



IBM Software Group

WebSphere Business Process Management Suite V6.2

WebSphere Adapters V6.2 migration



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This presentation covers the migration infrastructure of the IBM WebSphere® adapters V6.2.

Agenda

- Migration overview
- Migration infrastructure support
- Migration wizard
- Rollback migration
- Summary



This presentation starts with an overview of migration infrastructure, then introduces the migration wizard steps for each migration infrastructure. At the end, you will get to look at how migration rollback works in case of migrating errors.

Section

Migration overview



This section provides the overview of the migration in V6.2.

Overview: Terminology

- “Update” means replacement of the previous version of the adapter with the latest version
- “Migration” mean changing adapter client artifacts and adapter configuration for the latest offered
- The “latest release” and “this release” is V6.2
 - ▶ Supported earlier releases for all adapters – V6.0.2 and V6.1



Some conventions are used throughout this presentation. The word “update” means replacement of the previous version of the adapter with the latest version. The word “migration” means changing adapter client artifacts and adapter configurations to the latest offered. The “latest release” and “this release” is V6.2. Finally, “earlier releases” are the supported earlier release for the migration.

The earlier releases for all adapters are V6.0.2 and V6.1.

Overview: Goals

- Minimal user input to achieve the same results
- Old settings are preserved wherever possible.
- Minimize development effort for particular instances
 - ▶ Provide a flexible, generic infrastructure that can be reused from release to release and adapter to adapter.
 - ▶ Metadata driven approach wherever possible.
 - ▶ Default implementations for typical tasks.
 - ▶ Well defined extension points and APIs for adapter specific contributions.
 - ▶ Helper classes, utilities.
 - ▶ Isolate adapter specific contributions from the complexities of the underlying technologies used for development (Eclipse frameworks, models)

The goal of this migration infrastructure is to establish common mechanisms to automatically migrate from the earlier version to the latest version of the adapters. The goals listed here are addressed through this approach. This migration infrastructure requires minimal user input to achieve the same results, since old settings are preserved wherever possible. It also minimizes development efforts and provides a generic infrastructure to be reused from release to release and adapter to adapter.

Overview: Compatibility with earlier versions

- Support compatibility with previous versions
 - ▶ Artifacts and configurations do not need to change
 - ▶ Same functionality runs unchanged
- Upgrade procedures with new adapter RAR through:
 - ▶ WebSphere Integration Developer
 - Run the migration wizard
 - De-select dependent modules
 - ▶ WebSphere Process Server
 - From administrative console, select the application
 - Navigate to the RAR module
 - Select it and choose option Update
 - Update existing RAR file with new RAR file

WebSphere adapters V6.2 are fully compatible with V6.0.2 and V6.1 of the adapter and can work with custom business objects and data bindings. And because WebSphere adapters are fully compatible with V6.0.2 and V6.1, any of your applications that used V6.0.2 or V6.1.0 of WebSphere adapters run unchanged when you upgrade to V6.2. In this case, artifacts and configurations of the adapter client applications do not need to change with the latest version of the adapter. It means that all the old functionality runs unchanged or better. To upgrade with a new adapter resource archive, or RAR, you have two options. You can upgrade through WebSphere Integration Developer by running the migration wizard and de-selecting dependent modules; this means only the RAR file gets upgraded and dependent modules remain unchanged. Or you can update the existing RAR file with a new RAR file using the administrative console of WebSphere Process Server.

However, if you want your applications to use features and functionality present in version 6.2 of the adapter, run the migration wizard. The migration wizard upgrades version 6.0.2 or version 6.1 of the adapter to V6.2 and enables V6.2 features and functionality for use with your applications.

Section

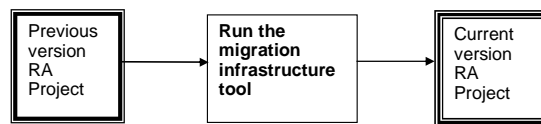
Migration infrastructure support



This section provides different types of support in migration infrastructure

Migration infrastructure – what is it?

- Need to seamlessly update application artifacts and configurations to the latest version
 - ▶ Established common mechanisms
 - Provide to users a way to automatically migrate from the previous to the new version of adapters
 - ▶ Supported earlier releases for all adapters – V6.0.2 and V6.1



In the case of compatibility with earlier versions, you might be running with some deprecated interfaces and configurations and might not take advantage of the new interfaces and configurations. In order for you to seamlessly update the application artifacts and configurations to the latest version, automatic migration tools are provided.

The scope of the modifications includes the connector project and the artifacts generated by the EMD. The migration wizard does not create components or modify existing components, such as mappers and mediators, to work with V6.2 of the adapters. If you are upgrading to V6.2 and any of your applications embed an adapter that is V6.1 or earlier, and you want your applications to take advantage of the features and functions in V6.2, you might need to make changes to those applications manually.

Migration infrastructure objective

- Provide a first-class migration solution for migrating from
 - ▶ WebSphere Business Integration Adapters to JCA Migration
 - ▶ JCA to JCA Migration
- Enhance the adapter migration wizard
- Adapter Migration Tasks
 - ▶ Update the connector project with V6.2 Adapter RAR
 - ▶ Update the module project, .import/.export/.wsdl files
 - ▶ Maintain similar implementations before and after migration

In this release, WebSphere adapters provides migration solutions for migrating from WebSphere Business Integration Adapters to JCA and from JCA to JCA adapters. The adapter migration wizard has been enhanced to provide support for both WebSphere Business Integration Adapters and previous JCA adapter projects to be at the latest version. Some of adapter migration tasks include updating the connector project to V6.2, converting ASI in business object schemas, and updating the bindings and WSDL files.

Some new features and enhancements are not automatically enabled during migration; you need to add them manually. For example, you can manually add the fault binding feature after migrating, since you might have your own error handling codes in an adapter project. Enabling fault binding feature automatically might break the project.

WebSphere Business Integration Adapters to JCA migration

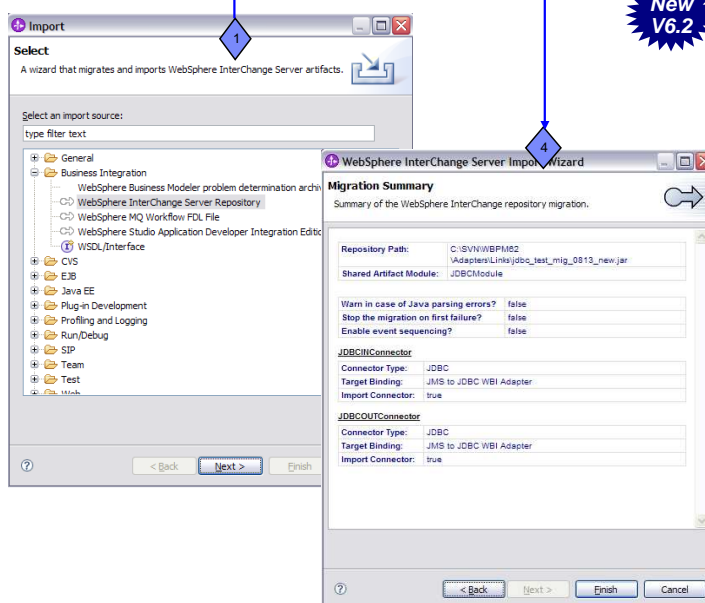
- Migration wizard flow
 - ▶ Import WebSphere InterChange Server Repository JAR
 - ▶ Start WebSphere InterChange Server Repository migration process
 - ▶ Run adapter migration wizard



These are steps in migrating WebSphere Business Integration Adapters projects to be fully JCA-compliant. The WebSphere InterChange Server repository importer is used to import the ICS project and migrate the artifacts to WebSphere Process Server compatibility. The WebSphere InterChange Server repository importer migrates the WebSphere Business Integration artifacts to the state where such projects are compatible with WebSphere Process Server. However, the adapter-specific artifacts such as service descriptors, service definitions, and business objects are not fully migrated by the WebSphere InterChange Server repository importer migration processes. The adapter migration wizard fully migrates these artifacts to the format supported by the respective JCA adapters.

WebSphere Business Integration Adapters to JCA migration

- Import WebSphere InterChange Server repository file
 - Specify shared artifact module
 - Configure migration setting for each connector
 - Conversion options
 - Migration summary
 - Migration result



New V6.2

Before running the adapter migration wizard, use the WebSphere InterChange Server repository importer to generate the application artifacts for the WebSphere business integration adapter, including the business objects, maps, and collaborations. First, you specify the location of the artifact module that you want to migrate, then configure migration setting for each connector within that module. Next, there is an option for conversions, and last but not least, the migration summary allows you to review for accuracy before migration. Refer to demonstration on how to perform this migration.

If no errors are reported during the migration of the WebSphere InterChange Server jar file, then the migration of the artifacts was successful. If the migration has not completed successfully, a list of errors, warnings, and informational messages is displayed. You can use these messages to verify the WebSphere InterChange Server migration.

WebSphere Business Integration Adapters to JCA migration



| WebSphere Adapters | Migration |
|--------------------|-----------|
| Flat Files | X |
| FTP | |
| Email | X |
| JDBC™ | X |
| Oracle EBS | |
| JD Edwards | |
| SAP | X |
| Siebel | |
| PeopleSoft | X |
| IBM i | |

Here is the list of adapters that supports WebSphere Business Integration Adapters to JCA-compliant migration.

JCA to JCA migration

- Migrate previous version JCA adapters to the current JCA adapters
 - ▶ JCA V6.0.2 to JCA V6.2
 - ▶ JCA V6.1 to JCA V6.2
- Migration wizard flow
 - ▶ Import previous project interchange (V6.0.2/V6.1)
 - ▶ Run workspace migration wizard
 - ▶ Run adapter migration wizard



For JCA to JCA migration, you can migrate a project or EAR file to V6.2 by using the adapter migration wizard. As mentioned previously, the migration wizard upgrades V6.0.2 or V6.1 of the adapter to V6.2 and enables V6.2 features and functionality for use with your applications. These steps describe how to run the adapter migration wizard while in the business integration perspective in WebSphere Integration Developer:

First, Import the project interchange (PI) for an existing project or the EAR file for a deployed application into the workspace. After completing the importing, run the workspace migration wizard to migrate workspace metadata. WebSphere Integration Developer workspace ensures that the adapter project is at the supported version to be run together. Finally, run the adapter migration wizard to complete the migration.

JCA to JCA migration for inbound



- Inbound supports event filtering by adapter ID
 - ▶ Backup data from event table
 - ▶ Drop the event table
 - ▶ Manually update event table using sample scripts
 - Add new column for “connector_ID” to support event filtering
 - ▶ Manually update database triggers

| Updated event table | |
|---------------------|---|
| Name | Description |
| Xid | Unique ID value for assured once delivery |
| Event_id | Unique event ID, which is primary key for the table |
| Object_key | String contains keys of the record in the event store that is retrieved (not NULL) |
| Object_name | Business graph name for WebSphere Process Server and business object name for other brokers |
| Object_Function | Operation corresponding to the event |
| Connector_ID | Filter by connector_ID value |
| Event_priority | Any valid positive integer values |
| Event_time | Date/time when event was generated |
| Event_status | In Progress, Success, Failure |
| Event_comment | Description |



The event filtering feature is enabled for users in the Activation Specification once the adapter migration is completed. To take advantage of this new feature, you need to make changes to the event store to add another column for connector_ID. This means backing up data and dropping the previous event table. Then manually update the event table using the sample script from adapter. This new script provides new column “connector_ID” to support this event filtering. The adapter adds the corresponding column to the event query and ignores it if the adapter ID is not specified.

JCA to JCA migration



| WebSphere Adapters | Migration |
|--------------------|-----------|
| Flat Files | X |
| FTP | X |
| Email | X |
| JDBC | X |
| Oracle EBS | |
| JD Edwards | X |
| SAP | X |
| Siebel | X |
| PeopleSoft | X |
| IBM i | |

Here is the list of adapters that support migration from V6.0.2 and V6.1 to V6.2. Notice Oracle EBS and IBM i adapters are not supported. This is because they have been introduced as new adapters in V6.2.

Section

Migration wizard



This section provides the steps to run the migration wizard.

Migration wizard overview

- **Migration wizard** is provided through WebSphere Integration Developer plug-in.

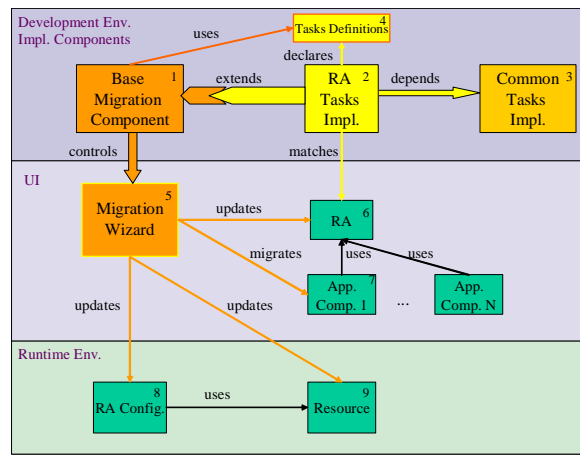
- ▶ Uses the infrastructure to retrieve metadata and invoke the particular sequence of migration tasks defined for an adapter.

- **Base migration component:**

- ▶ Provides support for metadata retrieval for the wizard
 - ▶ Defines the common interfaces to be implemented by individual contributions

- **Contributions** – potentially two levels:

- ▶ Common task implementation - release contributions provide default implementations for migration tasks that are common to the entire release. Adapters can use those entirely or in part (by subclassing).
 - ▶ RA task implementation - adapter specific contributions : metadata (per structure defined by the base infrastructure) and migration task implementations



The migration wizard is provided as a WebSphere Integration Developer plug-in that uses the infrastructure to retrieve metadata and invoke the particular sequence of migration tasks defined for an adapter.

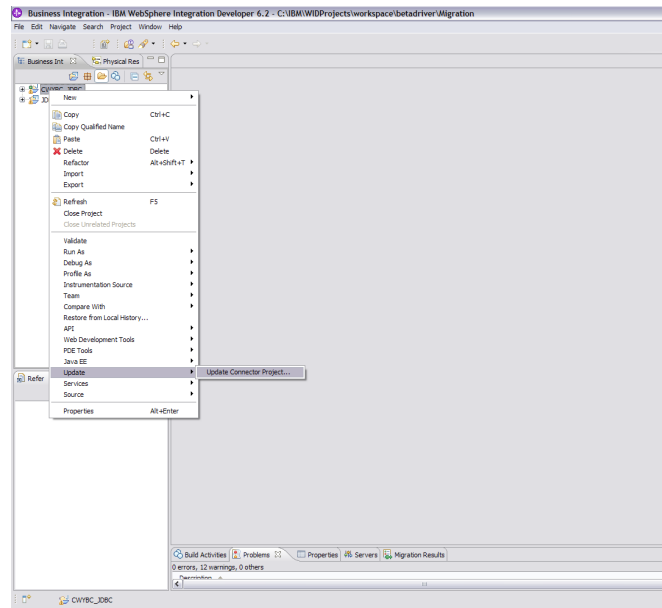
The base migration component is an extensible tool. It drives the interface for collecting user input. The tool is installed on your development environment and set to update the resource adapter to its new version. It migrates a set of artifacts of the dependent application components, the resource adapter's runtime configuration, and other resources used by the resource adapter.

The base migration component has an extension point that the resource adapter tool extends in order to provide the migration mechanism. While multiple resource adapter tools can provide extensions, the base migration component matches the one with the resource adapter in your environment and performs the correct update and migration. The base migration component matches the correct resource adapter tool extension by the resource adapter name and version, which are parameters of the extension.

Resource adapter tools need to specify a list of migration tasks to be performed on your environment. The structure and the format of the tasks specification is defined by the base migration component. The task list defines the task order and specifies task implementation classes. Task implementation classes are provided by the individual resource adapter extensions. When processing resource adapter extensions, the base migration component reads in the task definitions and configures the interface to collect input required by the tasks. When all the required input has been collected from you, the migration tool performs the tasks on your resources.

Migration wizard flow

- An Eclipse-based tool that drives the migration process
- Its function is driven by the metadata specified at the adapter level and the APIs implemented in the extension plug-in.
- Invoke from three locations:
 - ▶ Through connector project pop-up menu while in the Java EE perspective.
 - ▶ Through the module project pop-up menu while in the Java EE perspective.
 - ▶ Using the Quick Fix action in the validation marker pop-up menu.

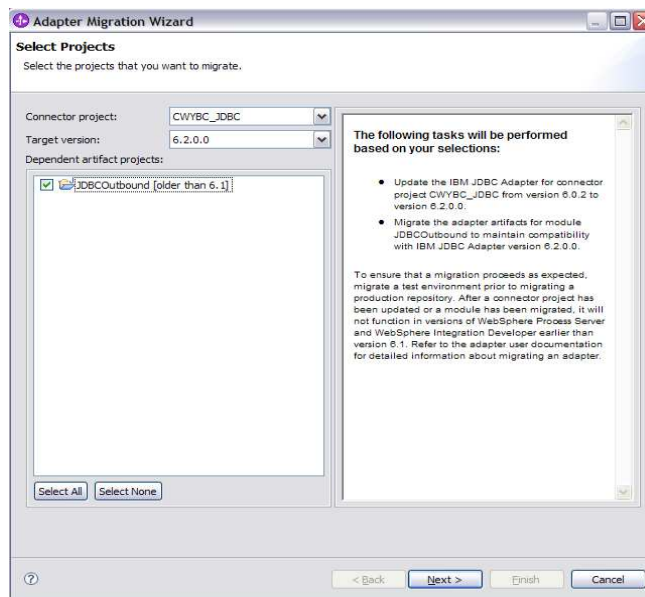


The migration wizard is an Eclipse-based tool that drives the migration process. Its function is driven by the metadata specified at the adapter level and the APIs implemented in the extension plug-in.

The migration wizard can be invoked from three locations. The first invocation method is through connector project pop-up menu while in the business integration perspective. The second method is through the module project pop-up menu while in the business integration perspective. The third method of invocation is using the Quick Fix action in the validation marker pop-up menu.

Migration wizard flow

- Launch migration wizard
 - ▶ Choose connector project with the target version
 - ▶ Dependent artifacts projects
 - ▶ “Current version” tag besides dependent projects if it already migrated
 - ▶ Warning about unsupported properties



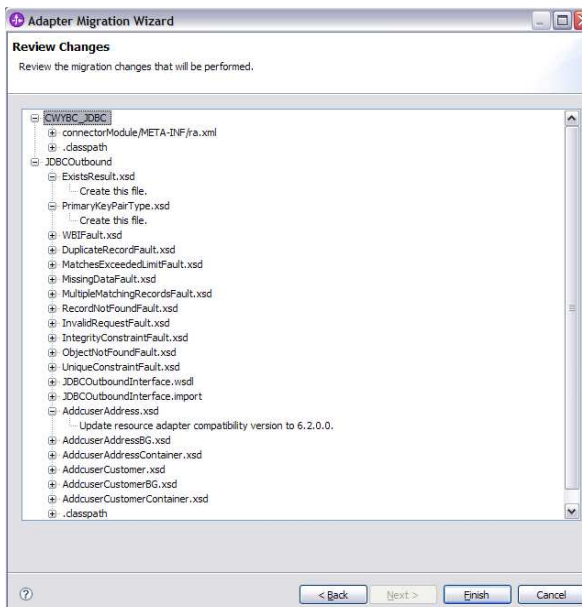
When migration wizard launches, the adapter migration wizard searches for the available update packages. Once an adapter update package is found, its target name and version are compared to the name and version of the adapter in the selected connector project.

Next, the migration wizard displays the connector and dependent project selection page exemplified in the slide. The connector project options include all the connector projects referenced in the module. If the wizard is invoked from the connector project itself, only that connector project is available. The description below the connector project selection shows the status of the connector project. The dependent project should have the current module version listed next to it. By default, the dependent artifact projects are migrated with the connector project; however, you have the option to uncheck and thereby exclude the dependent projects from migration.

When you click Next, the migration wizard displays a pop-up screen warning about unsupported properties in the version of the target adapter. These unsupported properties are removed during the migration. For more information about the properties that each adapter supports, refer to the adapter documentation.

Migration wizard flow

- Preview page
 - ▶ Review migration changes
 - ▶ List all tasks to be executed



The last panel of the wizard is an optional preview, where you can see what tasks are to be performed. You can click Finish on the wizard without going to this panel. This panel lists two tasks groups. First are the tasks processed on the connector project, including RAR update, libraries and class path update. Second are the tasks run on the dependent module project. Tasks that perform any migration changes might NOT be compatible with earlier versions, that is, clients of the application modules might break.

When you click Finish, for each selected application module a set of migration tasks specified in the Adapter update package is performed. Selected modules' artifacts and application resources are migrated according to those tasks.

When rerun, the previously migrated connector project and dependent modules are marked and described as already migrated. The migrated modules cannot be selected again, and no tasks are assigned to a previously migrated module. If artifacts are inconsistent in version handling within a single module, this module is marked as such, is not selectable for migration, and does not have any associated tasks. Version inconsistencies are recorded in the workspace log, since this might be a symptom of project corruption.

Section

Rollback migration



This section provides the steps in rollback migration in case of migrating errors.



Rollback migration

- Ensure to rollback to the original state if any error occurs as part of the migration
- Steps for rollback migration
 - ▶ Projects are backed up in a temporary folder in workspace
 - ▶ Modified projects replace with back up projects
 - Migration fails to perform properly
 - User cancels the migration wizard during mid-execution
 - ▶ Temporary backup projects is deleted
 - Migration executes successfully



The objective of rollback migration feature is that the adapter migration wizard ensures that changes roll back completely and the project contents reverts back to the original state if any error occurs as part of the migration. Before the execution of migration changes, all projects effected by migration are backed up in a temporary folder within the workspace. If a migration change fails to run properly, or if you cancel the migration during the execution, the modified projects are replaced with the backed up projects. If the migration runs successfully, the temporary backup of the modified projects is deleted.

Section

Summary and reference



The next section will provide the summary and references.

Summary

- This presentation covered migration details in IBM WebSphere Adapters V6.2
 - ▶ WebSphere Business Integration Adapters to JCA Migration
 - ▶ JCA to JCA Migration
 - ▶ Described steps by steps in adapter migration wizard
 - ▶ Looked at rollback migration



You have been introduced to the enhanced WebSphere Adapter migration infrastructure in V6.2. In this release, you have been introduced to WebSphere Business Integration Adapters to JCA and JCA to JCA migrations. You saw the steps involved in the migration wizard and the different migration tasks required for each migration infrastructure. At the end, you saw the rollback migration feature that allows rolling back to the original state in case of migrating errors.

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