

TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM User's Guide

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TIBCO Documentation and Support Services

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product. To access the latest documentation, visit <https://docs.tibco.com>.

Documentation for TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM is available on the [TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM Product Documentation](#) page.

Product-Specific Documentation

The following documents for this product can be found on the TIBCO Documentation site:

- *TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM User's Guide*: Read this manual for instructions on how to use the product to utilize all benefits of TIBCO MDM without any coding.
- *TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM Installation*: Read this manual for instructions on site preparation and installation.
- *TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM Release Notes*: Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

The following documents provide additional information and can be found on the TIBCO Documentation site:

- TIBCO ActiveMatrix BusinessWorks™ documentation
- TIBCO® Enterprise Administrator documentation

How to Contact TIBCO Support

You can contact TIBCO Support in the following ways:

- For an overview of TIBCO Support, visit <http://www.tibco.com/services/support>.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at <https://support.tibco.com>.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to <https://support.tibco.com>. If you do not have a user name, you can request one by clicking Register on the website.

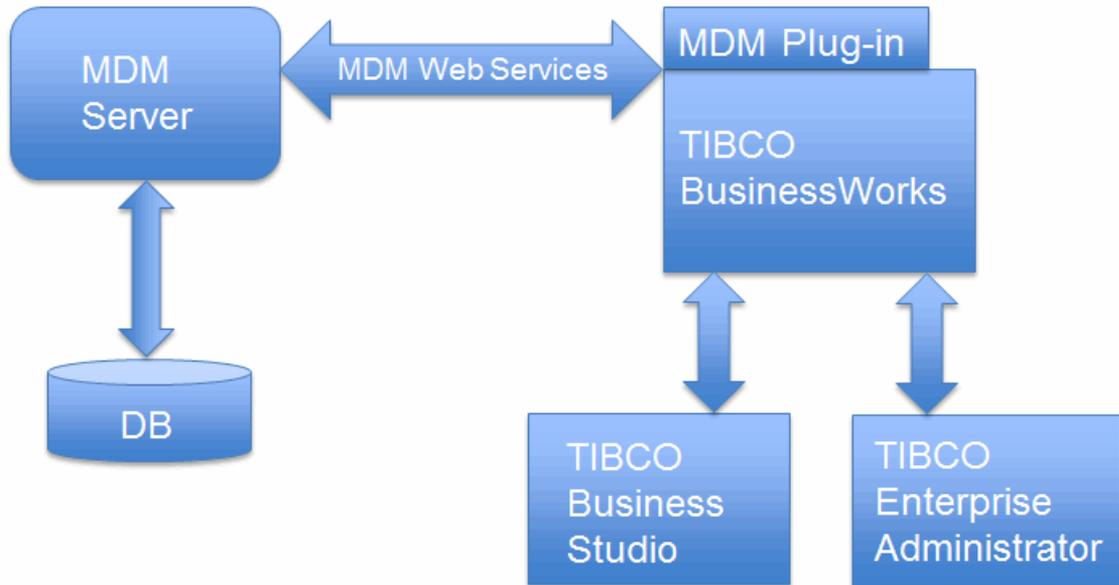
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Plug-in Overview

ActiveMatrix BusinessWorks™ Plug-in for MDM provides a way for external applications to connect to the MDM system.

The following figure shows how the plug-in works with other products:



- TIBCO ActiveMatrix BusinessWorks™ is an easy-to-use integration product suite for enterprise, web, and mobile applications.
- TIBCO® Enterprise Administrator provides a centralized administrative interface to manage and monitor the plug-in applications deployed in an enterprise.
- TIBCO MDM is an enterprise application that allows you to ensure that your master data is consistent, complete, and accurate throughout your organization, enterprise systems, and partners. It provides a comprehensive approach to manage and synchronize master data within your organization. See TIBCO MDM documentation at <https://docs.tibco.com/>.
- TIBCO ActiveMatrix BusinessWorks™ Plug-in for MDM plugs into ActiveMatrix BusinessWorks™, which bridges ActiveMatrix BusinessWorks™ with TIBCO MDM.

ActiveMatrix BusinessWorks™ supports plug-ins that extend the palette functionality. After installing the plug-in, an MDM Palette and an MDM Shared Resource become available in TIBCO Business Studio™. You can add the activities to the business processes you are designing, and integrate them into the process flow. At runtime, the plug-in activities are executed as part of the ActiveMatrix BusinessWorks™ process execution.

By adding the plug-in activities to your business process, you can:

- Add, modify, item correct, query, delete, and search records. You can do CRUD operations on records and conduct index entity fuzzy queries with these activities.
- Upload record data to the data source, and import records to repositories.
- Query, reassign, approve, reject, and close work items generated by the TIBCO MDM server.
- Get event information for a specified event ID, and wait for an event to complete.

Getting Started

With the plug-in, you can achieve different goals by using TIBCO Business Studio™ which is the Eclipse graphical user interface provided by ActiveMatrix BusinessWorks™.

The following is a typical workflow using the plug-in in ActiveMatrix BusinessWorks™:

1. [Creating a Project](#)
2. [Creating an MDM Connection](#)
3. [Configuring a Process](#)
4. [Debugging and Running a Process](#)

Creating a Project

Projects are BusinessWorks application modules that are created in TIBCO Business Studio™. A project contains various resources.

Procedure

1. Start TIBCO Business Studio™.
2. Right-click the empty place in Project Explorer, and click **New > BusinessWorks Application Module**. The New BusinessWorks Application Module dialog appears.



There are several ways to open the New BusinessWorks Application Module dialog and create a new project in TIBCO Business Studio™. See the TIBCO ActiveMatrix BusinessWorks documentation for more information.

3. Type a name for the project in the **Project name** field.
4. Keep the **Use default location**, **Create empty process**, and **Create Application** check boxes selected. Click **Finish**.

Result

A project and an application are created and displayed in Project Explorer.

The Process editor opens automatically.

Creating an MDM Connection

The MDM Connection shared resource contains all necessary parameters to connect to an MDM server. The MDM Connection shared resource must be specified when running any MDM activity.

Procedure

1. Expand the created project in Project Explorer.
2. Right-click the **Resources** folder and click **New > MDM Connection**.
3. Type a name for this MDM connection in the **Resource Name** field, and click **Finish**.
4. Configure the MDM connection in the mdmconnection editor, as described in [MDM Connection](#).
5. Click **Test Connection** to test the MDM connection you have configured.

Result

An MDM shared resource named *resourcename.mdmResource* is created in the **Resources** folder.

Configuring a Process

Processes define the business logic. Once a project is created, you need to configure the process by adding activities, conditions and services.

Procedure

1. Click **MDM** in the Palette view.
2. Select an activity, for example, **Add Record** from the MDM palette and drop it into the Process editor.
3. Configure an MDM connection.
 - a) Click the activity in the Process editor.
The **General** tab in the Properties view appears by default.
 - b) Click **Browse**  next to the **MDM Connection** field.
 - c) Select an existing MDM shared resource or click **Create Shared Resource** to create a new one.
 - d) If you create a new MDM connection, click  next to the **MDM Connection** field to configure the connection as described in [MDM Connection](#).
4. Configure the activity as described in [MDM Palette](#).
5. Add necessary activities to the Process editor and wire them to the activity using timer.

General Input for MDM Activities

This section lists the general input items for MDM activities.

Input Item	Description
Context	The context variables of the activity. You can specify the value of Name and Value.
SessionID	Specify the session ID. <code>SessionID</code> takes precedence over <code>UserInfo</code> .
UserInfo	Specify the information of the user, including company name, user name and password. <code>UserInfo</code> takes effect only when <code>SessionID</code> is invalid or expired.
MessageHeaders	The header of a message. Only HTTP headers are supported. When specifying the header, you need to set the value of the web service SOAP Header Extractor from <code>com.tibco.cim.authentication.webservice.headerExtractor</code> to <code>com.tibco.cim.authentication.DefaultHttpHeaderExtractor</code> in the configuration file on the MDM server.
_configData	The configuration data. You can specify the value of timeout. The unit is second.  By default, the timeout value of HTTP on Axis2 is 30 seconds. Increase the value of timeout when the execution takes a long time.

Debugging and Running a Process

Debug the application you have configured to ensure that the application configuration is correct.

Procedure

1. Open the process you have configured in TIBCO Business Studio™.
2. On the toolbar, click **Run > Debug Configurations**.
3. Click **BusinessWorks Application > BWApplication** in the left panel.
4. Ensure only the application you want to debug and run is selected in the **Applications** tab in the right panel.
5. Click the **Advanced** tab and click **Browse** to locate the logback file.
6. Click **Debug** to debug and run the application.
TIBCO Business Studio™ changes to the Debug perspective. Logs are displayed in the Console view.

Checking the Activity Output

After debugging the application, you can check the output of the activities in TIBCO Business Studio™.



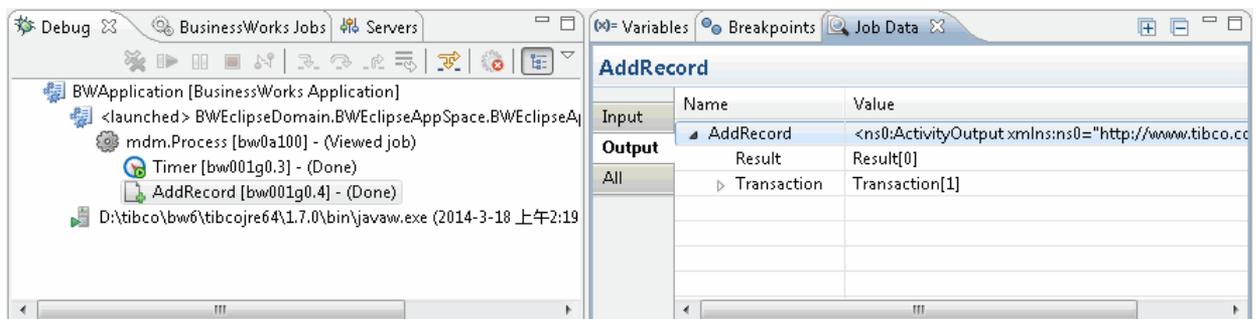
You can also check the activity output in the plug-in logs. See [Managing the Plug-in Logs](#) for more information.

Procedure

1. In the Debug perspective, expand **BWApplication** and click the activity in the upper left panel.
2. In the upper right panel, click **Job Data**, and click **Output**.

Result

The output of the activity is displayed.



Checking Faults

The Faults tab enables you to view error messages and error codes.

If an activity is faulted, click on **Fault** tab under to find appropriate error message and error code. The **Fault** tab lists exceptions that are thrown by this activity.



The error message is displayed without error code for all faults and error responses.

Error Schema Element	Description
msg	The error message returned by the plug-in.
msgCode	The error code returned by the plug-in.
serverMsg	The error message returned by the MDM server.
serverMsgCode	The error code returned by the MDM server.

Deploying an Application

You can manage BusinessWorks applications by using TIBCO® Enterprise Administrator after deploying the applications.

Prerequisites

Before deploying an application, you need to complete the following tasks:

1. Create an application. See [Creating a Project](#).
2. Generate an EAR file. See [Generating an EAR File](#).

The following is a typical workflow of deployment:

1. Upload an EAR file.
2. Deploy an application.
3. Configure an application.
4. Start an application.

You can deploy an application EAR file by using the command-line mode with the **bwadmin** utility. See *TIBCO ActiveMatrix BusinessWorks Administration* for more details about how to deploy an application.

Generating an EAR File

Application archives are the enterprise archive (EAR) files that are created in TIBCO Business Studio™. An EAR file is required when deploying an application.

Prerequisites

Before generating an EAR file, you need to create an application project first, as explained in [Creating a Project](#).

Procedure

1. Go to File Explorer and click **Open Directory to Browse**  .
2. Select the folder where you want to generate the EAR file and click **OK**.
The new folder is displayed in File Explorer.
3. Drag the application from Project Explorer to the new folder in File Explorer.
The EAR file named *name.application_version.ear* is generated.

MDM Shared Resource

The plug-in has one shared resource which is used to make a connection to an MDM server.

MDM Connection

The MDM Connection shared resource contains all necessary parameters to connect to an MDM server. It must be specified when running any MDM activity.

General

The **General** panel contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the shared resource.
Description	No	Provide description for this shared resource.

MDM Connection Configuration

The **MDM Connection Configuration** panel contains the following fields.

Field	Module Property?	Description
MDM Server URL	Yes	The URL of the MDM server that you want to connect to. The format of the URL is <code>http://host:port</code> .
Company Name	Yes	The company name configured in the MDM server that you want to work on.
User Name	Yes	The user name that exists in the specified company that you want to work on.
Password	Yes	The password of the user specified in the User Name field.
Encrypt Password	Yes	Select this check box to encrypt password when exchanging information with an MDM server.

After configuring the MDM connection, click **Test Connection** to test the connection to the MDM server that you have configured.



If the MDM server is enabled with SSL connection, you need to add the certificate obtained from the MDM server to the `cacerts` file located in the `TIBCO_JRE_Home\lib\security` directory.

MDM Palette

The MDM palette contains activities that can be added to your business processes.

To achieve different functionalities, the activities for ActiveMatrix BusinessWorks™ Plug-in for MDM can be divided into the following groups:

- [Record Activities](#)
- [DataLoad Activities](#)
- [Work Item Activities](#)
- [Event Management Activities](#)
- [REST Activities](#)

Record Activities

TIBCO MDM has a set of master CRUD web services. The web service accepts and returns data in name-value pairs to allow the schema to be changed dynamically. However, such variable schema poses a huge challenge for the ActiveMatrix BusinessWorks™ client. Therefore, the ActiveMatrix BusinessWorks™ Plug-in for MDM provides a set of activities to read TIBCO MDM metadata and allow the TIBCO ActiveMatrix BusinessWorks™ Developer Edition to interact with TIBCO MDM web services using a strongly typed schema.

Add Record

By using the Add Record activity, you can add records and the relative relationship to repositories.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>AddRecord</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Execution Mode	Yes	Select an execution mode. The default option is <code>SYNCHR</code> . <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.

Field	Module Property?	Description
Repository	No	<p>The name of repository where records are stored.</p> <p>Click Select to select a repository.</p> <p> When the selected repository model is complex and involves many related repositories, you need to increase the value of the <code>-Xms</code> and <code>-Xmx</code> parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p>
Perspective	No	<p>Specify the perspective name within the selected repository.</p> <p>Click Select to open the Perspective dialog. All available perspective names are listed in the dialog. Select one to apply to your current activity.</p> <p> The field appears only when the selected repository model is defined with Perspective.</p> <p> The usage of context variable is not recommended. However, if used, the perspective drop down preferences takes precedence of the context variable.</p>
Record State	Yes	<p>The state in which you want to save the record. The default option is Unconfirmed.</p> <ul style="list-style-type: none"> • Confirmed: Save as confirmed records. • Unconfirmed: Save as unconfirmed records. • Draft: Save as draft records.
Command Qualifier	Yes	<p>The qualifier of the command. The default option is <code>Validate/Process</code>.</p> <ul style="list-style-type: none"> • Validate/Process: Validate records, save them, and initiate the New Record Introduction Edit workflow. • Validate/NoProcess: Validate records, and save them without initiating the New Record Introduction Edit workflow. • NoValidate/Process: Save records without validation, and initiate the New Record Introduction Edit workflow. • NoValidate/NoProcess: Save records without validation nor initiation of the New Record Introduction Edit workflow. <p> When Record State is set to Draft, only Validate/Process and NoValidate/Process are available.</p>

Field	Module Property?	Description
File Type Attributes	Yes	<p>Specify how to upload a file with file type attributes. This field is available when any attribute defined in the selected repository model is a file type attribute. By default, the attribute is ATTACHMENT.</p> <ul style="list-style-type: none"> • ATTACHMENT: Indicates that the client sends the file as SOAP attachments to the MDM server. <p> Currently, we only support ATTACHMENT.</p>

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab contains the following field.

Field	Module Property?	Description
Classify Records Manually	No	<p>Select this check box to manually classify records into the specified classification code by using Classification Scheme while adding a record.</p> <p> This check box is available only when the selected repository model is defined with manual classification scheme or mixed classification scheme. When this check box is selected, <code>ClassificationSchemes</code> is added to the <i>repository</i> node in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) should be entered using double quotes. However, you may encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the TIBCO ActiveMatrix BusinessWorks™ Application Development.

Input Item	Description
atomic	<p>Set the value of this attribute to:</p> <ul style="list-style-type: none"> • <code>on</code>: Turn on MDM transaction atomicity. When any command executed in a transaction fails, the transaction fails and is rolled back. • <code>off</code>: Turn off MDM transaction atomicity. This is the default value. When some commands executed in a transaction fail and some succeed, the successful results are written to the MDM system.

Input Item	Description
Attribute Group	<p>Specify group attributes of records. Each attribute is assigned to an attribute group: <i>Unassigned</i>, <i>System</i> or <i>New Group</i>. The default attribute group <i>UNASSIGNED</i> holds all attributes that do not belong to any specific group.</p> <ul style="list-style-type: none"> • PRODUCTID: Record ID. When PRODUCTID is not specified, a PRODUCTID will be generated automatically if users have configured rulebase on the MDM server; otherwise, the error message <i>Record ID cannot be empty</i> is displayed. • PRODUCTIDEXT: Record ID extension. Optionally used to identify a record. • EFFECTIVEDATE: The effective date of the record. If you do not apply an effective date to a record, it is internally set to the current system date. By default, this attribute is not enabled for repositories, you must add this attribute manually to repositories if you want to add a future effective dated version to a record. <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  New data types <i>Long</i> and <i>URL</i> are supported. The <i>XPath Expression</i> is used to edit complex data types, use the function constructor. Also the <i>Fix Type-Casting Errors</i> option can be used to correct data input format. </div>
ClassificationSchemes	<p>The ClassificationSchemes attribute allows you to organize records based on their attributes. You can specify the value of <i>Name</i>, <i>Action</i>, and <i>ClassificationCode</i>.</p> <ul style="list-style-type: none"> • Name: The name of classification scheme you want to specify. • Action: The classification action you want to take. The value is <i>Classify</i>. • ClassificationCode: The code of the classification scheme. Each node represents one level in the classification code hierarchy. <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  The ClassificationSchemes attribute is added to the <i>repository</i> node when the Classify Records Manually check box is selected in the Advanced tab. </div>
Relationship	<p>Specify the relationship of records in repositories. After selecting an available relationship name, you can specify the corresponding relationship attributes and attributes in the target repository.</p> <ul style="list-style-type: none"> • Incremental: When the value is set to <i>True</i>, the relationship is only added to the specified record. When the value is set to <i>False</i>, the newly specified relationship is added, and all other relationships are deleted. By default, the value is set to <i>True</i>. • Delete: The relative relationship between records is deleted when the value is set to <i>True</i>, and the relative relationship between records is added when the value is set to <i>False</i>.

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>This node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Transaction	
Response	<p>Detailed information of the repository and ResultList:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • ResultList: Contains errors, warnings or informational messages. This element has one or more entries.
TransactionResult	<p>The result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>This element also captures details such as Result, SuccessCount, EventID, EventStatus, EventState, Action, and so on.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of records successfully processed.

Delete Record

By using the Delete Record activity, you can delete records when they exist, and when the latest version of the records is not in any workflow. You can delete repository records, records related to target records, both repository records and related target records, and future effective date record versions.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name to be displayed as the label for the activity in the process.</p> <p>The default value is DeleteRecord.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Field	Module Property?	Description
Execution Mode	Yes	<p>Select an execution mode. The default option is SYNCHR.</p> <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	No	<p>The name of repository where records are stored.</p> <p>Click Select to select a repository.</p> <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;">  <p>When the selected repository model is complex and involves many related repositories, you need to increase the value of the -Xms and -Xmx parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p> </div>
Command Qualifier	No	<p>The qualifier of the command. The default option is DeleteAll.</p> <ul style="list-style-type: none"> • Record: Delete the specified records, and initiate the delete workflow. • Record/NoProcess: Delete the specified records, and confirm it immediately without initiating the delete workflow. • RelationshipTargets: Only delete the related records, and initiate the delete workflow. Optionally, the relationship name can be specified. • RelationshipTargets/NoProcess: Only delete the related records, and confirm it immediately without initiating the delete workflow. Optionally, the relationship name can be specified, and users must have required privileges. • DeleteAll: Delete the specified records and related records, and initiate the delete workflow. Optionally, the relationship name can be specified. • DeleteAll/NoProcess: Delete the specified records and related records, and confirm the records immediately. Optionally, the relationship name can be specified, and users must have required privileges.

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab contains the following fields.

Field	Module Property?	Description
Delete Future Effective Dated Version	No	<p>Select this check box to delete a specified future effective dated version if:</p> <ul style="list-style-type: none"> The version number is specified. The specified version is future effective dated and active. <p> This check box is available only when the selected repository model is enabled with the <code>EffectiveDate</code> attribute. When this check box is selected, <code>RecordVersion</code> is added to the <code>repository</code> node in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
atomic	<p>Set the value of this attribute to:</p> <ul style="list-style-type: none"> <code>on</code>: Turn on MDM transaction atomicity. When any command executed in a transaction fails, the transaction fails and is rolled back. <code>off</code>: Turn off MDM transaction atomicity. This is the default value. When some commands executed in a transaction fail and some succeed, the successful results are written to MDM system.
<i>Repository</i>	
RecordVersion	<p>Specify the version of the record to be deleted. If this value is set to Yes, old record versions are deleted.</p> <p> This element appears only when the Delete Future Effective Dated Version check box is selected in the Advanced tab.</p>
Attribute Group	<p>Specify group attributes of records. Each attribute is assigned to an attribute group: <code>Unassigned</code>, <code>System</code> or <code>New Group</code>. The default attribute group <code>UNASSIGNED</code> holds all attributes that do not belong to any specific group.</p> <ul style="list-style-type: none"> <code>PRODUCTID</code>: Record ID. When <code>PRODUCTID</code> is not specified, a <code>PRODUCTID</code> will be generated automatically if users have configured rulebase on the MDM server; otherwise, an error is returned. <code>PRODUCTIDEXT</code>: Record ID extension. Optionally used to identify a record.

Input Item	Description
Relationship	<p>Specify the relationship of records in repositories. After selecting an available relationship name, you can specify the corresponding relationship attributes and attributes in the target repository.</p> <p> When the Command Qualifier field is set to Record or Record/NoProcess in the General tab, this item does not appear in the Input tab.</p>

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not. This node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Transaction	
Response	<p>Detailed information of the repository and ResultList:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • ResultList: Contains errors, warnings or informational messages. This element has one or more entries.
TransactionResult	<p>The result of a transaction to indicate if the command has succeeded or not. Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>This element also captures details such as Result, SuccessCount, EventID, EventStatus, EventState, Action, and so on.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of records successfully processed.

Merge Records

By using the Merge Records activity, you can merge already matched records, and also choose to manually merge records. In TIBCO MDM, match and merge of records is performed as two separate activities. You can locate matching records by using the patterns search. After the matches are found, the output of match activity might be merged.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>MergeRecords</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Execution Mode	Yes	Select an execution mode. The default option is <code>SYNCHR</code> . <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	No	The name of repository where records are stored. Click Select to select a repository.  When the selected repository model is complex and involves many related repositories, you need to increase the value of the <code>-Xms</code> and <code>-Xmx</code> parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.
Record State	Yes	The state in which the available records are merged. The default option is <code>Confirmed</code> . <ul style="list-style-type: none"> • Confirmed: Merge confirmed records. • Unconfirmed: Merge unconfirmed records.
Command Qualifier	Yes	The qualifier of the command. The default option is <code>Validate/Process</code> . <ul style="list-style-type: none"> • Validate/Process: Validate records, save them, and initiate the New Record Introduction Edit workflow. • Validate/NoProcess: Validate records, and save them without initiating the New Record Introduction Edit workflow. • NoValidate/Process: Save records without validation, and initiate the New Record Introduction Edit workflow. • NoValidate/NoProcess: Save records without validation nor initiation of the New Record Introduction Edit workflow.

Field	Module Property?	Description
File Type Attributes	Yes	<p>Specify how to upload a file with file type attributes. This field is available when any attribute defined in the selected repository model is a file type attribute. By default, the attribute is ATTACHMENT.</p> <ul style="list-style-type: none"> • ATTACHMENT: Indicates that the client sends the file as SOAP attachments to the MDM server. The file name must be a valid path so that it can be attached to the SOAP request.

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) must be entered using double quotes. However, you might encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the *TIBCO ActiveMatrix BusinessWorks™ Application Development*.



Merge of FED records is not supported.

Input Item	Description
PRODUCTID	ID of the record to be merged. You must specify PRODUCTID of the record to be merged.
PRODUCTIDEXT	ID extension of the record to be merged. Optionally used to identify a record.
RecordVersion	Specify the version of the record to be merged.

Input Item	Description
Merge Attributes	<p>Specify the merge attributes.</p> <ul style="list-style-type: none"> • SourceRecordId: Record ID of the source record. • SourceRecordExtn: Record ID extension of the source record. Optionally used to identify a record. • SourceRecordVersion: Record version of the source record. This is a mandatory field. • ActionOnSourceRecord: Whether the source record should be retained or deleted after the merge. The valid value is Delete. • Attribute: Information of the attribute to be merged. • RepositoryName: Name of the repository where source attribute is defined. • Name: Name of the source attribute whose value should be merged with target attribute. <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  New data types Long and URL are supported. The XPath Expression is used to edit complex data types, use the function constructor. </div>
Edit Attributes	<p>The set of attributes whose values are edited inline in the request. The attribute name is selected as a choice value and the new value is specified in the field.</p>
Relationship	<p>Specify any one of the following ActionTypes:</p> <ul style="list-style-type: none"> • AddNew • Modify • Delete <p>The child record must exist in the target repository for the relationship. Only new relationship is created. The root record information is provided as part of parent ID, extension, and version number. For the child repository, specify the details of the related record to be added, modified, and deleted while merging.</p>

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The result of a transaction to indicate whether the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>This element also captures details such as <i>Result</i>, <i>EventID</i>, <i>EventStatus</i>, <i>EventResult</i>, <i>Description</i>.</p>

Output Item	Description
Response	<p>Detailed information of the repository and ResultList:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • Result: EventID, EventStatus, and Description. This element has one or more entries.

Modify Record

By using the Modify Record activity, you can modify records and the relative relationship in repositories.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name to be displayed as the label for the activity in the process.</p> <p>The default value is <code>ModifyRecord</code>.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Execution Mode	Yes	<p>Select an execution mode. The default option is <code>SYNCHR</code>.</p> <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	No	<p>The name of repository where records are stored.</p> <p>Click Select to select a repository.</p> <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  <p>When the selected repository model is complex and involves many related repositories, you need to increase the value of the <code>-Xms</code> and <code>-Xmx</code> parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p> </div>

Field	Module Property?	Description
Perspective	No	<p>Specify the perspective name within the selected repository.</p> <p>Click Select to open the Perspective dialog. All available perspective names are listed in the dialog. Select one to apply to your current activity.</p> <p> The field appears only when the selected repository model is defined with Perspective.</p> <p> The usage of context variable is not recommended. However, if used, the perspective drop down preferences takes precedence of the context variable.</p>
Record State	Yes	<p>The state of the record that you want to save. The default option is Unconfirmed.</p> <ul style="list-style-type: none"> • Confirmed: Save as confirmed records. • Unconfirmed: Save as unconfirmed records. • Draft: Save as draft records.
Command Qualifier	Yes	<p>The qualifier of the command. The default option is <code>Validate/ProcessOnDataChange</code>.</p> <ul style="list-style-type: none"> • Validate/Process: Validate records, save them, and initiate the New Record Introduction Edit workflow. • Validate/NoProcess: Validate records, and save them without initiating the New Record Introduction Edit workflow. • NoValidate/Process: Save records without validation, and initiate the New Record Introduction Edit workflow. • NoValidate/NoProcess: Save records without validation nor initiation of the New Record Introduction Edit workflow. • Validate/ProcessOnDataChange: Validate records, process and save them only when the data has changed for the specified records. If the data has not changed, the records will not be processed or saved, yet it will be validated. • NoValidate/ProcessOnDataChange: Process and save records without validation only when the data has changed for the specified records. <p> When Record State is set to Draft, only Validate/Process, NoValidate/Process, Validate/ProcessOnDataChange and NoValidate/ProcessOnDataChange are available.</p>

Field	Module Property?	Description
File Type Attributes	Yes	<p>Specify how to upload a file with file type attributes. This field is available when any attribute defined in the selected repository model is a file type attribute. By default, the attribute is ATTACHMENT.</p> <ul style="list-style-type: none"> • ATTACHMENT: Indicates that the client sends the file as SOAP attachments to the MDM server. <p> Currently, we only support ATTACHMENT.</p>
Correction	Yes	<p>Select the checkbox to update a version of any record without incrementing the version.</p> <p>By default, the checkbox is unchecked, record is modified as per the normal modification guidelines with version update.</p> <p>If checked, the version policy of 'Correct' is inserted into the context of the modified request sent to the TIBCO MDM server.</p> <p> The usage of context variable is not recommended. However, if used, the perspective drop down preferences takes precedence of the context variable.</p>

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab contains the following fields.

Field	Module Property?	Description
Classify Records Manually	No	<p>Select this check box to manually classify records into a specified classification code by using Classification Scheme while modifying a record.</p> <p> This check box is available only when the selected repository model is defined with manual classification scheme or mixed classification scheme. When this check box is selected, <code>ClassificationSchemes</code> is added to the <code>repository</code> node in the Input tab.</p>

Field	Module Property?	Description
Modify Future Effective Dated Version	No	<p>Select this check box to modify a specified future effective dated version if:</p> <ul style="list-style-type: none"> The version number is specified. The specified version is future effective dated and active. <p> This check box is available only when the selected repository model is enabled with the <code>EffectiveDate</code> attribute. When this check box is selected, <code>RecordVersion</code> is added to the <code>repository</code> node in the Input tab.</p>
Modify in Work Item Context	No	<p>Select this check box to modify records in a work item context. To modify records in a work item context, you should have the Edit when record is in workflow permission.</p> <p> When this check box is selected, <code>WorkItemReference</code> is added in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) should be entered using double quotes. However, you may encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the TIBCO ActiveMatrix BusinessWorks™ Application Development. For resolving errors related to input format for complex types, use `Fix Type-Casting Errors` option.

Input Item	Description
atomic	<p>Set the value of this attribute to:</p> <ul style="list-style-type: none"> <code>on</code>: Turn on MDM transaction atomicity. When any command executed in a transaction fails, the transaction fails and is rolled back. <code>off</code>: Turn off MDM transaction atomicity. This is the default value. When some commands executed in a transaction fail and some succeed, the successful results are written to the MDM system.
WorkItemReference	<p>Specify the work item ID that you want to reference.</p> <p> The node appears only when the Modify in Work Item Context check box is selected in the Advanced tab.</p>
<i>Repository</i>	
RecordVersion	<p>Specify the version of the record to be modified.</p> <p> This element appears only when the Modify Future Effective Dated Version check box is selected in the Advanced tab.</p>

Input Item	Description
PRODUCTID	ID of the record to be modified. You must specify PRODUCTID of the record to be modified.
PRODUCTIDEXT	ID extension of the record to be modified. Optionally used to identify a record.
Attribute Group	<p>Specify group attributes of records. Each attribute is assigned to an attribute group: <i>Unassigned</i>, <i>System</i> or <i>New Group</i>. The default attribute group <i>UNASSIGNED</i> holds all attributes that do not belong to any specific group.</p> <ul style="list-style-type: none"> • PRODUCTID: Record ID. When PRODUCTID is not specified, a PRODUCTID will be generated automatically if users have configured rulebase on the MDM server; otherwise, an error is returned. • PRODUCTIDEXT: Record ID extension. Optionally used to identify a record. • EFFECTIVEDATE: The effective date of the record. If you do not apply an effective date to a record, it is internally set to the current system date. By default, this attribute is not enabled for repositories, you must add this attribute manually to repositories if you want to add a future effective dated version to a record. <p> New data types Long and URL are supported. The XPath Expression is used to edit complex data types, use the function constructor.</p>
ClassificationSchemes	<p>The ClassificationSchemes attribute allows you to organize records based on their attributes. You can specify the value of Name, Action, and ClassificationCode.</p> <ul style="list-style-type: none"> • Name: The name of classification scheme you want to specify. • Action: The classification action you want to take. The value is Classify. • ClassificationCode: The code of the classification scheme. Each node represents one level in the classification code hierarchy. <p> The ClassificationSchemes attribute is added to the repository node when the Classify Records Manually check box is selected in the Advanced tab.</p>
Relationship	<p>Specify the relationship of records in repositories. After selecting an available relationship name, you can specify the corresponding relationship attributes and attributes in the target repository.</p> <ul style="list-style-type: none"> • Incremental: When the value is set to True, the relationship is only added to the specified record. When the value is set to False, the newly specified relationship is added, and all other relationships are deleted. By default, the value is set to True. • Delete: The relative relationship between records is deleted when the value is set to True, and the relative relationship between records is added when the value is set to False.

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>The node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be <code>Error</code>, <code>Warning</code>, or <code>Info</code>. • Code: The error code. • Description: A readable description of the error.
WorkItemReference	<p>Return the work item ID that you have referenced.</p> <p> The node appears only when the Modify in Work Item Context check box is selected in the Advanced tab.</p>
Response	<p>Detailed information of the repository and <code>ResultList</code>:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • ResultList: Contains errors, warnings or informational messages. This element has one or more entries.
TransactionResult	<p>The result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as <code>Result</code>, <code>SuccessCount</code>, <code>EventID</code>, <code>EventStatus</code>, <code>EventState</code>, <code>Action</code>, and so on.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of records successfully processed.

Query Record

By using the Query Record activity, you can query records based on the filter criteria.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name to be displayed as the label for the activity in the process.</p> <p>The default value is <code>QueryRecord</code>.</p>

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Repository	No	<p>The name of repository where records are stored.</p> <p>Click Select to select a repository.</p> <p> When the selected repository model is complex and involves many related repositories, you need to increase the value of the <code>-Xms</code> and <code>-Xmx</code> parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p>
Perspective	No	<p>Specify the perspective name within the selected repository.</p> <p>Click Select to open the Perspective dialog. All available perspective names are listed in the dialog. Select one to apply to your current activity.</p> <p> The field appears only when the selected repository model is defined with Perspective.</p> <p> The usage of context variable is not recommended. However, if used, the perspective drop down preferences takes precedence of the context variable.</p>
Record State	Yes	<p>The state of the record that you are searching for. The default record state is Confirmed.</p> <ul style="list-style-type: none"> • None: Record state is not specified for the query. • All: Query all the records. • Confirmed: Query confirmed records. • Unconfirmed: Query unconfirmed records. • Latest: Query the latest confirmed or unconfirmed records. • Draft: Query draft records. • Rejected: Query rejected records.

Field	Module Property?	Description
Command Qualifier	No	<p>The default command qualifier is <i>None</i>.</p> <ul style="list-style-type: none"> • None: No command qualifier. • RelatedRecords: Validate records, and save them without initiating the New Record Introduction Edit workflow. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;">  <ul style="list-style-type: none"> • The RelatedRecords option appears only when the selected repository mode is defined with relationship. • When Command Qualifier is set to RelatedRecords, any option for the Record State and Active fields does not take effect. </div>
File Type Attributes	No	<p>Specify how to upload a file with file type attributes. This field is available when any attribute defined in the selected repository model is a file type attribute. By default, the option is HREF.</p> <ul style="list-style-type: none"> • HREF: Indicates that the client expects the server to return a hyperlink into the application, from where client can download the files represented by the file type attributes. • ATTACHMENT: Indicates that the client expects the server to return the file as SOAP attachments to the application.
Future Dated Record	No	<p>Query records by FED options, and the returned records are based on FED options. By default, the option is No FED.</p> <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;">  <p>This field appears only when the selected repository model is defined with the Effective attribute.</p> </div> <ul style="list-style-type: none"> • No FED: Future Effective Date records are not included. • Only FED: Include only Future Effective Date records. • Include FED: Include Future Effective Date records along with other records.
Active	No	<p>Query active records. A record is considered active if it is not deleted. By default, the option is TRUE.</p> <ul style="list-style-type: none"> • None: Data for active records and deleted records are retrieved. This option is only available when Record State is ALL. • True: Only data for active records are retrieved, and the query does not return any deleted records. • False: Only data for deleted records are retrieved, and the query does not return any active records.

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab contains the following fields.

Field	Module Property?	Description
Query based on Classification Scheme	No	<p>Select this check box to query records based on classification schemes.</p> <p> This check box is available only when the selected repository is defined with classification scheme and Command Qualifier is set to NONE. When this check box is selected, the Classification node appears in Transaction in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) should be entered using double quotes. However, you may encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the TIBCO ActiveMatrix BusinessWorks™ Application Development.

Input Item	Description
Pagination	<p>Specify the following detailed information:</p> <ul style="list-style-type: none"> • MaxCount: Limit the number of returned records if more than one records match the query. • StartCount: Specify the count where the queried records start to be displayed. • OrderByColumnList: Sort order for the query results by column list.
EffectiveDate	<p>The effective date of the record.</p> <p> The node appears only when the repository model is defined with the Effective attribute, and the Future Dated Record is set to No FED in the General tab.</p>
Classification	<p>Specify classification information of the record. You can specify the value of ClassificationSchema, or ClassificationCodePath.</p> <p> This node appears only when the Query based on Classification Scheme check box is selected in the Advanced tab.</p>
<i>Repository</i>	

Input Item	Description
Attribute Group	<p>Specify group attributes of records. Each attribute is assigned to an attribute group: <code>Unassigned</code>, <code>System</code> or <code>New Group</code>. The default attribute group <code>UNASSIGNED</code> holds all attributes that do not belong to any specific group.</p> <p> Whether this field appears depends on the MDM metadata. This field appears when the attribute in the MDM metadata sets Searchable to <code>TRUE</code>, and the field disappears when Searchable is set to <code>False</code>.</p> <ul style="list-style-type: none"> • <code>PRODUCTID</code>: Record ID. It is mandatory when <code>Command Qualifier</code> is set to <code>RelatedRecords</code> in the General tab. • <code>PRODUCTIDEXT</code>: Record ID extension. It is mandatory when <code>Command Qualifier</code> is set to <code>RelatedRecords</code> in the General tab. <p> New data types <code>Long</code> and <code>URL</code> are supported. The <code>XPath Expression</code> is used to edit complex data types, use the function constructor.</p> <p> Operator <code>NotIn</code> is now supported for string data type.</p>
RecordVersion	<p>Identify the version of the record to be queried.</p> <p> It is mandatory when Command Qualifier is set to <code>RelatedRecords</code> in the General tab.</p>
Relationship	<p>Specify the relationship of repositories. After selecting an available relationship name, the related repository is displayed, and you can specify the corresponding attributes in the target repository.</p> <ul style="list-style-type: none"> • <code>CheckExistence</code>: You can specify <code>true</code> or <code>false</code> for each relationship search. <p>If <code>CheckExistence</code> is <code>true</code>, then all the parent records which have related records in that relationship will be returned. If <code>false</code>, then all the parent records which do not have any related records in that relationship will be returned. By default, the value is <code>true</code>.</p> <ul style="list-style-type: none"> • <code>Count</code>: Specify the count in the text field for the search. <p><code>Count</code> specifies the number of parent records with or without related records in that relationship depending on <code>true</code> or <code>false</code> selected for <code>CheckExistence</code>. The default value = <code>-1</code> (all records which match criteria).</p>

Input Item	Description
Return	<p>Specify requirements for the records, related records and the relationship to be returned after the filter.</p> <ul style="list-style-type: none"> • All: Return all the child records. You can specify the depth of relationship. • RelationshipNames: Return records related to the specified relationship name. • ClassificationData: Return classification details of records. The node appears only when the Query based on Classification Scheme check box is selected in the Advanced tab. <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  The node appears only when Command Qualifier is set to NONE, and the selected repository is defined with relationship or classification. </div>

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not. This node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be <i>Error</i>, <i>Warning</i>, or <i>Info</i>. • Code: The error code. • Description: A readable description of the error.
Transaction	
Response	<p>Detailed information of the repository and ResultList:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • ResultList: Contains errors, warnings or informational messages. The element has one or more entries.
TransactionResult	<p>The result of a transaction to indicate if the command has succeeded or not. Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as Result, SuccessCount, EventID, EventStatus, EventState, Action, and so on.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of records successfully processed.

Text Search

By using the Text Search activity, you can search for human recognizable terms in one or more TIBCO MDM repositories.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>TextSearch</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Index Configuration File	No	You need to copy the <code>IndexerConfig.xml</code> file from the server to your local disk. It is used for design time to parse the indexed entities.
Index Entity	No	The name of the index entity. Click Select to open the IndexEntity Name dialog. All available index entities are listed in the drop-down list of the dialog. Select one to apply to your current activity.
Repository	No	The repository name of the index entity. When an Index Entity is selected, the corresponding repository name will be shown automatically.

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
Index Entity Name	SimilarityScore Specify the score of similarity of index entity in the text search. The value is between 0 and 1.0.

Input Item	Description
<i>Repository</i>	<p>Specify the attributes, relationship, and other detailed information of the selected repository. You can specify the expression and weight for each attribute.</p> <ul style="list-style-type: none"> • Expression: An expression used to text search. • Weight: The weight of the attribute. The valid value is a fraction between 0 and 1.0.
ReturnCount	<p>Specify the number of matching records that you want to display in the search result. The default value is 20.</p> <p>If you do not specify the return count, 20 matching records that meet the search criteria are displayed.</p> <ul style="list-style-type: none"> • Start Count: The sequential number of matching records that you want to display in the response. • Total Count: The total number of matching records that you want to display in the response.

Output

The following is the output for the activity.

Output Item	Description
<i>Repository</i> searchScore	<p>Return a list of records matching the search criteria.</p> <p>Return the default similarity (fuzzy) score which is needed to return a matching record. The value must be between 0 and 1.0. The default value is 0.8.</p> <div style="display: flex; align-items: center;">  <div style="border-left: 1px solid #ccc; padding-left: 10px;"> <p>Lowering the default fuzzy score may affect performance and result in irrelevant records.</p> </div> </div>
searchScoreString	Return the float score as string type.
Attribute Group	<p>Return the group attributes of records, whether they are Unassigned, System or user-customized.</p> <p>See the TIBCO MDM documentation for more information on the attribute group.</p>
ReturnCount	<p>Return a number of matching records specified in a repository that you want to display in the response.</p> <ul style="list-style-type: none"> • Start Count: The sequential number of matching records that you want to display in the response. • Total Count: The total number of matching records that you want to display in the response.

DataLoad Activities

TIBCO MDM data sources are used within the application as reference or lookup information for TIBCO MDM operations. Typically, data sources are sourced from systems outside of TIBCO MDM and life-cycle controlled by that outside system. ActiveMatrix BusinessWorks™ Plug-in for MDM provides a set of activities to execute data source upload and import actions.

Get Data Source

By using the Get Data Source activity, you can get a list of data source information with the specified data source name.

General

The **General** tab contains the following fields:

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>GetDataSource</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Data Source	Yes	Click  to select a data source.  The <code>DataSource</code> node also appears in the Input tab. Each of the two is optional, but one of them must be present. It will be overridden by the <code>DataSource</code> attribute in the Input tab at runtime.

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
DataSource	The name of the data source.  The DataSource field also appears in the General tab. Each of the two is optional, but one of them must be present. It will override the <code>DataSource</code> attributes in the General tab at runtime.

Output

The following is the output for the activity.

Output Item	Description
DatasourceInfo	<p>Return a list of all data source information. For each data source, the following information is returned: data source ID, Name, Description, FileName, Format, SourceTableName, DelimiterCode, DelimiterValue, HeaderLineCount, UseTitlesFlag, FileLastUploadedDate, TableLastUploadedDate, LoadedRowCount, BadRowCount, LogFile, BadFile, QueueName, Keyword, TextQualifier, DecimalSymbol, ThousandSeparator, XslfFileName, DateFormat, ModMemberID, ModDate, ModVersion, Active, TransportProtocol, TransportProtocolAddressID, Action, OriginalFileName, and InternalFileName.</p> <p>See the TIBCO MDM documentation for more information on those terms.</p>

Import Records

By using the Import Records activity, you can import records to repositories using an input map, which maps repositories and data sources.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>ImportRecords</code>.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Execution Mode	Yes	<p>Select an execution mode. The default option is <code>SYNCHR</code>.</p> <ul style="list-style-type: none"> SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	Yes	<p>The name of repository where records are stored.</p> <p>Click  to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity.</p>

Field	Module Property?	Description
Input Map	Yes	<p>Map the repository and the data source. The name of input map is unique for each repository.</p> <p>Click  to select an input map.</p> <p> The InputMap node also appears in the Input tab. Each of the two is optional, but one of them must be present. If both are present, the value of Input Map in the General tab will be overridden at runtime.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The Import Records activity supports `ValidateOnly` and `ConfirmImmediately` parameters as context variables. For more information on the `ValidateOnly` and `ConfirmImmediately` parameters, refer to *TIBCO MDM User's Guide*.

Input Item	Description
InputMap	<p>Map the repository and the data source.</p> <p> The Input Map field also appears in the General tab. Each of the two is optional, but one of them must be present. If both are present, the value of Input Map in the General tab will be overridden at runtime.</p>

Output

The following is the output for the activity.

Output Item	Description
Severity	The value can be Error, Warning, or Info.
EventResult	<p>Return the event result:</p> <ul style="list-style-type: none"> • <code>EventID</code>: The ID produced by the event. • <code>EventStatus</code>: The status of the event. • <code>EventState</code>: The process state of the event. • <code>EventStatusDescription</code>: The description of the event status. • <code>EventStateDescription</code>: The description of the event process state.
Description	The description of the import records status.

Upload Data Source

By using the Upload Data Source activity, you can upload external record data to data sources. You can upload delimited files, fixed length files, and data from databases to data sources.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>UploadDataSource</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Execution Mode	Yes	Select an execution mode. The default option is <code>SYNCHR</code> . <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Data Source	Yes	Click  to select a data source.
File Name	Yes	Click  to select the data source file.  The <code>FileName</code> node also appears in the Input tab, the value in the General tab will be overridden by the value of <code>FileName</code> in the Input tab at runtime.

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
FileName	<p>The name of the data source file to be uploaded.</p> <p> The File Name field also appears in the General tab, the value of File Name in the General tab will be overridden at runtime.</p>

Output

The following is the output for the activity.

Output Item	Description
Severity	The value can be Error, Warning, or Info.
EventResult	<p>Return the event result:</p> <ul style="list-style-type: none"> • EventID: The ID produced by the event. • EventStatus: The status of the event. • EventState: The process state of the event. • EventStatusDescription: The description of the event status. • EventStateDescription: The description of the event process state.
Description	The description of the upload data source status.

Upload And Import

By using the Upload And Import activity, you can upload external record data to data sources, and import records from data sources to repositories.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>UpLoadAndImport</code>.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Field	Module Property?	Description
Execution Mode	Yes	<p>Select an execution mode. The default option is SYNCHR.</p> <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	Yes	<p>The name of repository where records are stored.</p> <p>Click  to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity.</p>
Input Map	Yes	<p>Map the repository and the data source. The name of input map is unique for each repository.</p> <p>Click  to select an input map.</p> <p> The InputMap node also appears in the Input tab. Each of the two is optional, but one of them must be present. If both are present, the value of Input Map in the General tab will be overridden at runtime.</p>
File Name	Yes	<p>Click  to select the data source file to be uploaded.</p> <p> The FileName node also appears in the Input tab, the value of File Name in the General tab will be overridden at runtime.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The UploadAndImport Record activity supports `ValidateOnly` and `ConfirmImmediately` parameters as context variables. For more information on the `ValidateOnly` and `ConfirmImmediately` parameters, refer to *TIBCO MDM User's Guide*.

Input Item	Description
FileName	<p>The name of the file to be uploaded.</p> <p> The File Name field also appears in the General tab, the value of File Name in the General tab will be overridden at runtime.</p>

Input Item	Description
InputMap	<p>Map the repository and the data source.</p> <p> The Input Map field also appears in the General tab. Each of the two is optional, but one of them must be present. If both are present, the value of Input Map in the General tab will be overridden at runtime.</p>

Output

The following is the output for the activity.

Output Item	Description
Severity	The value can be Error, Warning, or Info.
EventResult	<p>Return the event result:</p> <ul style="list-style-type: none"> • EventID: The ID produced by the event. • EventStatus: The status of the event. • EventState: The process state of the event. • EventStatusDescription: The description of the event status. • EventStateDescription: The description of the event process state.
Description	The description of the upload and import status.

Work Item Activities

ActiveMatrix BusinessWorks™ Plug-in for MDM provides a set of work items related wrapper services by inquiring metadata and turn loosely schemed name-values pairs into strongly typed services.

The work item services also implement loose schema, which is difficult to use. The ActiveMatrix BusinessWorks™ Plug-in for MDM provides the wrapper by inquiring the metadata from TIBCO MDM server, and by validating the request and build strong-typed input and output.

Approve Work Item

By using the Approve Work Item activity, you can approve work items, and continue the paused executions.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>ApproveWorkItem</code>.</p>

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Approve All	Yes	<p>Select this check box to approve all the work items.</p> <p> The Maximum Count and Repository fields display only when the Approve All check box is selected. And when this check box is not selected, the <code>WorkItemReference</code> node is added in <code>WorkItem</code> in the Input tab.</p>
MaxCount	Yes	The maximum number of work items that you want to approve. The default value is 20.
Repository	Yes	Specify the repositories related to the work items that you want to approve. Click  to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity. The default value <code>All</code> means selecting all the available repositories.

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab has the following fields.

Field	Module Property?	Description
Specify Custom Attributes	No	<p>Select this check box to specify custom attributes for work items, that is, user-defined attributes.</p> <p> When this check box is selected, the <code>CustomAttributes</code> node appears in <code>WorkItem</code> in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
WorkItemReference	Specify the workitem ID that you want to approve.  The WorkItemReference node appears only when the Approve All check box is not selected in the General tab.
ReasonCode	Provide a reason code for the work item approval operation.
Comment	Provide a comment for work item approval operation.
CustomAttributes	Specify custom attributes for work items, that is, user-defined attributes. You can specify the value of the Name and Value.  The CustomAttributes node appears only when the Specify Custom Attributes check box is selected in the Advanced tab.

Output

The following is the output for the activity.

Output Item	Description
Result	The execution result to indicate whether the execution has succeeded or not. The node contains the following three elements: <ul style="list-style-type: none"> Severity: Can be Error, Warning, or Info. Code: The error code. Description: A readable description of the error.
Transaction	
Response	<ul style="list-style-type: none"> WorkItem: Return a list of work item information. For each work item, WorkItemReference, EventReference, Organization, State, StateDescription, CreationDate, WorkItemType, Description, DocumentType, DocumentTypeDescription, DocumentSubtype, DocumentSubtypeDescription, Owner, OwnerName, OwnerType, OriginalOwner, OriginalOwnerName, OriginalWorkItemID, TaskType, ActivityName, Age, and Records related information including MasterCatalogName, ProductID, ProductIDExt, MODVersion are returned. MasterCatalogName: The name of the repository containing records. MODVersion: The modification version of the record. ResultList: Contains errors, warnings or informational messages. The element has one or more entries. HighestSeverity returns the highest severity of the process, it can be Error, Warning, or Info. <p>See for more information on other items.</p>

Output Item	Description
TransactionResult	<p>Return the result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as <code>Result</code>, and <code>SuccessCount</code>.</p> <ul style="list-style-type: none"> • <code>SuccessCount</code>: Indicates the number of work items that are successfully processed.

Close Work Item

By using the Close Work Item activity, you can close notification work items.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>CloseWorkItem</code>.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Close All	Yes	<p>Select this check box to close all the work items.</p> <div style="display: flex; align-items: center;">  <p>The Maximum Count and Repository fields display only when the Close All check box is selected. And when this check box is not selected, the <code>WorkItemReference</code> node is added in <code>WorkItem</code> in the Input tab.</p> </div>
Maximum Count	Yes	<p>The maximum number of work items closed. The default value is 20.</p> <div style="display: flex; align-items: center;">  <p>This field displays only when the Close All check box is selected.</p> </div>
Repository	Yes	<p>Specify the repositories related to the work items that you want to reject. Click  to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity. The default value <code>All</code> means selecting all the available repositories.</p> <div style="display: flex; align-items: center;">  <p>This field displays only when the Close All check box is selected.</p> </div>

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab has the following fields.

Field	Module Property?	Description
Specify Custom Attributes	No	<p>Select this check box to specify custom attributes for work items, that is, user-defined attributes.</p>  <p>When this check box is selected, the <code>CustomAttributes</code> node appears in <code>WorkItem</code> in the Input tab.</p>

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
WorkItem	
WorkItemReference	<p>Specify the workitem ID that you want to close.</p>  <p>The <code>WorkItemReference</code> node appears only when the Close All check box is not selected in the General tab.</p>
ReasonCode	Provide a reason code for the work item close operation.
Comment	Provide a comment for work item close operation.
CustomAttributes	<p>Specify custom attributes for work items, that is, user-defined attributes. You can specify the value of the <code>Name</code> and <code>Value</code>.</p>  <p>The <code>CustomAttributes</code> node appears only when the Specify Custom Attributes check box is selected in the Advanced tab.</p>

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution succeeds or not.</p> <p>The node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Transaction	
Response	<ul style="list-style-type: none"> • WorkItem: Return a list of work item information. For each work item, <code>WorkItemReference</code>, <code>EventReference</code>, <code>Organization</code>, <code>State</code>, <code>StateDescription</code>, <code>CreationDate</code>, <code>WorkItemType</code>, <code>Description</code>, <code>DocumentType</code>, <code>DocumentTypeDescription</code>, <code>DocumentSubtype</code>, <code>DocumentSubtypeDescription</code>, <code>Owner</code>, <code>OwnerName</code>, <code>OwnerType</code>, <code>OriginalOwner</code>, <code>OriginalOwnerName</code>, <code>OriginalWorkItemID</code>, <code>TaskType</code>, <code>ActivityName</code>, <code>Age</code>, and <code>Records</code> related information including <code>MasterCatalogName</code>, <code>ProductID</code>, <code>ProductIDExt</code>, <code>MODVersion</code> are returned. • MasterCatalogName: The name of the repository containing records. • MODVersion: The modification version of the record. • ResultList: Contains errors, warnings or informational messages. This element has one or more entries. <code>HighestSeverity</code> returns the highest severity of the process, it can be Error, Warning, or Info. <p>See for more information on other items.</p>
TransactionResult	<p>Return the result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as <code>Result</code>, and <code>SuccessCount</code>.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of work items that are successfully processed.

Query Work Item

By using the Query Work Item activity, you can query work items based on the specified search criteria.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>QueryWorkItem</code>.</p>

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
State	Yes	<p>Specify the state of the work items. Work items are filtered based on the selected work item's state.</p> <p>Click  to select one of the following work item states: ALL, CANCELLED, CLOSED, OPEN, or TIMEDOUT.</p>
Type	Yes	<p>Specify the type of the work items. Work items are filtered based on the selected work item's type.</p> <p>Click  to select one of the following work item types: ALL, Action Items, or Notifications.</p>
Document Type	Yes	<p>Specify the document type associated with the work item. Work items are filtered based on the selected work item's document type.</p> <p>Click  to open the Document Type dialog. All available document types are listed in the list of the dialog. Select one to apply to your current activity.</p>
Document Sub Type	Yes	<p>Specify document subtype associated with the work item. Work items are filtered based on the selected work item's document subtype.</p> <p>Click  to open the Document Subtype dialog. All available document subtypes are listed in the list of the dialog. Select one to apply to your current activity.</p>
Owner	Yes	<p>The username of the work item owner. If the owner is not the same as the user who initiated the web service, the owner must have permissions to view the work items of other users. Work items are filtered based on the selected work item's owner.</p> <p>Click  to open the Owner dialog. All available users are listed in the list of the dialog only when the user in the shared resource has the Full control for work items assigned to other users permission. Select one to apply to your current activity.</p>
Repository	No	<p>The name of the repository associated with the work item. Work items are filtered based on the selected repository.</p> <p>Click Select to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity.</p>

Field	Module Property?	Description
Partner	Yes	Click  to select a partner or backend system.
Show Actions First	Yes	Select this check box to show action work item first. Work item is sorted based on whether its type is an action item or a notification.

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab has the following fields.

Field	Module Property?	Description
Filter based on Record Attribute	No	Select the check box to filter work items based on the value of record attribute.  When this check box is selected, the <code>RecordAttribute</code> node appears in <code>WorkItem</code> in the Input tab.
Filter based on Custom Attribute	No	Select the check box to filter work items based on the custom attributes.  When this check box is selected, the <code>CustomAttribute</code> node appears in <code>WorkItem</code> in the Input tab.
Filter based on Key Word	No	Select the check box to filter work items based on the key word.  When this check box is selected, the <code>keyWord</code> node appears in <code>WorkItem</code> in the Input tab.
Filter based on Native Condition	No	Select the check box to filter work items based on specified search conditions.  When this check box is selected, the <code>NativeCondition</code> node appears in <code>WorkItem</code> in the Input tab.
Filter based on Data Pool	No	Select the check box to filter work items data pool.  When this check box is selected, the <code>DataPool</code> node appears in <code>WorkItem</code> in the Input tab.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
Pagination	<p>Specify the pagination of queried work items.</p> <ul style="list-style-type: none"> • StartCount: Specified to achieve windowing/pagination of a large result set. In combination with MaxCount, you can control the page of the result set needs to be returned. • MaxCount: Limit the maximum number of work items returned.
DateRange	<p>Specify the date range of the queried work items. Work items are filtered based on the date range, and the work item queried are created between FromDate and ToDate.</p> <ul style="list-style-type: none"> • FromDate: The start date time when work items are created. The default value is null. • ToDate: The end date time when work items are created. The default value is the current date.
EventReference	<p>Specify the event ID used to reference the event. Work items are filtered based on the Event ID.</p>
RecordAttribute	<p>Specify the value of record attributes. Work items are filtered based on the record attribute.</p> <p> This node appears only when the Filter based on Record Attribute check box is selected in the Advanced tab.</p>
CustomAttribute	<p>Specify user-defined attributes of the queried work items. Work items are filtered based on the custom attribute.</p> <p> This node appears only when the Filter based on Custom Attribute check box is selected in the Advanced tab.</p>
KeyWord	<p>Keywords are configured when a work item is created in the workflow. Work items are filtered based on the tagged keyword.</p> <p> This node appears only when the Filter based on KeyWord check box is selected in the Advanced tab.</p>
NativeCondition	<p>Specify search condition. You can specify the key along with other conditions. The condition is applied as AND with other conditions and it is applied without any processing. If it is invalid, an SQL error is thrown. The application does not display the error.</p> <p> This node appears only when the Filter based on Custom Attribute check box is selected in the Advanced tab.</p>
Datapool	<p>Specify the data pool.</p> <p> This node appears only when the Filter based on Datapool check box is selected in the Advanced tab.</p>

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>The node contains the following three elements:</p> <ul style="list-style-type: none"> Severity: Can be Error, Warning, or Info. Code: The error code. Description: A readable description of the error.
Transaction	
Response	<p>Return a list of work item information. For each work item, <code>WorkItemReference</code>, <code>EventReference</code>, <code>Organization</code>, <code>State</code>, <code>StateDescription</code>, <code>CreationDate</code>, <code>WorkItemType</code>, <code>Description</code>, <code>DocumentType</code>, <code>DocumentTypeDescription</code>, <code>DocumentSubtype</code>, <code>DocumentSubtypeDescription</code>, <code>Owner</code>, <code>OwnerName</code>, <code>OwnerType</code>, <code>OriginalOwner</code>, <code>OriginalOwnerName</code>, <code>OriginalWorkItemID</code>, <code>TaskType</code>, <code>ActivityName</code>, <code>Age</code>, and <code>Records</code> related information including <code>MasterCatalogName</code>, <code>ProductID</code>, <code>ProductIDExt</code>, <code>MODVersion</code> are returned.</p> <ul style="list-style-type: none"> <code>MasterCatalogName</code>: The name of the repository containing records. <code>MODVersion</code>: The modification version of the record. <code>ResultList</code>: Contains errors, warnings or informational messages. The element has one or more entries. <code>HighestSeverity</code> returns the highest severity of the process, it can be Error, Warning, or Info. <p>See for more information on other items.</p>
TransactionResult	<p>Return the result of a transaction to indicate if the command has succeeded or not.</p> <p><code>Success</code> does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as <code>Result</code>, and <code>SuccessCount</code>.</p> <ul style="list-style-type: none"> <code>SuccessCount</code>: Indicates the number of work items that are successfully processed.

Reassign Work Item

By using the Reassign Work Item activity, you can reassign work items to other users. When you own the work item or you have permission for the work item, you can reassign the work item to another user. The work item is then closed, and a new work item is created for the target user.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>ReassignWorkItem</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
User	Yes	Specify the user to whom the work item is to be reassigned. Click  to open the User dialog. All available users are listed in the list of the dialog. Select one to apply to your current activity.  The User node also appears in the Input tab. Each of the two is optional, but one of them must be present. If both are present, the value in the General tab will be overridden at runtime.

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
WorkItemReference	Specify the workitem ID to be reassigned.
User	Specify the user to whom the work item is to be reassigned.  The User field also appears in the General tab. Each of the two is optional, but one of them must be present. If both are present, the value in the General tab will be overridden at runtime.

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>The node contains the following three elements:</p> <ul style="list-style-type: none"> Severity: Can be Error, Warning, or Info. Code: The error code. Description: A readable description of the error.
Transaction	
Response	<ul style="list-style-type: none"> WorkItem: Return a list of work item information. For each work item, WorkItemReference, EventReference, Organization, State, StateDescription, CreationDate, WorkItemType, Description, DocumentType, DocumentTypeDescription, DocumentSubtype, DocumentSubtypeDescription, Owner, OwnerName, OwnerType, OriginalOwner, OriginalOwnerName, OriginalWorkItemID, TaskType, ActivityName, Age, and Records related information including MasterCatalogName, ProductID, ProductIDExt, MODVersion are returned. MasterCatalogName: The name of the repository containing records. MODVersion: The modification version of the record. ResultList: Contains errors, warnings or informational messages. The element has one or more entries. HighestSeverity returns the highest severity of the process, it can be Error, Warning, or Info. <p>See for more information on other items.</p>
TransactionResult	<p>Return the result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as Result, and SuccessCount.</p> <ul style="list-style-type: none"> SuccessCount: Indicates the number of work items that are successfully processed.

Reject Work Item

By using the Reject Work Item activity, you can reject work items, and cancel all the operations related to the work items.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name of the activity in the process definition. The default value is <code>RejectWorkItem</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.
Reject All	Yes	Select this check box to reject all the work items.  The Maximum Count and Repository fields display only when the Reject All check box is selected. And when this check box is not selected, the <code>WorkItemReference</code> node is added in <code>WorkItem</code> in the Input tab.
Maximum Count	Yes	The maximum number of work items rejected. The default value is 20.  This field displays only when the Reject All check box is selected.
Repository	Yes	Specify the repositories related to the work items that you want to reject. Click  to open the Repository dialog. All available repositories are listed in the list of the dialog. Select one to apply to your current activity. The default value <code>All</code> means selecting all the available repositories.  This field displays only when the Reject All check box is selected.

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab has the following fields.

Field	Module Property?	Description
Specify Custom Attributes	No	Select this check box to specify custom attributes for work items, that is, user-defined attributes.  When this check box is selected, the <code>CustomAttributes</code> node appears in <code>WorkItem</code> in the Input tab.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
WorkItemReference	Specify the workitem ID that you want to reject.  The WorkItemReference node appears only when the Reject All check box is not selected in the General tab.
ReasonCode	Provide a reason code for the work item rejection operation.
Comment	Provide a comment for work item rejection operation.
CustomAttributes	Specify custom attributes for work items, that is, user-defined attributes. You can specify the value of the Name and Value.  The CustomAttributes node appears only when the Specify Custom Attributes check box is selected in the Advanced tab.
SendForCorrections	Send the record for corrections if you have rejected any work item. The value 0 means it will not send for corrections, and the value 1 means it will send for corrections.

Output

The following is the output for the activity.

Output Item	Description
Result	The execution result to indicate whether the execution has succeeded or not. The node contains the following three elements: <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Transaction	

Output Item	Description
Response	<ul style="list-style-type: none"> • WorkItem: Return a list of work item information. For each work item, <code>WorkItemReference</code>, <code>EventReference</code>, <code>Organization</code>, <code>State</code>, <code>StateDescription</code>, <code>CreationDate</code>, <code>WorkItemType</code>, <code>Description</code>, <code>DocumentType</code>, <code>DocumentTypeDescription</code>, <code>DocumentSubtype</code>, <code>DocumentSubtypeDescription</code>, <code>Owner</code>, <code>OwnerName</code>, <code>OwnerType</code>, <code>OriginalOwner</code>, <code>OriginalOwnerName</code>, <code>OriginalWorkItemID</code>, <code>TaskType</code>, <code>ActivityName</code>, <code>Age</code>, and <code>Records</code> related information including <code>MasterCatalogName</code>, <code>ProductID</code>, <code>ProductIDExt</code>, <code>MODVersion</code> are returned. • MasterCatalogName: The name of the repository containing records. • MODVersion: The modification version of the record. • ResultList: Contains errors, warnings or informational messages. The element has one or more entries. <code>HighestSeverity</code> returns the highest severity of the process, it can be <code>Error</code>, <code>Warning</code>, or <code>Info</code>. <p>See for more information on other items.</p>
TransactionResult	<p>Return the result of a transaction to indicate if the command has succeeded or not.</p> <p>Success does not mean the successful completion of the command. However, a failure does mean that the command is aborted.</p> <p>The element also captures details such as <code>Result</code>, and <code>SuccessCount</code>.</p> <ul style="list-style-type: none"> • SuccessCount: Indicates the number of work items that are successfully processed.

Event Management Activities

ActiveMatrix BusinessWorks™ Plug-in for MDM provides a set of activities that manage the standard workflow of TIBCO MDM using the event query service, and report event status. The activities wait for the event to complete.

Get Event Detail

By using the Get Event Detail activity, you can get event information for a specified event ID. The event details displayed in the Event Log are retrieved.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	The name of the activity in the process definition. The default value is <code>GetEventDetail</code> .

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
EventId	ID of the event whose details are to be retrieved.

Output

The following is the output for the activity.

Output Item	Description
Event	<p>Return information on event <code>Id</code>, <code>EventName</code>, <code>Status</code>, <code>State</code>, <code>StartOn</code>, <code>RepositoryName</code>, <code>BackendSystem</code>, <code>Process</code>, and <code>Error</code>.</p> <ul style="list-style-type: none"> Process: The response message contains the event <code>Id</code>, <code>Description</code>, <code>WfName</code>, <code>FileLocation</code>, <code>AdditionalInfo</code>, and <code>ProcessLog</code>. Error: Return error message, including <code>ErrorCode</code>, and <code>ErrorMessage</code>. <p>See the TIBCO MDM documentation for more information on those items.</p>

Get Import EventDetail

By using the Get Import Event Detail activity, you can import event information for a specified event ID. The event details displayed in the Event Log are retrieved.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>GetImportEventDetail</code>.</p>

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
EventId	ID of the import event whose details are to be retrieved.

Output

The following is the output for the activity.

Output Item	Description
Event	<p>Return information on event <code>Id</code>, <code>EventName</code>, <code>Status</code>, <code>State</code>, <code>StartOn</code>, <code>RepositoryName</code>, <code>BackendSystem</code>, <code>Process</code>, and <code>Error</code>.</p> <ul style="list-style-type: none"> • Process: The response message contains the event <code>Id</code>, <code>Description</code>, <code>WfName</code>, <code>FileLocation</code>, <code>AdditionalInfo</code>, and <code>ProcessLog</code>. • Error: Return error message, including <code>ErrorCode</code>, and <code>ErrorMessage</code>. <p>See the TIBCO MDM documentation for more information on those items.</p>

Wait For Event Completion

By using the Wait For Event Completion activity, you can wait for an event to complete until it reaches the SUCCESS status or the specified timeout value.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name of the activity in the process definition.</p> <p>The default value is <code>WaitForEventCompletion</code>.</p>

Field	Module Property?	Description
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>
Timeout	Yes	<p>Specify a timeout value in seconds during the waiting. The default value is 3600.</p> <p> It will be overridden by the value of Timeout in the Input tab at runtime.</p>
Interval	Yes	<p>Specify the time interval in seconds to execute operations. The default value is 5.</p> <p> It will be overridden by the value of Interval in the Input tab at runtime.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
EventId	ID of the event whose details are to be retrieved.
Timeout	<p>Specify a timeout value in seconds during the waiting process.</p> <p> It will override the value of Timeout in the General tab at runtime.</p>
Interval	<p>Specify the time interval to execute operations in seconds.</p> <p> It will override the value of Interval in the General tab at runtime.</p>

Output

The following is the output for the activity.

Output Item	Description
Event	<p>Return information on event <code>Id</code>, <code>Type</code>, <code>Status</code>, <code>State</code>, <code>StartOn</code>, <code>BackendSystem</code>, and <code>Event Summary</code>. The <code>Event Summary</code> is different for each event type, mainly include the <code>Type</code>, <code>Name</code>, <code>Description</code>, and <code>Value</code> attributes.</p> <p>The event details returned depend on the type of the event. For example, the event summary information is returned only for the events that have a summary. If there is a file attribute in the summary information path, the document ID for the attribute is returned. The user uses this document ID to download the document by using the <code>contentService</code>. If the event ID is not found, <code>Event</code> does not exist or is executed in memory, and no other details available message is returned.</p>

REST Activities

The REST services are the key components of cloud services and IoT (Internet of Things) service architecture. Therefore, to make good use of these advantages, REST services are introduced in the recent releases of TIBCO MDM to support record operations and other MDM functionalities.

ActiveMatrix BusinessWorks™ Plug-in for MDM provides a way of implementing the business use cases as Business Works processes with well-defined transitions, simplifying the design and implementation cycles in development phase. The web service layer handles the service requests coming from the ActiveMatrix BusinessWorks™ Plug-in for MDM. It is important that the ActiveMatrix BusinessWorks™ Plug-in for MDM adapts and supports TIBCO MDM REST services on premise and also in a cloud based integrated environment.

REST AddModify

By using the REST AddModify (Record) activity, you can add, modify, or lookup a record. If the record does not exist, a new record is created. If the record exists, the existing record is updated.

- [Record Lookup](#)
- [REST AddModify Use Cases](#)

General

The **General** tab contains the following fields:

Field	Module Property?	Description
Name	No	<p>The name to be displayed as the label for the activity in the process.</p> <p>The default value is <code>RESTAddModify</code>.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Field	Module Property?	Description
HTTP Client	Yes	<p>Select the HTTP client which supports the HTTP and REST services, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select the HTTP client.</p> <p>If no matching HTTP client is found, click Create Shared Resource to create one.</p> <p> HTTP client must be created with the default values on all fields and properties. The Default Host must be the host IP address and the Default Port port number of the MDM server.</p>
Execution Mode	Yes	<p>The default execution mode is SYNCHR.</p> <ul style="list-style-type: none"> • SYNCHR: The client invokes a service and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service but does not wait for the completion of the workflow execution.
Repository	Yes	<p>The name of repository where records are stored.</p> <p>Click  to select a repository.</p> <p> When the selected repository model is complex and involves many related repositories, increase the value of the -Xms and -Xmx parameters in the <code>TIBCOBusinessStudio.ini</code> file, which is located at <code>TIBCO_HOME\studio\version\eclipse</code>.</p>
Record State	Yes	<p>The state in which you want to save the record. The default record state is Unconfirmed. See also, Record Lookup.</p> <ul style="list-style-type: none"> • Confirmed: Save as confirmed records. • Unconfirmed: Save as unconfirmed records. • Draft: Save as draft records.

Field	Module Property?	Description
Command Qualifier	Yes	<p>The default command qualifier is <code>Validate/Process</code>.</p> <ul style="list-style-type: none"> Validate/Process: Validates records, saves them, and then initiates the New Record Introduction Edit workflow. Validate/NoProcess: Validates records and saves them without initiating the New Record Introduction Edit workflow. NoValidate/Process: Saves records without validation and initiates the New Record Introduction Edit workflow. NoValidate/NoProcess: Saves records without validation nor initiation of the New Record Introduction Edit workflow. <p> When Record State is set to <code>Draft</code>, only Validate/Process and NoValidate/Process are available.</p>
File Type Attributes	Yes	<p>Specify how to upload a file with file type attributes. This field is available when any attribute defined in the selected repository model is a file type attribute. By default, the attribute is <code>ATTACHMENT</code>.</p> <ul style="list-style-type: none"> ATTACHMENT: Indicates that the client sends the file as SOAP attachments to the MDM server. <p> Currently, only the <code>ATTACHMENT</code> attribute is supported.</p>
Add/Modify Mode	Yes	<p>Select the mode. The default option is <code>Add Modify</code>.</p> <ul style="list-style-type: none"> Add Only: Creates a record if the record does not exist. However, if the record exists, this activity does not update it. A response is returned with appropriate message about the existence of the record. Modify Only: Updates an existing record. However, if the record does not exist, this activity does not create a record. A response is returned, informing that the record is not found. Lookup Only: Searches for the record but does not perform any action on the record. Returns <code>true</code> or <code>false</code> depending on whether or not the record was found. Add Modify: If the record does not exist, this activity creates a record. If the record exists, it updates the existing record. The lookup identifiers and values are displayed in the input for this mode.

Description

Provide a short description for the activity.

Input

The following is the input for the activity. The input parameter varies based on the selected Search Type.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) must be entered by using double quotes. However, you may encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the *TIBCO ActiveMatrix BusinessWorks™ Application Development*.

Input Item	Description
Context	The standard context variables which are supported for add and modify operations. Refer to General Input for MDM Activities . To modify records in a work item context, provide a context variable <code>WORKITEMREFERENCE</code> and the associated work item ID. You should have the permission Edit when a record is in workflow .

Input Item	Description
Record	<p>The RecordLookup section is for collecting the information needed for looking up a record in TIBCO MDM. You can look up a record by the internal MDM key or an external lookup identifier.</p> <ul style="list-style-type: none"> • MDMKey: Using the MDM key, you can look up a record. An MDM key is a combination of record ID and IDEXENSION. To look up a record, specify PRODUCTID and PRODUCTIDEXT in the fields. To look up a record with no PRODUCTIDEXT, you must enter pair of a single quotation mark (') in the PRODUCTIDEXT field. • LookupIdentifier: As an alternative to MDM key, you can also look up a record by an external identifier such as loyalty ID, customer ID, and reward ID. It must be an attribute that is unique to a particular record. Specify the unique attribute name and its value. <p>For detailed information on the record look up values, refer to Note specified in the Record Lookup section.</p> <p>For more information about add and modify modes, see REST AddModify Use Cases.</p> <ul style="list-style-type: none"> • RepositoryName: Specify PRODUCTID and PRODUCTIDEXT. <ul style="list-style-type: none"> – PRODUCTID: Record ID. When PRODUCTID is not specified, a PRODUCTID is generated automatically if users have configured rulebase on the MDM server; otherwise, the error message Record ID cannot be empty is displayed. – PRODUCTIDEXT: Record ID extension. Optionally used to identify a record. – Unassigned, System or New Group. The default attribute group UNASSIGNED holds all attributes that do not belong to any specific group. – Relationship: Specify the relationship of records in repositories. After selecting an available relationship name, you can specify the corresponding relationship attributes and attributes in the target repository. • Request Parameters: If you have specific custom parameters, specify the custom request parameters. For information on the request parameters, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i>. • Message Headers: If you have specific custom headers, specify those in the custom header fields. For information on the headers accepted by REST service, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i>.

Output

The following is the output for the activity. The response displays the record bundle hierarchy as well as the JSON payload.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>This node contains the following three elements:</p> <ul style="list-style-type: none"> Severity: Can be Error, Warning, or Info. Code: The error code. Description: A readable description of the error.
Records	
Repository Name	Name of the repository.
ProductID	An ID of the record.
ProductIDExt	Record ID extension. Optionally, used to identify a record.
ResponseAttributes	Contains the repository attribute names and their values. Also, contains errors, warnings, or informational messages. This element has one or more entries.
Relationships	<p>Contains the following relationship information:</p> <ul style="list-style-type: none"> SourceRepository TargetRepository RelatedRecordID RelatedRecordExtension ResponseAttributes
Success	A Boolean for success. true or false. The result of a record to indicate if the command has succeeded or not.

Fault

The server and client errors which result in activity exceptions are displayed in the **Fault** tab.

Record Lookup

A client might send a request for the add or modify activity after an external match or merge activity. Similarly, When you do not know whether a record exists in TIBCO MDM, you can lookup records. The look up provides a simple way to check existence in TIBCO MDM. You can configure another activity or process depending on the outcome.

Consider a scenario where a retailer wants to add some missing information (such as customer type, loyalty points, and payback points) about a customer in TIBCO MDM. The loyalty points of the customer are obtained from an external resource such as database.

In such cases, you must first check whether a record already exists in TIBCO MDM. Use the **Lookup Only** mode to look up a record by an MDM key or another lookup identifier that is unique to the record. An MDM key is a combination of record ID and `IDEXTENSION`. Additionally, you can also look up a record by a unique identifier such as loyalty ID, customer ID, and reward ID. It must be an attribute that is unique to a particular record.



- The RecordLookup fields are available in the Record Lookup section on the **Input** tab, only when the **Add Modify** or **Lookup Only** mode is selected on the **General** tab. The RecordLookup details are mandatory for the **Add Modify** and **Lookup Only** modes.
- When record look up details are not provided on the **Input** tab, validation fails and the process contains validation errors. The following error message is displayed on the **Problems** tab : Activity configuration error. The activity [RESTAddModify] has input configuration error. Element "RecordLookup" required.
- When only MDM key is provided, the record is looked up by the record ID (and record extension, if provided).
- When only lookup identifier is provided, the record is looked up by the value of the unique attribute. If the specified attribute is not present in the selected repository, a validation error is returned by TIBCO MDM server. The response contains the following message : Attribute <'attribute_name'> not defined for repository <'repository_name'>.
- When both MDM Key and Lookup Identifier are provided, MDM Key takes precedence over the lookup identifier. The lookup identifier details are ignored during the execution of the activity.

If you know that the record exists in TIBCO MDM, it is best to select the modify operation. In this case, running a look up operation is not necessary. The look up identifier attributes and values are either displayed or hidden depending on the use case.



The record look up functionality supports a single record look up so that you can add or modify a record. By default, the latest confirmed version of a record is retrieved or a record in workflow is retrieved by work item reference.

REST AddModify Use Cases

This is a representative list of possible use cases.

Mode	Externally Generated ID	Record Lookup Fields	MDM Managed ID (Assigned from Rulebase)
Add Only	The record is added with a new ID.	Record lookup fields are hidden.	A new record is added. TIBCO MDM generates an ID and returns a response with appropriate message about the existence of the record.
Modify Only	The record is modified by an existing ID.	Record lookup fields are hidden.	The record is modified by an existing ID. If the record does not exist, this activity does not create a new record. However, returns a response with a message that the record is not found.

Mode	Externally Generated ID	Record Lookup Fields	MDM Managed ID (Assigned from Rulebase)
Lookup Only	The record is not added or modified. However, the record is queried by an MDM ID or a unique identifier for the record.	Record lookup fields are displayed.	The record is not added or modified. However, the record is queried by an MDM ID or a unique identifier for the record.
Add Modify	The record lookup operation is performed. If the record does not exist, the REST Add Modify activity creates a record. If the record exists, the REST Add Modify activity updates the existing record.	Record lookup fields are displayed.	If the rulebase is not set to assign an internal ID, the validation error is returned in the response with the error and record details.

REST Delete

By using the REST Delete (Record) activity, you can delete records when the records exist, and when the latest version of the records is not in any workflow. You can delete all related records along with the parent record. The records are deleted by using only `PRODUCTID` as well as both `PRODUCTID` and `PRODUCTIDEXTENSION`. Use the command qualifier **RelationshipTargets** to delete a single child record added to a relationship at that level.

Limitation

You can delete only a single related record of the specified relationship for the command qualifier **RelationshipTargets**. Deletion of multiple-level related records is not supported.

General

The **General** tab contains the following fields:

Field	Module Property?	Description
Name	No	The name to be displayed as the label for the activity in the process. The default value is <code>RESTDelete</code> .
MDM Connection	Yes	The MDM connection resource establishes a connection to a TIBCO MDM server, allowing the plug-in to communicate with TIBCO MDM. Click  to select an MDM connection. If no matching MDM connections are found, click Create Shared Resource to create one.

Field	Module Property?	Description
HTTP Client	Yes	<p>Select the HTTP client which supports the HTTP and REST services, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select the HTTP client.</p> <p>If no matching HTTP client is found, click Create Shared Resource to create one.</p> <p> HTTP client must be created with the default values on all fields and properties. The Default Host must be the host IP address and the Default Port port number of the MDM server.</p>
Execution Mode	Yes	<p>The default execution mode is SYNCHR.</p> <ul style="list-style-type: none"> • SYNCHR: The client invokes a service, and waits for the completion of the workflow execution. • ASYNCHR: The client invokes a service, but does not wait for the completion of the workflow execution.
Repository	Yes	<p>The name of repository where records are stored.</p> <p>Click  to select a repository.</p> <p> When the selected repository model is complex and involves many related repositories, increase the value of the -Xms and -Xmx parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p>
Command Qualifier	No	<p>The default command qualifier is <code>Record</code>.</p> <ul style="list-style-type: none"> • Record: Delete the specified records, and initiate the delete workflow. • RelationshipTargets: Only delete the related records, and initiate the delete workflow. Optionally, the relationship name can be specified.
Delete All Related Records		<p>Select this check box to delete all related records of a specified record along with the parent record.</p> <p> This check box is available only if you have selected Record from the Command Qualifier drop-down list.</p>

Description

Provide a short description for the activity.

Input

The following is the input for the activity.



See [General Input for MDM Activities](#) for details about some general input items for this activity.

Input Item	Description
Context	For the standard context variables, which are supported for delete operations, refer to General Input for MDM Activities .
Record	<p>Includes repository, its attributes, and relationship information.</p> <ul style="list-style-type: none"> • AttributeGroup: The default attribute group UNASSIGNED holds all attributes that do not belong to any specific group. <ul style="list-style-type: none"> – PRODUCTID: This is the Record ID. – PRODUCTIDEXT: This is the Record ID extension. Optionally, used to identify a record. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;">  <p>If RelationshipTargets is selected from the Command Qualifier drop-down list on the General tab, then both PRODUCTID and PRODUCTIDEXT fields are displayed for the related records as well as for the parent record in the Input tab.</p> </div> <ul style="list-style-type: none"> • Relationship: Specify the relationship of records in repositories. After selecting an available relationship name, you can specify the corresponding relationship attributes and attributes in the target repository. <p>If Record is selected from the Command Qualifier drop-down list on the General tab, the relationship option does not appear on the Input tab.</p>
<i>Repository</i>	
Request Parameters	If you have specific custom parameters, specify those in the custom request parameter fields. For more information on the request parameters by REST service, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i> .
Message Headers	If you have specific custom headers, specify those in the custom header fields. For information on the headers accepted by REST service, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i> .

Output

The following is the output for the activity.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>This node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Records	<p>The Records are displayed only in case of validation errors. Detailed information of the repository:</p> <ul style="list-style-type: none"> • Repository: Contains the repository name, PRODUCTID, PRODUCTIDEXT, response attributes, and relationship information.
Success	<p>A Boolean for success. true or false. The result of a record to indicate if the command has succeeded or not.</p>

Fault

The server and client errors which result in activity exceptions are displayed in the **Fault** tab.

REST Query

By using the REST Query (Record) activity, you can search for records. The TIBCO MDM server provides REST APIs for querying records. The four different APIs are, query record by ID and IDEXT, all records of a repository, search for records by criteria, and retrieve related records by parent record ID and relationship name.

General

The **General** tab contains the following fields.

Field	Module Property?	Description
Name	No	<p>The name to be displayed as the label for the activity in the process.</p> <p>The default value is RESTQuery.</p>
MDM Connection	Yes	<p>The MDM connection resource establishes a connection to an MDM server, allowing the plug-in to communicate with MDM.</p> <p>Click  to select an MDM connection.</p> <p>If no matching MDM connections are found, click Create Shared Resource to create one.</p>

Field	Module Property?	Description
Repository	Yes	<p>The name of repository where records are stored.</p> <p>Click Select to select a repository.</p> <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  <p>When the selected repository model is complex and involves many related repositories, increase the value of the -Xms and -Xmx parameters in the <code>TIBCOBusinessStudio.ini</code> file which is located in the <code>TIBCO_HOME\studio\version\eclipse</code> directory.</p> </div>
HTTP Client	Yes	<p>Select the HTTP client which supports the HTTP and REST services, allowing the plug-in to communicate with TIBCO MDM.</p> <p>Click  to select the HTTP client.</p> <p>If no matching HTTP client is found, click Create Shared Resource to create one.</p> <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;">  <p>HTTP client must be created with the default values on all fields and properties. The Default Host must be the host IP address and the Default Port port number of the MDM server.</p> </div>

Field	Module Property?	Description
Search Type	Yes	<p>Select the search type. The default option is All records of a repository.</p> <ul style="list-style-type: none"> • Query record by ID and IDEXT: Query records by record ID and ID Extension. • All records of a repository: Query all the records in a repository. • Search for records by criteria: Query for records using the search criteria. • Retrieve related records by parent record id, relationship name: Query for related records by parent record ID and relationship name. <p>For more information on the Search Type, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i>.</p> <div style="border-left: 1px solid #ccc; padding-left: 10px; margin-top: 10px;">  IsDefined and IsNotDefined operators are not supported for Search for records by criteria search type. </div> <div style="border-left: 1px solid #ccc; padding-left: 10px; margin-top: 10px;"> <p>For search type Query record by ID and IDEXT, the following scenarios are supported:</p> <ul style="list-style-type: none"> • Value is provided for both ID and EXT --> This returns only single record. • Value is provided for ID and EXT is set to operator "IsDefined" --> This returns records with matching ID but different EXT values. • Value is provided for ID and EXT is set to operator "IsNotDefined" --> This returns only one record with matching ID and blank EXT field. • Value is provided for ID and EXT is blank --> This returns all records with matching ID including the records with EXT having value or blank. </div>
Perspective	Yes	<p>Enter the perspective name within the selected repository.</p> <p>Click Select to open the Perspective dialog. All available perspective names are listed in the dialog. Select one to apply to your current activity.</p> <div style="border-left: 1px solid #ccc; padding-left: 10px; margin-top: 10px;">  The usage of context variable is not recommended. However, if used, the perspective drop-down preferences takes precedence over the context variable. </div>
Record State	Yes	<p>The state in which you want to search the record. The default option is Confirmed.</p> <ul style="list-style-type: none"> • Confirmed: Search confirmed records. • Unconfirmed: Search unconfirmed records.

Field	Module Property?	Description
Command Qualifier	No	<p>The qualifier of the command. The default option is None.</p> <ul style="list-style-type: none"> • None: No command qualifier. • RelatedRecords: Validate records and save them without initiating the New Record Introduction Edit workflow. <p> The RelatedRecords option opens only when the selected repository mode is defined with relationship and when the Search Type is selected as Retrieve related records by parent record id, relationship name.</p> <p> When Command Qualifier is set to RelatedRecords, any option for the Record State and Active fields does not take effect.</p>

Description

Provide a short description for the activity.

Advanced

The **Advanced** tab contains the following field.

Field	Module Property?	Description
Return System Attributes	No	Select the check box returns the system attributes.
Find Root	No	Select the check box if you want only root records, without any related records in the response.
Work Item ID	No	Specify the work item ID in this field.
Active	No	<p>Query active records. A record is considered active if it is not deleted. By default, the option is TRUE.</p> <ul style="list-style-type: none"> • TRUE: Only data for active records are retrieved, and the query does not return any deleted records. • FALSE: Only data for deleted records are retrieved, and the query does not return any active records.

Input

The following is the input for the activity. The input parameter varies based on the selected Search Type.



See [General Input for MDM Activities](#) for details about some general input items for this activity.



The input data (string constants) must be entered by using double quotes. However, you may encounter validation error. For more information, on XPATH handling in BusinessWorks refer to the Chapter XPath in the *TIBCO ActiveMatrix BusinessWorks™ Application Development*.

Input Item	Description
Pagination	<p>Specify the following detailed information:</p> <ul style="list-style-type: none"> • MaxCount: Limit the number of returned records if more than one records match the query. • StartCount: Specify the count where the queried records start to be displayed. • OrderByColumnList: Sort order for the query results by column list.
Attribute Group	<p>Specify group attributes of records. Each attribute is assigned to an attribute group: <i>Unassigned, System or User Defined Group</i>. The default attribute group <i>UNASSIGNED</i> holds all attributes that do not belong to any specific group.</p> <p> This field appears when Searchable is set to <code>TRUE</code> for the attribute in the MDM metadata and the field disappears when Searchable is set to <code>False</code>.</p> <ul style="list-style-type: none"> • PRODUCTID: Record ID. It is mandatory when Command Qualifier is set to <code>RelatedRecords</code> in the General tab. • PRODUCTIDEXT: Record ID extension. It is mandatory when Command Qualifier is set to <code>RelatedRecords</code> in the General tab. <p> New data types <code>Long</code> and <code>URL</code> are supported. The <code>XPath</code> Expression is used to edit complex data types, use the function constructor.</p> <p> Search based on file type attributes, date type, timestamp type are not supported. If the response has file attributes, only the <code>URL</code> is returned as response from the server. Using the <code>URL</code>, you can download the attachment.</p> <p> Operator <code>Not In</code> is supported for string data type.</p>
RecordVersion	<p>Identify the version of the record to be queried.</p> <p> It is mandatory when Command Qualifier is set to <code>RelatedRecords</code> in the General tab.</p>

Input Item	Description
Relationship	<p>Specify the relationship of repositories. After selecting an available relationship name, the related repository is displayed, and you can specify the corresponding attributes in the target repository.</p> <ul style="list-style-type: none"> • CheckExistence: You can specify <code>true</code> or <code>false</code> for each relationship search. If <code>CheckExistence</code> is <code>true</code>, all the parent records which have related records in that relationship are returned. If <code>false</code>, then all the parent records which do not have any related records in that relationship are returned. By default, the value is <code>true</code>. • Count: Specify the count in the text field for the search. Count specifies the number of parent records with or without related records in that relationship depending on <code>true</code> or <code>false</code> selected for <code>CheckExistence</code>. The default value = -1 (all records which match criteria).
Return	<p>Specify requirements for the records, related records and the relationship to be returned after the filter.</p> <ul style="list-style-type: none"> • All: Return all the child records. You can specify the depth of relationship. • RelationshipNames: Return records related to the specified relationship name. • ClassificationData: Return classification details of records. The node appears only when the Query based on Classification Scheme check box is selected in the Advanced tab. <p> The node appears only when Command Qualifier is set to <code>NONE</code>, and the selected repository is defined with relationship or classification.</p>
Request Parameters	<p>If you have specific custom parameters, specify the custom request parameters. For more information on the Request Parameters, refer to <i>TIBCO MDM REST Services Guide</i> and <i>TIBCO MDM REST Swagger Online Help</i>.</p>

Output

The following is the output for the activity. The response displays the record bundle hierarchy as well as the JSON payload.

Output Item	Description
Result	<p>The execution result to indicate whether the execution has succeeded or not.</p> <p>This node contains the following three elements:</p> <ul style="list-style-type: none"> • Severity: Can be Error, Warning, or Info. • Code: The error code. • Description: A readable description of the error.
Records / RelatedRecords (if related records search type and command qualifiers are used)	
Response	<p>Detailed information of the Repository and ResultList:</p> <ul style="list-style-type: none"> • Repository: Contains the repository attributes and relationship information. • ResultList: Contains response JSON. The response displays the record bundle hierarchy as well as the JSON payload.
ReturnCount	<p>Returns a total count of matching records specified in a repository in the response.</p> <ul style="list-style-type: none"> • Total Count: The total number of matching records that are displayed in the response.

Sample Project

Working through the sample project helps you understand how ActiveMatrix BusinessWorks™ Plug-in for MDM works.

ActiveMatrix BusinessWorks™ Plug-in for MDM packages two sample projects **MDMPluginSamples** and **MDMProjectSamples**, which contain two sample processes each. The sample projects are located in the `TIBCO_HOME\bw\palettes\mdm\versionnumber\samples` directory. The following sample projects are provided:

Sample Project Name	Description
Process Samples	
Search-Address	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to conduct similarity searches.
Upload-Import-Approve-Query	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to upload and import the external record data to the MDM system and query the uploaded records.
Merge-Profiles	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to merge records.
Query-Profiles	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to search for records.
Add-Modify-Profiles	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to add, modify, or lookup a record.
Delete-Lookup-Profiles	Shows how to use ActiveMatrix BusinessWorks™ Plug-in for MDM to delete records.
Sample Files	
Extract ModelMetadata.zip. The following two metadata model XML files are displayed:	
SampleAddress.xml	
PersonAccount.xml	
	You need to first upload SampleAddress.xml and then upload PersonAccount.xml to the MDM server before running the Upload-Import-Approve-Query sample process.

Importing Sample Project

Only one sample project is packaged with the plug-in. Before running the project, you need to import the project to TIBCO Business Studio™.

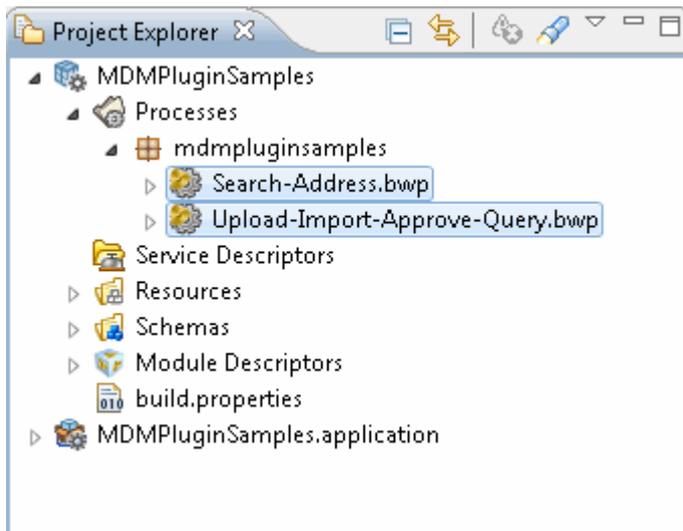
Procedure

1. Start TIBCO Business Studio™.
2. Click **File > Import**.
3. In the Import dialog, expand the **General** folder and select **Existing Studio Projects into Workspace**. Click **Next**.
4. Click **Browse** next to the **Select archive file** field to locate the samples. Click **Finish**.

The sample project is located in the `TIBCO_HOME\bw\palettes\mdm\versionnumber\samples` directory.

Result

The sample project is imported to TIBCO Business Studio™.



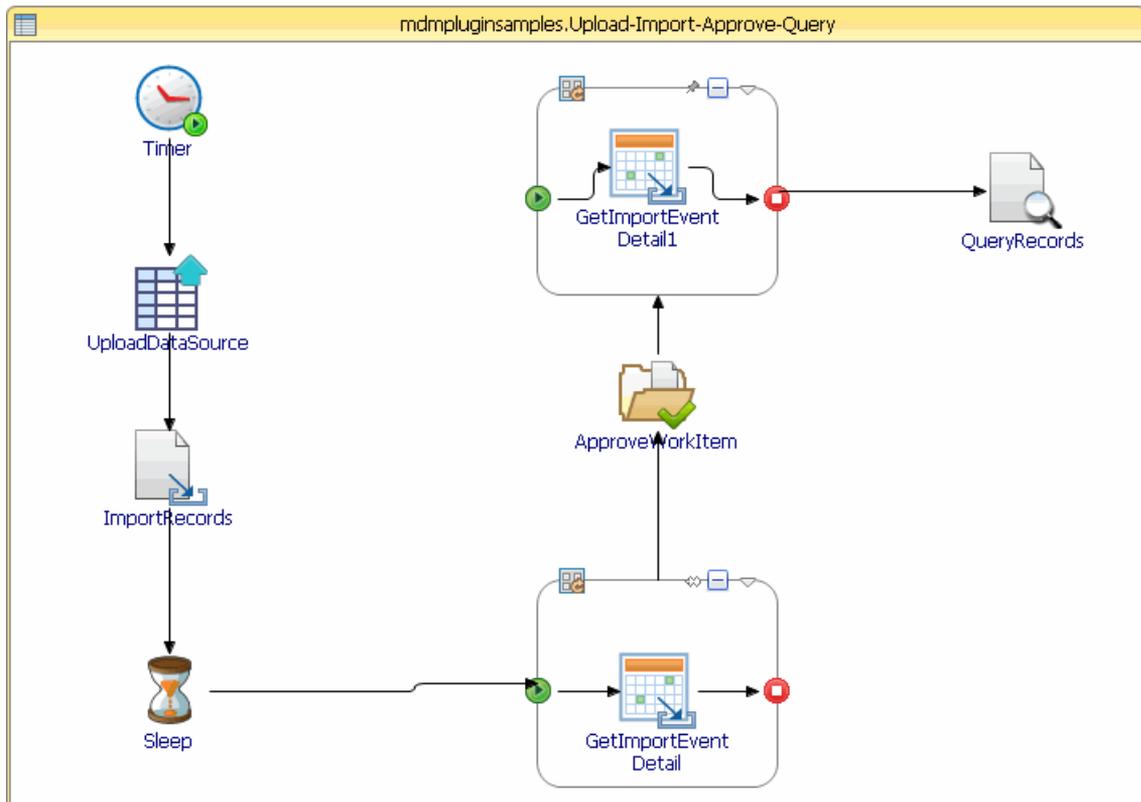
Configuring the MDM Connection

After importing the sample project into TIBCO Business Studio™, you can configure the incorporated MDM connection according to your actual environment.

See [MDM Connection](#).

Configurations for Upload-Import-Approve-Query

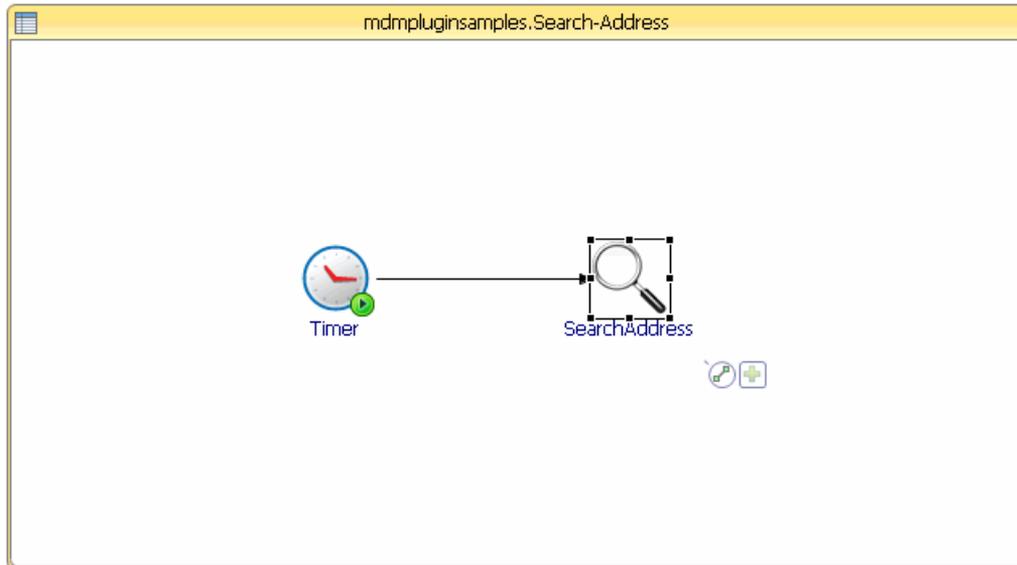
The Upload-Import-Approve-Query process contains activities used to upload external record data to an MDM server and query the uploaded records.



Activity	Description
Timer	Start the process at a specific time.
Upload Data Source	Upload record data to the specified data source.
Import Records	Import records to the selected S_ADDRESS repository by using the input map.
Sleep	Wait 20 seconds until the Import Records event reaches the In Process status.
Get Import Event Detail-1	Check whether the Import Records event reaches the In Process status.
Approve Work Item	Approve the generated work items.
Get Import Event Detail-2	Check whether the Import Records event reaches the Success status.
Query Records	Query records based on the filter criteria.

Configurations for Search-Address

The Search-Address process uses the activity to conduct similarity searches.



Activity	Description
Timer	Start the process at a specific time.
Search Address	Find and retrieve records close to an existing indexed term based on the indexed repository specified in the search.

Running the Sample Project

You can run the samples projects provided with the ActiveMatrix BusinessWorks™ Plug-in for MDM package.

Prerequisites

Before running the project, you need to import the sample project to TIBCO Business Studio™. See [Importing Sample Project](#). Configure the `Project_Home` module property in the designer. `Project_Home` is the absolute path of the root directory of the project.

- For Upload-Import-Approve-Query Process: Create a new rule for Import Approval on the TIBCO MDM server, set the **set the repository** field to `S_ADDRESS`, set the **Set the participant user to** field to the current `username`, and set the **Set the next work item state to** field to `Final Step/Done`.
- For Merge-Profiles and Query-Profiles processes: Import metadata **ModelMetadata.zip** from `TIBCO_HOME\bw\palettes\mdm\versionnumber\samples` into MDM server. Edit MDM shared resource to create connection to your MDM server. Execute **Add-Profiles** process to create source and target records for merging.

Procedure

1. Expand the `MDMProjectSamples` project in Project Explorer.
2. Click **Processes > mdmprojectsamples** and select one of the following processes:

Project Name	Description
AddProfiles .bwp	This sample process shows how to add records. You must execute Add-Profiles process to create source and target records for merging.  The AddProfiles .bwp sample process is a prerequisite for the for Merge-Profiles .bwp and Query-Profiles .bwp processes.
Merge-Profiles .bwp	This sample process shows how to merge records.
Query-Profiles .bwp	This sample process shows how to search for records.
Add-Modify-Profiles .bwp	This sample process shows how to add, modify, or lookup a record.  The Add-Modify-Profiles .bwp process is a prerequisite for the Delete-Lookup-Profiles .bwp process.
Delete-Lookup-Profiles .bwp	This sample process shows how to delete records.

3. Click **Processes > mdmpluginsamples** and select one of the following processes:

Project Name	Description
Search-Address .bwp	This sample process shows how to conduct similarity searches.
Upload-Import-Approve-Query .bwp	This sample process shows how to upload and import the external record data to the MDM system and query the uploaded records.

4. Expand **Module Descriptors** and double-click **Components**.
5. Ensure that the selected process is displayed in the Component Configurations area.
6. For **mdmprojectsamples**, click **Debug > Debug Configurations**.
7. For **mdmpluginsamples**, click **Run > Run Configurations**.
8. Expand **BusinessWorks Application** and click **BWApplication**.
9. For **mdmprojectsamples**, ensure only the **MDMProjectSamples .application** is selected in the **Applications** tab.
10. For **mdmpluginsamples**, ensure only the **MDMPluginSamples .application** is selected in the **Applications** tab.
11. For **mdmprojectsamples**, click **Debug**.
12. For **mdmpluginsamples**, click **Run**.
13. Click **Terminate**  to stop the process.

Result

The records matching the search criteria can be seen in the activity's Output under Job Data.

Managing the Plug-in Logs

Logs are used to trace and troubleshoot the plug-in exceptions.

You can configure the `logback.xml` file which is located in the `TIBCO_HOME\bw\versionnumber\config\design\logback` directory to:

- Set up log levels. See [Setting Up Log Levels](#).
- Export logs to a file. See [Exporting Logs to a File](#).

Log Levels

The plug-in can capture logs at different levels.

Log Level	Description
Info	Indicate normal plug-in operations. No action is needed. A tracing message tagged with Info indicates that a significant processing step is reached and logged for tracking or auditing purposes. Only info messages preceding a tracking identifier are considered as significant steps.
Error	An unrecoverable error occurs. Depending on the error severity, the plug-in may continue with the next operation or may stop altogether.
Debug	A developer-defined tracing message.

Setting Up Log Levels

Error logs returned by the plug-in are displayed in Console by default. You can change the log level to trace different messages.



If neither the plug-in log nor the BusinessWorks log is configured in the `logback.xml` file, the error logs of the plug-in will be displayed in Console by default.

If the plug-in log is not configured but the BusinessWorks log is configured in the `logback.xml` file, the configuration for BusinessWorks log is implemented by the plug-in.

Procedure

1. Navigate to the `TIBCO_HOME\bw\versionnumber\config\design\logback` directory and open the `logback.xml` file.
2. Add the following node in the Console Appender area to specify the plug-in log level.

```
<logger name="com.tibco.bw.palette.mdm.runtime">
  <level value="DEBUG"/>
</logger>
```

3. Optional: Add the following node in the Console Appender area to specify the log level for a specific activity.

```
<logger name="com.tibco.bw.palette.mdm.runtime.ActivityNameActivity">
  <level value="DEBUG"/>
</logger>
```

For example:

```
<logger name="com.tibco.bw.palette.mdm.runtime.AddRecordActivity">
  <level value="DEBUG"/>
</logger>
```



When the log level is set to `DEBUG`, the input and output for the plug-in activity are displayed in Console.

4. Save the file.

Exporting Logs to a File

You can export the plug-in logs to a file by modifying the `logback.xml` file.

Procedure

1. Navigate to the `TIBCO_HOME\bw\versionnumber\config\design\logback` directory and open the `logback.xml` file.



When deploying an application in TIBCO Enterprise Administrator, you need to navigate to the `TIBCO_HOME\bw\domains\mydomain\appnodes\myspace\mynode` directory to find the `logback.xml` file.

2. Add the following node to specify the file location.

```
<appender name="FILE" class="ch.qos.logback.core.FileAppender">
  <file>c:/bw6-mdm.log</file>
  <encoder>
    <pattern>%d{HH:mm:ss.SSS} [%thread] %-5level %logger{36}-%msg%n</pattern>
  </encoder>
</appender>
```

The `file` tag defines the location to which the log is exported and the value is the absolute path of the file that is detailed to the file name.

3. Add the following node to the root node at the bottom of the `logback.xml` file to enable exporting logs to a file.

```
<appender-ref ref="FILE" />
```

For example:

```
<root level="DEBUG">
  <appender-ref ref="STDOUT" />
  <appender-ref ref="FILE" />
</root>
```

4. Save the file.

Error Codes

The exceptions that are thrown by the plug-in are listed with corresponding descriptions and resolutions.

Error Code	Role	Category	Description	Resolution
BW-MDM-300000	{0}\: Activity start			
	infoRole	BW-Plug-in	The general information.	No action.
BW-MDM-300001	{0}:\ Activity is done({1}ms)			
	infoRole	BW-Plug-in	The activity is successfully done in {1} millisecond.	No action.
BW-MDM-500000	{0}			
	errorRole	BW-Plug-in	The general Error information.	No action.
BW-MDM-500001	Request contains Event-Id for a non-import related event. Please provide import-related Event-Id only.			
	errorRole	BW-Plug-in	Error occurred if the import related event ID is not specified.	Specify the import related event ID.
BW-MDM-500002	Resolve shared resource error\: {0}			
	errorRole	BW-Plug-in	The shared resource is not specified or connected to non-registered users.	Specify the shared resource or restart TIBCO Business Studio™.
BW-MDM-500003	Repository is missing, please specify repository.			
	errorRole	BW-Plug-in	Error occurred when the Repository is not specified.	Specify repository in the activity's General tab.
BW-MDM-500004	Metadata is not found, please reconfigure activity.			
	errorRole	BW-Plug-in	Error occurred when the specified Metadata is not found.	Reconfigure the activity and select a repository model.
BW-MDM-500005	Text Search expression is not specified.			

Error Code	Role	Category	Description	Resolution
	errorRole	BW-Plug-in	Error occurred when the text search expression is not specified.	Specify the text search expression in the activity's Input tab.
BW-MDM-500006	Invalid SimilarityScore {0}, the value must be between 0 and 1.0.			
	errorRole	BW-Plug-in	Error occurred when the specified SimilarityScore is invalid.	Specify the value of SimilarityScore between 0 and 1.0 in the activity's Input tab.
BW-MDM-500007	Invalid weight value {0}, the value must be between 0 and 1.0.			
	errorRole	BW-Plug-in	Error occurred when the specified weight of the attribute is invalid.	Specify the value of attribute weight between 0 and 1.0.
BW-MDM-500008	Parse data error:\ {0}			
	errorRole	BW-Plug-in	Error occurred when parsing data at runtime.	Check and ensure the input data is correct.
BW-MDM-500009	Parse metadata error:\ {0}			
	errorRole	BW-Plug-in	Error occurred when parsing metadata at design time.	Check and ensure the input data is correct.