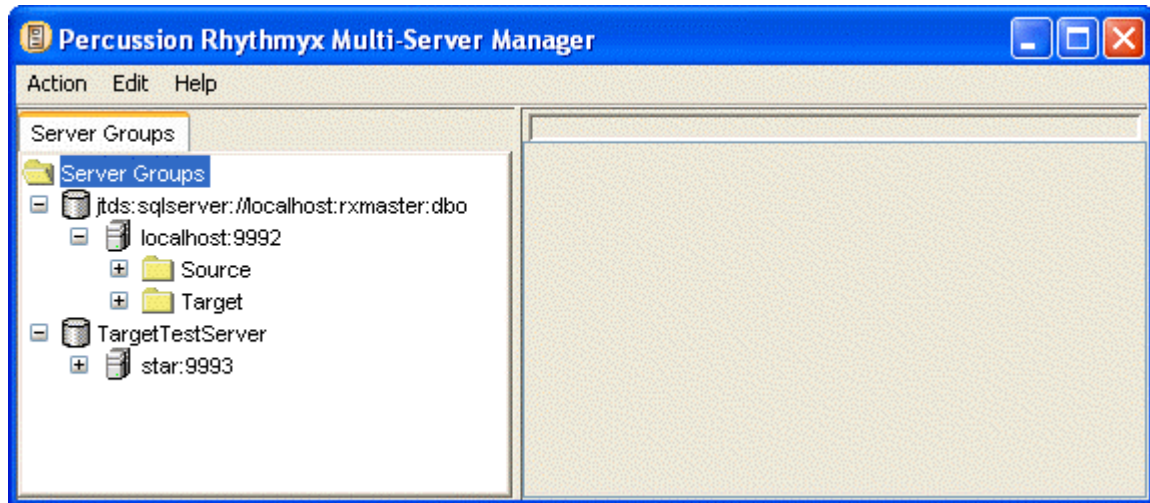
Figure 75: MSM Interface displaying source and target server registrations

5 In this example, the implementer has previously identified ID Types on the source (development) server. (To identify ID Types select the Target Server node and choose *Edit > Identify ID Types*. This action opens the ***Identify ID Types dialog*** (see "Identify ID Types" on page 67).) When you enter the Create Archive/Descriptor Wizard, you can identify new ID Types (such as the new variant *S - CalloutAlt*) that have been added to the source (development) server since the implementer identified them.

6 In this example, DBMS credential mappings and Rhythmyx element mappings between the source and target server have not been previously added. To map DBMS credentials and Rhythmyx elements on the source and target servers, select the source server and choose *Edit > Define Transforms*.

The Multi-Server Manager displays the Define Transforms dialog.
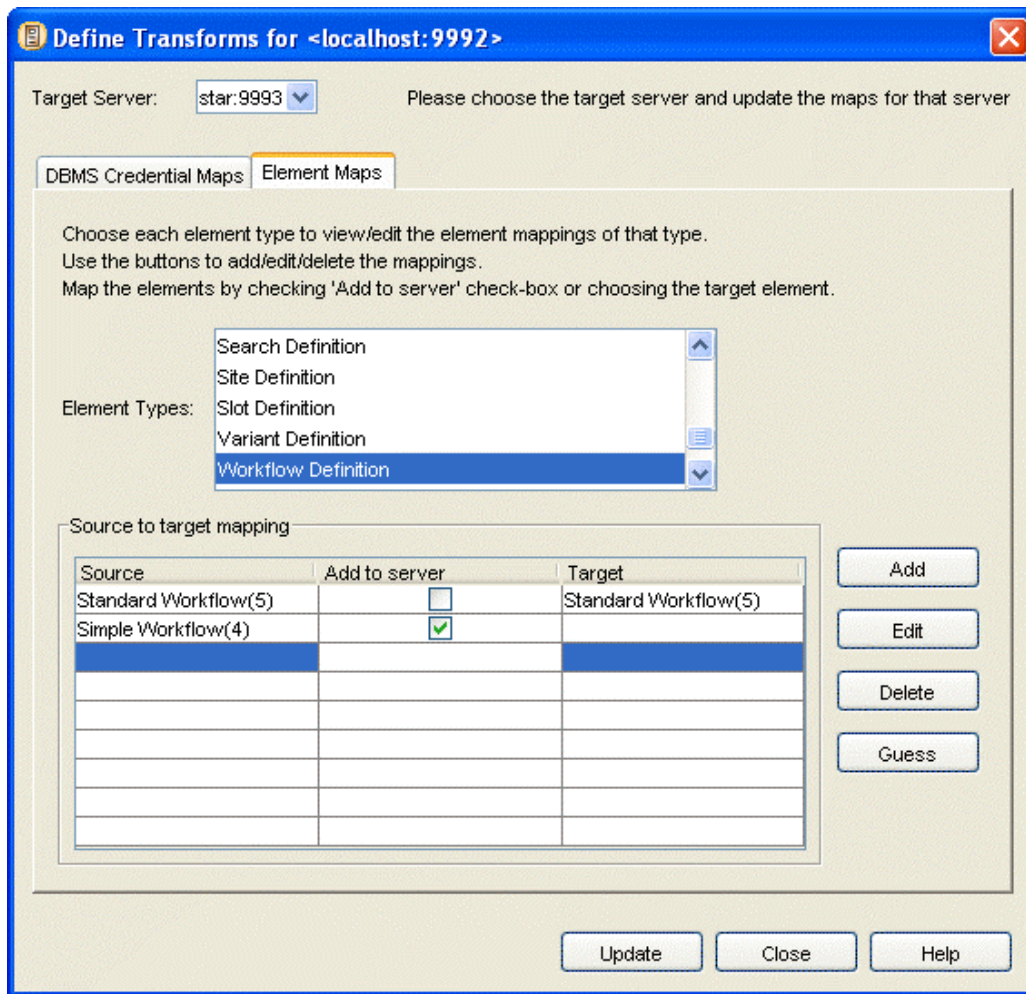
Figure 76: Target to Source server mappings

7 Select the target (test) server in the **Target Server** drop list. None of the applications on your source server have a non-default DBMS server or repository specified (none of your applications access tables in repositories other than your Rhythmyx repository). In most cases, your Rhythmyx applications will not have non-default DBMS servers or repositories specified. Click the Element Maps tab.

In the Element Maps tab, select each **Element Type** to display all elements of that type under **Source** and click [**Guess**]. The Multi-Server Manager looks for matches on the target server and displays them under **Target**. If it does not find a match, it checks the **Add to server** check box to indicate that the Multi-Server Manager should copy the source element to the target server.

In the example graphic above, the **Add to server** check box for *Simple Workflow (4)* variant is checked because no match for the element exists on the target server. *Standard Workflow (5)* has a match because it exists on both the source and target servers.

Click [**Update**] to save the mappings and [**Close**] to close the **Define Transforms** dialog.

You have now set up the source and target servers and are ready to create an archive.

Simple Example: Creating an Archive

To create the archive for installing the new Article Content Editor and Alternate Page variant to the target test server:

1   Notify users not to work on the source (development) server while you are creating the archive

2   Choose *Action > Create Archive*.

   The Multi-Server Manager opens the Create Archive/Descriptor Wizard.
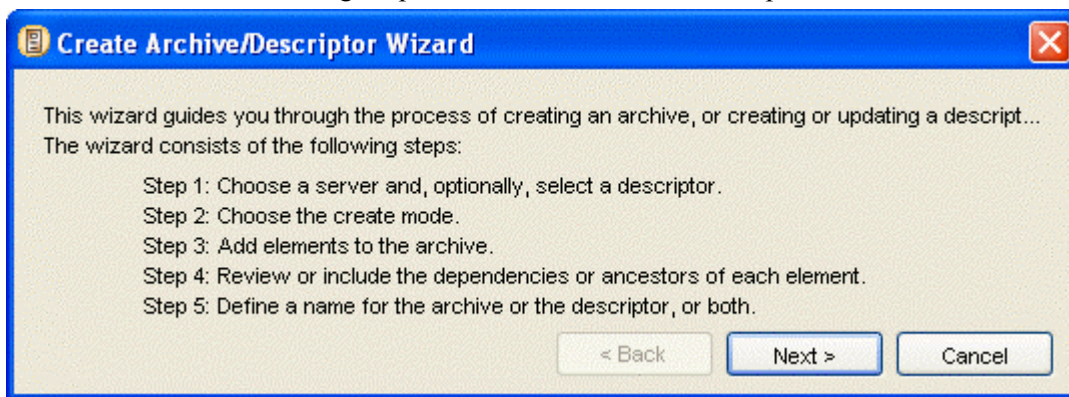
Figure 77: Create Archive/Descriptor Wizard

3   Click [**Next**].

   The Multi-Server Manager displays the Choose a Server and/or Descriptor dialog of the Wizard.

Figure 78: Server on which to create archive

4   In the **Server** drop list, choose the source (development) server. Do not check the **Use Existing Descriptor** check box; you will create a new descriptor. Click [**Next**].

The Multi-Server Manager displays the Choose Create Mode dialog of the Wizard.
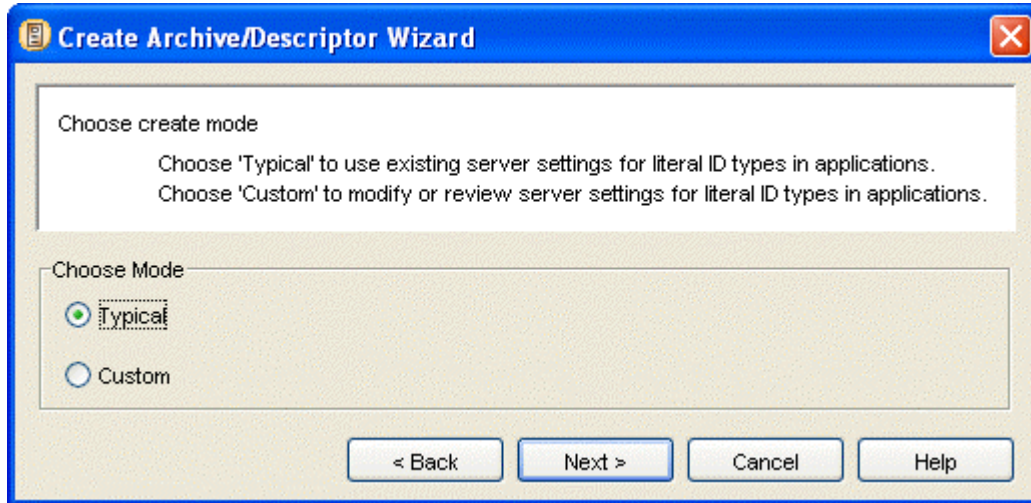
Figure 79: Create Archive/Descriptor Wizard, Choose Create Mode

If you choose *Typical* mode, the Wizard only displays unspecified source server ID Types for you to identify. If you choose *Custom*, the Wizard displays all source server ID Types for you to modify and review. In this example, you want to specify ID Types for new elements but not modify or review existing ID Type settings. Choose *Typical* and click [**Next**].

The Multi-Server Manager displays the Add Elements to the Archive dialog of the Wizard.
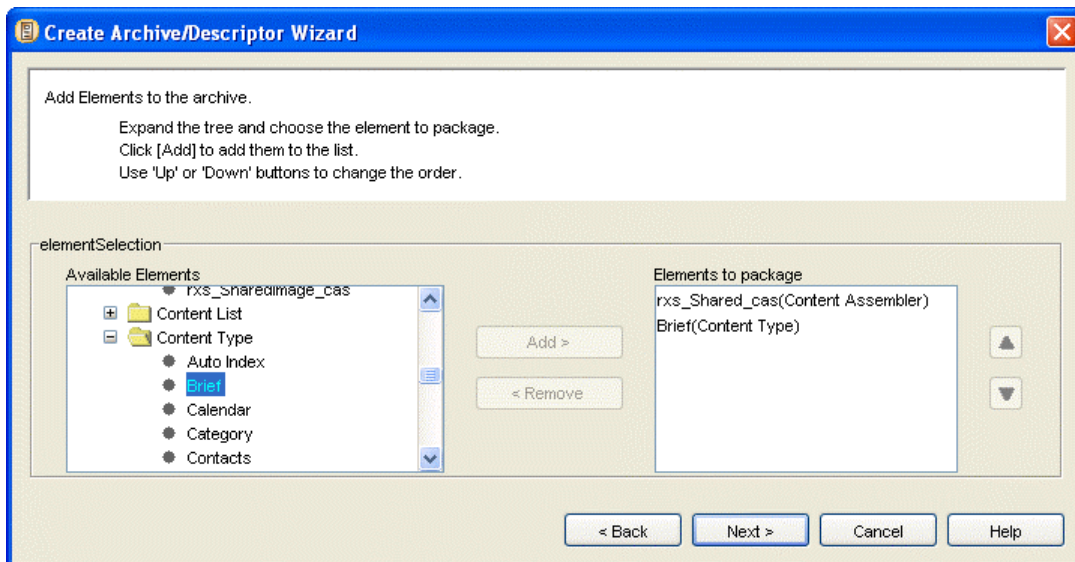
Figure 80: Choice of elements to package in archive

5   The elements that you want to install on the target server are the modified Brief Content Editor and the new S - CalloutAlt Variant for the Brief content type. The Dependency Type that includes a Content Editor is the Content Type, so you must include a Brief Content Type package to install the Brief Content Editor. The Dependency Type that includes a Variant is the Content Assembler, so you must include the Content Assembler that includes the new Variant (rxs_Shared_cas) package to include the S - CalloutAlt Variant for Briefs.

Expand the Content Assembler folder in the **Available Elements** tree, choose *rxs_Shared_cas* and click [**Add**].   *rxs_Shared_cas(ContentAssembler)* appears in the **Elements to package** list. Expand the Content Type folder in the **Available Elements** tree, choose *Brief*, and click [**Add**]. *Brief(Content Type)* appears in the **Elements to package** list.

Click [**Next**].

The Multi-Server Manager displays the Identify ID Types dialog of the Wizard.
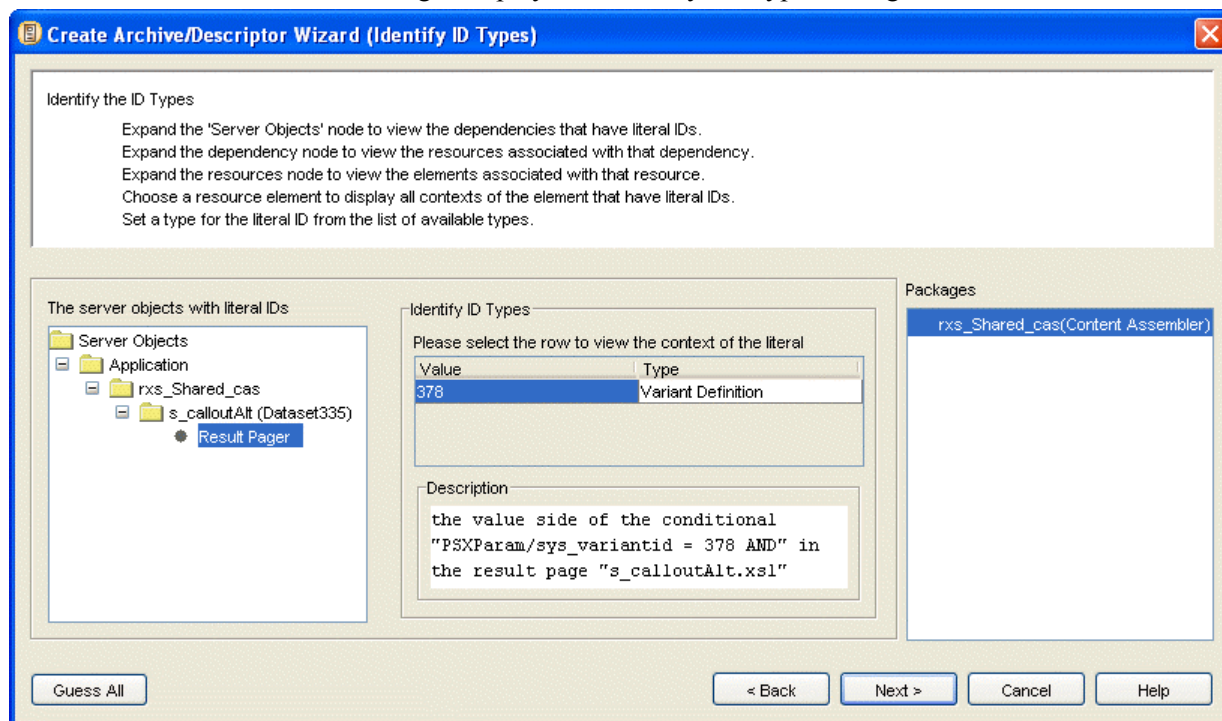
Figure 81: Identification of ID types in server objects

Only IDs added since the implementer previously identified ID Types on the source server display in the dialog because you are performing a *Typical* archive creation. In this example, the implementer defined the conditional PSXSingleHtmlParameter/sys_variantid=378 for using the S - CalloutAlt Variant in the rxs_Shared_cas content assembler application since last identifying ID types; therefore, the Identify ID types dialog lists rxs_Shared_cas under **Packages** and the dialog displays a **server objects with literal ids** tree that includes a Result Pager node for this literal ID. Click the Result Pager node to display 378 in the **Value** column under **Identify ID Types.**   Click *378*. The text in **Description** tells the location of the literal ID (*the value side of the conditional "PSXSingleHtmlParamter/sys_variantid = 378 AND" in the result page 'S - CalloutAlt.xsl'"*). In **Type**, select *Variant Definition*.

Click [**Next**].

The Multi-Server Manager displays the Choose the Dependencies or Ancestors dialog of the Wizard.
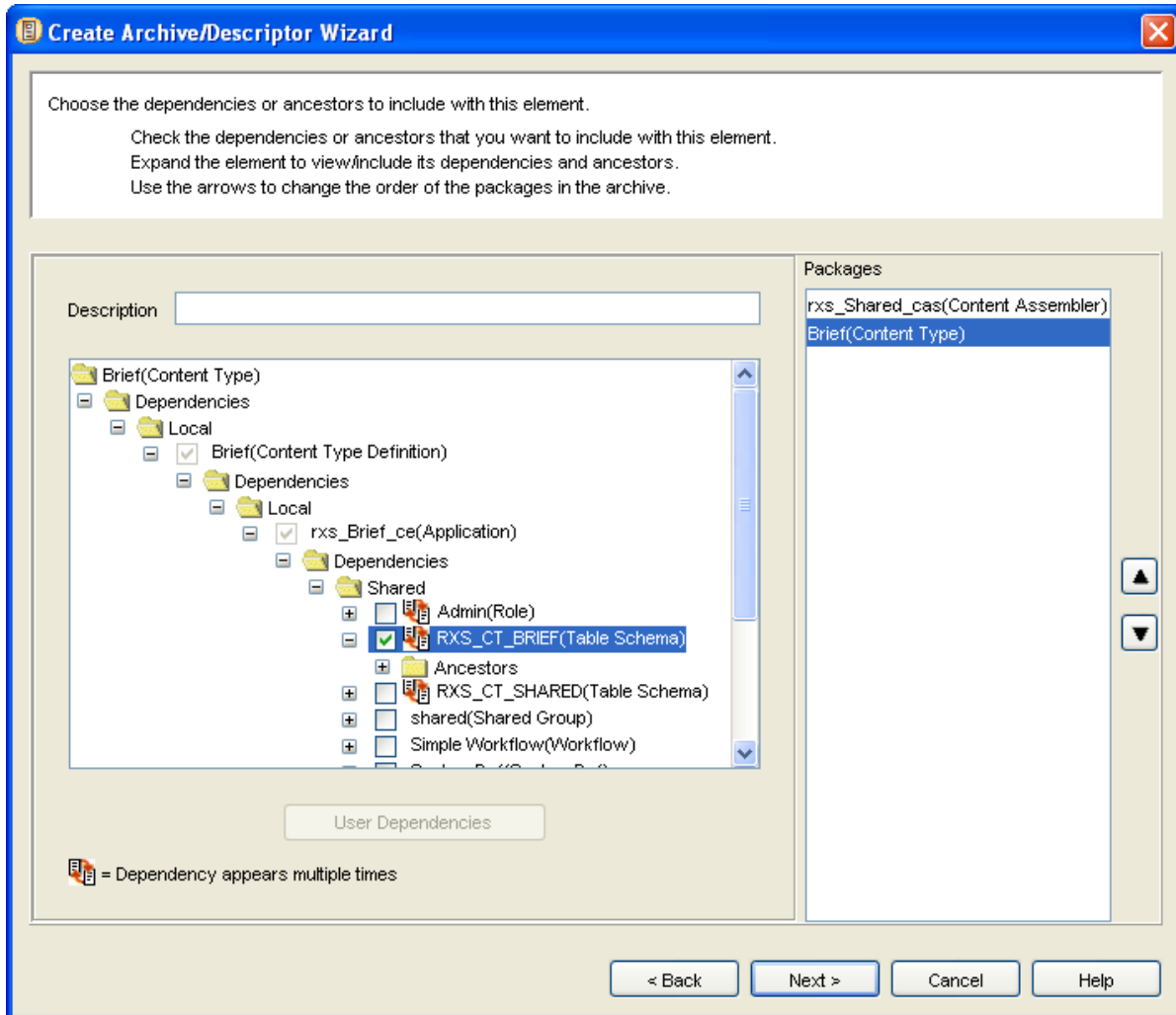
Figure 82: Selection of dependencies to include with packages

6 The Brief Content Editor has a new field; therefore, the RXS_CT_BRIEF table schema has changed (it has a new column). You must include the RXS_CT_BRIEF table schema as a dependency to install on the target server because the Content Type Package Type does not automatically include table schemas. Select *Brief(Content Type)* under **Packages** and expand the tree until you can see the contents of the Shared node. Check the RXS_CT_BRIEF(Table Schema) check box to include the RXS_CT_BRIEF table schema as a dependency of the Brief Content Type.

You may enter a **Description** for each package. It will appear in Packages View after you install the package on the target server.

Click [**Next**].

The Multi-Server Manager displays the Create Archive or Descriptor dialog of the Wizard.

Figure 83: Archive and descriptor name choices

7   In this example, you will create both an archive and a descriptor.

In **Description**, enter the description of the descriptor that you want to appear in Descriptors View. Check **Create Archive** and enter a name for the archive. Check **Save Descriptor** and enter a name for the descriptor.

Click [**Finish**].

The Multi-Server Manager saves the descriptor on the source server and saves the archive on the Multi-Server Manager client. In this example, the Multi-Server Manager client is located in the source server.

The Wizard displays the Archive Status dialog while it saves the archive.
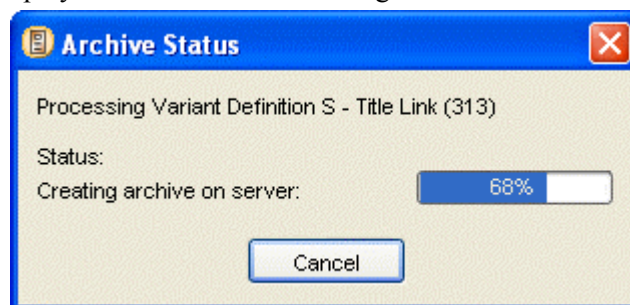
Figure 84: Creation of archive

When the Multi-Server Manager has completed installing the archive, click [**Close**].

8   Return to the Multi-Server Manager window and expand the Source Server Node. Click the Descriptors node to view the descriptor that you created listed in the Descriptors View. Descriptors View displays the **Descriptor Name** and **Description** that you entered in the Create Archive or Descriptor dialog and today's date.
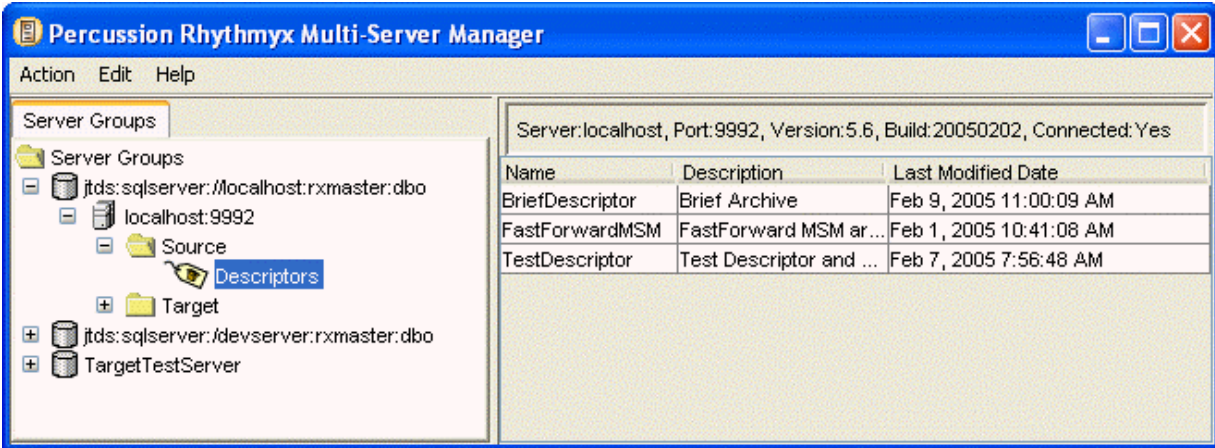
Figure 85: View of descriptor created on source server

Simple Example: Installing the Archive

To install the contents of the archive that you created on the target server:

1   Notify users not to work on the target (test) server while you are installing the archive.

2   Back up your Rhythmyx tree on your target (test) server in case an installation error incorrectly modifies the contents of the Rhythmyx tree, and you want to re-install the original.

3   If you are not connected to the target server, ***connect to it*** (see "Connect to Server" on page 26). In this example, you will install the archive by accessing it from Descriptors View on the source server, so you must also connect to the source server; however, in general it is not necessary to connect to the source server to install an archive created on it.

4   In the **Server Groups Tree**, expand the source (development) server and select the Descriptor Node so that **Descriptors View** displays in the **Details Pane**. Right-click the descriptor and select *Install* in the drop menu.
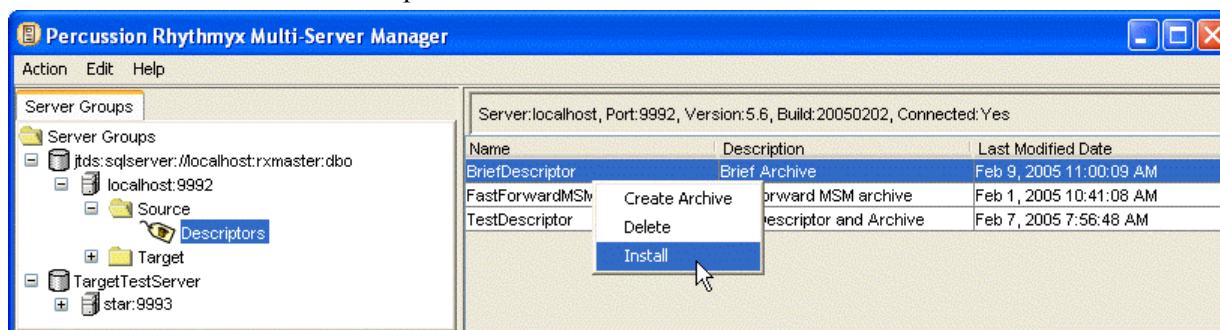
Figure 86: Selecting to install the descriptor

The Multi-Server Manager displays a dialog reminding you to back up your target server. Click [**Yes**] to continue.

The Multi-Server Manager opens the Install Archive Wizard.
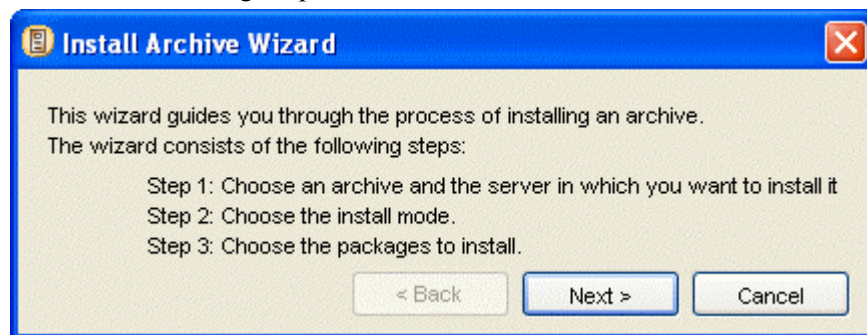
Figure 87: Install Archive Wizard, first dialog

5   Click [**Next**].

The Multi-Server Manager displays the Select an Archive and Server dialog.
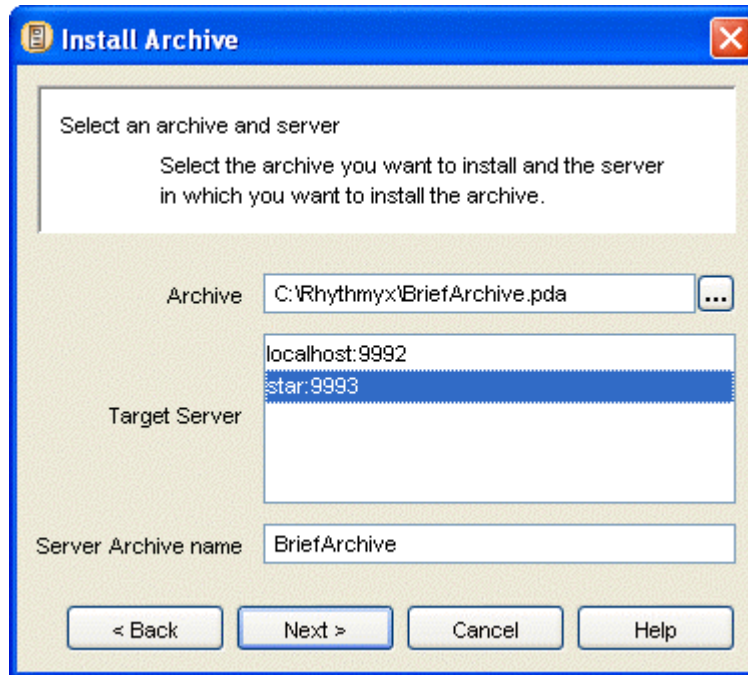
Figure 88: Selection of archive and target server

By default, **Archive** displays the archive created with the descriptor and **Server Archive Name** displays the name of the archive on client. **Server Archive Name** is the name the archive will have on the target server. Leave these default values.

Target Server displays all registered servers. Choose the target server. Click [**Next**].

The Multi-Server Manager displays the Choose Installation Mode dialog.
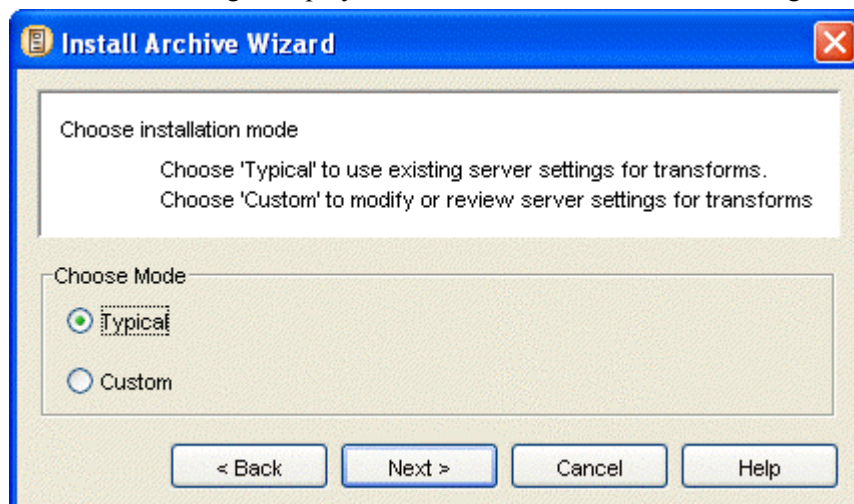
6   In this example, you do not have to review mappings and you have already mapped your new Brief Variant. Choose *Typical* to use your existing mappings and click [**Next**].

The Multi-Server Manager displays the Select Packages to Install dialog.
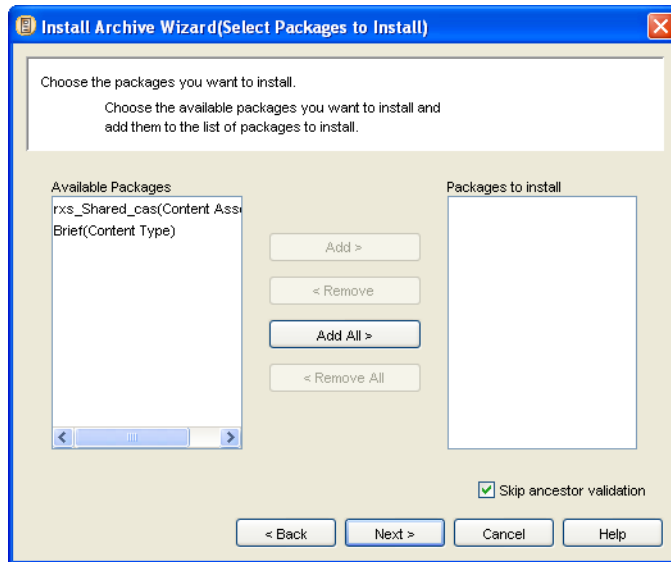
Figure 89: Selection of packages to install

7   Click [**Add All >**] to move both packages to **Packages to Install**. Click [**Next**].

The Multi-Server Manager displays a dialog showing the progress of package validation. When package validation is complete, the dialog closes and the Multi-Server Manager displays the Specify Actions for Warnings dialog.
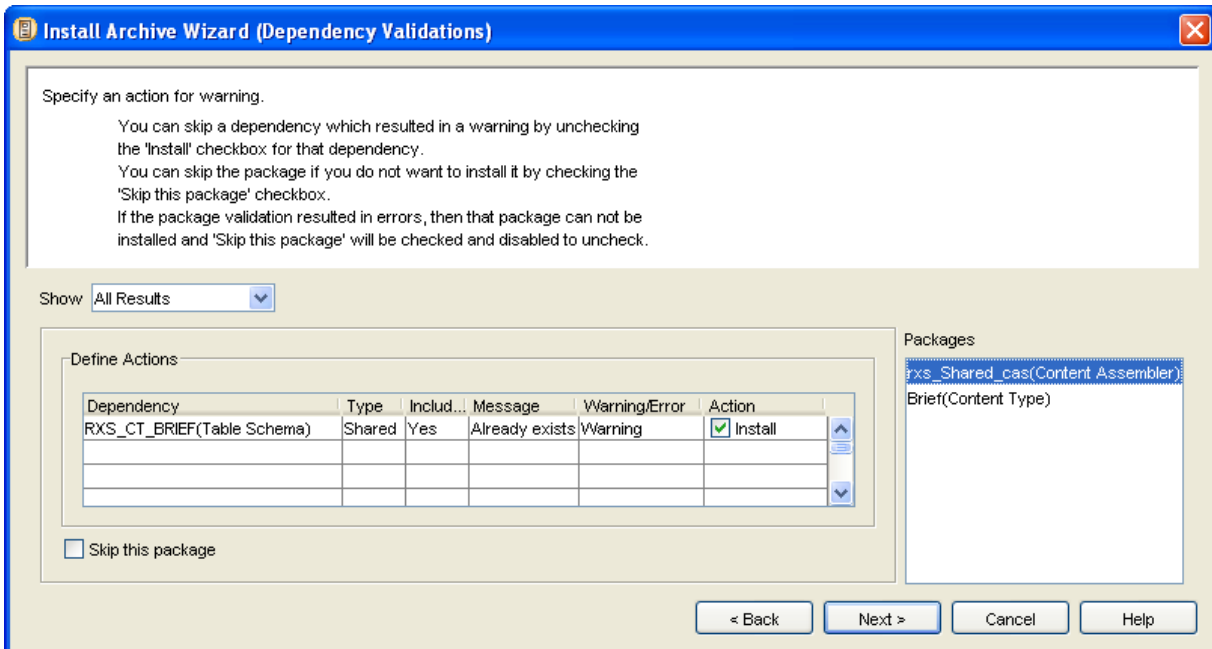
Figure 90: Results of dependency validations

The rxs_Shared_cas(Content Assembler) and the Brief (Content Type) package validations both result in warnings that the RXS_CT_BRIEF table schema already exists. You want to overwrite the existing table, so leave *Install* checked.

8   Click [**Next**].

The Multi-Server Manager displays a dialog telling you that you are installing packages with warnings. Click [**Yes**] to continue.

The Multi-Server Manager displays the Summary dialog of the Wizard.
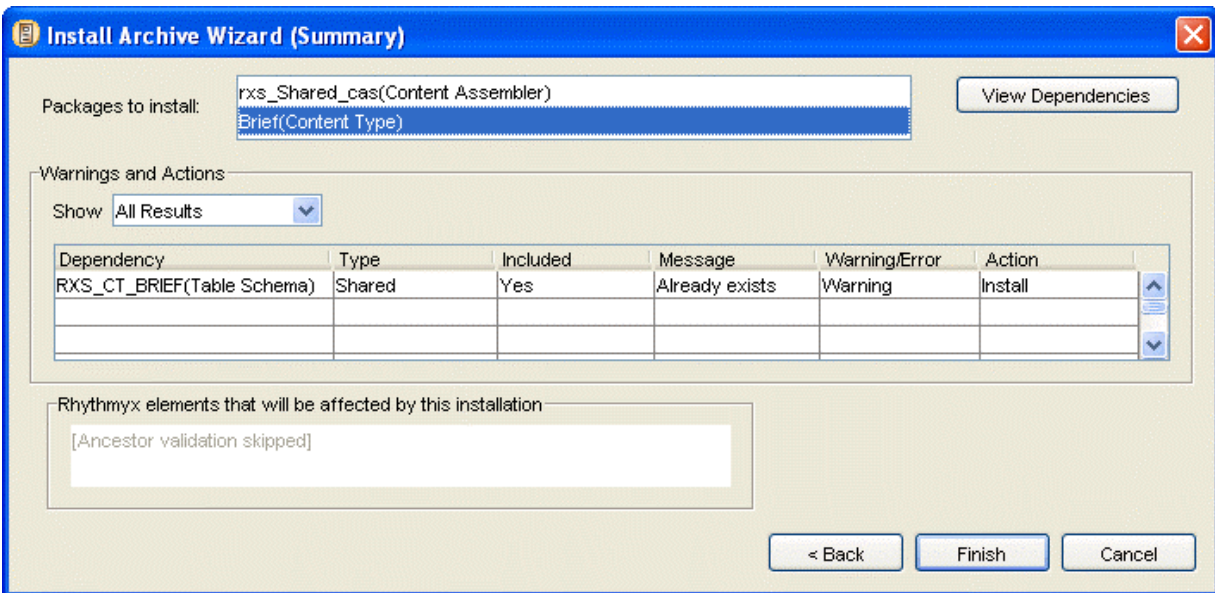
Figure 91: Summary of packages to be installed

9   Click [**Finish**].

The Multi-Server Manager displays a dialog prompting you to confirm installation. Click [**Yes**] to install.

The Multi-Server Manager displays the Install Status dialog. When installation is complete, it enables the [**Show Log**] button.
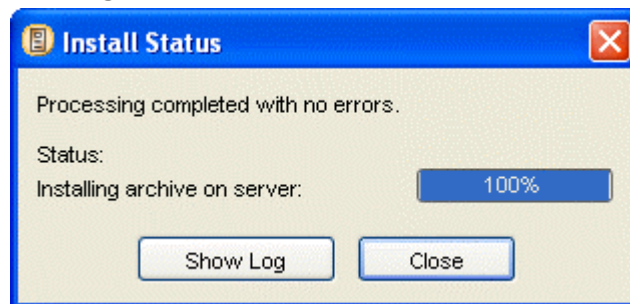
Figure 92: A completed installation

Simple Example: Reviewing the Installation

Review your archive installation by examining the archive and package logs, by looking at Archives View and Packages View on the target server in the Multi-Server Manager window, and by checking your changes on the target server.

To review your archive installation:

1   After you complete the Archive Installation Wizard, when the Install Status dialog indicates that installation is finished, click [**Show Log**].
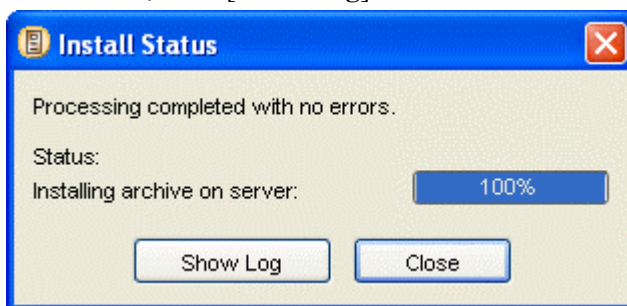
Figure 93: A completed installation

The Multi-Server Manager displays the Archive Summary log.
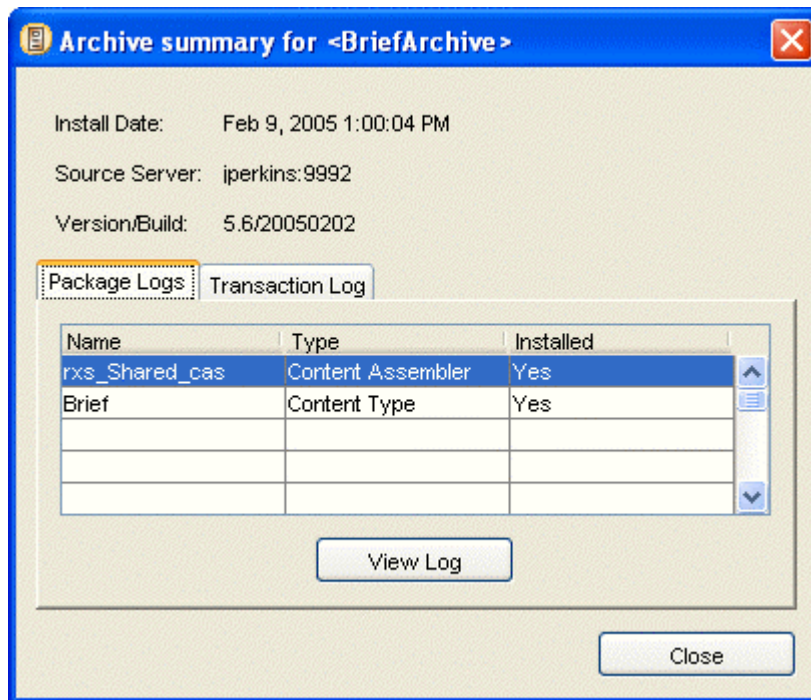
Figure 94: Summary of archive installation log details

Click each package in the **Packages List** and click [**View Log**] to view its package log.
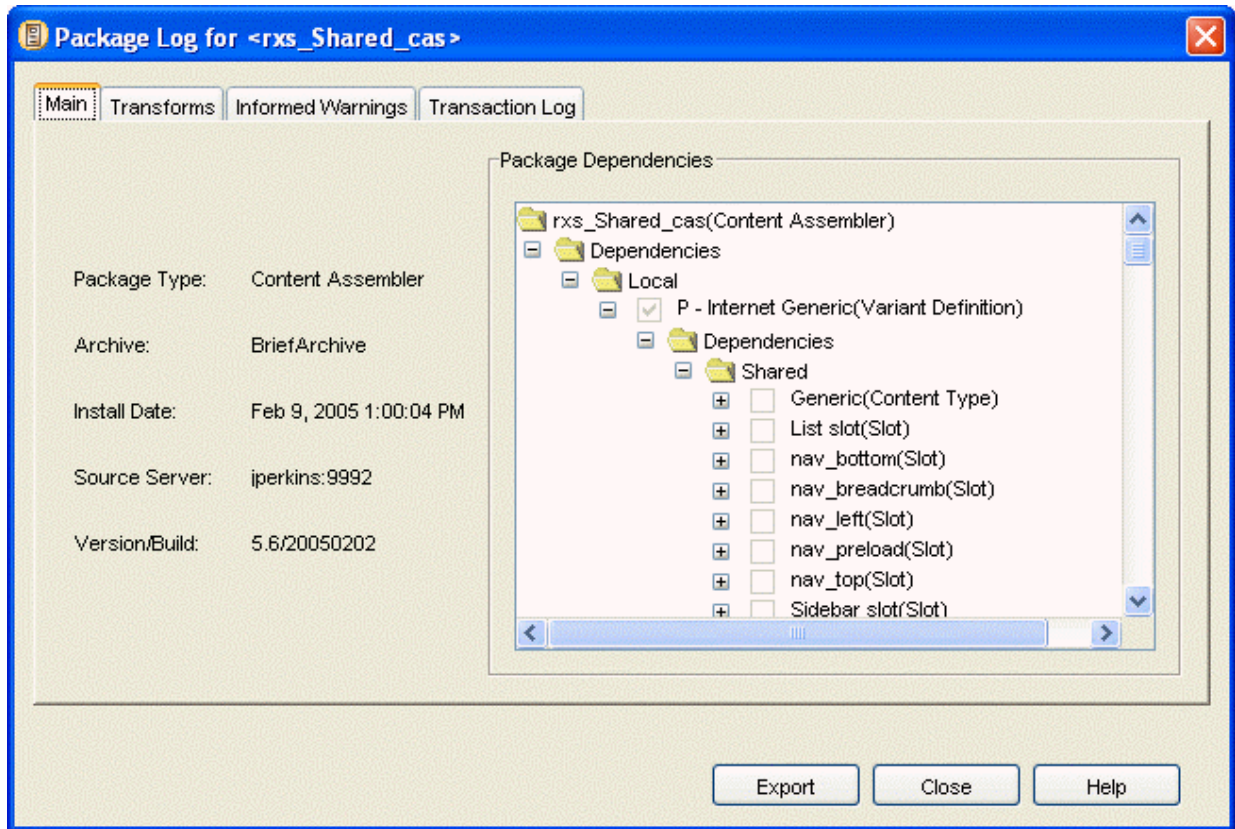
Figure 95: Main tab of package log for Article Content Type

2 In the **Server Groups Tree** of the Multi-Server Manager window, expand the Target Server node.

Click the **Archives** node. Archives View displays with a listing for the archive that you installed on the target server in the **Details Pane**. The **Name** of the archive is *BriefArchive*, the name that you entered in the Select an Archive and Server dialog of the Install Archive Wizard. Double-click on the archive to view the same archive summary that you viewed from the Install Status dialog.
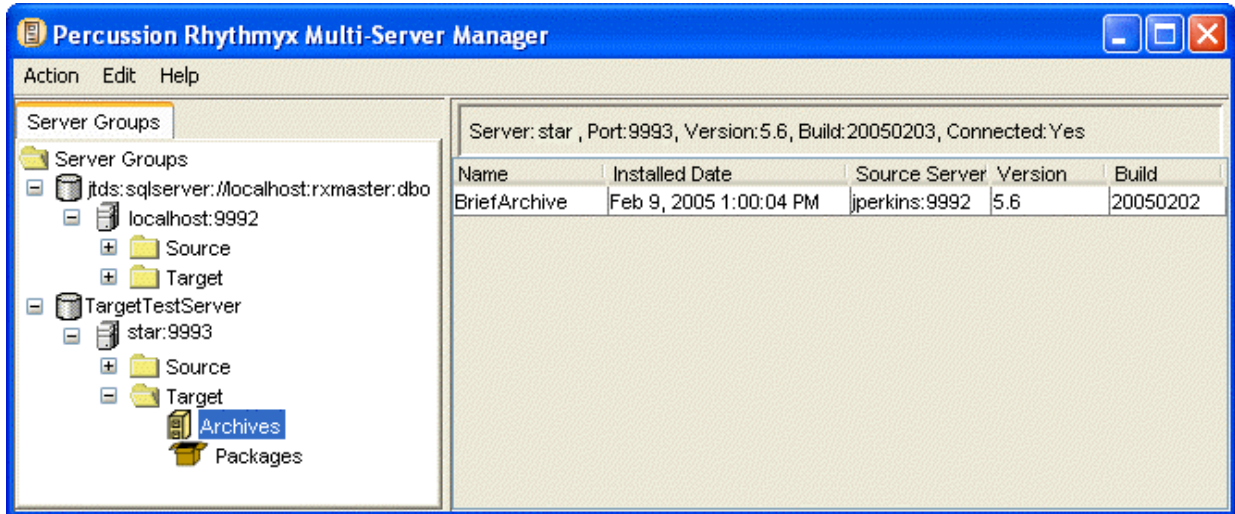
Figure 96: Archives View displaying the installed archive

Then click the **Packages** node. Packages View displays in the **Details Pane**. Packages View lists the Brief Content Type and rxs_Shared_cas Content Assembler packages that you installed on the target server. Double-click on a package to view the same package log that you viewed from the Archive Summary.
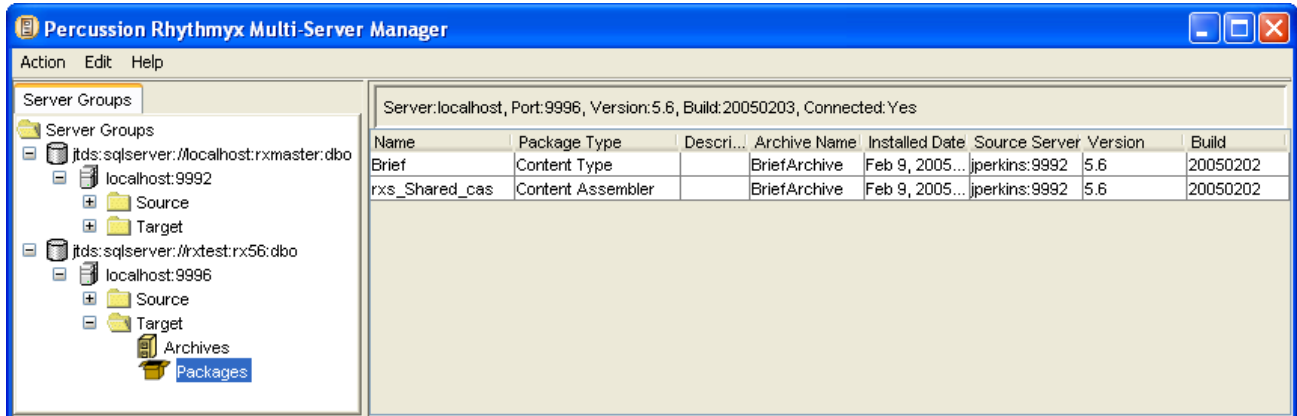
Figure 97: Packages View displays the installed packages

3   Log in to Rhythmyx on the target (test) server as an administrator.

4   Since you have added a new Variant to the server, you must associate it with your login Community in order to be able to view it. Click the System tab and go to the Community page. Click your login Community name, and under Community Properties, click Variants. Click Add Variant, and add check the S - CalloutAlt Variant.

Add Variants for Internet Community(1002) Community

Content Type : Brief (302)
☑ S - CalloutAlt (378)
Content Type : NavImage (313)
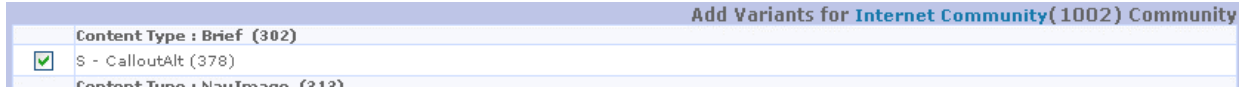
Figure 98: Adding the S - CalloutAlt Variant to the login Community

Click [**Save**].

5   Click the Content tab and Open a new Brief content item.
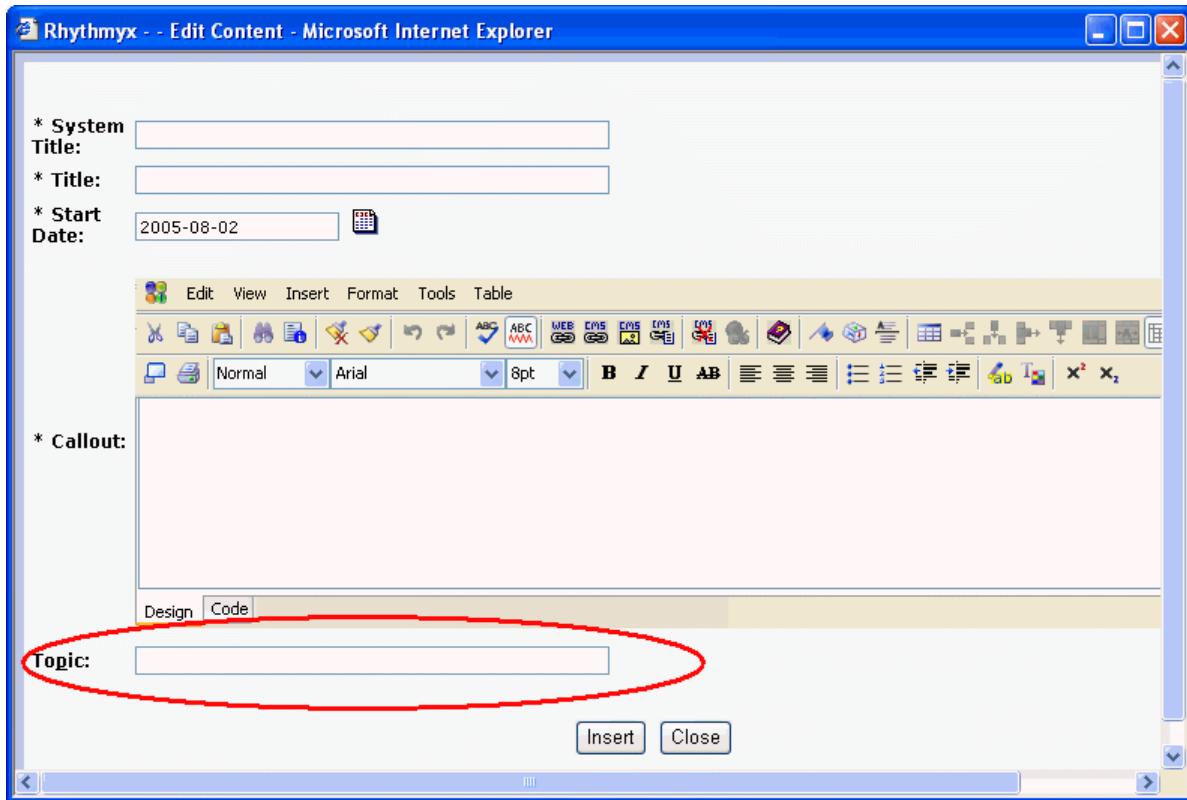
Figure 99: Brief Content Editor with Topic field added on Source Server

The new **Topic** field appears. Fill in the Content Editor and save the Content Item.

6   Right-click your new Brief Content Item in Content Explorer and choose the Preview option in the drop menu. The new S - CalloutAlt Variant should be one of the preview options.
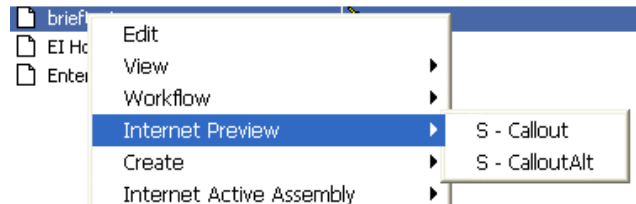
Figure 100: Variant Options in Article Content Editor on source server

C H A P T E R   1 1

Troubleshooting

1   If an archive fails to install:

   a)   Attempt to re-install the archive using *Custom* rather then *Typical* mode and review your element mappings.

   b)   Attempt to re-install the archive one package at a time to avoid an error due to incorrect package order.

   c)   Recreate the archive using *Custom* rather than *Typical* mode. Be sure to include all Table Schema dependencies and verify that the packages are in the correct order.

2   If an archive containing a Workflow fails to install and you receive an error message similar to:

Figure 101: Process Aborted Error Message

You are probably using an older version of Rhythmyx with a bug that causes transitions to be orphaned if the "to state" is deleted from the workflow. To correct this error, complete the following steps:

   a)   Run the following SQL script against the source repository:

```
 delete from TRANSITIONS
    where not (
    TRANSITIONS.WORKFLOWAPPID in
    (select WORKFLOWAPPID from WORKFLOWAPPS)
    and
    TRANSITIONFROMSTATEID in
       (select STATEID from STATES
          where WORKFLOWAPPID = TRANSITIONS.WORKFLOWAPPID

       )
    and
        TRANSITIONTOSTATEID in
       (select STATEID from STATES
          where WORKFLOWAPPID = TRANSITIONS.WORKFLOWAPPID
       )
    )
```

   b)   Recreate the archive containing the workflow.

c) Install the new archive on the target server.

3 If your installation modifies a target server workflow to have fewer states, target server content items in the states that you remove are orphaned. A content item's state and workflow are stored in the CONTENTSTATUS table in the columns CONTENTSTATEID and WORKFLOWAPPID. You can change the state of orphaned content items to a state that currently exists in the workflow with the SQL statement:

```
update CONTENTSTATUS set CONTENTSTATEID=[x] where
CONTENTSTATEID=[y] and WORKFLOWAPPID=[z]
```

x = the new state ID for the orphaned content item (a state that exists in the installed workflow)

y = the deleted state ID

z = the workflow ID

Glossary of Terms

A

Ancestor

An element, such as a files or an exit, that is not part of a Package but is affected by its dependencies. For example, if a content type is associated with a community, the community is an ancestor of that Content Type's Package.

Archive

A file that the Multi-Server Manager sends from the source server to the target server to install elements of Rhythmyx. An archive contains Packages for installation on the target server and a description of its contents.

D

Dependency

A Rhythmyx element that is required to make up a Package or an optional element that a required element uses.

Descriptor

A file that specifies the contents of an archive and their settings. A descriptor can be saved and reused to create archives.

I

ID Type

The Rhythmyx element type of an identifier. For example, an identifier in an application is "3" and its ID type is variant definition. Another identifier in the application is also "3" but its ID type is content type definition.

Identifier

An ID number that Rhythmyx uses to identify an element, such as CONTENTID, VARIANTID, and SLOTTYPEID.

Installation

The entire process of transferring elements of a source CMS to a target CMS, including defining the elements to install, synchronizing names on the source and target servers, creating an archive, and installing the archive's contents.

P

Package

All the dependencies for installing a Package Type. For example, a Content Type Package consists of the content type registration, the content editor application, and the dependencies of the application. See Package Types for lists of the Package dependencies for each Package Type.

Package Type

The different types of Packages, such as Content Types and Slots. See Package Types for a table of all Package Types.

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