

IBM Maximo Integrators for TRIRIGA
Version 1 Release 2

Implementation Guide



Note

Before using this information and the product it supports, read the information in "Notices" on page 125.

Contents

Chapter 1. Product overview 1

Business scenarios	1
Scenario: Moving employees and their assets to a new location	1
Integrated space and move management	2
Scenario: Creating and updating a planned work task	4
Architecture and components	5
Data integration	7
Integration processing	9

Chapter 2. Planning your implementation 11

Sequence of data integration	11
Scenarios for integrating portfolio data	12
Scenario: Preparing Maximo Asset Management and IBM TRIRIGA for integration	12
Scenario: Loading initial data from Maximo Asset Management to IBM TRIRIGA	13
Scenario: Loading initial data from IBM TRIRIGA to Maximo Asset Management	16
Implementation in an environment that supports other integrations	18
Additional information for your implementation	18

Chapter 3. Installing IBM Maximo Integrators for TRIRIGA 21

Installation prerequisites	21
Installing on Maximo Asset Management	22
Installing on IBM TRIRIGA	23
Installing the object migration package on IBM TRIRIGA	23
Importing the patch helper to IBM TRIRIGA	23

Chapter 4. Configuring integration components 25

Configuring Maximo Asset Management	25
Changing lengths of fields in Maximo Asset Management to match IBM TRIRIGA	25
Configuring endpoints	26
Configuring integration controls	27
Configuring integration controls to match domain values	27
Configuring cross-reference integration controls	27
Enabling the external system	28
Configuring IBM TRIRIGA	28
Load of IBM Maximo Asset Management data into IBM TRIRIGA	28
Configuring the connection with IBM Maximo Asset Management	29
Preventing updates to integrated work task records in IBM TRIRIGA	29

Chapter 5. Configuring integration interfaces 31

Integrating location data	31
Location integration overview	31
Preparing location data for export from Maximo Asset Management	34
Enabling sites for export from Maximo Asset Management	34
Applying hierarchy values to location data	34
Exporting location data to IBM TRIRIGA	35
Managing location records in IBM TRIRIGA	36
Exporting locations to Maximo Asset Management from IBM TRIRIGA	37
Integrating asset data	38
Asset integration overview	39
Asset integration processing	40
Exporting assets to IBM TRIRIGA	41
Maintaining assets in IBM TRIRIGA	42
Exporting assets to Maximo Asset Management from IBM TRIRIGA	43
Integrating person data	44
Person integration overview	44
Person interface data	45
Person integration processing	47
Exporting person data for the initial load of data from Maximo Asset Management to IBM TRIRIGA	49
Maintaining people records in IBM TRIRIGA	50
Exporting people to Maximo Asset Management from IBM TRIRIGA	51
Integrating work order data	52
Work order integration overview	52
Configuring work order integration in Maximo Asset Management	53
Assigning the TRIRIGA work type to organizations	54
Configuring default values	54
Maintaining work tasks in IBM TRIRIGA	55
Integrating service request data	56
Service request integration overview	56
Integration configuration of service request data	57
Ticket templates for service requests that are related to space management	58

Chapter 6. Customizing and configuring Maximo Integrators for TRIRIGA 61

Configuring cross-reference controls for many-to-one mapping	61
Changing currency types	62
Returning management of data from IBM TRIRIGA to Maximo Asset Management	63
Customizing integration points to add fields	63
Adding new fields to the integration staging tables	64

Adding new fields to ongoing integrations	64
Adding new fields to IBM TRIRIGA for ongoing updates.	64
Adding new fields to Maximo Asset Management for ongoing updates	65
Adding fields to business objects in IBM TRIRIGA	65
Chapter 7. Reference information	67
Maximo Asset Management integration components	67
Components for location integration	67
Components for the initial load of location data from Maximo Asset Management to IBM TRIRIGA	67
Components for creating and updating location data in Maximo Asset Management from IBM TRIRIGA.	74
Integration controls associated with location integration components	77
Components for asset integration	77
Components for the initial load of asset data from Maximo Asset Management to IBM TRIRIGA	78
Components for loading and updating asset data to Maximo Asset Management from IBM TRIRIGA	79
Components for person integration	85
Components for initial load of person data from Maximo Asset Management to IBM TRIRIGA	85
Components for creating and updating person data in Maximo Asset Management from IBM TRIRIGA	87
Components for updating person data from Maximo Asset Management to IBM TRIRIGA	89
Integration controls associated with person integration components	91
Components for work order integration	92
Components for importing work order data to Maximo Asset Management	92
Components for outbound integration of work orders	99
Integration controls associated with work order integration components	102
Components for service request integration	103
Components for sending service requests from Maximo Asset Management to IBM TRIRIGA	103
Components for updating service requests in Maximo Asset Management from IBM TRIRIGA	105
Integration controls	106
Conditions that are provided in Maximo Integrators for TRIRIGA.	106
IBM TRIRIGA integration components	107
IBM TRIRIGA components for location integration	107
Components for receiving the initial load of location data from Maximo Asset Management	107

Components for sending new and updated location data from IBM TRIRIGA to Maximo Asset Management	108
IBM TRIRIGA components for asset integration	109
Components for receiving the initial load of asset data from Maximo Asset Management	109
Components for sending new and updated asset data from IBM TRIRIGA to Maximo Asset Management	110
Components for receiving ongoing updates to assets from Maximo Asset Management	111
IBM TRIRIGA components for people integration	111
Components for receiving the initial load of people data from Maximo Asset Management	111
Components for sending new and updated people data from IBM TRIRIGA to Maximo Asset Management	112
Components for receiving ongoing updates to people from Maximo Asset Management	112
IBM TRIRIGA components for work task integration	112
Components for sending a new work task from IBM TRIRIGA to Maximo Asset Management	113
Components for receiving ongoing updates to work tasks from Maximo Asset Management	113
Components for sending updates to Maximo Asset Management on completion of a work task	113
IBM TRIRIGA components for service request integration	115
Components for receiving service requests from Maximo Asset Management.	115
Components for sending service request status updates from IBM TRIRIGA to Maximo Asset Management	115

Chapter 8. Troubleshooting a problem 117

Problems and solutions	119
Cannot send location or asset data from Maximo Asset Management to IBM TRIRIGA after installation	119
Cannot write to IBM TRIRIGA staging tables	120
Cannot send updated data from Maximo Asset Management to IBM TRIRIGA	120
Cannot send updated data from IBM TRIRIGA to Maximo Asset Management	121
Primary location and organization are missing from request because Request For person not found in IBM TRIRIGA	121
Errors when status updates are sent from IBM TRIRIGA to Maximo Asset Management	122
Integrated person records are not updated.	123

Notices 125

Trademarks	127
----------------------	-----

Glossary 129
B 129
C 129
E 129
F 129
I. 129
L 129

M 129
O 129
P 130
S 130
W 130

Index 131

Chapter 1. Product overview

IBM® Maximo Integrators for TRIRIGA integrates the work management capabilities of IBM Maximo® Asset Management with the facilities management capabilities of IBM TRIRIGA®. You can perform space and move planning and condition assessment in IBM TRIRIGA and create work tasks that are sent to Maximo Asset Management where the work is carried out.

IBM Maximo Integrators for TRIRIGA supports centralized facilities management, reduces operational costs, and improves process efficiency throughout the enterprise.

IBM Maximo Integrators for TRIRIGA includes predefined components that support end-to-end integration between Maximo Asset Management and IBM TRIRIGA. The Maximo Asset Management integration framework supports inbound and outbound data transfer, business rules, integration messages, and error management processes. The TRIRIGA Application Platform DataConnect feature supports batch import of data and the TRIRIGA Connector for Business Applications includes a web service for sharing transactional data with Maximo Asset Management.

Business scenarios

IBM Maximo Integrators for TRIRIGA supports two scenarios that support integrated space and move management and the opportunities management aspect of facilities assessment. With integrated space and move management, you can streamline the location of people and assets in a facility. When you perform a condition assessment of a facility, integrated opportunities management enables you to prioritize, schedule, and perform necessary repairs and maintenance work.

Scenario: Moving employees and their assets to a new location

The Facilities Manager at Company ABC manages employee workspaces and the assets that employees use in the workspaces. Sometimes it is necessary to move a group of employees to a new location, for example to accommodate an expanding department in a larger location.

Background

Company ABC plans to use Maximo Integrators for TRIRIGA for space and move management. An integration specialist integrated locations, assets, and people data between Maximo Asset Management and IBM TRIRIGA to enable integrated space management. Employees or service desk agents can submit space move requests in either Maximo Asset Management or IBM TRIRIGA.

Marti is a space and move planner who processes space move requests in IBM TRIRIGA. When a work plan creates move work tasks, Marti coordinates and plans these tasks. Jo is a work supervisor in Maximo Asset Management who receives the move work orders and assigns the work to field operatives. Lee and Jean are field operatives who perform move-related tasks.

Step 1. Create a move service request

Jane manages an expanding marketing team and has authorization to move the entire team to a larger workspace. In Maximo Asset Management, in the Create Service Request application, Jane creates a Move service request. In the service request, Jane selects the group option from the service request class options of small, individual, or group. In the details section, Jane lists the employees to move, the assets to move with them, and their current locations.

Step 2. Plan the space move

When Marti receives the Change Space service request in IBM TRIRIGA, he reviews possible target locations in the Locations Hierarchy application. Marti can also use the IBM TRIRIGA CAD Integrator/Publisher to visualize available locations and to model the revised workspace allocations.

When all of the target locations are identified, Marti creates a move work task to manage the actual move work. For each team member in the department, Marti adds a move line item to the work task. The move line item includes the existing location for the employee, the target location, and the assets that are associated with the location. When all of the move line items are entered in the move work task, Marti activates the move work task.

Step 3. Assign move tasks to field operatives

When the move work task is activated, it is sent to Maximo Asset Management, where a corresponding work order is created. Jo, the work supervisor, reviews the work order and plans who is responsible for completing the work. In Maximo Asset Management, in the Scheduler application, Jo schedules work in the Gantt view and reviews the availability of personnel to carry out the move work. Jo then assigns the work to field operatives.

Step 4. Perform the move

The work order tasks are assigned to field operatives. Lee is an electrician who is assigned the task to ensure that the new target locations support the power supply requirements for the marketing employees. Jean is assigned the task to physically move employee assets, including desks, seating, telephones, and IT equipment. While the field operatives perform their tasks, they update the statuses of their tasks.

Step 5. Complete the move work

When the field operatives complete their tasks, the status of the work order is updated. The updated statuses are sent to IBM TRIRIGA which, in turn, updates the status of the originating service request. The costs that are associated with the work are recorded in the work order and are then sent to IBM TRIRIGA. When all of the work is completed, IBM TRIRIGA sends the updated person and asset records to Maximo Asset Management with the revised location information.

Integrated space and move management

With integrated space and move management, you can streamline the location of people and assets in a facility.

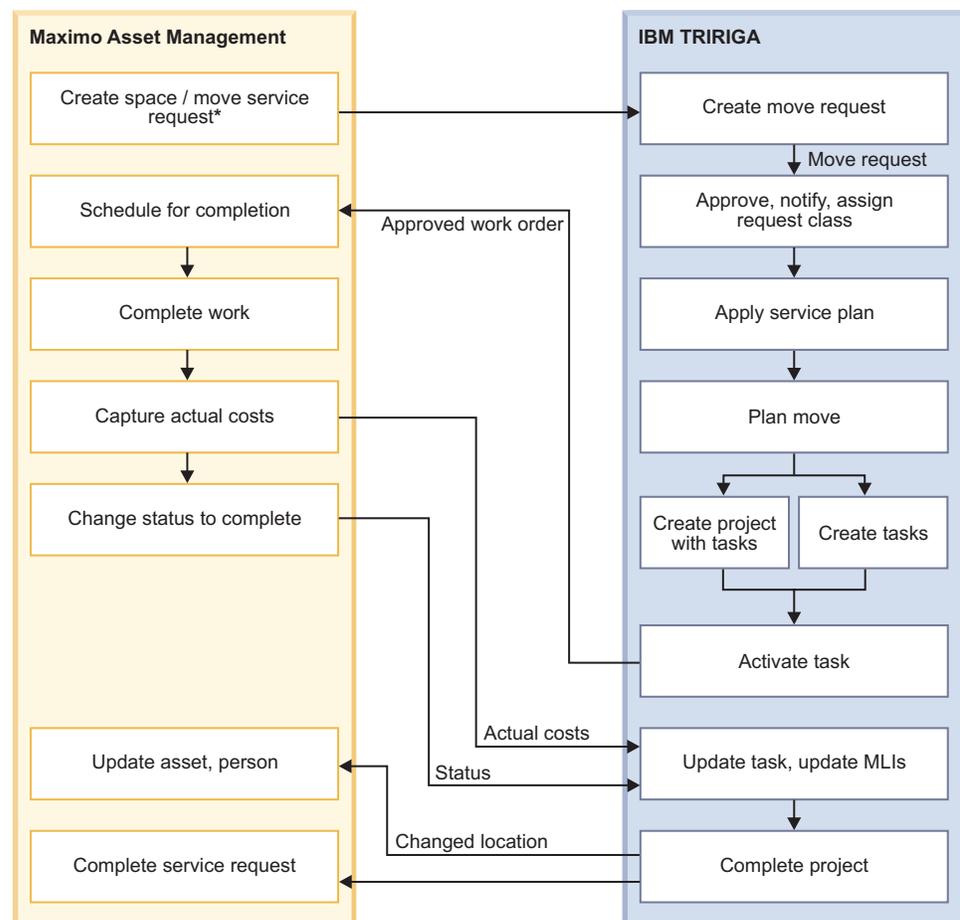
The business process starts when a user creates a move request in IBM TRIRIGA or a user creates a service request in Maximo Asset Management that is sent to IBM

TRIRIGA, where a move request is then generated. When a move request is created, a service plan is applied that determines the subsequent activities. A space and move planner reviews the service plan, plans the move work, and creates work tasks or creates a project that includes work tasks. Each work task contains move line items that list the people and assets that are involved in the move. When the space and move planner activates a work task, the work task is sent to Maximo Asset Management where an approved work order is created that includes the move line items from the originating work task.

In Maximo Asset Management, a work supervisor reviews the work order, assigns the work to a field operative, and records the actual costs of the work on the work order. As the work is carried out, status updates are transferred to the corresponding work task in IBM TRIRIGA. When the work is completed, the costs of the work are sent to IBM TRIRIGA and IBM TRIRIGA sends updates to the asset and person records in Maximo Asset Management with details of the locations that were changed.

When all of the work is complete, the space and move planner can complete the project and analyze the results.

The following diagram shows the process and integration flow between Maximo Asset Management and IBM TRIRIGA.



* Optional

Scenario: Creating and updating a planned work task

The Facilities Manager at Company ABC manages building maintenance and management. As part of a condition assessment, third-party inspection teams inspect the buildings and assets and identify deficiencies. For each deficiency, an opportunity record is created in IBM TRIRIGA that includes the details of the deficiency and an estimated repair cost.

Background

Company ABC uses Maximo Integrators for TRIRIGA to integrate the assessment of facility conditions and the potential work that results from those inspections between IBM TRIRIGA and Maximo Asset Management. Inspection teams assess the condition of the business systems that are associated with a building, such as the HVAC system and the roofing system. If deficiencies are identified when the results of the condition assessment are entered in IBM TRIRIGA, opportunity records are created.

Chris is a facilities manager for Company ABC who evaluates the condition assessment reports and submits funding requests with associated opportunities in IBM TRIRIGA. Chris reviews the opportunities and creates a planned work task for each opportunity that is approved.

Val is a planner and scheduler who receives the approved work orders and schedules the work for completion in Maximo Asset Management.

Alex is a roofing repair technician, and Pat is a hoist and crane operator. Alex and Pat perform facilities-related work, update the status of the planned work order, and capture the actual costs of the work in Maximo Asset Management.

Step 1. Create a planned work task

After the results of an inspection are recorded in IBM TRIRIGA, Chris receives approval for a funding request for roof repairs to Building 123. Chris applies the work plan that is associated with the funding request and creates a planned work task. Chris selects the **Integrate to Maximo** check box so that the planned work task is sent to Maximo Asset Management.

Chris activates the planned work task and the work task is sent to Maximo Asset Management where a corresponding planned work order is created.

Step 2. Assign planned work orders to technicians

In Maximo Asset Management, Val receives the planned work order. Val uses the Work Order Tracking application to plan the activities and tasks that are required to complete the planned work order.

In the Assignment Manager application, Val assigns the work to technicians who have the required skills to perform the work.

Step 3. Perform the work

In Maximo Asset Management, Alex and Pat receive the planned work order. While they perform their assigned work, they update the status of the work order in the Work Order Tracking application. They also record the time that they spend on the work and the details of the materials that they use.

Step 4: Complete the work

When Alex and Pat complete their work, they update the status of their tasks and the status of the work order changes. The updated status for the work order is sent to IBM TRIRIGA, and the corresponding planned work task is updated. IBM TRIRIGA updates the status of the originating funding request and the associated opportunities.

Architecture and components

IBM Maximo Integrators for TRIRIGA installs predefined components that use the standard integration architecture of IBM Maximo Asset Management and IBM TRIRIGA.

Maximo Integrators for TRIRIGA requires that the following products are installed and tested:

- Maximo Asset Management version 7.5.0.4
- TRIRIGA Application Platform version 3.3.1
- At least one of the following application products: IBM TRIRIGA Facilities Manager version 10.3, IBM TRIRIGA Workplace Operations Manager version 10.3, IBM TRIRIGA Capital Projects Manager version 10.3

Maximo Integrators for TRIRIGA includes a package of components for each system.

Maximo Asset Management integration package

The Maximo Asset Management integration package is a compressed file that includes predefined integration components, including object structures, publish channels, enterprise services, and integration controls. The Maximo integration framework uses these components to process inbound and outbound integration messages.

The PLUSYEXTSYS *external system* is preconfigured to support inbound and outbound communication between Maximo Asset Management and IBM TRIRIGA. After you install the integration package, you can open it in the External Systems application and see the predefined processing components that are provided, including publish channels and enterprise services.

Enterprise services use a combination of processing rules, integration controls, and Java classes to process inbound messages from IBM TRIRIGA. A separate enterprise service is provided for each inbound interface. You can view the supported enterprise services in the External Systems application. You configure enterprise services in the Enterprise Services application and you can create enterprise services if you want to support additional inbound interfaces.

Publish channels use a combination of processing rules, integration controls, and Java classes to process outbound messages from Maximo Asset Management to IBM TRIRIGA. A separate publish channel is provided for each outbound interface. You can view the supported publish channels in the External Systems application. You configure publish channels in the Publish Channels application and you can create publish channels if you want to support additional outbound interfaces.

Processing rules are configured on the predefined enterprise services and publish channels that control processing behavior. Some rules use *integration controls* to

provide substitute values for particular fields. Cross-reference integration controls, for example, are used to map status values in Maximo Asset Management to their corresponding status values in IBM TRIRIGA. To add or change substitute values for a field, you can add or change integration controls. To change the processing behavior, you can replace a default processing rule with a new rule. To replace a rule, you must disable the current rule and add the new rule. Rules are evaluated in a specific order. Sometimes, data is set in one rule and then used by a subsequent rule. To minimize issues, ensure that all new rules observe the existing processing order.

Each enterprise service and publish channel is associated with an *object structure* that specifies the format and structure of the data for the interface. A separate object structure is provided for each outbound and inbound interface.

Publish channels are associated with *endpoints* that specify the destination and transport protocol for outbound messages. Two endpoints are installed and you configure these endpoints in the End Points application.

IBM TRIRIGA object migration package

The *object migration* package is a compressed file that contains the components that are required for Maximo Integrators for TRIRIGA. The package installs integration objects, workflows, staging tables, forms, and other components.

You can use the DataConnect feature in IBM TRIRIGA for the initial load of portfolio data for assets, persons, and locations from Maximo Asset Management to IBM TRIRIGA. The **Has staging table** check box indicates whether IBM TRIRIGA maintains a staging table for the business object. If the check box is selected and the business object is published, a staging table is either created or updated. If the check box is not selected and the business object is published, the publish process deletes any existing staging table. By default, the check box is not selected.

IBM TRIRIGA Connector for Business Applications includes an IBM TRIRIGA web service that receives messages from a Maximo Asset Management publish channel for ongoing updates to the integrated portfolio and transactional data.

IBM TRIRIGA also provides workflow processes and integration objects that are used to apply integration business rules, data mapping, and data transformation. The workflow processes and integration objects call the Maximo Asset Management integration servlet for all transaction processing from IBM TRIRIGA to Maximo Asset Management. The object migration package installs tools that enable you to perform batch loads of location, asset, and people records from IBM TRIRIGA to Maximo Asset Management.

In IBM TRIRIGA, you must configure a user as a member of the trimax security group to manage integration records. Members of the trimax security group can create and modify integration-related records that are sent to Maximo Asset Management and can ensure that integration records that are sent from Maximo Asset Management are correctly populated in IBM TRIRIGA records.

The components that are provided with the product support standard integration scenarios. You can also use these components as templates if you want to create custom components to implement custom scenarios.

Related information:

-  [Integrating data with external applications](#)
-  [Integration components](#)
-  [Integration data processing](#)
-  [Application Building for the IBM TRIRIGA Application Platform 3: Data Management](#)
-  [IBM TRIRIGA Connector for Business Applications 3 Technical Specification](#)

Data integration

To implement the predefined integration scenarios, you must decide how to manage the ownership and maintenance of portfolio data between the products. Portfolio data consists of location, asset, and person data. After you integrate portfolio data, transactional data is sent between both products. Transactional data consists of service requests, work orders, work order costs, and location updates for asset and person records.

The process and integration flow of transactional data between IBM TRIRIGA and Maximo Asset Management is dependent on the synchronization of portfolio data, which includes location, asset, and person data.

Portfolio data integration

Maximo Integrators for TRIRIGA is designed for use primarily by existing Maximo Asset Management customers with a new installation of IBM TRIRIGA. The ability to load seed data for locations, assets, and people from existing records in Maximo Asset Management to the new IBM TRIRIGA environment speeds the deployment process. Integrated portfolio data supports the integration of space and move management and opportunities management business processes.

When you batch export location, asset, and person records from Maximo Asset Management to IBM TRIRIGA, the **TRIRIGA ID** fields in these records is set to PENDING. You cannot update records that have the status of pending. When an exported record is received in IBM TRIRIGA, IBM TRIRIGA sends an update for the record to Maximo Asset Management that contains the **TRIRIGA ID** value. After the updated values are received in Maximo Asset Management, you can update the records.

For the initial load of data, you can select existing locations in Maximo Asset Management to send to IBM TRIRIGA. After the initial load of location data, you can create and update integrated locations and manage the location hierarchy only in IBM TRIRIGA. After the initial load, if you send an IBM TRIRIGA location to Maximo Asset Management, you can update this location in Maximo Asset Management, but any changes you make are not integrated to IBM TRIRIGA. The integration of location data supports a limited set of location fields, but you can configure more fields for inclusion in the integration.

You can maintain asset data within either Maximo Asset Management or IBM TRIRIGA. For example, you can maintain all your enterprise and facility assets in Maximo Asset Management and integrate only the assets whose physical movements you want to manage in IBM TRIRIGA. A move process in IBM TRIRIGA can move assets that exist in both IBM TRIRIGA and Maximo Asset

Management or assets that exist only in IBM TRIRIGA. Selected IBM TRIRIGA asset types are supported by default for integration, but you can configure any asset type for inclusion in the integration.

You can implement processes to control where asset creation and updates are completed for those asset types that are configured for integration. Depending on the asset type, you might complete updates to the same asset in both products. The integration of asset data supports a limited set of asset fields, but you can configure more fields for inclusion in the integration.

You can maintain person data within either product. You can maintain all person data in Maximo Asset Management and integrate only the data of people who are involved in moves that you plan to manage in IBM TRIRIGA. A move process in IBM TRIRIGA can move person data that exists in both products or person data that exists only in IBM TRIRIGA. Selected IBM TRIRIGA person types are supported for integration, but you can configure more person types for inclusion in the integration.

You can implement processes to control where person data is created and updated for the person types that are configured for the integration. If your person data is integrated with an external application, such as an HR system, you might need to consider how the external integration affects integration between Maximo Asset Management and IBM TRIRIGA. Depending on the person type, you might update the same person in both systems. The integration of person data supports a limited set of fields, but you can configure more fields for inclusion in the integration.

Most implementations export data from Maximo Asset Management to provide seed data for a new IBM TRIRIGA installation, Maximo Integrators for TRIRIGA includes applications that you can use to perform batch exports of portfolio data from IBM TRIRIGA to Maximo Asset Management.

Transactional data integration

The IBM TRIRIGA work task is the primary transactional integration point for transferring transactions between Maximo Asset Management and IBM TRIRIGA. An IBM TRIRIGA project is a logical grouping of work tasks. An IBM TRIRIGA work task is the equivalent of a Maximo Asset Management work order. After you mark an IBM TRIRIGA work task for integration and activate the work task, the data is sent to Maximo Asset Management to create the approved work order.

You can also create work tasks inside an IBM TRIRIGA capital project record. After you save a capital project record that contains integrated work tasks, the IBM TRIRIGA project ID and project name fields are sent to Maximo Asset Management. You are not required to activate a work task in a capital project record to have the project ID and project name information sent to Maximo Asset Management.

Transactional data also includes service requests, work order costs, and location updates for asset and person records. These transactions reference the integrated assets, locations, and person records. As work is undertaken to complete tasks on integrated work orders, costs are accumulated on the work order and sent back to the IBM TRIRIGA work task.

The following data is transferred and synchronized between Maximo Asset Management and IBM TRIRIGA.

Maximo Asset Management data	IBM TRIRIGA data
Service requests	Work requests
Work orders	Work tasks
Work order costs	External cost items
Asset and person	Location changes

Integration processing

Integration between Maximo Asset Management and IBM TRIRIGA uses staging tables, web services, and enterprise services.

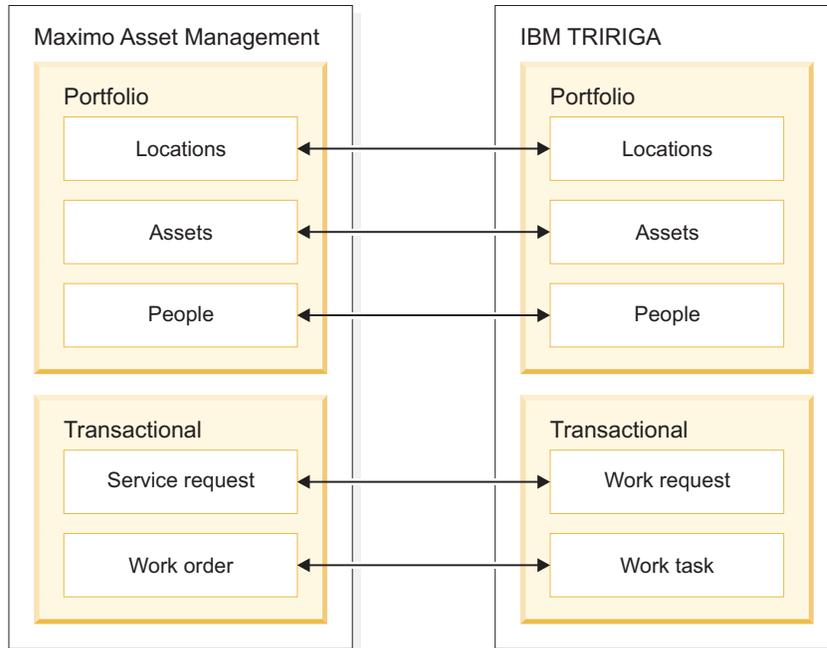
The initial load of portfolio data from Maximo Asset Management to IBM TRIRIGA uses the IBM TRIRIGA DataConnect staging tables. All ongoing integration from Maximo Asset Management to IBM TRIRIGA uses the IBM TRIRIGA web service. All integration from IBM TRIRIGA to Maximo Asset Management uses enterprise services that are called by IBM TRIRIGA by using the Maximo Asset Management integration servlet.

As part of the integration processing, the key fields of a record in one system are saved to the corresponding record in the other system. This enables the integration processing and also makes visible the key for the record of the other system. In most cases, the key fields in both systems match, but they can be different in some circumstances. For example, the Maximo Asset Management Asset application shows the asset ID of the corresponding IBM TRIRIGA asset. The IBM TRIRIGA asset form shows the Maximo Asset Management asset key, which is the combination of the asset number and site id, displayed as *assetnumber~siteid*.

In the Maximo Asset Management applications for locations, assets, persons, work orders, and service requests, you cannot delete or duplicate records that are integrated between Maximo Asset Management and IBM TRIRIGA. Instead of deleting a record, you can change the status of the record.

Data exchange between Maximo Asset Management and IBM TRIRIGA

The following diagram shows how data is exchanged between Maximo Asset Management and IBM TRIRIGA.



The integration of portfolio data supports the initial data load and the ongoing updates to the data. The portfolio data exchange is bidirectional.

The integration of transactional data supports the creation and ongoing updates of the data. The data exchange between the systems is either one-way or bidirectional, depending on the data. The transactional data includes the integration of Maximo Asset Management service requests and IBM TRIRIGA work requests, IBM TRIRIGA work tasks and Maximo Asset Management work orders, and the update of Maximo Asset Management asset and person locations

Related information:

 [IBM TRIRIGA 10 Connector User Guide](#)

Chapter 2. Planning your implementation

You can implement Maximo Integrators for TRIRIGA by using data that is already implemented in one system and loading that data to provide seed data for the second system. After seed data is loaded, users can work together on facility moves and condition assessments. You can load seed data from Maximo Asset Management to IBM TRIRIGA, or you can load seed data from IBM TRIRIGA to Maximo Asset Management. If your environment is integrated with another system, such as a financial system or a human resources system, you might have to do more planning and configuration.

Sequence of data integration

The integration requires the loading of multiple sets of data between Maximo Asset Management and IBM TRIRIGA. To comply with data dependencies, you load initial data in a specific order. After initial data loads are complete, you perform additional configurations to support transactional data integration.

Space planning integration requires that you share location, asset, person, work order, and service request data between Maximo Asset Management and IBM TRIRIGA. To apply the integration to existing Maximo Asset Management records, you perform initial data loads. After you complete these initial data loads, you configure these interfaces to support ongoing data updates. The work order and service request interfaces do not require initial data loads and the only configuration required is to enable the creation of records and communication of updates until the work is complete.

You start by integrating location data because other interfaces are dependent on the existence of this data. You can configure existing Maximo Asset Management locations to integrate to IBM TRIRIGA for use in space planning. For integrated space planning, location records are arranged in a hierarchy of five levels: property, building, floor, space, and subspace. You perform a separate load for the records in each level of the hierarchy, starting at the top level of the hierarchy and exporting batches of locations sequentially down to lower levels of the hierarchy. You load Maximo Asset Management property level records at the top of the hierarchy first. You must wait for a responding load of these records back from IBM TRIRIGA before you load the locations for the next level in the location hierarchy. To verify that a location record has been updated by IBM TRIRIGA, check that the record includes a value in the Tririga ID field and that the location exists in the PLUSYSYS location hierarchy system. After each export, always wait for the responding load that returns the updated locations back to Maximo Asset Management. After you load and verify the receipt of updates for the records in each level of the hierarchy, you configure components to enable the ongoing creation and update of location records.

After location data is loaded to IBM TRIRIGA, you can load data for the assets and people that are associated with those locations. After the initial data is loaded, you configure components to enable the creation and update of asset and person records.

When the location, asset, and person interfaces are integrated, you can configure work order integration. The integration enables you to create a space planning task

in IBM TRIRIGA and to send it to Maximo Asset Management where a corresponding work order is created to execute the work.

Finally, you configure the service request interface if you plan to accept space planning service requests in Maximo Asset Management. When you integrate service requests, you can create a space planning service request in Maximo Asset Management and send it to IBM TRIRIGA. The move is then planned in IBM TRIRIGA before sending the task to Maximo Asset Management where the work is carried out.

Scenarios for integrating portfolio data

Before you can integrate transactions between Maximo Asset Management and IBM TRIRIGA, you prepare the data formats, configure communication between the systems, and load seed data for integrated locations, assets, and people.

Even if you do not intend to implement transactional integration, integrated portfolio data can provide Maximo Asset Management with insight into current space utilization that is available in IBM TRIRIGA.

Scenario: Preparing Maximo Asset Management and IBM TRIRIGA for integration

Company ABC uses Maximo Asset Management to manage the assets in the enterprise. The company plans to deploy Maximo Integrators for TRIRIGA and IBM TRIRIGA to support integrated workplace management for the facilities management team. Maximo Integrators for TRIRIGA installs components that must be configured on both systems to support data integration.

Background

Integrated facilities management requires the integration of two types of data: portfolio data and transactional data. Lee is a system administrator who configures Maximo Asset Management to send batches of portfolio data to IBM TRIRIGA DataConnect staging tables and to send transaction data to an IBM TRIRIGA web service. Mario is a system administrator who configures integration objects in IBM TRIRIGA to send responses to Maximo Asset Management when seed data is batch-loaded and to send ongoing transaction messages from IBM TRIRIGA to Maximo Asset Management.

Step 1. Configure communications from Maximo Asset Management to IBM TRIRIGA

In Maximo Asset Management, in the End Points application, Lee configures the PLUSYDC endpoint to point to the IBM TRIRIGA database. This endpoint is used for the initial data loads, which exports batches of data to IBM TRIRIGA DataConnect staging tables. Lee also configures the PLUSYBC endpoint to point to the URL for the IBM TRIRIGA web service. This communication is used after the initial data loads to send integrated transaction messages, such as service requests or work order status updates.

In the External Systems application, Lee checks that all of the necessary publish channels and enterprise services are enabled for the PLUSYEXTSYS external system. Lee then enables the external system.

Step 2. Configure data formats

The length of the data fields in Maximo Asset Management must be large enough to support the length of the corresponding fields in IBM TRIRIGA. Lee reviews the data mappings and compares the lengths of corresponding fields. In Maximo Asset Management, in the Database Configuration application, Lee changes the length of fields as necessary and then updates the database.

Step 3. Configure data processing

Some processing rules that are configured on publish channels and enterprise services in Maximo Asset Management use integration controls to set values in integrated fields. Processing rules are also used to apply filtering conditions on integration messages. Many of these values are based on the values that are set in associated domains.

In Maximo Asset Management, in the Domains application, Lee checks the values that are set for the domains that are associated with processing rules. In the External Systems application, Lee modifies the values that are associated with integration controls to match the values that are configured for the associated domains.

Step 4. Configure communications from IBM TRIRIGA to Maximo Asset Management

Mario verifies that all of the required DataConnect staging tables were installed by Maximo Integrators for TRIRIGA. In IBM TRIRIGA, in the Integration Objects application, Mario configures each HTTP Post - Maximo Integration object to point to the URL for its corresponding enterprise service on Maximo Asset Management.

Scenario: Loading initial data from Maximo Asset Management to IBM TRIRIGA

Company ABC uses Maximo Asset Management to manage assets. The company plans to deploy Maximo Integrators for TRIRIGA and IBM TRIRIGA to support integrated workplace management for the facilities management team. The implementation team exports data from Maximo Asset Management to provide seed data for the new IBM TRIRIGA environment.

Background

Integrated facilities management requires the integration of data for the locations, assets, and people that are managed in the facility. In IBM TRIRIGA, this data is known as portfolio data. Because Maximo Asset Management is already operational in company ABC, the implementation team can use location, person, and asset data from Maximo Asset Management for the initial population of data in IBM TRIRIGA. After this seed data is integrated, the implementation team can integrate transactions, such as sending service requests from Maximo Asset Management to IBM TRIRIGA, and sending work tasks from IBM TRIRIGA to Maximo Asset Management.

Lee is a system administrator who is responsible for preparing and sending seed data from Maximo Asset Management to IBM TRIRIGA.

Mario is a system administrator who is responsible for receiving the seed data in IBM TRIRIGA, modifying imported location records if necessary, and activating

imported records to send responses to Maximo Asset Management.

Step 1. Configure location records to match the IBM TRIRIGA location hierarchy

The integration uses an IBM TRIRIGA location hierarchy that is based on five levels: property, building, floor, space, and subspace. Lee begins by deciding which sites to integrate.

In the **Site** tab of the Organizations application on Maximo Asset Management, Lee enables a site for integration with IBM TRIRIGA. In the Location Drill Down window, Lee browses the locations that exist in the same location system. Lee assigns the appropriate IBM TRIRIGA location hierarchy level to each location in the site that is intended for integration, including buildings, floors, and spaces. Lee does not configure locations at the subspace level because Mario will use the visualization features of IBM TRIRIGA CAD Integrator/Publisher to allocate locations into spaces and subspaces.

Lee repeats this procedure for each site that is intended for integration.

Step 2. Load locations from Maximo Asset Management to IBM TRIRIGA

When all the locations for integration are assigned to the appropriate IBM TRIRIGA location hierarchy, Lee coordinates with Mario to export the data to IBM TRIRIGA. In Maximo Asset Management, in the External Systems application, in the **Publish Channels** tab, Lee selects the PLUSYPROP publish channel and clicks **Data Export**. Lee restricts the export to just one site.

In IBM TRIRIGA, in the Portfolio portal, in the Locations application, Mario receives the property that Lee exported. Mario activates the record, which sends a message to Maximo Asset Management that updates the hierarchy information for the record in read-only format.

After the updated record is received by Maximo Asset Management, Lee exports the buildings in this property by using the PLUSYBLDG publish channel.

In IBM TRIRIGA, Mario receives the buildings for the property and activates them to send updates to Maximo Asset Management.

When all the buildings are updated in Maximo Asset Management with responses from IBM TRIRIGA, Lee exports all the floors in the property by using the PLUSYFLOOR publish channel. Each floor record identifies the parent building for the floor.

In IBM TRIRIGA, Mario receives the floors and activates them to send updates to Maximo Asset Management.

Finally, Lee exports space locations to IBM TRIRIGA by using the PLUSYSPEACE publish channel.

Mario receives the spaces in the property from Maximo Asset Management, and uses IBM TRIRIGA CAD Integrator/Publisher to visualize the property, buildings, floors, and spaces. Mario works with the facilities manager to rearrange spaces. In some cases spaces are assigned as subspaces. When each space and subspace is

arranged correctly, Mario activates the records to send updates to Maximo Asset Management that includes any change in the location hierarchy.

Lee and Mario repeat these steps for each site that is intended for integration. After all of the required locations are integrated, Mario manages these records in IBM TRIRIGA and is responsible for all changes and additions to these locations. Lee continues to manage locations in Maximo Asset Management that are not integrated with IBM TRIRIGA.

Step 3. Load assets from Maximo Asset Management to IBM TRIRIGA

Lee wants to integrate four types of asset: facilities, IT, furniture, and telephone assets. In Maximo Asset Management, in the Domains application, Lee adds furniture and telephone assets to the ASSETTYPE domain and updates the database for the changes to take effect. The PLUSYTOASSETXREF and PLUSYFRASSETXREF integration controls list the asset types that can be integrated and, by default, the integration controls support facilities and IT asset types. In Maximo Asset Management, in the External Systems application, Lee adds furniture and telephone asset types to these integration controls.

In the Publish Channels application, Lee exports one asset type at a time. The records are sent in batches by using the PLUSYASSET publish channel. The publish channel uses a processing rule to limit the export to assets that are associated with space and subspace locations that are integrated with IBM TRIRIGA.

In IBM TRIRIGA, Mario receives the assets from Maximo Asset Management. When Mario activates the imported asset records, updates are sent to Maximo Asset Management that include the IBM TRIRIGA identifiers for the assets.

When all of the seed data for assets is loaded, both Lee and Mario can create and modify integrated assets.

Step 4. Load people from Maximo Asset Management to IBM TRIRIGA

Lee plans to integrate all employees in the organization that contains the integrated locations. Maximo Integrators for TRIRIGA supports three employee types: employee, consultant, and external contact. The existing implementation for person records in Maximo Asset Management supports more employee types, including part-time, full-time, and contract employees.

In Maximo Asset Management, in the External Systems application, Lee configures the PLUSYEMPTYPEXREF cross-reference integration control to associate both part-time and full-time employees with the employee value in IBM TRIRIGA and to associate contractors with the consultant value in IBM TRIRIGA.

Because people integration is bidirectional, Lee creates another cross-reference integration control and associates this new integration control with the PLUSYPERSON enterprise service. This new integration control ensures that employees that are sent from IBM TRIRIGA to Maximo Asset Management are mapped to the appropriate employee type in Maximo Asset Management.

The values in the PLUSYPERSONSTATUS list control must match the values in the PERSONSTATUS domain. In the Domains application, Lee reviews these values and, in the External Systems application, Lee updates the PLUSYPERSONSTATUS

list integration control with matching values. Lee then updates the PLUSYPERSONSTATUSXREF cross-reference integration control to map the status values in Maximo Asset Management with their equivalent status values in IBM TRIRIGA.

In the External Systems application, Lee selects the PLUSYPERSON publish channel and exports the person records for the organization. Mario receives these records in IBM TRIRIGA and activates them to send updates to Maximo Asset Management.

When all seed data for employees is loaded, Lee can create and modify integrated person records in Maximo Asset Management, and Mario can create and modify integrated people records in IBM TRIRIGA.

Scenario: Loading initial data from IBM TRIRIGA to Maximo Asset Management

Company XYZ uses IBM TRIRIGA for integrated workplace management. The company plans to deploy Maximo Integrators for TRIRIGA and Maximo Asset Management to provide enhanced asset and work management capabilities for the facilities management team. The implementation team loads initial portfolio data in batches from IBM TRIRIGA to Maximo Asset Management to provide seed data for the new Maximo Asset Management environment.

Background

Integrated facilities management requires the integration of data for the locations, assets, and people that are managed in the facility. In IBM TRIRIGA, this data is known as portfolio data. After the portfolio data is integrated, the implementation team can integrate transactions, such as sending service requests from Maximo Asset Management to IBM TRIRIGA, and sending work tasks from IBM TRIRIGA to Maximo Asset Management.

Sam is a system administrator who is responsible for preparing and sending seed data from IBM TRIRIGA to Maximo Asset Management.

Viv is a system administrator who is responsible for receiving the seed data in Maximo Asset Management.

Step 1. Load locations from IBM TRIRIGA to Maximo Asset Management

Maximo Integrators for TRIRIGA supports a location hierarchy that is based on five levels: property, building, floor, space, and subspace. In IBM TRIRIGA, in the Location application, Sam reviews how locations are arranged in the IBM TRIRIGA location hierarchy and adjusts the hierarchy levels for locations if necessary.

In IBM TRIRIGA, in the Location Export to Maximo application, in the **Properties** tab, Sam clicks **Find** to return a list of active properties. Sam selects a property to export, clicks **OK**, and then clicks **Export to Maximo**.

When the property is received in Maximo Asset Management, a property record and a corresponding site record are automatically created.

A response is sent to IBM TRIRIGA that updates the property record in IBM TRIRIGA with the Maximo ID value. When the response for the property record is received in IBM TRIRIGA, Sam can send the buildings in the property.

With the integrated property selected, in the **Buildings** tab, Sam clicks **Find** to return a list of active buildings. Sam selects the buildings to integrate, clicks **OK**, and then clicks **Export to Maximo**.

For each building record that is received, Maximo Asset Management sends a response that updates the record in IBM TRIRIGA.

Sam selects the integrated buildings and, in the **Floors** tab, Sam selects the floors to export. Sam repeats the process of waiting for the responses that update the floor records and then exports selected spaces in these floors. Sam finally exports subspaces in selected integrated spaces.

Sam repeats this procedure for each property that is intended for integration with Maximo Asset Management.

Step 2. Load assets from IBM TRIRIGA to Maximo Asset Management

After the initial load of location data from IBM TRIRIGA to Maximo Asset Management, Viv configures Maximo Asset Management to receive the assets that are associated with those locations. Maximo Asset Management is configured to exchange facility and IT assets with IBM TRIRIGA, but Sam also wants to integrate furniture, office equipment, and telephone asset types.

In Maximo Asset Management, in the Domains application, Viv adds furniture, office equipment, and telephones to the ASSETTYPE domain and updates the database for these changes to take effect. In Maximo Asset Management, in the External Systems application, Viv configures the PLUSYASSETTOXREF and PLUSYASSETFRXREF integration controls to include all five supported asset types.

In IBM TRIRIGA, in the Asset Export to Maximo application, Sam selects the **Building Equipment** tab, and clicks **Find** to return a list of active facility assets. Sam selects the assets to integrate and clicks **Export to Maximo**.

When an asset record is created in Maximo Asset Management, a response is sent that updates the record in to IBM TRIRIGA.

Sam repeats this procedure for the other four asset types that are intended for integration.

After the initial load of assets, both Viv and Sam can create and modify these records.

Step 3. Load people from IBM TRIRIGA to Maximo Asset Management.

Maximo Integrators for TRIRIGA supports the integration of employee, consultant, and external contact employee types, and Sam plans to integrate all three employee types.

In IBM TRIRIGA, in the People Export to Maximo application, Sam selects a person type and clicks **Find** to return a list of active records for the person type. Sam selects the people records to integrate and clicks **Export to Maximo**.

When a people record is received in Maximo Asset Management, a corresponding person record is created, and a response is sent that updates the record in IBM TRIRIGA.

Sam repeats this procedure for the other two person types that are intended for integration.

After the initial load of people, both Viv and Sam can create and modify these records.

Implementation in an environment that supports other integrations

If your environment is integrated with other products, such as HR systems, some of the changes that are required to implement Maximo Integrators for TRIRIGA might affect the other integrations.

STOP rule for the PERSON object

A STOP processing rule for the PERSON object prevents the update of the location for an existing person record when the data is maintained in IBM TRIRIGA. When a person's location is managed by IBM TRIRIGA, the location in the person record should only change after the completion of an IBM TRIRIGA move request. If the integrated system sends updates for the location data for the person object, the STOP rule prevents the update of the location data in Maximo Asset Management.

Review your processes for the management of person data and determine whether changes are required in the integrations.

mx.e.int.keyresponse system property

The **mx.e.int.keyresponse** system property provides response content for all synchronous inbound integration messages for all operations. Maximo Integrators for TRIRIGA relies on this capability to synchronize the ID values in Maximo Asset Management when a message from IBM TRIRIGA creates a record in Maximo Asset Management.

The implementation of Maximo Integrators for TRIRIGA sets the **mx.e.int.keyresponse** system property to a value of 1, which is true. As a result, all synchronous inbound integration messages to Maximo Asset Management provide response content to the invoker of the service. If your current integration calls enterprise or object structure services in a synchronous manner, verify whether the 1 value affects the integration with other systems. The value of the **mx.e.int.keyresponse** system property applies to the sync, change, and delete operations. The query and sync operations currently support response content for synchronous transactions.

Additional information for your implementation

Several guides and topics in the information center can assist you in planning and implementing your integration.

The IBM TRIRIGA 10 Portfolio Management User Guide contains the following relevant information about portfolio data:

Chapter	Sections for implementing the integration
Chapter 5, Locations	The following sections contain relevant information: <ul style="list-style-type: none"> • Hierarchy/Relationships • Locations
Chapter 6, People	The following sections contain relevant information: <ul style="list-style-type: none"> • People Forms • People
Chapter 7, Assets	The following sections contain relevant information: <ul style="list-style-type: none"> • Asset Forms • Assets

The IBM TRIRIGA 10 Space and Move Management User Guide provides the following relevant information about the move process:

Chapter	Sections for implementing the integration
Chapter 2, Move Management	The following sections contain relevant information: <ul style="list-style-type: none"> • Move Management Process • Move Service Request Process • Move Request Line Item • Move Planning Process

The IBM TRIRIGA 10 Facility Assessment User Guide provides the following relevant information about the condition inspection process:

Chapter	Sections for implementing the integration
Chapter 1, Facility Assessment	The following sections contain relevant information: <ul style="list-style-type: none"> • Facility Assessment Process • Facility Condition Index (FCI) and System Condition Index (CI)
Chapter 2, Planning	The following sections contain relevant information: <ul style="list-style-type: none"> • Condition-Related Classifications • Condition-Related Classification Records
Chapter 3, Assessing	The following sections contain relevant information: <ul style="list-style-type: none"> • Opportunities • Inspection Request Process

The Application Building for the IBM TRIRIGA Application Platform 3: Data Management guide provides the following relevant information about IBM TRIRIGA DataConnect:

Chapter	Sections for implementing the integration
Chapter 2, DataConnect	<p>The following sections contain relevant information:</p> <ul style="list-style-type: none"> • Process Overview • Create and Maintain Business Object Staging Tables • Moving Data from the External Source • Use Workflow to Move Data • DataConnect Tips

The IBM TRIRIGA Connector for Business Applications 3 Technical Specification provides the following relevant information about the web service:

Chapter	Sections for implementing the integration
Chapter 1, Architecture	<p>The following sections contain relevant information:</p> <ul style="list-style-type: none"> • Diagram • WSDL Location • Getting Started • CustomBusinessConnectTask for Integrations

The IBM TRIRIGA 10 Connector User Guide provides the following relevant information about the IBM TRIRIGA integration object:

Chapter	Sections for implementing the integration
Chapter 3, TRIRIGA Integration Object	<p>The following sections contain relevant information:</p> <ul style="list-style-type: none"> • Database Scheme • File to DC Sceme • Http Post Scheme • Outbound Formats • Other Ways to Trigger Integration

The Integrating data with external applications section in the information center provides the following relevant information about the Maximo Asset Management integration framework:

- Integration components
- Integration data processing
- Configuring the integration framework

Chapter 3. Installing IBM Maximo Integrators for TRIRIGA

The installation of IBM Maximo Integrators for TRIRIGA involves installing two sets of components. You install one set of components on IBM Maximo Asset Management to support integration with IBM TRIRIGA. Next, you install a set of components on IBM TRIRIGA to support the integration.

Installation prerequisites

Before you install IBM Maximo Integrators for TRIRIGA, you must ensure that the software and security requirements are available in the installation environments for Maximo Asset Management and IBM TRIRIGA.

Software prerequisites

You install IBM Maximo Integrators for TRIRIGA on the same administrative workstation where Maximo Asset Management version 7.5.0.4 is installed. You can download Maximo Asset Management version 7.5.0.4 from IBM Passport Advantage® (www-01.ibm.com/software/howtobuy/passportadvantage/pao_customers.htm).

To install IBM Maximo Integrators for TRIRIGA on IBM TRIRIGA, you must complete the following actions:

1. Contact customer support to request access to the installers for IBM TRIRIGA Application Platform version 3.3 and version 10.3 of the following products and licenses:
 - IBM TRIRIGA Facilities Manager
 - IBM TRIRIGA Facility Assessment
 - IBM TRIRIGA Portfolio Data Manager
 - IBM TRIRIGA Connector for Business Applications
2. Install IBM TRIRIGA Application Platform version 3.3 and the IBM TRIRIGA version 10.3 products.
Installation instructions are provided in *Installing IBM TRIRIGA Application Platform* (pic.dhe.ibm.com/infocenter/tivihelp/v49r1/index.jsp?topic=%2Fcom.ibm.tap.doc_3.3%2Fcommon%2Ft_ctr_install_tap.html) and in *Installing IBM TRIRIGA* (pic.dhe.ibm.com/infocenter/tivihelp/v49r1/index.jsp?topic=%2Fcom.ibm.tri.doc_10.3%2Fcommon%2Fc_ctr_install_tri.html).
3. Download IBM TRIRIGA Application Platform version 3.3.1 from IBM Passport Advantage® (www-01.ibm.com/software/howtobuy/passportadvantage/pao_customers.htm).
4. Upgrade from IBM TRIRIGA Application Platform version 3.3 to IBM TRIRIGA Application Platform version 3.3.1.
Upgrade instructions are provided in the IBM TRIRIGA Release Notes® (www.ibm.com/developerworks/community/wikis/home?lang=en#/wiki/IBM+TRIRIGA1/page/Release+Notes).

Security requirements

The following table shows the user permissions that are required to configure data integration between Maximo Asset Management version 7.5.0.4 and IBM TRIRIGA version 10.3.

Table 1.

Activity	Permission
Install, configure, and maintain IBM Maximo Integrators for TRIRIGA on Maximo Asset Management and on IBM TRIRIGA.	Administrator rights on Maximo Asset Management and on IBM TRIRIGA
Perform initial load of portfolio data between Maximo Asset Management and IBM TRIRIGA.	Administrator rights on Maximo Asset Management and on IBM TRIRIGA
On IBM TRIRIGA, send and receive transactional data to and from Maximo Asset Management.	IBM TRIRIGA users must be members of the Space Planner, Space Manager, and trimax security groups. The trimax security group is installed when you install the object migration package on IBM TRIRIGA.

Upgrade restrictions

IBM Maximo Integrators for TRIRIGA version 1.2 replaces IBM Maximo Integrators for TRIRIGA versions 1.1 and 1.1.1 and there is no upgrade path.

Installing on Maximo Asset Management

You download the Maximo Integrators for TRIRIGA package and install the package on a computer that has Maximo Asset Management version 7.5.0.4 installed.

Procedure

1. From the ISM library, search for the Maximo Integrators for TRIRIGA package and download the package. (www.ibm.com/software/brandcatalog/ismlibrary/) Do not extract the compressed file for IBM TRIRIGA. The compressed file for IBM TRIRIGA must remain compressed for installation.
2. Shut down the application server.
3. Create backup copies of the existing *install_home* directory files and back up the database. The database administrator must complete this task.
4. Extract the files in the IBM_Maximo_Integrators_for_TRIRIGA_V1.2-MX.zip file to the *install_home* directory and select the options to overwrite existing files and use folder names.
5. Run the database scripts for the package, by using the **updatedb.bat** utility.
 - a. Open a command prompt window and run the following command:
cd\install_home\tools\maximo
 - b. From the *install_home\tools\maximo* directory, run the **updatedb.bat** utility.
6. Delete the application server cache. The location of the cache files depends on the version of application server that you are running, for example:

Application server	Location of cache files
Oracle WebLogic Server	<i>weblogic_home</i> \user_projects\domains\mydomain\MAXIMOSERVER\

Application server	Location of cache files
IBM WebSphere® Application Server	<i>websphere_home</i> \AppServer\profiles\ Custom01\temp\ <i>machinename</i> Node01\ MAXIMOSERVER

7. Delete the web browser cache on every computer that uses the product.
8. Rebuild and redeploy the EAR files.
9. Restart the application server.

Results

In the System Information dialog box, the **Version** field contains information for IBM Maximo Integrators for TRIRIGA version 1.2.

Related information:

 [Troubleshooting and support](#)

Installing on IBM TRIRIGA

The `IBM_Maximo_Integrators_for_TRIRIGA_V1.2-TRI.zip` file includes an object migration package and a patch helper file. After you extract the compressed file, you import the object migration package and then import the patch helper into your IBM TRIRIGA environment.

Installing the object migration package on IBM TRIRIGA

The object migration package is a compressed file that contains the data that is required for IBM Maximo Integrators for TRIRIGA. The package includes workflows, objects, staging tables, forms, and other components.

Procedure

1. In the IBM TRIRIGA Administrator Console, enable the Object Migration agent.
2. Log in to IBM TRIRIGA and select **Tools > Administration > Object Migration**.
3. From the action bar, click **New Import**.
4. In the **File** field, navigate to the `IBM_Maximo_Integrators_for_TRIRIGA_V1.2-OM.zip` file, select the file, and click **OK**.
5. In the Object Migration window, select the **Validate** action.
6. In the Objects panel, click **Wait** to stop the migration process so that the validation process can run.
7. After the validation is complete, click **Import** on the action bar.
8. In the IBM TRIRIGA Administrator Console, disable the Object Migration agent.

What to do next

Import the patch helper that you extracted from the `IBM_Maximo_Integrators_for_TRIRIGA_V1.2-TRI.zip` file.

Importing the patch helper to IBM TRIRIGA

To complete the installation of IBM Maximo Integrators for TRIRIGA, you must import the patch helper into your IBM TRIRIGA environment. The patch helper triggers workflows that create essential information and update existing records within the database.

Before you begin

Import the object migration package into your IBM TRIRIGA environment before you import the patch helper.

Procedure

1. On IBM TRIRIGA, select **Tools > Administration > Data Integrator**.
2. Select the upload file options as follows:

Table 2. Patch helper file upload values

IBM TRIRIGA Field	Option
Module	triHelper
Business Object	triPatchHelper
Form	triPatchHelper
Import Type	Add
Action	triCalculate

3. Browse to and select the PatchHelper_IBM_Maximo_Integrators_for_TRIRIGA.txt file that you extracted from the IBM_Maximo_Integrators_for_TRIRIGA_V1.2-TRI.zip file.
4. Upload the patch helper. You receive a notification in your Reminders portal section when the import process is complete.

Chapter 4. Configuring integration components

After you install IBM Maximo Integrators for TRIRIGA, you must configure the integration components on Maximo Asset Management and IBM TRIRIGA. The configuration tasks require knowledge of the application implementations on Maximo Asset Management and IBM TRIRIGA.

Configuring Maximo Asset Management

To prepare for the integration, you configure the endpoints that route messages to IBM TRIRIGA and configure values in integration controls.

Before you begin

Configure Maximo Asset Management for integration, including configuring Java™ Message Service (JMS) queues and enabling the integration framework.

Related tasks:

-  Enabling data export and import
-  Configuring the integration framework

Changing lengths of fields in Maximo Asset Management to match IBM TRIRIGA

When you implement your integration, you might have to change the lengths of fields in Maximo Asset Management to accommodate the longer field lengths in IBM TRIRIGA. If the length of a field in Maximo Asset Management is less than the length of the corresponding field in IBM TRIRIGA, increase the length of the field in Maximo Asset Management.

Procedure

1. In Maximo Asset Management, in the Database Configuration application, open the object. In the **Attribute** tab, find the field whose length you want to change.
2. For each field that requires adjustment, change the length and save the object. The following table lists lengths for some of the fields that are shared in the integration. You might have to change other fields in addition to these fields.

Table 3. Integrated field lengths

Object	Field	Length of field in Maximo Asset Management
SITE	SITEID	50
SITE	DESCRIPTION	700
LOCATIONS	LOCATION	50
LOCATIONS	DESCRIPTION	700
ASSET	ASSETNUM	50
ASSET	DESCRIPTION	700
PERSON	PERSONID	50
WORKORDER	DESCRIPTION	700

- Update the database to implement the changes.

Related information:

-  Modes of database configuration
-  Configuring the database in administration mode
-  Configuring the database in command-line mode

Configuring endpoints

Two endpoints route outbound messages to IBM TRIRIGA. One endpoint loads data to IBM TRIRIGA DataConnect staging tables and the other endpoint routes messages to the IBM TRIRIGA web service. To enable the integration, you configure the destination URLs and security information for the endpoints.

About this task

The PLUSYDC endpoint routes location, asset, and person data to IBM TRIRIGA DataConnect staging tables. The PLUSYBC endpoint routes messages to the IBM TRIRIGA web service.

Procedure

- In the End Points application, open the PLUSYDC endpoint record to specify values in the Properties section.
- In the **Driver** field, specify the driver for the IBM TRIRIGA database.

Option	Description
Oracle Database	oracle.jdbc.OracleDriver
Microsoft SQL Server database	com.microsoft.sqlserver.jdbc. SQLServerDriver

- In the **ISREMOTE** field, verify that the value is set to 1 (true).
- In the **URL** field, specify the URL for IBM TRIRIGA DataConnect.

Option	Description
Oracle Database	jdbc:oracle:thin:@<HOST>:<PORT>:<SID>
Microsoft SQL Server database	jdbc:sqlserver://hostname:port; databaseName=dbname ;integratedSecurity=false;

- In the **Username** and **Password** fields, specify values that are configured with security access to IBM TRIRIGA DataConnect.
- If IBM TRIRIGA is configured in a multi-schema Oracle Database environment, specify the name of the schema to use.
- Save the endpoint.
- Open the PLUSYBC endpoint.
- In the **ENDPOINTURL** field, specify the URL for the IBM TRIRIGA web service, for example `http://server_address:port/ws/TriirigaWS/context_path`. The *context_path* value is an optional value that can be configured in IBM TRIRIGA. If a value is set for the *context_path* attribute in IBM TRIRIGA, you must specify the same value at the end of URL. To check if a value is configured for the context path, in the IBM TRIRIGA administrator console, select System Manager.
- In the **SERVICENAME** field, verify that `TriirigaWS` is the specified value.

11. In the **Username** and **Password** fields, specify values that are configured with security access to the IBM TRIRIGA web service.
12. Save the endpoint.

Configuring integration controls

Some processing rules that are set on publish channels and enterprise services use integration controls to provide values in integration messages. For some of these integration controls, you must configure the values to match the values in the Maximo Asset Management implementation environment. You can view all of the integration controls in the External Systems application.

Related reference:

Chapter 7, “Reference information,” on page 67

Configuring integration controls to match domain values

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Procedure

1. In the External Systems application, open the PLUSYEXTSYS external system.
2. Select **Select Action > Setup Integration Controls**.
3. In the Setup Integration Controls window, click **Edit Detail** on an integration control, for example the PLUSYWOSTATUS integration control.
4. Note the name of the associated domain and the values that are configured for the integration control.
5. In the Domains application, compare the noted values with the values for the associated domain, for example the PLUSYWOSTATUS integration control is associated with the WOSTATUS domain.
6. If the values in the integration control do not match the values in the associated domain, return to the External Systems application to change the values for the integration control.
7. Repeat this procedure for each integration control.
8. Save the external system.

Configuring cross-reference integration controls

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

Procedure

1. In the External Systems application, select the PLUSYEXTSYS external system.
2. Select **Select Action > Setup Integration Controls**.
3. In the Setup Integration Controls window, click **Edit Detail** on a cross-reference integration control, for example the PLUSYPERSTATUSXREF integration control.
4. In the CrossReference Control window, specify the appropriate mapping values for your environment. Maximo Asset Management values go in the Default Value column and the corresponding IBM TRIRIGA values go in the External Value column.

5. Click **OK** to save the new values and then click **OK** again to save the changes to the integration control.
6. Repeat this procedure for each cross-reference integration control.

Enabling the external system

Before you can export data from Maximo Asset Management, you must enable the external system for integration.

Procedure

1. In the External Systems application, open the PLUSYEXTSYS external system.
2. In the **Publish Channels** tab, verify that the publish channels that you plan to use are enabled. At least one publish channel must be enabled before you can enable the external system.
3. In the **Enterprise Services** tab, verify that the enterprise services that you plan to use are enabled. At least one enterprise service must be enabled before you can enable the external system.
4. In the **System** tab, select the **Enabled** check box.
5. Click **Save External System**.

Configuring IBM TRIRIGA

When you import the IBM Maximo Integrators for TRIRIGA package, the data from IBM Maximo Asset Management is imported as well. However, you must configure the connection between Maximo Asset Management and IBM TRIRIGA.

Load of IBM Maximo Asset Management data into IBM TRIRIGA

In IBM Maximo Integrators for TRIRIGA, the initial load of data is made through staging tables, which are copies of attribute tables that you can modify without affecting IBM TRIRIGA. All necessary staging tables for the integration are included in the compressed file in the ISM library.

The IBM TRIRIGA DataConnect tool processes the staging tables that contain the data that is received from IBM Maximo Asset Management and creates the corresponding IBM TRIRIGA Business Object. Each application in IBM TRIRIGA uses different staging tables. The following table lists the staging tables that are used by the IBM TRIRIGA applications.

Table 4. Staging tables

Application	Staging table
Locations	S_TRIPROPERTY, S_TRIBUILDING, S_TRIFLOOR and S_TRISPACE
People	S_TRIPEOPLE
Assets	S_TRIBUILDINGEQUIPMENT, S_TRIFURNITURE, S_TRIOFFICEEQUIPMENT, S_TRITECHNOLOGYASSETS and S_TRITELEPHONES

After the initial load of data, any data that is created or updated in Maximo Asset Management is transferred to IBM TRIRIGA through a web service. You can use the IBM TRIRIGA web service to input or update information, and to retrieve queries from IBM TRIRIGA applications. The IBM TRIRIGA web service uses the

same business logic that is defined in the IBM TRIRIGA application and validates that the required fields are inserted. Read-only fields are not updated.

Configuring the connection with IBM Maximo Asset Management

You must configure the Http Post section of each integration object with the address of each enterprise service in IBM Maximo Asset Management application server and the login information.

Procedure

1. Log in to IBM TRIRIGA and select **Tools > System Setup > Integration > Integration Object**.
2. Select one of the HTTP Post - Maximo Integration objects.
3. In the Http Post section, configure the connection.
 - a. In the **Http URL** field, specify the address of the application server that Maximo Asset Management runs on.
 - b. In the **UserName Parameter** field, specify the Maximo Asset Management user name.
 - c. In the **Password Parameter** field, specify the Maximo Asset Management password.
4. Repeat steps 2 and 3 for each HTTP Post - Maximo Integration object.
5. Click the **Execute** action.

Preventing updates to integrated work task records in IBM TRIRIGA

You can update integrated work task records only in Maximo Asset Management. To avoid accidental changes to integrated work task records in IBM TRIRIGA, you must make configuration changes in IBM TRIRIGA.

Procedure

1. In IBM TRIRIGA, in the Data Modeler tool, add a field named `plusyIntegrateToMaximoBL`.
 - a. In the object browser, expand the **triTask** module, and select the **triTask** business object.
 - b. Revise the business object and select **View > Field List**.
 - c. Specify the field details. Name the field `plusyIntegrateToMaximoBL`.
 - d. Save the field and select **Tools > Publish BO**.
2. In the Workflow Builder, add a switch condition directly above the **Add/Update Work Plans** task in the **triTask - Synchronous - Work Plan - Update Work Plans** workflow.
 - a. Expand the **triTask** module, and select the **triTask - Synchronous - Work Plan - Update Work Plans** workflow.
 - b. Revise the switch condition and set the condition to `plusyIntegrateToMaximoBL == TRUE`.
 - c. Move the **Add/Update Work Plans** task under the FALSE path of the switch condition and publish the workflow.
3. In the Report Manager, in the **triTask - Workflow - Find Tasks for triWorkPlan** query, add the system filter `plusyIntegrateToMaximoBL Equals FALSE`.
 - a. Click **My Reports** and on the **System Reports** tab, filter the reports by entering `tritask - workflow` in the **Name** field.

- b. Open the **triTask - Workflow - Find Tasks for triWorkPlan** query and on the **Filters** tab, add the system filter `plusyIntegrateToMaximoBL Equals FALSE`.
 - c. Save the report.
4. In the Report Manager, in the **triTask - Display - triDispatchManager - Tasks for Dispatch** query, add the system filter `plusyIntegrateToMaximoBL Not Equals TRUE`.
 - a. On the **System Reports** tab, filter the reports by entering `tritask - display - tridis` in the **Name** field.
 - b. Open the **triTask - Display - triDispatchManager - Tasks for Dispatch** query, and on the **Filters** tab, add the system filter `plusyIntegrateToMaximoBL Not Equals TRUE`.
 - c. Save the report.

Chapter 5. Configuring integration interfaces

Space planning integration requires the integration of data for the location, asset, person, work order, and service request interfaces.

Integrating location data

Both Maximo Asset Management and IBM TRIRIGA support the management of assets and people that is based on their physical locations. Maximo Integrators for TRIRIGA provides integration components so that you can load Maximo Asset Management locations to IBM TRIRIGA, which then manages the locations.

Location integration overview

When you integrate locations, you create a shared set of facilities management locations that is managed by IBM TRIRIGA. In IBM TRIRIGA, you plan moves for the people and assets in these shared locations and generate work orders on Maximo Asset Management to carry out the work.

If you have already implemented a Maximo Asset Management environment, you can use existing Maximo Asset Management locations to perform an initial population of locations in IBM TRIRIGA. You must identify any existing Maximo Asset Management locations that you want to integrate for facilities management and assign each of these locations to an appropriate level in the IBM TRIRIGA location hierarchy. You then export these locations to IBM TRIRIGA.

When you export locations to IBM TRIRIGA, they are automatically activated in IBM TRIRIGA and are sent back to Maximo Asset Management. When locations are returned to Maximo Asset Management, they are configured in the PLUSYSYS location hierarchy system that is defined in Maximo Asset Management. This hierarchy represents the IBM TRIRIGA hierarchy structure for the Maximo Asset Management location. A Maximo Asset Management location can also be associated with other location hierarchies, aside from the PLUSYSYS location hierarchy.

After you complete the initial export of locations data to IBM TRIRIGA, the IBM TRIRIGA location hierarchy value is set to read-only mode in Maximo Asset Management. If you change the hierarchy level of a shared location in IBM TRIRIGA, an update is sent to Maximo Asset Management. You add all new locations in IBM TRIRIGA and corresponding records are then created in Maximo Asset Management.

The following table shows the activities that are involved in this integration.

Table 5. Activities in integration location data

Integration activity	Description
Initial load of location data from Maximo Asset Management to IBM TRIRIGA. This is an optional step if you want to apply IBM TRIRIGA space planning features to locations that are already configured in Maximo Asset Management.	To configure existing locations in Maximo Asset Management for the purpose of facilities management, you enable a site for the integration, identify the locations within that site that you want to integrate and assign an IBM TRIRIGA location hierarchy level to each of these locations. For the records in each level of the IBM TRIRIGA location hierarchy, you perform an initial load of data. You start by exporting property locations and then you wait for an update of these location records from IBM TRIRIGA before you export the locations in the next level, building, of the IBM TRIRIGA location hierarchy.
Ongoing creation and updates of location data from IBM TRIRIGA to Maximo Asset Management.	After the initial integrations are complete, ongoing maintenance for the shared locations occurs in IBM TRIRIGA and can include the following tasks: <ul style="list-style-type: none"> • Adding new records to the IBM TRIRIGA locations hierarchy and sending these records to Maximo Asset Management. • Changing records in the IBM TRIRIGA locations hierarchy and sending these updates to Maximo Asset Management.

To prepare Maximo Asset Management locations for data export, you start by identifying the sites that contain the locations that you want IBM TRIRIGA to manage. For each of these sites, you choose the locations that you want to integrate and assign the applicable IBM TRIRIGA hierarchy level to them. You do not integrate any sites or locations that you do not want IBM TRIRIGA to manage.

Locations in IBM TRIRIGA are organized in a hierarchy of levels that indicate how the different locations in a property are related to one another. The integration uses a fixed IBM TRIRIGA location hierarchy that has five levels.

The following table shows the mappings between levels in the locations hierarchy in IBM TRIRIGA and Maximo Asset Management.

Table 6. Mapping the IBM TRIRIGA location hierarchy levels to locations in Maximo Asset Management

IBM TRIRIGA locations	Maximo Asset Management locations	Maximo Asset Management TRIRIGA hierarchy level
Property	Site (with a corresponding location record)	00
Building	Location	10
Floor	Location	20
Space	Location	30
Subspace	Location	40

In the first stage of the integration, in Maximo Asset Management you prepare locations and then you load this data in batches to IBM TRIRIGA DataConnect staging tables. Management of these location records then passes to IBM TRIRIGA. You perform a separate export for the locations in each level of the location hierarchy, starting at the top level and working down each level of the hierarchy in sequence. You start by exporting property records to IBM TRIRIGA. You do not have to export locations to every level of the location hierarchy. However, any level that you export must have locations configured at the parent level. For example, if you configure a floor location, it must be under a location that is configured as a building.

In IBM TRIRIGA, the imported locations are loaded and activated automatically. For each location record, the activation sends an update back to Maximo Asset Management that includes the corresponding IBM TRIRIGA location keys. For IBM TRIRIGA property records that are created from a Maximo Asset Management site, IBM TRIRIGA sends a response that creates a new location in Maximo Asset Management that has a location hierarchy level of 00.

In IBM TRIRIGA, review the location hierarchy. The hierarchy view shows a User Message flag (!) for any location that encountered an error, for example the BMXAA8229W - record key has been updated by another user error message. If an error occurs and you need to resend the location to Maximo Asset Management, revise and reactivate the location to send an update message to Maximo Asset Management.

You must receive updates in Maximo Asset Management for all of the property location records that you loaded to IBM TRIRIGA before you can load building locations. The processing time for sending the updates to Maximo Asset Management can vary and is partly dependent on the configuration of the sleep time parameter of the DataConnect agent in IBM TRIRIGA.

Similar to properties, you must wait for record updates from IBM TRIRIGA before you export the records for buildings, floors, and spaces. This approach ensures that, if you change the hierarchy level of a record in IBM TRIRIGA, its position in the IBM TRIRIGA location hierarchy is updated in Maximo Asset Management before you export dependent records.

When you review a location record in IBM TRIRIGA you can adjust its position in the IBM TRIRIGA location hierarchy. You can create a partial hierarchy in Maximo Asset Management, such as a property, buildings, and floors, and apply space and subspace levels in IBM TRIRIGA. IBM TRIRIGA supports recursive levels of hierarchy where a space can contain subspaces and each subspace can contain more subspaces.

After you load a location record to IBM TRIRIGA, the record passes to IBM TRIRIGA management. Any future changes or additions to the data in integrated fields can be made only in IBM TRIRIGA, which then passes these updates to Maximo Asset Management.

After the initial data load, if you add a new property in IBM TRIRIGA, a corresponding location is created in Maximo Asset Management. Maximo Asset Management integration processing evaluates whether a site exists that matches the new property record. If a site does not exist, the processing creates the site first and then creates the corresponding location record for that property.

Related reference:

“Components for location integration” on page 67

Location integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Preparing location data for export from Maximo Asset Management

To export Maximo Asset Management locations to IBM TRIRIGA, you first choose the locations to integrate and then you assign each location with the appropriate level in the IBM TRIRIGA location hierarchy.

Enabling sites for export from Maximo Asset Management

A site in Maximo Asset Management is the equivalent of a property in IBM TRIRIGA. When you enable a site for integration with IBM TRIRIGA, you can then assign an IBM TRIRIGA location hierarchy level to each location in the site before you export the locations.

Procedure

1. In the **Site** tab of the Organizations application, select an existing site for export.
2. In the Details section for the site, select the **Integration to TRIRIGA** check box.
3. Identify an existing location system that contains the site, such as the Primary system, and specify that value in the **Location System** field. You can use this system to view the site locations in a hierarchy view to help you to assign the appropriate level in the IBM TRIRIGA location hierarchy.
4. Click **Save Organization** on the toolbar.

Applying hierarchy values to location data

IBM TRIRIGA requires locations to be organized in a specific hierarchy. When you enable a site for integration, you can assign the hierarchy values from IBM TRIRIGA to locations in the Maximo Asset Management site.

About this task

The locations integration uses a fixed locations hierarchy with the following levels:

- Property (not assigned a location hierarchy level)
- Building
- Floor
- Space
- Subspace

You must assign the appropriate hierarchy level to each location in the site that you want to integrate with IBM TRIRIGA except for property locations. Integrate only the locations that you want IBM TRIRIGA to manage. Any floor, space or subspace location that you configure must be under a location that is also configured for a parent level. A floor must be under a building, a space must be under a floor, and a subspace must be under a space.

Procedure

1. In the Locations application, select a site that is enabled for export to IBM TRIRIGA.
2. Select **Select Action > Open TRIRIGA Drilldown**.
3. Select the system that you specified in the **Location System** field on the site record. In the Location Hierarchy section, you can view the current hierarchy level for each location and choose which locations to integrate.
4. Select a location to integrate, and select the hierarchy level for this location in the **TRIRIGA Hierarchy** field.
5. Repeat step 4 for each location to include in the integration for this site.
6. Save the changes.

Exporting location data to IBM TRIRIGA

The initial load of locations from Maximo Asset Management is a batch export that loads the records into IBM TRIRIGA DataConnect staging tables. After the initial load, management of these records passes to IBM TRIRIGA.

About this task

Export location hierarchy levels in sequence from the top of the IBM TRIRIGA location hierarchy, starting with the property (or site) location. After each export, you must wait until these records are updated by IBM TRIRIGA before you export the records for the next level of the IBM TRIRIGA location hierarchy. The following table shows the export sequence and lists the publish channels to use to export each level in the locations hierarchy.

Table 7. Publish channels for exporting locations data

Export sequence	Hierarchy level	Publish channel
1	00 - Property (Site)	PLUSYPROP
2	10 - Building	PLUSYBLDG
3	20 - Floor	PLUSYFLOOR
4	30 - Space	PLUSYSYSPACE
5	40 - Subspace	PLUSYSSPACE

If you plan to integrate multiple sites, export all locations for one site before you export the next site.

Procedure

1. In the External Systems application, select the PLUSYEXTSYS external system and open the **Publish Channels** tab.
2. Select the PLUSYPROP publish channel and click **Data Export**.
3. In the **Export Condition** field, enter `siteid='site'` to restrict the export to only one site. You can set the value in this field to suit your environment.
4. Click **OK** and then click **Yes** in the generic warning message to proceed with the export.
5. Repeat steps 2 - 4 for each publish channel where you configured locations at that corresponding location hierarchy level.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

“Configuring integration controls to match domain values” on page 27

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Related reference:

“Components for the initial load of location data from Maximo Asset Management to IBM TRIRIGA” on page 67

IBM Maximo Integrators for TRIRIGA installs object structures on Maximo Asset Management that define the format and structure of location data to send to IBM TRIRIGA. Predefined publish channels process batch exports of location data to send to IBM TRIRIGA staging tables that are installed by IBM Maximo Integrators for TRIRIGA.

“Integration controls associated with location integration components” on page 77

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of location XML messages.

Managing location records in IBM TRIRIGA

Maximo Asset Management locations are loaded to IBM TRIRIGA in draft status and are automatically converted to active status. For each imported record, you review the hierarchy level and adjust if necessary.

About this task

To change the hierarchy level for a location in IBM TRIRIGA, you revise the location, make the necessary changes, and then reactivate the location. The reactivation sends the location with revised hierarchy information back to Maximo Asset Management.

Procedure

1. Select **Portfolio > Locations**.
2. In the Hierarchy section, open an imported record.
3. Review the location hierarchy level and change it if necessary. Alternatively, you can adjust the hierarchy level with the IBM TRIRIGA CAD Integrator/Publisher tool.
4. Activate the record. When you activate the record, the updated record is sent to Maximo Asset Management where the hierarchy data is available in read-only format.
5. To add a new location to the set of shared data:
 - a. Create the location in IBM TRIRIGA.
 - b. Activate the new record.

IBM TRIRIGA sends the data to Maximo Asset Management where a corresponding read-only record is created.

Related reference:

“IBM TRIRIGA integration components” on page 107
IBM Maximo Integrators for TRIRIGA installs predefined components on IBM TRIRIGA to support integration with Maximo Asset Management.

Related information:

 IBM TRIRIGA 10 Portfolio Management User Guide

Exporting locations to Maximo Asset Management from IBM TRIRIGA

The initial load of locations from IBM TRIRIGA is a batch export that loads the records into Maximo Asset Management. After the initial load, location records are managed in IBM TRIRIGA.

About this task

Maximo Integrators for TRIRIGA supports an IBM TRIRIGA location hierarchy of five levels: property, building, floor, space, and subspace. The HTTP Post - Maximo Integration objects in IBM TRIRIGA correspond to the following location hierarchy on Maximo Asset Management.

IBM TRIRIGA integration object	Location type in Maximo Asset Management
triProperty - HTTP Post - Maximo Integration	Site
triBuilding - HTTP Post - Maximo Integration	Building
triFloor - HTTP Post - Maximo Integration	Floor
triSpace - HTTP Post - Maximo Integration	Space, subspace

Procedure

1. In IBM TRIRIGA, in the Integration Objects application, configure the HTTP Post - Maximo Integration object for each location type to point to `http://hostname:port/meaweb/es/PLUSYEXTSYS/PLUSYLOCHIER`. This URL points to the PLUSYLOCHIER enterprise service that processes locations that are sent to Maximo Asset Management from IBM TRIRIGA.
2. In IBM TRIRIGA, in the Location Export to Maximo application, select the **Find** action to load active locations.
3. In the **Properties** tab, select a property to export. Load all of the locations for this property before you load the locations for another property.
4. Select the **Export to Maximo** action to load the property record to Maximo Asset Management. Maximo Asset Management receives the property, creates a property record and a corresponding site record, and returns a response that updates the property record in IBM TRIRIGA with the Maximo ID value.
5. Select an integrated property and export the buildings for the property.
 - a. Click the **Buildings** tab.
 - b. Select the **Find** action to load the active buildings in the selected property.
 - c. Select the buildings that you want to integrate.
 - d. Click **OK**.

- e. Select the **Export to Maximo** action to load the building records to Maximo Asset Management. Maximo Asset Management receives the building records and returns a response that updates the building records in IBM TRIRIGA with the Maximo ID value.
6. Select all of the buildings that are integrated for this property and export the floors in the buildings.
 - a. Click the **Floors** tab.
 - b. Select the **Find** action to load the active floors for the selected buildings.
 - c. Select the floors that you want to integrate.
 - d. Click **OK**.
 - e. Select the **Export to Maximo** action to load the floor records to Maximo Asset Management. Maximo Asset Management receives the floor records and returns a response that updates the floor records in IBM TRIRIGA with the Maximo ID value.
7. Select all of the floors that are integrated for this property and export the spaces.
 - a. Click the **Spaces** tab.
 - b. Select the **Find** action to load the active spaces for the selected floors.
 - c. Select the spaces that you want to integrate.
 - d. Click **OK**.
 - e. Select the **Export to Maximo** action to load the space records to Maximo Asset Management. Maximo Asset Management receives the space records and returns a response that updates the space records in IBM TRIRIGA with the Maximo ID value.
8. Select all of the spaces that are integrated for this property and export the subspaces.
 - a. Click the **Subspaces** tab.
 - b. Select the **Find** action to load the active subspaces for the selected spaces.
 - c. Select the subspaces that you want to integrate.
 - d. Click **OK**.
 - e. Select the **Export to Maximo** action to load the subspaces records to Maximo Asset Management. Maximo Asset Management receives the subspaces records and returns a response that updates the subspaces records in IBM TRIRIGA with the Maximo ID value.
9. Repeat steps 2-8 for each property that you want to integrate.

Integrating asset data

Both Maximo Asset Management and IBM TRIRIGA support the management of assets and people based on their physical locations. Maximo Integrators for TRIRIGA includes predefined components that you can use to implement a bidirectional integration of asset data between Maximo Asset Management and IBM TRIRIGA.

Related reference:

“Components for asset integration” on page 77

The asset interface includes object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Asset integration overview

To integrate asset data, you export assets from Maximo Asset Management for initial loading into IBM TRIRIGA, and then you load facility assets from IBM TRIRIGA to Maximo Asset Management. Integration of asset data is bidirectional, and on-going creation and update of assets can be done in either system.

Maximo Integrators for TRIRIGA provides components for the bidirectional loading of asset data between the systems and for managing ongoing updates of assets in either system. The default configuration supports the integration of facility and IT assets but you can also integrate furniture, office equipment, and telephone assets. You can use the External Systems application in Maximo Asset Management to add asset type values to the PLUSYTOASSETTYPEXREF and the PLUSYFRASSETTYPEXREF cross-reference integration controls.

You can create or update asset records either in Maximo Asset Management or in IBM TRIRIGA, and IBM Maximo Integrators for TRIRIGA transfers your changes between the systems.

In Maximo Asset Management, you cannot change the asset type of an asset that is integrated. You can change the status of the asset to Retired in IBM TRIRIGA, and then you can create another asset with the asset type that you want.

Asset data is integrated in four stages. Two stages occur at the start of the integration and two stages occur on an ongoing basis to update data.

The following table shows the stages that are involved in the integration of asset data.

Stage	Integration activity	Description
1	Initial load of asset data from Maximo Asset Management to IBM TRIRIGA	Asset data can be exported in logical groups, for example all assets of the same type or all assets within the same location.
2	Initial load of facility asset data from IBM TRIRIGA to Maximo Asset Management	In IBM TRIRIGA, you can configure selected assets to integrate with Maximo Asset Management when the assets are activated.
3	Ongoing creation or update of asset data from IBM TRIRIGA to Maximo Asset Management	After the initial integration of asset data, Maximo Integrators for TRIRIGA transfers any new or updated assets that are managed in IBM TRIRIGA to Maximo Asset Management.
4	Ongoing creation or update of asset data from Maximo Asset Management to IBM TRIRIGA	After the initial integration of asset data, Maximo Integrators for TRIRIGA updates IBM TRIRIGA with any changes that you make to the assets in Maximo Asset Management.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

Asset integration processing

The integration of asset data is supported bidirectionally through the PLUSYASSET and PLUSYASSET2 publish channels and the PLUSYASSET enterprise service.

Initial data load from Maximo Asset Management to IBM TRIRIGA

The initial data load from Maximo Asset Management to IBM TRIRIGA is done through the PLUSYASSET publish channel. You can export asset data and send the data to IBM TRIRIGA by using IBM TRIRIGA DataConnect processing. The PLUSYASSET publish channel is the initial load mechanism. The ongoing creation and updates of asset data in Maximo Asset Management are sent through the PLUSYASSET2 publish channel. After an asset record is loaded from Maximo Asset Management to IBM TRIRIGA through the PLUSYASSET publish channel, the asset record cannot be sent again through this publish channel. The initial load does not require that all assets be extracted and loaded at one time. You can load asset data based on logical groups, such as all assets of the same type or all assets within the same location.

Initial data load and ongoing updates from IBM TRIRIGA to Maximo Asset Management

The PLUSYASSET enterprise service receives asset data from IBM TRIRIGA. This single service is used to integrate the following types of asset data from IBM TRIRIGA to Maximo Asset Management:

- Initial data load of activated facility assets
- Ongoing load of assets that you create in IBM TRIRIGA
- Ongoing updates that you make to the asset data for integrated assets

Field values such as status and type are set according to the processing rules and integration control values. The processing of updates into Maximo Asset Management results in either the creation of new asset records or the update of existing asset records.

Ongoing updates from Maximo Asset Management to IBM TRIRIGA

After the initial data load, when you create or update asset records in Maximo Asset Management, the new or changed data is sent to IBM TRIRIGA through the PLUSYASSET2 publish channel. The PLUSYASSET2 publish channel uses the event listener so that messages are sent whenever you create or update an asset record in Maximo Asset Management.

Related reference:

“Components for the initial load of asset data from Maximo Asset Management to IBM TRIRIGA” on page 78

Predefined object structures and publish channels are provided for the outbound integration of asset data. The object structures define how asset data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. Publish channels process the outbound asset data and send the data to IBM TRIRIGA.

“Components for loading and updating asset data to Maximo Asset Management from IBM TRIRIGA” on page 79

Maximo Integrators for TRIRIGA includes an object structure, enterprise service, processing rules, and integration controls for importing and updating IBM TRIRIGA asset data to Maximo Asset Management.

“Components for updating asset data from Maximo Asset Management to IBM TRIRIGA” on page 81

After the initial load of asset data is completed, updates and new asset records can be sent to IBM TRIRIGA through the PLUSYASSET2 publish channel, which uses the PLUSYASSETTO2 object structure to map the data. Integration controls and processing rules are used to format and validate the data.

Exporting assets to IBM TRIRIGA

Maximo Integrators for TRIRIGA includes predefined components that you use to export batches of asset records from Maximo Asset Management to IBM TRIRIGA. The data is exported to IBM TRIRIGA DataConnect staging tables.

Before you begin

You must enable a site for integration and synchronize the location data. The asset records that you plan to export must be in a location that is integrated between Maximo Asset Management and IBM TRIRIGA.

Procedure

1. In the External Systems application, select the PLUSYEXTSYS external system and click the **Publish Channels** tab.
2. Select the PLUSYASSET publish channel and click **Data Export**.
3. Optional: You can choose your own criteria for exporting groups of assets. For example, if you want to export all of the assets in a site, in the **Export Condition** field, enter `siteid='site'`.
4. Click **OK** to run the export.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

“Configuring integration controls to match domain values” on page 27

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Related reference:

“Components for loading and updating asset data to Maximo Asset Management from IBM TRIRIGA” on page 79

Maximo Integrators for TRIRIGA includes an object structure, enterprise service, processing rules, and integration controls for importing and updating IBM TRIRIGA asset data to Maximo Asset Management.

“Integration controls” on page 83

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of asset data XML messages.

Maintaining assets in IBM TRIRIGA

Assets in Maximo Asset Management correspond to assets in IBM TRIRIGA. When you maintain IBM TRIRIGA assets, you can choose which assets to integrate with Maximo Asset Management. When these IBM TRIRIGA assets become active, Maximo Asset Management assets are created or updated.

About this task

When the configured IBM TRIRIGA asset records change from a Draft status or Revision in Progress status to an Active status, Maximo Asset Management assets are created or updated.

Procedure

1. Select **Portfolio > Assets** and the type of asset.
2. Open the asset record.

Record	Action
New	Click the Add action. After you specify the required details, create the draft.
Draft	Open an existing record in Draft status.
Active	Open an existing record in Active status. Revise the record so that it is in Revision in Progress status.

3. After you specify any additional details, activate the record.

Related reference:

“IBM TRIRIGA integration components” on page 107
IBM Maximo Integrators for TRIRIGA installs predefined components on IBM TRIRIGA to support integration with Maximo Asset Management.

Related information:

 IBM TRIRIGA 10 Portfolio Management User Guide

Exporting assets to Maximo Asset Management from IBM TRIRIGA

The initial load of assets from IBM TRIRIGA is a batch export that loads the records into Maximo Asset Management. After the initial load, asset records can be managed in either system.

Before you begin

Location records must be integrated between Maximo Asset Management and IBM TRIRIGA before you integrate asset records.

About this task

IBM TRIRIGA supports the integration of the following types of assets:

- Facility
- IT
- Furniture
- Office equipment
- Telephone

The HTTP Post - Maximo Integration objects in IBM TRIRIGA correspond to the following asset types in Maximo Asset Management:

IBM TRIRIGA integration object	Asset type in Maximo Asset Management
triBuildingEquipment - HTTP Post - Maximo Integration	Facility
triTechnologyAssets - HTTP Post - Maximo Integration	IT
triFurniture - HTTP Post - Maximo Integration	Furniture
triOfficeEquipment - HTTP Post - Maximo Integration	Office equipment
triTelephones - HTTP Post - Maximo Integration	Telephone

Procedure

1. In Maximo Asset Management, in the External Systems application, add the furniture, office equipment, and telephone asset types to the PLUSYASSETTO and the PLUSYASSETFR integration controls. By default, Maximo Integrators for TRIRIGA is configured to exchange facility and IT assets.
2. In IBM TRIRIGA, in the Integration Objects application, configure the HTTP Post - Maximo Integration object for each asset type to point to `http://hostname:port/meaweb/es/PLUSYEXTSYS/PLUSYASSET`. This URL points to

the PLUSYASSET enterprise service that processes assets that are sent to Maximo Asset Management from IBM TRIRIGA.

3. In IBM TRIRIGA, in the Asset Export to Maximo application, select an asset type to export to Maximo Asset Management.
4. Select the **Find** action to load active assets for your selected asset type.
5. Select the asset records that you want to export and click **OK**.
6. Confirm your selection by selecting each line item that you want to export or by selecting the **Select all** check box.
7. Select the **Export to Maximo** action to load the asset records to Maximo Asset Management. Maximo Asset Management receives the asset records and returns a response that updates the asset records in IBM TRIRIGA with the Maximo ID values.
8. Repeat steps 3-7 for each asset type that you want to integrate.

Integrating person data

Person data is integrated bidirectionally between Maximo Asset Management and IBM TRIRIGA. Person data includes the name, location, contact information, employee type, and employment history, such as the hire date.

Related reference:

“Components for person integration” on page 85

Person integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Person integration overview

To integrate person data, you initially load data from one product to the other, and then you maintain the integration by updating the data. Integration of person data is bidirectional.

Depending on the status of your current implementation of Maximo Asset Management and IBM TRIRIGA, you can do the initial load of person data from either product. The decision of which product to use for the initial load of data depends on which product is already implemented and managing person data. Also, consider whether either product already has an integration with an HR system that manages person data. For example, if your person data is managed in an HR system that sends updates to Maximo Asset Management, then you use Maximo Asset Management for the initial load of data.

The following table shows the activities that are involved in this integration.

Table 8. Activities in integrating person data

Integration activity	Description
Initial load of person data from Maximo Asset Management to IBM TRIRIGA	To integrate person data from a Maximo Asset Management environment, you can export that data in logical groups, such as by employee type.
Initial load of person data from IBM TRIRIGA to Maximo Asset Management	To copy person data from an IBM TRIRIGA environment, you can send that data to Maximo Asset Management.

Table 8. Activities in integrating person data (continued)

Integration activity	Description
Ongoing creation or update of person data in IBM TRIRIGA to Maximo Asset Management	You can send ongoing creation and updates of persons in IBM TRIRIGA to Maximo Asset Management.
Ongoing creation or update of person data in Maximo Asset Management to IBM TRIRIGA	You can send ongoing creation and updates of persons in Maximo Asset Management to IBM TRIRIGA.

Related reference:

“Components for person integration” on page 85

Person integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Person interface data

When you integrate person data, you must first configure the integration-related data, such as employee type. Some integration-related data might apply to the processing of person data in one direction or both directions.

Employee type

By default, the integration is configured to support the following three employee types that are defined in IBM TRIRIGA:

- Employee
- Consultant
- External Contact

An integration control maps the employee type in Maximo Asset Management to one of those three values. The integration control is a cross-reference control that is named PLUSYEMPTYPEXREF. The following table shows the mapping between the employee types in Maximo Asset Management and IBM TRIRIGA.

Employee type in Maximo Asset Management	Employee type in IBM TRIRIGA
1	Employee
2	Consultant
3	External Contact

In Maximo Asset Management, you set the employee type value in the PLUSYEMPTYPEXREF control to the values for your implementation of person data. The values in this control for the employee types in IBM TRIRIGA are predefined, and only these values can be used. The PLUSYEMPTYPEXREF control is used outbound on the PLUSYPERSON and PLUSYPERSON2 publish channels and for inbound processing on the PLUSYPERSON enterprise service.

You can map multiple employee types in Maximo Asset Management to one IBM TRIRIGA type for outbound processing. If you do this many-to-one mapping, you must create a separate cross-reference control for inbound processing so that the IBM TRIRIGA employee type maps to a single employee type in Maximo Asset Management. A one-to-many mapping is not supported.

Based on your implementation of employee type and person data in Maximo Asset Management, you might find that mapping to the IBM TRIRIGA employee type cannot be done by using the Maximo Asset Management employee type. For example, your implementation of employee type specifies the experience level of the employee, which does not map directly to the three different types in IBM TRIRIGA. In this case, you might replace this processing rule with a rule that aligns with your implementation of this data.

The PLUSYEMPLOYEEEETYP integration control is used for outbound processing on the PLUSYPERSON and PLUSYPERSON2 publish channels. The PLUSYEMPLOYEEEETYP integration control is used to filter transactions so that person records with selected employee types are not integrated with IBM TRIRIGA. You use the PLUSYEMPLOYEEEETYP integration control when you have person data in Maximo Asset Management that you do not want under IBM TRIRIGA management.

A default value of 1 is set in this integration control. You must check the domain for employee type in Maximo Asset Management to determine whether the use of the PLUSYEMPLOYEEEETYP integration control matches the implementation of person data in your Maximo Asset Management implementation.

If you opt to use the PLUSYEMPLOYEEEETYP integration control to skip records during integration, you must update the control to include employee type values that you want to integrate with IBM TRIRIGA. Any person records with employee type values that are not in the list of values in the PLUSYEMPLOYEEEETYP integration control are not sent to IBM TRIRIGA. If the values in the PLUSYEMPLOYEEEETYP integration control do not match your values in the employee type domain in Maximo Asset Management, you can remove this condition on the processing rules for each publish channel.

If you use both the PLUSYEMPLOYEEEETYP and PLUSYEMPTYPEXREF integration controls, the values in these controls must align so that the employee types used in the PLUSYEMPLOYEEEETYP list control have corresponding entries in the PLUSYEMPTYPEXREF cross-reference control.

Person status

The PLUSYPERSTATUSXREF cross-reference control is used in outbound messages to set the person status value that is based on the person status value in Maximo Asset Management. The PLUSYFRPERSTATUSXREF cross-reference control is used in inbound messages.

The PLUSYPERSONSTATUS integration control is used for outbound processing on the PLUSYPERSON and PLUSYPERSON2 publish channels. The PLUSYPERSONSTATUS integration control is used to filter transactions so that person records with selected person status are not integrated with IBM TRIRIGA. You use the PLUSYPERSONSTATUS integration control to control the timing of when person data in Maximo Asset Management is to be sent to IBM TRIRIGA based on the updating of the status value for a person record.

The default values of Active and Inactive are set in this integration control. You must check the domain for employee status to determine whether the use of the PLUSYPERSONSTATUS integration control matches the implementation of person data in your Maximo Asset Management implementation. If you use the PLUSYPERSONSTATUS integration control to skip records during integration, you must update the control to include person status values that you want to integrate

with IBM TRIRIGA. Any person records with person status values that are not in this list are not sent to IBM TRIRIGA. If use of the PLUSYPERSONSTATUS integration control does not align with your implementation, you can remove this condition on the processing rules for each publish channel.

If you use PLUSYPERSTATUSXREF, PLUSYFRPERSTATUSXREF, and PLUSYPERSONSTATUS integration controls, the values in these controls must align so that the statuses used in the PLUSYPERSONSTATUS list control have corresponding entries in the PLUSYFRPERSTATUSXREF and PLUSYFRPERSTATUSXREF cross-reference control.

Language and time zone

The PLUSYLANGUAGEXREF cross-reference control is used to set the language value that is based on the language value in Maximo Asset Management. The PLUSYTIMEZONEXREF cross-reference control is used to set the time zone value in IBM TRIRIGA based on the time zone value that is set in Maximo Asset Management.

Person email and phone

When person data is sent from Maximo Asset Management to IBM TRIRIGA, the primary phone and email of the person are sent to IBM TRIRIGA. When you create and update person data from IBM TRIRIGA to Maximo Asset Management through the PLUSYPERSON enterprise service, default values are provided for email and phone data. A processing rule on the PLUSYPERSON enterprise service sets the Primary flag for email and phone data to 0, which is false, and sets the Type value to WORK. If these values do not match your primary values for the person, you can change the processing rule.

The removal of phone and email information in IBM TRIRIGA does not cause the removal of the corresponding fields in Maximo Asset Management. If you must remove phone and email information for an integrated record, make the change in Maximo Asset Management, which then sends the update to IBM TRIRIGA.

Related reference:

“Components for person integration” on page 85

Person integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Person integration processing

The integration of person data is supported bidirectionally through the PLUSYPERSON and PLUSYPERSON2 publish channels and the PLUSYPERSON enterprise service.

Initial data load from Maximo Asset Management to IBM TRIRIGA

The initial data load from Maximo Asset Management to IBM TRIRIGA is done through the PLUSYPERSON publish channel. You can export person data and send the data to IBM TRIRIGA by using IBM TRIRIGA DataConnect processing. The PLUSYPERSON publish channel is the initial load mechanism. The ongoing creation and updates of person data in Maximo Asset Management are sent through the PLUSYPERSON2 publish channel. After a person record is loaded from Maximo Asset Management to IBM TRIRIGA through the PLUSYPERSON

publish channel, the person record cannot be sent again through this publish channel. The initial load does not require that all persons be extracted and loaded at one time. You can load person data based on logical groups, such as person records with the same employee type or person records with the same location.

The first time that a person record is integrated from Maximo Asset Management to IBM TRIRIGA, the IBM TRIRIGA ID is sent to Maximo Asset Management. Each record on each system has the ID of the record in the other system. When a person record is selected for export from Maximo Asset Management through the PLUSPERSON channel, the following filter conditions must be satisfied:

- The employee type of the person record must be configured in the integration control.
- The status of the person record must be configured in the integration control.
- The person record must not already be integrated with IBM TRIRIGA.

Ongoing updates from Maximo Asset Management to IBM TRIRIGA

After the initial data load, when person records in Maximo Asset Management are updated or created, the new or changed data is sent to IBM TRIRIGA through the PLUSPERSON2 publish channel. The PLUSPERSON2 publish channel uses the event listener so that messages are sent whenever a user updates a person record in Maximo Asset Management.

The following filter conditions must be satisfied in order for the person record to be sent through the PLUSPERSON2 publish channel:

- The employee type of the person record must be configured in the integration control.
- The status of the person record must be configured in the integration control.

Even if you restricted the initial integration of person records to a specific site or organization, all changed or updated person records are sent to IBM TRIRIGA if the filter conditions are met. If you want to further filter the person records, you can add more filtering criteria to the processing rule on the PLUSPERSON2 publish channel. For example, you can restrict the sending of person records to IBM TRIRIGA to only a specific site.

Person updates from another system

If the Maximo Asset Management person data is loaded from an external application, such as an HR system, updates from the external application can be sent to IBM TRIRIGA. Such updates are sent the same way that person records are updated in the People application.

The People application in Maximo Asset Management prevents a user from changing the site or location if the location is part of the integration, which means that the location data is managed by IBM TRIRIGA. A processing rule prevents an update to the location in a person record when that update comes through the integration. This processing rule prevents an update from an HR system or other external application from changing the location when the current location of the person record is managed in IBM TRIRIGA.

Person updates from IBM TRIRIGA to Maximo Asset Management

The PLUSYPERSON enterprise service receives updates of new or changed Maximo Asset Management person data from IBM TRIRIGA. This single service is used for both the initial data load and ongoing updates.

The PLUSYPERSON enterprise service is called by IBM TRIRIGA when person records are updated in IBM TRIRIGA. Field values such as person status are set according to the processing rules and integration control values. The processing of updates into Maximo Asset Management results in either the creation of new person records or the update of existing person records.

Although IBM TRIRIGA supports the use of the same email address for multiple persons, Maximo Asset Management does not support this. Transaction errors occur if duplicated email addresses are used for different person records.

The removal of phone and email information in IBM TRIRIGA does not cause the removal of the corresponding fields in Maximo Asset Management. If you must remove phone and email information for an integrated record, make the change in Maximo Asset Management, which then sends the update to IBM TRIRIGA.

Related reference:

“Components for initial load of person data from Maximo Asset Management to IBM TRIRIGA” on page 85

Predefined publish channels and object structures are provided for the outbound integration of person data. The object structure defines how person data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. The publish channel process the outbound person data and sends the data to IBM TRIRIGA.

“Components for creating and updating person data in Maximo Asset Management from IBM TRIRIGA” on page 87

Maximo Integrators for TRIRIGA provides an object structure, enterprise service, processing rules, and integration controls for importing IBM TRIRIGA person data into Maximo Asset Management.

“Components for updating person data from Maximo Asset Management to IBM TRIRIGA” on page 89

After the initial load of person data is completed, updates and new person records can be sent to IBM TRIRIGA through the provided publish channel, which uses an object structure to map the data. Integration controls and processing rules are used to format and validate the data.

Exporting person data for the initial load of data from Maximo Asset Management to IBM TRIRIGA

The PLUSYPERSON publish channel exports person data to the IBM TRIRIGA DataConnect staging tables.

Before you begin

Ensure that the following controls contain values that are applicable to your implementation:

- PLUSYEMPLOYEEYPE
- PLUSYPERSONSTATUS
- PLUSYEMPTYPEXREF
- PLUSYPERSTATUSXREF

- PLUSYTIMEZONEXREF
- PLUSYLANGUAGEXREF

Procedure

1. In the External Systems application, select the PLUSYEXTSYS external system and open the **Publish Channels** tab.
2. Select the PLUSYPERSON publish channel and click **Data Export**.
3. Optional: In the **Export Condition** field, enter a condition to restrict the export. For example, to limit the export to an organization, enter `orgid='org'`.
4. Click **OK** to run the export. Refer to the processing rule information in the Related reference chapter.

Results

The person records are loaded to the IBM TRIRIGA staging table and imported into IBM TRIRIGA through the DataConnect process.

Related concepts:

“Person integration processing” on page 47

The integration of person data is supported bidirectionally through the PLUSYPERSON and PLUSYPERSON2 publish channels and the PLUSYPERSON enterprise service.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

“Configuring integration controls to match domain values” on page 27

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Related reference:

“Publish channel for initial export of person data” on page 86

The PLUSYPERSON publish channel sends the initial load data to the S_TRIPEOPLE staging table. Processing rules and integration controls are used to process and format the data.

“Integration controls associated with person integration components” on page 91

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of person data XML messages.

Maintaining people records in IBM TRIRIGA

When you create or update people records in IBM TRIRIGA, you can send those changes to Maximo Asset Management.

About this task

In IBM Maximo Integrators for TRIRIGA, people records are initially owned by IBM Maximo Asset Management. When you send people records from Maximo Asset Management to IBM TRIRIGA, the record is received in IBM TRIRIGA as an active record.

However, if you create people records in IBM TRIRIGA, you can indicate that they are part of Maximo Integrators for TRIRIGA.

Procedure

1. Select **Portfolio > People**.
2. Select the type of record you want to create. In IBM TRIRIGA, you can create three types of people records: Employees, Consultants, and External Contacts.
3. On the action bar, click **Add**.
4. Specify the information about the record.
5. Activate the record.

Related concepts:

“Person integration processing” on page 47

The integration of person data is supported bidirectionally through the PLUSYPERSON and PLUSYPERSON2 publish channels and the PLUSYPERSON enterprise service.

Related reference:

“IBM TRIRIGA integration components” on page 107

IBM Maximo Integrators for TRIRIGA installs predefined components on IBM TRIRIGA to support integration with Maximo Asset Management.

Related information:



IBM TRIRIGA 10 Portfolio Management User Guide

Exporting people to Maximo Asset Management from IBM TRIRIGA

The initial load of people from IBM TRIRIGA is a batch export that loads the data as person record into Maximo Asset Management. After the initial load, people can be managed in either system.

Procedure

1. In IBM TRIRIGA, in the Integration Objects application, configure the triPeople - HTTP Post - Maximo Integration object to point to `http://hostname:port/meaweb/es/PLUSTEXTSYS/PLUSTEXTSYS/PLUSYPERSON`. This URL points to the PLUSYPERSON enterprise service that processes people records that are sent to Maximo Asset Management from IBM TRIRIGA.
2. In IBM TRIRIGA, in the People Export to Maximo application, in the **Find** menu, select a person type to export to Maximo Asset Management.
3. Select the **Find** action to load active people for your selected person type.
4. Select the people records that you want to export and click **OK**.
5. Confirm your selection by selecting each line item that you want to export or by selecting the **Select all** check box.

6. Select the **Export to Maximo** action to load the people records to Maximo Asset Management. Maximo Asset Management receives the records, creates corresponding person records, and sends a response to IBM TRIRIGA that updates the people records.
7. Repeat steps 2-6 for each person type that you want to integrate.

Integrating work order data

Work order integration is a bidirectional integration that enables a move or a planned work task in IBM TRIRIGA to create a work order in Maximo Asset Management. The IBM TRIRIGA work task provides information and instructions that enable the owner of the work order to perform the work.

Related reference:

“Components for work order integration” on page 92

Work order integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Work order integration overview

When you mark an IBM TRIRIGA work task for integration and then activate the work task, the data is sent to Maximo Asset Management to create a corresponding work order. As the work progresses, Maximo Asset Management sends status updates and also sends the costs that are associated with the work to IBM TRIRIGA.

The following table shows the activities that are involved in this integration.

Table 9. Activities involved in integrating work order and work order cost data

Integration activity	Description
Initial send of work tasks from IBM TRIRIGA to Maximo Asset Management	To integrate a work task in IBM TRIRIGA, you select the Integrate to Maximo Asset Management check box and activate the work task. The work task data is sent to Maximo Asset Management, where a corresponding work order is created.
Ongoing updates of work order data from Maximo Asset Management to IBM TRIRIGA	Maximo Asset Management can send updates to IBM TRIRIGA that include status changes and other attributes.
Updates of work order cost data from Maximo Asset Management to IBM TRIRIGA	Maximo Asset Management sends the costs that are associated with a work order to IBM TRIRIGA, including the costs of labor, materials, services, and tools.

IBM TRIRIGA has multiple types of work tasks that can be stand-alone work tasks or can be grouped as part of a project.

Initial send of work tasks from IBM TRIRIGA to Maximo Asset Management

Typically, when a work task is created from a task template, the value of the **Integrate to Maximo** flag is applied from the task template to the task. You can also select the **Integrate to Maximo** check box on a work task and activate the work task.

When Maximo Asset Management receives a work task from IBM TRIRIGA, a work order is created. Maximo Asset Management sends a response XML message to IBM TRIRIGA that includes the internal and external keys for the work order.

If an IBM TRIRIGA work task fails to create a corresponding Maximo Asset Management work order, a message is created in the Attention section of the work task. The message provides details of the failure and the opportunity to revise the work task to fix the issue. You can then reactivate the work task, which results in a second attempt to create the work order in Maximo Asset Management.

Integrated work orders include fields that are specific to IBM TRIRIGA work tasks, including project details, opportunity details, and move line items. For example, move line items contain the people and assets to move from one location to another.

Ongoing updates of work orders from Maximo Asset Management to IBM TRIRIGA

When an integrated work order is created in Maximo Asset Management, an update is sent to IBM TRIRIGA that includes the internal and external IDs for the work order. These IDs support the ongoing updates of work order data to IBM TRIRIGA. As the work on a work order progresses, Maximo Asset Management sends updates to IBM TRIRIGA including change of status and other attributes.

Sending work order costs from Maximo Asset Management to IBM TRIRIGA

In Maximo Asset Management, a work order can record the costs of the materials, tools, labor, and service that are associated with the work. The costs on the work order are passed back to IBM TRIRIGA so that the work task reflects the actual costs of the work.

The work order costs that are passed back to IBM TRIRIGA come from the work order that is directly associated with the work task. If child work orders are created under this work order, costs that are associated with the child work orders are not sent back to IBM TRIRIGA.

When the work is complete, IBM TRIRIGA sends messages to Maximo Asset Management to update the records for the line items that are affected by the work task.

Configuring work order integration in Maximo Asset Management

Maximo Integrators for TRIRIGA provides components for integrating Maximo Asset Management work orders with IBM TRIRIGA work tasks. To prepare for the integration, you configure these components to match the conditions in your implementation environment.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

“Configuring integration controls to match domain values” on page 27

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Assigning the TRIRIGA work type to organizations

Maximo Integrators for TRIRIGA requires new work types in Maximo Asset Management to support the data that is included in IBM TRIRIGA work tasks. Before you can integrate work orders, you configure these work types for each organization that contains sites that you want to integrate.

Procedure

1. In the Organizations application, filter for an organization that contains sites that you intend to integrate.
2. In the **Organization** tab, select **Select Action > Work Order Options > Work Type**.
3. In the Work Type window, click **New Row**.
4. In the Details section, specify the values for a work task type from the following table:

IBM TRIRIGA work task type	Work Class	Work Type	Description	Type
Planned	WORKORDER	TRIPW	TRIRIGA Opportunity Work Type	PLUSYOPP
Move	WORKORDER	TRISP	TRIRIGA Move Work Type	PLUSYSPEACE

5. Verify that the **Record Task Status History Flag** check box is selected.
6. Repeat steps 3 - 5 for each work task type.
7. Click **OK** to save the work types.
8. Repeat these steps for each organization that contains sites that you intend to integrate.

Configuring default values

The PLUSYWOPRIORITY integration control sets the default value in the PRIORITY field of a work order. The PLUSYWOPRIORITY integration control is associated with the PLUSYWOPRIORITY enterprise service. Before you integrate work orders, you can modify this default value to match the value in your environment.

Procedure

1. In the External Systems application, select the PLUSYEXTSYS external system.
2. From the **Select Action** menu, select **Setup Integration Controls**.
3. In the Setup Integration Control window, click the **Edit Detail** icon for the PLUSYWOPRIORITY integration control.

4. In the Value Control window, change the default value to match your implementation.
5. Click **OK** to save your changes.

Related reference:

“Enterprise service for processing inbound work orders” on page 98

The PLUSYW0 enterprise service receives work task data from IBM TRIRIGA and maps the data to the structure and formats that are specified in the PLUSYW0FR object structure.

Maintaining work tasks in IBM TRIRIGA

Work orders in Maximo Asset Management correspond to work tasks in IBM TRIRIGA. When you configure IBM TRIRIGA work tasks, you can choose which work tasks to integrate with Maximo Asset Management. When these work tasks become active, Maximo Asset Management work orders are created.

About this task

You can apply IBM TRIRIGA work task templates to create work task records with prepopulated data. When you configure IBM TRIRIGA work task templates to integrate with Maximo Asset Management, the generated work task records are also preset to integrate with Maximo Asset Management.

If you do not apply IBM TRIRIGA work task templates, you can directly create and configure IBM TRIRIGA work task records to integrate with Maximo Asset Management. When the configured records change from a Draft status to an Active status, Maximo Asset Management work orders are created.

Procedure

1. Select the work task template or record.

Item	Action
Template	Select Projects > Set Up > Task Templates > Work Task .
Record	Select Tasks > Manage Tasks > Work Task .

2. Open the work task template or record.

Item	Action
New template or record	Click the Add action. After you specify the required details, create the template or draft.
Existing template or record	Open an existing template or draft.

3. Select the **Integrate to Maximo** check box.
4. After you specify any additional details, save the template or activate the record.

Related tasks:

“Maintaining work tasks in IBM TRIRIGA” on page 55

Work orders in Maximo Asset Management correspond to work tasks in IBM TRIRIGA. When you configure IBM TRIRIGA work tasks, you can choose which work tasks to integrate with Maximo Asset Management. When these work tasks become active, Maximo Asset Management work orders are created.

Related reference:

“Components for outbound integration of work orders” on page 99

Maximo Integrators for TRIRIGA installs an object structure on Maximo Asset Management that defines the format and structure of work order data to send to IBM TRIRIGA. Predefined publish channels process outbound work order data and send it to IBM TRIRIGA.

“IBM TRIRIGA integration components” on page 107

IBM Maximo Integrators for TRIRIGA installs predefined components on IBM TRIRIGA to support integration with Maximo Asset Management.

Related information:

IBM TRIRIGA 10 Space and Move Management User Guide

Integrating service request data

You can integrate service request data from Maximo Asset Management to work requests in IBM TRIRIGA. The integration updates service requests in Maximo Asset Management with status information from IBM TRIRIGA work requests.

Related reference:

“Components for service request integration” on page 103

The service request interface includes object structures that define the format and structure of integration data, a publish channel that processes and sends outbound data, and an enterprise service that receives and processes inbound data. The publish channel and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Service request integration overview

When you integrate service requests, you transfer service requests that are related to space management from Maximo Asset Management to work requests in IBM TRIRIGA. You can also start a work request in IBM TRIRIGA without a corresponding service request in Maximo Asset Management.

You plan and manage the requests in IBM TRIRIGA and the integration transfers the resulting work tasks to Maximo Asset Management as work orders. When work orders are complete, the integration updates the task status in IBM TRIRIGA. When the task is completed in IBM TRIRIGA, the integration updates the status of the service requests in Maximo Asset Management.

Table 10. Activities in integrating service request data

Integration activity	Description
Service requests from Maximo Asset Management are transferred to IBM TRIRIGA work requests.	Service requests that are related to space management are integrated to IBM TRIRIGA, where they become work requests.
The statuses of work requests in IBM TRIRIGA are transferred to Maximo Asset Management service requests.	The integration transfers status information from completed work requests in IBM TRIRIGA to update the status of the corresponding service requests in Maximo Asset Management.

Integration configuration of service request data

When you integrate service request data, you must first configure the integration-related data. Some integration-related data might apply to the processing of service request data in one direction or both directions.

Service request status

The integration is configured to support the transfer of a service request from Maximo Asset Management to IBM TRIRIGA. Integration is based on a match between the status of the service request and the status that is configured in the PLUSYSRSTATUS integration control. After a service request is loaded from Maximo Asset Management to IBM TRIRIGA, the service request cannot be sent to IBM TRIRIGA again.

For service request status updates from IBM TRIRIGA to Maximo Asset Management, the PLUSYSRSTATUSXREF integration control maps the status of the IBM TRIRIGA work request to the status of the service request in Maximo Asset Management. The integration does not support sending service requests with a status of New and the default status is Queued.

Based on your implementation of service request data in Maximo Asset Management, you might find that the status mapping to the IBM TRIRIGA work request cannot be done. In this case, you might change or replace this processing rule with a rule that aligns with your implementation of this data.

Service request person

When you create a service request that you plan to integrate with IBM TRIRIGA, the person that you select in the **Affected User** field must have a person record that is integrated with IBM TRIRIGA. If the selected person is not in an IBM TRIRIGA location, the IBM TRIRIGA user must identify the location during the IBM TRIRIGA work request process.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

“Configuring integration controls to match domain values” on page 27

The values in many integration controls are validated against values that are configured for associated domains. Before implementation, check that the values in integration controls match the values in corresponding domains and, if necessary, change the values in the integration control.

Related reference:

“Components for sending service requests from Maximo Asset Management to IBM TRIRIGA” on page 103

Predefined object structures and publish channels are provided for the outbound integration of service requests. The object structures define how service request data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. Publish channels process the outbound service request data and send the data to IBM TRIRIGA.

Ticket templates for service requests that are related to space management

IBM Maximo Integrators for TRIRIGA installs new ticket templates for service requests that are related to space management. The ticket templates apply predefined data to service requests to support the integration of service requests from Maximo Asset Management to IBM TRIRIGA.

When you create a service request that is related to space management in Maximo Asset Management, you must apply an IBM TRIRIGA ticket template to generate the service request. The service request data is then integrated to IBM TRIRIGA. You can update the ticket templates with data, such as a common description, so that your work requests contain consistent data when processed in IBM TRIRIGA.

If you use the Service Requests application, you can use the IBM TRIRIGA ticket templates without modifying the application.

If you use the self-service Create Service Request application, you must modify the self-service View Service Request application to support the additional fields in IBM TRIRIGA ticket templates.

To show the IBM TRIRIGA Request ID to Maximo Asset Management users, add the PLUSYID field to the self-service View Service Request application as a read-only field.

To use the ticket templates that are provided for IBM TRIRIGA requests in the Create Service Request application, you configure the Start Center in Maximo Asset Management. For each IBM TRIRIGA ticket template that you plan to use, add an action that uses the Create Service Request application to the Quick Insert portlet. You can associate the IBM TRIRIGA ticket template with the action link.

To process the service request using the template and to initiate the sending of the service request to IBM TRIRIGA, you must assign the owner group on the

template. When you save the service request, the status is set to QUEUED and the integration sends the service request to IBM TRIRIGA.

IBM Maximo Integrators for TRIRIGA installs the following ticket templates in Maximo Asset Management.

Ticket template	Description	Class	Status	Form
PLUSYNDSP	TRIRIGA Need Space	SR	ACTIVE	triNeedSpace
PLUSYRTSP	TRIRIGA Return Space	SR	ACTIVE	triReturnSpace
PLUSYCHSP	TRIRIGA Change Space	SR	ACTIVE	triChangeSpace
PLUSYMVSVC	TRIRIGA Move Service	SR	ACTIVE	triMoveServices
PLUSYNWPER	TRIRIGA New Hire	SR	ACTIVE	triAddPerson
PLUSYRMPER	TRIRIGA Remove Person	SR	ACTIVE	triRemovePerson
PLUSYCHPER	TRIRIGA Change Person	SR	ACTIVE	triChangePerson

You can use ticket templates to prompt the user that enters the service request to provide specific information.

You can enter text to a maximum length of 700 characters in the template to specify information for the user to add in the **Long Description** field in a service request. The information that the user enters is visible to the IBM TRIRIGA user when they use the request to create a work task.

Table 11. Example of information requests in ticket templates

Ticket Template	Information request
PLUSYNDSP	Please capture the following information 1. Date Space is Needed 2. Number of People 3. Construction Needed? 4. Space Requirements 5. Special Requirements 6. Move Request Class (Small, Individual, Group) 7. Other Details
PLUSYRTSP	Please capture the following information 1. Effective Date of Return 2. Emergency - Immediate Service Required (Y/N) 3. Location to be relinquished 4. Move Request Class (Small, Individual, Group) 5. Other Details
PLUSYCHSP	Please capture the following information 1. Emergency Request? 2. Move Request Class (Small, Individual, Group) 3. Other Details

Table 11. Example of information requests in ticket templates (continued)

Ticket Template	Information request
PLUSYMVSVC	Please capture the following information 1. Reason for Move 2. The Move-To location 3. List of Assets to be Moved 4. Proposed Move Date 5. Other Details
PLUSYNWPER	Please capture the following information 1. Reason for addition 2. Emergency - Immediate Service Required (Y/N) 3. Effective Start Date 4. Space Modification Required? 5. Other Details
PLUSYRMPER	Please capture the following information 1. Emergency - Immediate Service Required (Y/N) 2. Effective Departure Date 3. Reason 4. Person has Equipment to Return 5. Person has Keys to Return
PLUSYCHPER	Please capture the following information 1. Reason for Change 2. Effective Date of Change 3. Other Details

IBM Maximo Integrators for TRIRIGA updates the TCKT2TCKT domain and the TKTEMPLATE domain with more column mappings between the ticket template and the service request.

Domain	Column mapping
TCKT2TCKT	PLUSYMOVEFORM
TKTEMPLATE	<ul style="list-style-type: none"> • PLUSYMOVEFORM • DESCRIPTION • DESCRIPTION_LONGDESCRIPTION

Related information:

 Quick Insert portlet

Chapter 6. Customizing and configuring Maximo Integrators for TRIRIGA

Maximo Integrators for TRIRIGA provides opportunities to customize and configure the integration to meet your business needs. You can configure cross-reference controls for many-to-one mapping, change the currency type, remove data from the integration, and add fields to the integration.

Configuring cross-reference controls for many-to-one mapping

If your implementation includes a one-to-many mapping from Maximo Asset Management to IBM TRIRIGA, you must ensure that the external system is configured for a many-to-one mapping.

About this task

Cross-reference controls are used to map data between Maximo Asset Management and IBM TRIRIGA. In some cases one control can be used to map a field value for data that is exchanged bidirectionally. However, when a mapping is needed from many values to a single value, the integration control can no longer support bidirectional mapping and a second control needs to be implemented, one for each direction.

For example, the PLUSYEMPTYPEXREF cross-reference control maps person types in Maximo Asset Management to the following values in IBM TRIRIGA:

Default value in Maximo Asset Management	Default external value in IBM TRIRIGA
1	triEmployee
2	triConsultant
3	triExternalContact

You can add a 4 default value that also maps to the `triExternalContact` value. A message from Maximo Asset Management to IBM TRIRIGA would map the employee types of 3 and 4 to the IBM TRIRIGA value of `triExternalContact`. When a message IBM TRIRIGA contains the `triExternalContact` value is sent to Maximo Asset Management, the message is not resolved because the system cannot identify whether to assign a value of 3 or 4 for the `triExternalContact` value.

You can create a second cross-reference control that is used to send data from IBM TRIRIGA to Maximo Asset Management. After you set up the second control, you change the processing rule on the enterprise service to use the second control.

Procedure

1. In Maximo Asset Management, in the Enterprise Services application, from the **Select Action** menu, select **Create Integration Control**.
2. From the **Select Action** menu, select **Associate Integration Controls**, and associate the control with the enterprise service.

3. In the External System application, assign the values for the cross-reference integration control.

Related tasks:

“Configuring cross-reference integration controls” on page 27

Cross-reference integration controls are used to map a selection of values in Maximo Asset Management with corresponding values in IBM TRIRIGA. Before you integrate space planning, you specify the cross-reference mappings for these integration controls to match the values that are used in your implementation environments.

Related information:

 Integration controls

Changing currency types

Most transactions between Maximo Asset Management and IBM TRIRIGA send a currency value. The default value for the type of currency is US Dollars, which is case-sensitive.

About this task

For property locations, the Site record has a field that populates the currency value. For all other integration points, a processing rule automatically sets the currency value to US Dollars.

Any currency that you plan to use must exist in the master list of currencies that are supported in IBM TRIRIGA. To view the master list of currencies, in IBM TRIRIGA Application Platform, select **Tools > Administration > Lists**, and in the Manage By panel, select **Currency**. For more information on the master list, refer to Chapter 13, "Lists" in the *IBM TRIRIGA 10 Application Administration User Guide*.

Procedure

1. In the Application Designer, open the Site dialog box for the Organizations application, and add a field so that users can select the currency value.
2. For all other integration points, in the Publish Channel application, change the processing rule to use a customer-defined condition to set the currency value. You can change the default value from US Dollars to another currency, or you can conditionally assign US Dollars and another currency.

Related reference:

“Publish channel for the initial export of property locations” on page 68
The PLUSYPROP publish channel loads initial location property data from Maximo Asset Management based on the data mappings that are specified in the PLUSYPROP object structure.

Related information:

IBM TRIRIGA 10 Application Administration User Guide

Returning management of data from IBM TRIRIGA to Maximo Asset Management

When you integrate Maximo Asset Management and IBM TRIRIGA, you synchronize data for locations, assets, and people. Because IBM TRIRIGA manages the integrated data, what you can do with that data in Maximo Asset Management is limited. You can remove the link between the two systems for certain data, which returns the data to Maximo Asset Management.

Before you begin

Before you can remove data for an individual asset or person, you first must change the security configuration for the PLUSYID external ID value so that the field can be updated. You must also set the PLUSYID external ID value to null.

About this task

You might find that some data was integrated erroneously or does not belong to the integration because of subsequent business decisions.

For example, in the initial load of data from Maximo Asset Management to IBM TRIRIGA, you exported data using a WHERE clause that sent all records for a site to IBM TRIRIGA, but now you find that you do not want some of those records under IBM TRIRIGA management.

Procedure

1. In IBM TRIRIGA, remove all assets from the location.
2. In IBM TRIRIGA, remove all persons from the location.
3. In IBM TRIRIGA, remove the location from the hierarchy. The data is returned to Maximo Asset Management, and the **ID** field and **Locklevel** field in Maximo Asset Management are set to null.

Customizing integration points to add fields

You can add new fields to the integration points and user interface. For example, you can include additional fields that exist on the asset object so that users can view these attributes in IBM TRIRIGA. You can add new fields to the integration points that are used to support the initial load of portfolio data through IBM TRIRIGA DataConnect and also the integration points that support ongoing updates between Maximo Asset Management and IBM TRIRIGA.

Adding new fields to the integration staging tables

The initial load of data from Maximo Asset Management to IBM TRIRIGA is done through the staging tables that are provided by IBM TRIRIGA DataConnect. The staging tables are predefined but you can customize them to include additional fields for the integration.

About this task

To enhance an integration point with additional fields, add the columns to the Maximo object structure that supports the integration point. Then, add the corresponding column with the same name to the IBM TRIRIGA staging table. Finally, add this new column in the appropriate IBM TRIRIGA form.

Procedure

1. To add an attribute to a Maximo object, in Maximo Asset Management, in the Database Configuration application, add a column to the database for the new field.
2. If you want to add an attribute to a Maximo object, in the Application Designer application, add the field to the user interface.
3. To include the column in the Maximo object structure, modify the object structure to include the column in the object structure. Then, assign the alias value to the field. The alias value must match the name of the new column that is added to the corresponding staging table in IBM TRIRIGA. Because table column names are defined in uppercase letters, the object structure must also be defined in uppercase letters.

What to do next

In IBM TRIRIGA, edit the business object and select the **Has Staging Table** check box.

Related tasks:

“Adding fields to business objects in IBM TRIRIGA” on page 65

You can customize Maximo Integrators for TRIRIGA by adding new fields to the business objects in IBM TRIRIGA. For example, you can add fields to a business object to capture more data that is required for your business processes.

Related information:



Application Building for the IBM TRIRIGA Application Platform 3: Data Management

Adding new fields to ongoing integrations

You can add new fields to the integration points between Maximo Asset Management and IBM TRIRIGA. Integration points can be bidirectional or one way.

Adding new fields to IBM TRIRIGA for ongoing updates

In Maximo Asset Management, you modify the object structure for the enterprise service to include the new fields to send to IBM TRIRIGA. Then, in IBM TRIRIGA, you add the new field to the integration object.

Procedure

1. In Maximo Asset Management, in the Enterprise Service application, modify the object structure that supports receiving assets from IBM TRIRIGA to include the new columns.
2. In IBM TRIRIGA, select **Tools > System Setup > Integration Objects** and open the integration object for the business object that is sent to Maximo Asset Management.
3. In IBM TRIRIGA, select **My Reports**, and in the **System Reports** tab, add the field to the query for the integration object.
 - a. In the **Columns** tab, select the field to add to the XML.
 - b. If necessary, edit the label for the field to match the label value that is sent to Maximo Asset Management.
4. Optional: If customization is required for the XML generation, open the integration object, and in the **General** tab, in the Query for Outbound section, in the **XSLT** field, download, edit, and update the XLS file.
5. If any customization is required to send data, select **Tools > Builder Tools > Workflow Builder**, open the integration workflow, and verify that the integration workflow is correct. The integration workflow is typically named *objectname - triActivate - Integration - Maximo Integration*.

Related tasks:

“Adding fields to business objects in IBM TRIRIGA”

You can customize Maximo Integrators for TRIRIGA by adding new fields to the business objects in IBM TRIRIGA. For example, you can add fields to a business object to capture more data that is required for your business processes.

Adding new fields to Maximo Asset Management for ongoing updates

In Maximo Asset Management, you modify the object structure for the publish channel or enterprise service. Then, in IBM TRIRIGA, you add the new field to the integration object.

Procedure

1. Determine which object structure is used by the publish channel or enterprise service.
2. In Maximo Asset Management, in the Object Structures application, modify the object structure to include the new column that is integrated with IBM TRIRIGA. The alias name must match the actual XML element name that is supported by the IBM TRIRIGA web service.
3. Optional: If validation is required to process the data in the field, add the processing rule to the publish channel for outbound messages or to the enterprise service for inbound messages.

What to do next

Check the data in both directions to ensure that messages are sent correctly.

Adding fields to business objects in IBM TRIRIGA

You can customize Maximo Integrators for TRIRIGA by adding new fields to the business objects in IBM TRIRIGA. For example, you can add fields to a business object to capture more data that is required for your business processes.

About this task

Published business objects are read-only until you click the **Revise BO** link. Unpublished business objects are editable.

Procedure

1. In the Data Modeler tool, hover over the **Object Browser**, and select the module folder and business object.
2. If the business object is published, click the **Revise BO** link.
3. Add the field.

Option	Description
If the field exists in another business object	Locate the field, click the selection box for the field, and then, in the Field List window, click Accept .
If the field is new	Click Add , specify the field type and name, modify the settings, and save the field.

4. Select the **Has staging table** check box to identify the field as part of the integration.
5. Publish the business object to activate your changes.

Chapter 7. Reference information

Maximo Asset Management integration components

The reference information for each interface describes the predefined integration components that Maximo Asset Management uses to map and process data.

Components for location integration

Location integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Table 12. Predefined location integration components on Maximo Asset Management

Object structure	Channel or service	Description
PLUSYPROP	PLUSYPROP publish channel	Initial load of property data from Maximo Asset Management to IBM TRIRIGA
PLUSYBDLG	PLUSYBDLG publish channel	Initial load of building data from Maximo Asset Management to IBM TRIRIGA
PLUSYFLOOR	PLUSYFLOOR publish channel	Initial load of floor data from Maximo Asset Management to IBM TRIRIGA
PLUSYSYSPACE	<ul style="list-style-type: none">PLUSYSYSPACE publish channelPLUSYSYSPACE publish channel	<ul style="list-style-type: none">Initial load of space data from Maximo Asset Management to IBM TRIRIGAInitial load of subspace data from Maximo Asset Management to IBM TRIRIGA
PLUSYLOCHIER, PLUSYLOCSYS	PLUSYLOCHIER enterprise service	Initial and ongoing loads of location data to Maximo Asset Management from IBM TRIRIGA

Components for the initial load of location data from Maximo Asset Management to IBM TRIRIGA

IBM Maximo Integrators for TRIRIGA installs object structures on Maximo Asset Management that define the format and structure of location data to send to IBM TRIRIGA. Predefined publish channels process batch exports of location data to send to IBM TRIRIGA staging tables that are installed by IBM Maximo Integrators for TRIRIGA.

Outbound data mapping for initial load of property locations:

The PLUSYPROP object structure specifies the property location data that is mapped from a Maximo Asset Management site to an IBM TRIRIGA property.

The PLUSYPROP object structure is based on the site object. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA S_TRIPROPERTY staging table. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table. In these cases, the value for the field is provided by a publish channel and not from the value in the field in Maximo Asset Management. The following table shows the attributes and alias values that are configured for property (site) locations in the object structure.

Table 13. Attributes and alias values in the PLUSYPROP object structure

Attribute	Alias IBM TRIRIGA staging table column	Set by publish channel
DESCRIPTION	TRINAMETX	No
SITEID	TRIIDTX	No
DESCRIPTION_LONGDESCRIPTION	TRIDESCRIPTIONTX	No
PLUSYCURRENCYUOM	TRICURRENCYUO	Yes
PLUSYAREAUOM	TRIAREAUO	Yes
PLUSYLENGTHUOM	TRILENGTHUO	Yes
ORGID	PLUSYMAXIMOORGCL	Yes
ENTERBY	DC_PATH	Yes
CHANGEBY	PLUSYIDTX	Yes

Publish channel for the initial export of property locations:

The PLUSYPROP publish channel loads initial location property data from Maximo Asset Management based on the data mappings that are specified in the PLUSYPROP object structure.

The PLUSYPROP publish channel uses the PLUSYEXTSYS external system to send property to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRIPROPERTY staging table.

Processing rules are configured on the PLUSYPROP publish channel to support data processing.

Processing rule 10 checks that the site records that you export are configured for integration with IBM TRIRIGA. If the value of the PLUSYINT field is not set to 1 (true), a SKIP action is applied and the record is not included in the batch export to the S_TRIPROPERTY staging table.

Processing rule 20 uses a SET action to provide the values for a number of fields:

- The rule sets the default currency value in the PLUSYCURRENCYUOM field. The default currency value in IBM TRIRIGA is US Dollars and is case-sensitive. You can customize Maximo Asset Management and IBM TRIRIGA if you want to provide a different currency value.
- The rule sets the default unit of measure for area in the PLUSYAREAUOM field. The default unit of measure in IBM TRIRIGA is square-feet and is case-sensitive.
- The rule sets the default unit of measure for length in the PLUSYLENGTHUOM field. The default value in IBM TRIRIGA is feet and is case-sensitive.
- The rule sets the default filepath to the location record in the ENTERBY field in Maximo Asset Management which is used to populate the DC_PATH field in the IBM TRIRIGA staging table. The default value is \Locations and is case sensitive.

Processing rule 30 uses a COMBINE action to set the Maximo Asset Management external key which is used to populate the PLUSYIDTX field in the IBM TRIRIGA staging table.

Related tasks:

“Changing currency types” on page 62

Most transactions between Maximo Asset Management and IBM TRIRIGA send a currency value. The default value for the type of currency is US Dollars, which is case-sensitive.

Outbound data mapping for the initial load of building locations:

The PLUSYBLDG object structure specifies how building location data is mapped from a Maximo Asset Management location to an IBM TRIRIGA building.

The PLUSYBLDG object structure is based on the locations object. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA S_TRIBUILDING staging table. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table. In these cases, the value for the field is provided by a publish channel and not from the value in the field in Maximo Asset Management. The following table shows the attributes and alias values that are configured for building locations in the object structure.

Table 14. Attributes and alias values for locations in the PLUSYBLDG object structure

Attribute	Alias IBM TRIRIGA staging table column	Set by publish channel
DESCRIPTION	TRINAMETX	No
LOCATION	TRIIDTX	No
DESCRIPTION_LONGDESCRIPTION	TRIDESCRPTIONTX	No
SITEID	TRIPARENTPROPERTYTX	Yes
PLUSYSTARTDATE	TRIACTIVESTARTDA	No
PLUSYID	PLUSYIDTX	Yes
LOCATIONSID	PLUSYRECORDIDTX	No
ORGID	DC_PATH	Yes

Publish channel for the initial export of building locations:

The PLUSYBLDG publish channel loads initial building location data from Maximo Asset Management based on the data mappings that are specified in the PLUSYBLDG object structure.

The PLUSYBLDG publish channel uses the PLUSYEXTSYS external system to send building data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRIBUILDING staging table.

Processing rules are configured on the publish channel to support data processing.

Processing rule 10 applies a SKIP action to any records that do not meet all of the following conditions:

- If the value in the PLUSYLOCHLEVEL field is not equal to 10, the location is not configured as a building location and the record is not processed for export.
- If the value of the PLUSYID field is not null, the building location has already been loaded to IBM TRIRIGA.

- If the value of the PLUSYINT attribute for the associated site is not 1 (one), the building is not within a site that is configured for integration with IBM TRIRIGA.

Processing rule 20 uses a SET action to provide \Locations as an initial value in the ORGID field in Maximo Asset Management.

Processing rule 30 uses COMBINE actions to set values in the PLUSYID field. The PLUSYID field provides the external key of the Maximo Asset Management record to the PLUSYIDTX field in the S_TRIBUILDING staging table. The rule combines the values in the LOCATION and SITEID fields and uses a tilde (~) character as the separator. The separator value is specified in the PLUSYDELIM integration control. The PLUSYDELIM integration control is associated with the PLUSYBLDG publish channel.

The processing class for the publish channel performs additional logic to support data mapping.

Outbound data mapping for the initial load of floor locations:

The PLUSYFLOOR object structure specifies the floor location data that is mapped from a Maximo Asset Management location to an IBM TRIRIGA floor.

The following table shows the objects in the PLUSYFLOOR object structure.

Table 15. Objects in the PLUSYFLOOR object structure

Object	Parent	Relationship
LOCATIONS	Parent object in the object structure	None
LOCHIERARCHY	LOCATIONS	PLUSYSITE
LOCANCESTOR	LOCHIERARCHY	PLUSYFLOOR

The PLUSYFLOOR object structure uses relationships to identify related locations that are further up in the location hierarchy. The following table describes these relationships.

Table 16. Relationships used by the PLUSYFLOOR object structure

Relationship name	Parent	Child	Description
PLUSYSITE	LOCATIONS	LOCHIERARCHY	Provides the IBM TRIRIGA locations hierarchy from the value in the PLUSYSYSTEMID field on the SITE table. This field only contains a value if the site is enabled for integration with IBM TRIRIGA.
PLUSYFLOOR	LOCHIERARCHY	LOCANCESTOR	Provides the building location that is the parent of the floor location from the value in the LOCANCESTOR.ANCESTOR field.

The PLUSYFLOOR object structure is based on the locations, lochierarchy, and locancestor objects. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA S_TRIFLOOR staging table. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table. In these cases, the value for the field is provided

by a publish channel and not from the value in the field in Maximo Asset Management. The following table shows the attributes and alias values that are configured for floor locations in the object structure.

Table 17. Attributes and alias values for floor locations in the PLUSYFLOOR object structure

Object	Attribute	Alias IBM TRIRIGA staging table column	Set by publish channel
LOCATIONS	DESCRIPTION	TRINAMETX	No
	LOCATION	TRIIDTX	No
	DESCRIPTION_LONGDESCRIPTION	TRIDESCRIPTIONTX	No
	SITEID	TRIPARENTPROPERTYTX	Yes
	PLUSYID	PLUSYIDTX	Yes
	LOCATIONSID	PLUSYRECORDIDTX	No
	ORGID	DC_PATH	Yes
LOCHIERARCHY	LOCATION		No
	SITEID		No
LOCANCESTOR	LOCATION		No
	SITEID		No
	ANCESTOR	TRIPARENTBUILDINGTX	Yes

Publish channel for the initial export of floor locations:

The PLUSYFLOOR publish channel loads initial floor location data from Maximo Asset Management based on the data mappings that are specified in the PLUSYFLOOR object structure.

The PLUSYFLOOR publish channel uses the PLUSYEXTSYS external system to send property data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRIFLOOR staging table. The PLUSYFLOOR publish channel manages the export of floor locations to the S_TRIFLOOR staging table.

Processing rules are configured for the PLUSYFLOOR publish channel to support data processing.

Processing rule 10 uses a SKIP action to remove any records from the export that do not meet the following conditions:

- The value in the PLUSYLOCHLEVEL field must be 20 to indicate that the location is configured as a floor in the IBM TRIRIGA location hierarchy.
- The value in the PLUSYID field must be null. If the value is not null, this indicates that the record has already been integrated with IBM TRIRIGA.

Processing rule 20 uses a COMBINE action to provide the external key value of the Maximo Asset Management record to populate the PLUSIDTX field in the S_TRIFLOOR staging table. The rule combines the values in the LOCATION and SITEID fields and uses the separator value that is specified in the PLUSYDELIM integration control. The PLUSYDELIM integration control is associated with the publish channel.

The processing class for the publish channel sets the location hierarchy value in the ORGID field that is used to populate the DC_PATH field in the staging table. The processing class also supports the mapping of the parent location fields for the staging table.

Outbound data mapping for the initial load of space and subspace locations:

The PLUSYSpace object structure specifies the space and subspace location data that is mapped from Maximo Asset Management to IBM TRIRIGA.

The PLUSYSpace object structure provides the data for the PLUSYSpace and PLUSYSspace publish channels. The following table lists the objects in the PLUSYSpace object structure.

Table 18. Objects in the PLUSYSpace object structure

Object	Parent	Relationship
LOCATIONS	Is the parent object in the object structure	None
LOCHIERARCHY	LOCATIONS	PLUSYSITE
LOCANCESTOR	LOCHIERARCHY	<ul style="list-style-type: none"> • PLUSYSpace • PLUSYSspace

The PLUSYSpace object structure uses relationships to identify related locations that are further up in the location hierarchy. The following table describes these relationships.

Table 19. Relationships used by the PLUSYSpace object structure

Relationship name	Parent	Child	Description
PLUSYSITE	LOCATIONS	LOCHIERARCHY	Provides the IBM TRIRIGA location hierarchy from the value in the PLUSYSYSTEMID field on the SITE table. This field only contains a value if the site is enabled for integration with IBM TRIRIGA.
PLUSYSpace	LOCHIERARCHY	LOCANCESTOR	Navigates up the IBM TRIRIGA location hierarchy in Maximo Asset Management to identify the floor that is the parent of the location. This floor location is set in the LOCANCESTOR.ANCESTOR field and the value is also set in the TRIPARENTFLOORTX field in the S_TRISpace staging table.
PLUSYSspace	LOCHIERARCHY	LOCANCESTOR	This relationship is used by a processing class on the PLUSYSspace publish channel only. Navigates up the IBM TRIRIGA location hierarchy in Maximo Asset Management to identify the space that is the parent of the location. This space location is set in the LOCANCESTOR.ANCESTOR field and the value is also set in the PLUSYPARENTSPACETX field in the S_TRISpace staging table. If the parent of the subspace is not a space (30) but rather a floor (20), the value in the PLUSYPARENTSPACETX field is set to null.

The PLUSYSpace object structure is based on the locations, lochierarchy, and locancestor objects. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA S_TRISpace staging table. In some cases, the object structure attribute acts as a placeholder to populate a field in

the IBM TRIRIGA staging table. In these cases, the value for the field is provided by a publish channel and not from the value in the field in Maximo Asset Management. The following table shows the attributes and alias values that are configured for space and subspace locations in the object structure.

Table 20. Attributes and alias values for space and subspace locations in the PLUSYSYSPACE object structure

Object	Attribute	Alias IBM TRIRIGA staging table column	Set by publish channel
LOCATIONS	DESCRIPTION	TRINAMETX	No
	LOCATION	TRIIDTX	No
	DESCRIPTION_LONGDESCRIPTION	TRIDESCRIPTIONTX	No
	SITEID	TRIPARENTPROPERTYTX	Yes
	PLUSYID	PLUSYIDTX	Yes
	LOCATIONSID	PLUSYRECORDIDTX	Yes
	OWNERSYSID	TRIPARENTBUILDINGTX	Yes
	ORGID	DC_PATH	Yes
	EXTERNALREFID	PLUSYPARENTSPACETX	Yes
LOCHIERARCHY	LOCATION		
	SITEID		
LOCANCESTOR	LOCATION		
	SITEID		
	ANCESTOR	TRIPARENTFLOOR TX	Yes

Publish channels for the initial export of space and subspace locations:

The PLUSYSYSPACE publish channel loads initial space location data and the PLUSYSYSSPACE publish channel loads initial subspace location data from Maximo Asset Management. Both publish channels use the data mappings that are specified in the PLUSYSYSPACE object structure.

PLUSYSYSPACE publish channel

The PLUSYSYSPACE publish channel uses the PLUSYEXTSYS external system to send property data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRISPACE staging table.

Processing rules are configured for the PLUSYSYSPACE publish channel to support data processing.

Processing rule 10 uses a SKIP action to remove any records from the export that do not satisfy the following conditions:

- The value in the PLUSYLOCHLEVEL field must be 30 to indicate that the location is configured as a space in the IBM TRIRIGA location hierarchy.
- The value in the PLUSYID field must be null. If the value is not null, this indicates that the record has already been integrated with IBM TRIRIGA.

Processing rule 20 uses a COMBINE action to provide the external key value of the Maximo Asset Management record to populate the PLUSYIDTX field in the

S_TRISPACE staging table. The rule combines the values in the LOCATION and SITEID fields and uses the separator value that is specified in the PLUSYDELIM integration control. The PLUSYDELIM integration control is associated with the publish channel.

Processing rule 30 uses a SET action to set a null value in the EXTERNALREFID field in Maximo Asset Management and in the PLUSYPARENTSPACETX field in the staging table. The EXTERNALREFID field is populated only by the subspace publish channel.

The processing class for the publish channel sets the location hierarchy value in the ORGID field that is used to populate the DC_PATH field in the staging table. The processing class also provides support for mapping parent-related fields.

PLUSYSSPACE publish channel

The PLUSYSSPACE publish channel uses the PLUSYEXTSYS external system to send property data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRISPACE staging table.

Processing rules are configured for the PLUSYSSPACE publish channel to support data processing.

Processing rule 10 uses a SKIP action to remove any records from the export that do not satisfy the following conditions:

- The value in the PLUSYLOCHLEVEL field must be 40 to indicate that the location is configured as a subspace in the IBM TRIRIGA location hierarchy.
- The value in the PLUSYID field must be null. If the value is not null, this indicates that the record has already been integrated with IBM TRIRIGA.

Processing rule 20 uses a COMBINE action to provide the external key value of the Maximo Asset Management record to populate the PLUSIDTX field in the S_TRISPACE staging table. The rule combines the values in the LOCATION and SITEID fields and uses the separator value that is specified in the PLUSYDELIM integration control. The PLUSYDELIM integration control is associated with the publish channel.

The processing class for the publish channel sets the location hierarchy value in the ORGID field that is used to populate the DC_PATH field in the staging table.

The processing class uses the PLUSYSSPACE relationship to determine if the subspace location has a parent space location. If a parent space location exists, the location description is set in the EXTERNALREFID field that is used to populate the PLUSYPARENTSPACETX field in the staging table.

Components for creating and updating location data in Maximo Asset Management from IBM TRIRIGA

IBM Maximo Integrators for TRIRIGA provides two object structures, an enterprise service, processing rules, and integration controls for synchronizing IBM TRIRIGA location data into Maximo Asset Management.

Inbound data mapping for creating and updating location data:

The PLUSYLOCHIER object structure specifies how location data is mapped from IBM TRIRIGA to Maximo Asset Management, including property, building, floor,

space, and subspace locations. The PLUSYLOCSYS object structure specifies how the data for a new property in IBM TRIRIGA is mapped to create a corresponding site in Maximo Asset Management.

When locations are created or updated in Maximo Asset Management, the locations are configured within the PLUSYSYS hierarchy system which represents the IBM TRIRIGA location hierarchy. You can also configure locations in other hierarchy systems within Maximo Asset Management.

PLUSYLOCHIER object structure

The object structure includes the following source objects:

- The LOCATIONS object is the parent object of the object structure.
- The LOCHIERIERARCHY object is set as a child object of the LOCATIONS object.

The fields that are mapped for inbound messages vary depending upon the location hierarchy level of the inbound record.

The following table shows the field mapping for property records.

Table 21. Field mapping for inbound property records

Maximo Asset Management	IBM TRIRIGA
PLUSYRECORDID	triRecordIdSY
DESCRIPTION	triNameTX
LOCATION	triIdTX
DESCRIPTION_LONGDESCRIPTION	triDescriptionTX
STATUS	triStatusCL
PLUSYORGID	plusyMaximoOrgCL

The following table shows the field mapping for building records.

Table 22. Field mapping for inbound building records

Maximo Asset Management	IBM TRIRIGA
DESCRIPTION	triNameTX
SITEID	triParentPropertyTX
LOCATION	triIdTX
DESCRIPTION_LONGDESCRIPTION	triDescriptionTX
STATUS	triStatusCL
PLUSYRECORDID	triRecordIdSY
PLUSYORGID	plusyMaximoOrgCL

The following table shows the field mapping for floor, space, and subspace records.

Table 23. Field mapping for inbound floor, space, and subspace records

Maximo Asset Management	IBM TRIRIGA
PLUSYID	triIdTX
PLUSYRECORDID	triRecordIdSY

Table 23. Field mapping for inbound floor, space, and subspace records (continued)

Maximo Asset Management	IBM TRIRIGA
DESCRIPTION	triNameTX
LOCATION	triIdTX
DESCRIPTION_LONGDESCRIPTION	triDescriptionTX
STATUS	triStatusCL
PARENT	triNameTX
SITEID	triNameTX
PLUSYORGID	plusyMaximoOrgCL

PLUSYLOCSYS object structure

The PLUSYLOCSYS object structure is based on the LOCSYSTEM object. The object structure is used only if the inbound location is a new property that was created in IBM TRIRIGA that requires the creation of a site in Maximo Asset Management. To create a site, the LOCSYSTEM object requires values for the following attributes:

- SITEID
- ORGID
- SYSTEMID is set as PLUSYSYS by a processing rule.
- DESCRIPTION is set to TRIRIGA Hierarchy system.

Enterprise service for receiving new and updated location data:

The PLUSYLOCHIER enterprise service receives location data from IBM TRIRIGA through an integration framework servlet that supports enterprise services. Processing classes manage site creation for new property locations and changes in hierarchy values for locations where the parent locations have changed. The values in some fields are set by processing rules that are associated with the enterprise service.

The enterprise service can insert new location records, update existing location records, and create a site and associated location system for a new property that is created in IBM TRIRIGA.

The PLUSYLOCHIER enterprise service is associated with the PLUSEXTSYS external system and the URL for the enterprise service is `http://hostname:port/meaweb/es/PLUSEXTSYS/PLUSYLOCHIER`.

Processing rules are configured for the PLUSYLOCHIER enterprise value to ensure that the correct data is provided.

Processing rule 10 uses a SET action to set the value of the location TYPE field to OPERATING and the value is case-sensitive.

Processing rule 20 uses a REPLACE action to replace the value in the IBM TRIRIGA STATUS field with the corresponding status value in Maximo Asset Management. Status values are mapped by the PLUSYLOCSTATUS cross-reference integration control that is associated with the PLUSYLOCHIER enterprise service.

After a location record is sent from IBM TRIRIGA to Maximo Asset Management, a corresponding location record is created in Maximo Asset Management. The

triRecordIdSY value is appended to the location ID value in the corresponding location record in Maximo Asset Management to ensure that a unique location ID is assigned.

Integration controls associated with location integration components

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of location XML messages.

The following table shows the integration controls that are associated with location integration components:

Table 24. Integration controls that are associated with location integration components

Integration control	Type	Associated channel or service	Domain	Default value	Default external value
PLUSYDELIM	Value	PLUSYPROP, PLUSYBLDG, PLUSYFLOOR, PLUSYSYSPACE, PLUSYSSPACE publish channels	None	~ (tilde)	None
PLUSYDELIM2	Value	PLUSYBLDG, PLUSYFLOOR publish channels	None	\ (backslash)	None
PLUSYLOCSTATUS	Xref	PLUSYLOCHIER enterprise service	LOCASSETSTATUS	<ul style="list-style-type: none"> OPERATING DECOMMISSIONED 	<ul style="list-style-type: none"> Review In Progress Retired

Components for asset integration

The asset interface includes object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

The following table lists the predefined asset integration components.

Table 25. Predefined asset integration components

Object structure	Channel or service	Description
PLUSYASSETTO	PLUSYASSET publish channel	Initial load of asset data from Maximo Asset Management to IBM TRIRIGA.
PLUSYASSETTO2	PLUSYASSET2 publish channel	Ongoing load of asset data from Maximo Asset Management to IBM TRIRIGA.
PLUSYASSETFR	PLUSYASSET enterprise service	Initial and ongoing load of asset data from IBM TRIRIGA to Maximo Asset Management.

IBM Maximo Integrators for TRIRIGA does not support parent-child relationship data for assets.

Components for the initial load of asset data from Maximo Asset Management to IBM TRIRIGA

Predefined object structures and publish channels are provided for the outbound integration of asset data. The object structures define how asset data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. Publish channels process the outbound asset data and send the data to IBM TRIRIGA.

Outbound data mapping for initial load of asset data:

The PLUSYASSETTO object structure specifies how asset data is mapped for the initial load of data from Maximo Asset Management assets to IBM TRIRIGA assets.

The PLUSYASSETTO object structure is based on the asset object. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA staging tables. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table. The value for the field in the IBM TRIRIGA staging table is provided by a publish channel and not by the field value in Maximo Asset Management.

The following table shows the attributes and alias values that are configured for the assets in the PLUSYASSETTO object structure.

Table 26. Attributes and alias values in the PLUSYASSETTO object structure

Attribute	Alias value IBM TRIRIGA field	Set by publish channel
DESCRIPTION	TRINAMETX	Yes
DESCRIPTION_LONGDESCRIPTION	PLUSYMAXDESCTX	Yes
ASSETNUM	TRIIDTX	Yes
LOCATION	PLUSYPRIMARYLOCATIONTX	Yes
SITEID	PLUSYMAINTLOCTX	Yes
ASSETTYPE	PLUSYASSETTYPETX	Yes
STATUS	TRISTATUSCL	Yes
SERIALNUM	TRISERIALNUMTX	No
PLUSYID	PLUSYIDTX	Yes
PLUSYRECORDID	TRIRECORDID	Yes
ASSETUID	PLUSYRECORDIDTX	No
ORGID	TRICURRENCYUO	Yes
REFWO	DC_GUI_NAME	Yes

Publish channel for the initial export of asset data:

The PLUSYASSET publish channel loads initial asset data from Maximo Asset Management based on the data mappings that are specified in the PLUSYASSETTO object structure.

The PLUSYASSET publish channel uses the PLUSYEXTSYS external system to send asset data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC end point to populate the fields in the asset-related staging tables. Table names vary based on the asset type of the asset.

Processing rules are configured on the PLUSYASSET publish channel to support data processing.

Processing rule 10 uses a SKIP action on any records that do not meet the following conditions:

- The processing rule skips any asset record if the asset type of the asset does not exist in the PLUSYASSETTYPE integration control.
- The processing rule skips any asset record if the value in the PLUSYID field is not null.
- The processing rule skips any asset record if the value in the PLUSYLOCHLEVEL field for the asset location does not exist in the PLUSYLOCHLEVEL integration control. By default, the processing rule skips assets in locations that are not defined as an IBM TRIRIGA space (30) or subspace (40) location.
- The processing rule skips any asset record if the asset status does not exist in the PLUSYASSETSTATUS integration control.

Processing rule 20 uses a SET action on the PLUSYID field to provide the external key of the Maximo Asset Management record to the IBM TRIRIGA PLUSYIDTX field of the staging table. This field is populated with the asset number and the asset site ID separated by the value that is configured in the PLUSYDELIM integration control.

Processing rule 30 uses a SET action on the ORGID field to set a default currency value of US Dollars. The processing rule also sets the REFWO field to the asset type value, the SITEID field to a value of null, and the STATUS field to a default value of Draft.

Processing rule 40 converts the asset type value that is stored in the REFWO field to an IBM TRIRIGA value by using the PLUSYTOASSETTYPEXREF integration control.

Additional processing is performed by the processing class that is configured on the publish channel.

The publish channel and related integration controls are associated with the PLUSYEXTSYS external system through the PLUSYDC end point. You can customize your implementation with different fields or mapping values.

Components for loading and updating asset data to Maximo Asset Management from IBM TRIRIGA

Maximo Integrators for TRIRIGA includes an object structure, enterprise service, processing rules, and integration controls for importing and updating IBM TRIRIGA asset data to Maximo Asset Management.

Inbound data mapping for loading and updating asset data:

The PLUSYASSETFR object structure identifies the asset attributes that are mapped between IBM TRIRIGA and Maximo Asset Management.

The object structure maps fields in Maximo Asset Management to corresponding fields in IBM TRIRIGA. Extra processing by the enterprise service might change the value of certain fields. For example, after an asset record is sent from IBM TRIRIGA to Maximo Asset Management, a corresponding asset record is created in

Maximo Asset Management. The triRecordIdSY value is appended to the asset ID value in the corresponding asset record in Maximo Asset Management to ensure that a unique asset ID is assigned.

The following table shows the mapping for asset attributes from IBM TRIRIGA to Maximo Asset Management.

Table 27. Asset attribute mapping

IBM TRIRIGA asset attribute	Maximo Asset Management asset attribute
triIdTX	ASSETNUM
triRecordIdSY	PLUSYRECORDID
triIdTX	PLUSYID
triNameTX	DESCRIPTION
plusyMaxDescTX	DESCRIPTION_LONGDESCRIPTION
triNameTX	LOCATION
triFormNameSY	ASSETTYPE
triStatusCL	STATUS
triSerialNumTX	SERIALNUM
triNameTX	SITEID
triSpecNameTX	PLUSYSPECNAME

Enterprise service for importing and updating asset data:

The PLUSYASSET enterprise service loads the asset data to Maximo Asset Management from IBM TRIRIGA by using the integration framework servlet.

The PLUSYASSET enterprise service is associated with the PLUSEXTSYS external system and the URL for the enterprise service is `http://hostname:port/meaweb/es/PLUSEXTSYS/PLUSYASSET`.

Messages for each asset record are processed directly into Maximo Asset Management in a synchronous manner.

Processing rule 10 applies the following cross-reference controls with the PLUSYASSET enterprise service to set the values for the asset status and asset type:

- PLUSYASSETSTATUSXREF
- PLUSYFRASSETTYPEXREF

The integration controls map the values for status and type from IBM TRIRIGA to the corresponding values in Maximo Asset Management.

After an asset record is sent from IBM TRIRIGA to Maximo Asset Management, a corresponding asset record is created in Maximo Asset Management. The triRecordIdSY value is appended to the asset ID value in the corresponding asset record in Maximo Asset Management to ensure that a unique asset ID is assigned.

Components for updating asset data from Maximo Asset Management to IBM TRIRIGA:

After the initial load of asset data is completed, updates and new asset records can be sent to IBM TRIRIGA through the PLUSYASSET2 publish channel, which uses the PLUSYASSETTO2 object structure to map the data. Integration controls and processing rules are used to format and validate the data.

Outbound data mapping for updating asset data:

The PLUSYASSETTO2 object structure maps asset data for ongoing updates to integrated asset records.

The PLUSYASSETTO2 object structure is used to send ongoing updates to IBM TRIRIGA. The alias values of the attributes in the PLUSYASSETTO2 object structure are used to identify the XML element names of the IBM TRIRIGA XML. Attributes are used in the processing rules and exit classes even when the attributes do not have an alias value. However, if an attribute does not have an alias value, the attribute is not part of the XML message to IBM TRIRIGA.

The following table lists the attributes and alias values that are configured for the PLUSYASSETTO2 object structure.

Table 28. Attributes and alias values in the PLUSYASSETTO2 object structure

Maximo Asset Management attribute	Alias
ASSETNUM	ASSETNUM
DESCRIPTION	triNameTX
DESCRIPTION_LONGDESCRIPTION	plusyMaxDescTX
LOCATION	plusyPrimaryLocationTX
SITEID	plusyMaintLocTX
ASSETTYPE	plusyAssetTypeTX
STATUS	triStatusCL
SERIALNUM	triSerialNumTX
ITEMNUM	plusyIntegrationBL
PLUSYID	plusyIdTX
ASSETUID	plusyRecordIdTX
ORGID	triCurrencyUO
PLUSYRECORDID	PLUSYRECORDID
ITEMSETID	ITEMSETID
REFWO	REFWO
PLUSYSPECNAME	triSpecNameTX
STARTDESCRIPTION	triIdTX

Publish channel for sending updates of asset data:

The PLUSYASSET2 publish channel captures updates to asset records in Maximo Asset Management and sends the updates to IBM TRIRIGA. Processing rules and integration controls are used to process and format the data.

The PLUSYASSET2 publish channel uses object events to capture updates to the asset data in Maximo Asset Management and to send the updates to IBM TRIRIGA. The PLUSYASSET2 publish channel is associated with the PLUSYEXTSYS external system and the PLUSYBC end point to send asset updates to IBM TRIRIGA by using the IBM TRIRIGA web service.

Processing rules are configured on the PLUSYASSET2 publish channel to support data processing.

Processing Rule 10 uses a SKIP action on an asset when the asset and its location are not integrated to IBM TRIRIGA. An asset is integrated to IBM TRIRIGA when the asset was initially created in IBM TRIRIGA or when the asset is placed into an IBM TRIRIGA managed location.

Processing rule 20 uses a SKIP action on a record that meets any of the following conditions:

- The processing rule skips any asset record that is not of a type that is configured in the PLUSYASSETTYPE integration control.
- The processing rule skips any asset record that does not have a status value equal to one that is configured in the PLUSYASSETSTATUS integration control.
- The processing rule skips any asset record that did not include a change to one of the following fields: **Asset Type Description, Location, Siteid, Status, Serial Number, TRIRIGA ID.**

Processing rule 21 uses a SKIP action on any asset record that is in a location that is managed by IBM TRIRIGA. The rule skips the asset record if the location level of the asset is not configured in the PLUSYLOCHLEVEL integration control.

Processing rule 23 uses a STOP action on an asset record when the value in the **TRIRIGA ID** field is set to PENDING.

Processing rule 24 sets the STARTDESCRIPTION value to the asset number value. The STARTDESCRIPTION value is used to set the IBM TRIRIGA asset ID.

Processing rule 25 sets the ITEMSETID to the default value of null and also sets the ITEMNUM to the value of TRUE.

Processing rule 26 sets the STARTDESCRIPTION to the TRIRIGA ID on the asset record when the asset is integrated. This action is needed because the IBM TRIRIGA asset ID might be changed and might not be the same as the Maximo Asset Management asset number. The value in the STARTDESCRIPTION field is used to set the value in the IBM TRIRIGA **Asset ID** field.

Processing rule 30 checks the PLUSYRECORDID value. If the PLUSYRECORDID value is null, the processing rule sets the value to -1. A PLUSYRECORDID value of -1 indicates an asset that is being created or updated (in an IBM TRIRIGA managed location), where that updated asset is not yet integrated to IBM TRIRIGA. When you set the PLUSYRECORDID value to -1, the ITEMSETID is set to triCreateDraft.

Processing rule 35 provides a value for the PLUSYID field that holds the 'external' key of the asset record.

Processing rule 40 sets the value in the SITEID field to the default value of null.

Processing rule 48 sets the value of the SITEID field to the value in the LOCATION field for assets where the current location of the asset is not managed by IBM TRIRIGA.

Processing rule 50 sets the value of the ITEMSETID field to plusyLockHidden when the location of the asset is not an IBM TRIRIGA managed location.

Processing rule 55 sets the ITEMSETID field to plusyUnlockHidden if the location of the asset is updated and if the location is an IBM TRIRIGA managed location.

Processing rule 60 sets the value in the REFWO field to the asset type value. Rule 60 also sets the value in the ORGID field to the default value for the currency.

Processing rule 70 sets the value in the REFWO field to the IBM TRIRIGA asset type value by using the PLUSYTOASSETYPEXREF integration control. The processing rule also converts the Maximo Asset Management status value to an IBM TRIRIGA status value by using the PLUSYASSETSTATUSXREF integration control.

Integration controls:

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of asset data XML messages.

The PLUSYTOASSETTYPEXREF integration control provides the mapping of the Maximo Asset Management asset type to the IBM TRIRIGA asset type for assets that are sent from Maximo Asset Management to IBM TRIRIGA.

Maximo Asset Management uses a single asset object with an attribute to identify different asset types but IBM TRIRIGA uses multiple objects to support different asset types.

The mapping of the Maximo Asset Management asset type identifies the following three artifacts to support the integration of assets:

- Object Name
- Stage Table Name
- Form Name

The integration supports several IBM TRIRIGA asset types.

Two of the IBM TRIRIGA asset types are provided as default values in the PLUSYTOASSETTYPEXREF integration control as follows:

Table 29. Default asset types in the PLUSYTOASSETTYPEXREF integration control

Maximo Asset Management asset type	IBM TRIRIGA type information
FACILITIES	plusyBuildingEquipmentJob~S_TRIBUILDINGEQUIPMENT~triBuildingEquipment
IT	plusyTechnologyAssetsJob~S_TRITECHNOLOGYASSETS~triTechnologyAssets

You can configure the following IBM TRIRIGA asset types in the PLUSYTOASSETTYPEXREF integration control:

Table 30. Configurable asset types in the PLUSYTOASSETTYPEXREF integration control

IBM TRIRIGA asset type	IBM TRIRIGA type information
Furniture	plusyFurnitureJob~S_TRIFURNITURE~triFurniture
Office equipment	plusyOfficeEquipmentJob~S_TRIOFFICEEQUIPMENT~triOfficeEquipment
Telephones	plusyTelephonesJob~S_TRITELEPHONES~triTelephones

The following table shows the integration controls that are associated with asset integration components:

Table 31. Integration controls that are associated with asset integration components

Integration control	Domain	Default value (case sensitive)	Default external value (case sensitive)	Description
PLUSYASSETTYPE	ASSETTYPE	FACILITIES IT	Not applicable	A list of asset types that is used for filtering asset data.
PLUSYASSETSTATUS	LOCASSETSTATUS	OPERATING	Not applicable	A list of asset statuses that is used for filtering asset data.
PLUSYLOCHLEVEL	PLUSYLOCHIER	30 40	Not applicable	A list of location hierarchy levels that is used for filtering asset data.
PLUSYDELIM	None	~ (tilde)	Not applicable	Contains the delimiter value that is used to combine multiple field values to a single field. Do not change this control value.
PLUSYTOASSETTYPEXREF	ASSETTYPE	FACILITIES IT	plusyBuildingEquipmentJob~S_TRIBUILDINGEQUIPMENT~triBuildingEquipment plusyTechnologyAssetsJob~S_TRITECHNOLOGYASSETS~triTechnologyAssets	Provides the mapping of the Maximo Asset Management asset type to the IBM TRIRIGA asset type for assets that are sent from Maximo Asset Management to IBM TRIRIGA.
PLUSYFRASSETTYPEXREF	ASSETTYPE	FACILITIES IT	triBuildingEquipment triTechnologyAssets	Provides the mapping of the IBM TRIRIGA asset type to the Maximo Asset Management asset type for assets that are sent from IBM TRIRIGA to Maximo Asset Management.
PLUSYASSETSTATUSXREF	LOCASSETSTATUS	OPERATING NOT READY DECOMMISSIONED	Available Draft Retired	Provides the mapping of the Maximo Asset Management asset status to the IBM TRIRIGA asset status for assets that are sent from Maximo Asset Management to IBM TRIRIGA.

Table 31. Integration controls that are associated with asset integration components (continued)

Integration control	Domain	Default value (case sensitive)	Default external value (case sensitive)	Description
PLUSYFRASSETSTATUSXREF	LOCASSETSTATUS	OPERATING NOT READY DECOMMISSIONED	Available Draft Retired	Provides the mapping of the IBM TRIRIGA asset status to the Maximo Asset Management asset status for assets that are sent from IBM TRIRIGA to Maximo Asset Management.

Components for person integration

Person integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

The following table lists the predefined person integration components.

Table 32. Predefined person integration components on

Object structure	Channel or service	Description
PLUSPERSONTO	PLUSPERSON publish channel	Initial load of person data from Maximo Asset Management to IBM TRIRIGA
PLUSPERSONTO2	PLUSPERSON2 publish channel	Ongoing updates of person data from Maximo Asset Management to IBM TRIRIGA
PLUSPERSONFR	PLUSPERSON enterprise service	Initial load and ongoing updates of person data from IBM TRIRIGA to Maximo Asset Management

Components for initial load of person data from Maximo Asset Management to IBM TRIRIGA

Predefined publish channels and object structures are provided for the outbound integration of person data. The object structure defines how person data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. The publish channel process the outbound person data and sends the data to IBM TRIRIGA.

Outbound data mapping for initial load of person data:

The PLUSPERSONTO object structure maps person data for the initial load of data from Maximo Asset Management to IBM TRIRIGA.

The PLUSPERSONTO object structure is used to extract person data from Maximo Asset Management and format the data for the staging table that sends the data to IBM TRIRIGA.

The PLUSPERSONTO object structure is based on the person object. Alias values for attributes in the object structure identify the corresponding field names for the IBM TRIRIGA staging tables. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table and the value for

the field is provided by a publish channel. The following table shows the attributes and alias values that are configured for person data in the object structure.

Table 33. Attributes and alias values in the PLUSYPERSONTO object structure

Maximo Asset Management attribute	Alias in the IBM TRIRIGA staging table	Set by the publish channel
PERSONID	TRIIDTX	No
FIRSTNAME	TRIFIRSTNAMETX	No
LASTNAME	TRILASTNAMETX	No
ADDRESSLINE1	TRIADDRESSTX	No
POSTALCODE	TRIZIPPOSTALTX	No
CITY	TRICITYTX	No
STATEPROVINCE	TRISTATEPROVTX	No
COUNTRY	TRICOUNTRYTX	No
HIREDATE	TRIDATEHIREDATA	No
TERMINATIONDATE	TRIDATEEXITDATA	No
TITLE	TRITITLETX	No
TIMEZONE	TRITIMEZONESCL	Yes
LANGUAGE	TRIUSERLANGUAGELI	Yes
PRIMARYEMAIL	TRIEMAILTX	No
PRIMARYPHONE	TRIPHONEWORKTX	No
EMPLOYEEETYPE	DC_GUL_NAME	Yes
STATUS	TRISTATUSCL	Yes
LOCATION	PLUSYPRIMARYLOCATIONTX	No
PLUSYID	PLUSYIDTX	Yes
PERSONUID	PLUSYRECORDIDTX	No
OWNERSYSID	TRYCURRENCYUO	Yes

Publish channel for initial export of person data:

The PLUSYPERSON publish channel sends the initial load data to the S_TRIPEOPLE staging table. Processing rules and integration controls are used to process and format the data.

The PLUSYPERSON publish channel exports data to the IBM TRIRIGA DataConnect staging table. The publish channel supports three types of person data: employees, consultants, and external contacts.

To select data for the staging table, the processing rule 10 is a skip rule that is associated with the PLUSYPERSON publish channel. Processing rule 10 omits from the export any person record that meets any of the following criteria:

- The record contains a person type that is not included in the PLUSYEMPLOYEEETYPE integration control.
- The record has a value in the PLUSYID field, which indicates that the record was already integrated with IBM TRIRIGA.

- The person status does not exist in the PLUSYPersonStatus integration control.

The processing rule 20 sets field values in the data that is selected for integration. The following table lists the cross-references controls that set the field values.

Table 34. Cross-reference controls that are associated with the PLUSYPerson publish channel

Cross-reference control	Description
PLUSYPersonStatusXREF	Sets the value of the person status field.
PLUSYEMPTYPEXREF	Sets the employee type that maps to the person form label in IBM TRIRIGA.
PLUSYTIMEZONEXREF	Sets the value of the time zone field.
PLUSYLANGUAGEXREF	Sets the value of the language field.

The processing rule 30 sets the PLUSYID field to the person ID and also sets the currency.

The PLUSYPerson publish channel uses the PLUSYEXTSYS external system to send person data to IBM TRIRIGA. The PLUSYEXTSYS external system sends the data via the PLUSYDC endpoint to populate fields in the S_TRIPEOPLE staging table. You can customize your implementation with different fields or mapping values.

Components for creating and updating person data in Maximo Asset Management from IBM TRIRIGA

Maximo Integrators for TRIRIGA provides an object structure, enterprise service, processing rules, and integration controls for importing IBM TRIRIGA person data into Maximo Asset Management.

Inbound data mapping for creating and updating person data:

The PLUSYPersonFR object structure specifies how person data is mapped between IBM TRIRIGA and Maximo Asset Management.

The PLUSYPersonFR object structure is used to load the following person types that are supported in IBM TRIRIGA: employees, consultants, and external contacts.

The object structure provides attributes from the following source objects:

- The PERSON object
- The PHONE object
- The EMAIL object

The object structure maps fields in Maximo Asset Management to corresponding fields in IBM TRIRIGA. Extra processing by the enterprise service might change the value of certain fields. For example, after a person record is sent from IBM TRIRIGA to Maximo Asset Management, a corresponding person record is created in Maximo Asset Management. The triRecordIdSY value is appended to the person ID value in the corresponding person record in Maximo Asset Management to ensure that a unique person ID is assigned.

The object structure contains the following fields:

Table 35. Field values in the PLUSYPersonFR object structure

Maximo Asset Management field	IBM TRIRIGA field
PLUSYID	plusyIdTX
PERSONID	triIdTX
FIRSTNAME	triFirstNameTX
LASTNAME	triLastNameTX
ADDRESSLINE1	triAddressTX
POSTALCODE	triZipPostalTX
CITY	triCityTX
STATEPROVINCE	triStateProvTX
COUNTRY	triCountryTX
LOCATION	triNameTX
LOCATIONSITE	triParentPropertyTX
HIREDATE	triActiveStartDA
TERMINATIONDATE	triActiveEndDA
STATUS	triStatusCL
TITLE	triTitleTX
EMPLOYEE TYPE	triFormNameSY
PLUSYRECORDID	triRecordIDSY
LANGUAGE	triUserLanguageLI
TIMEZONE	triTimeZonesCL
PHONE	triWorkPhoneTX
EMAIL	triEmailTX

Enterprise service for receiving new and updated person data:

The PLUSYPerson enterprise service loads the person data for employees, consultants, and external contacts from IBM TRIRIGA through the integration framework servlet. Associated processing rules set the field values in the PERSON, PHONE, and EMAIL objects.

The enterprise service can insert new person records and update existing person records. The PLUSYPerson enterprise service is associated with the PLUExTSYS external system, and the URL for the enterprise service is `http://hostname:port/meaweb/es/PLUExTSYS/PLUSYPerson`. Messages for each person record are processed directly into Maximo Asset Management in a synchronous manner.

Cross-reference controls are used to convert the IBM TRIRIGA value to the corresponding Maximo Asset Management value. The processing rule 10 uses the following cross-reference controls with the PLUSYPerson enterprise service:

- PLUSYFRPERSTATUSXREF
- PLUSYEMPTYPEXREF
- PLUSYTIMEZONEXREF
- PLUSYLANGUAGEXREF

The processing rule 20 sets the IsPrimary flag for the PHONE object to 1, which is true, and sets the type to WORK.

The processing rule 30 sets the IsPrimary flag for the EMAIL object to 1, which is true, and sets the type to WORK.

For the PHONE and EMAIL objects, if you do not want the integration to update the primary values or use the type of WORK, you can reconfigure the processing rules to meet your requirements.

After a person record is sent from IBM TRIRIGA to Maximo Asset Management, a corresponding person record is created in Maximo Asset Management. The triRecordIdSY value is appended to the person ID value in the corresponding person record in Maximo Asset Management to ensure that a unique person ID is assigned.

Components for updating person data from Maximo Asset Management to IBM TRIRIGA

After the initial load of person data is completed, updates and new person records can be sent to IBM TRIRIGA through the provided publish channel, which uses an object structure to map the data. Integration controls and processing rules are used to format and validate the data.

Outbound data mapping for updating person data:

The PLUSYPERSONTO2 object structure maps person data for ongoing updates to integrated person records.

The PLUSYPERSONTO2 object structure is used to send ongoing updates to IBM TRIRIGA. The alias values of the attributes in the PLUSYPERSONTO2 object structure are used to identify the XML element names of the IBM TRIRIGA XML. Some attributes are used in the processing rules and exit classes even when the attributes do not have an alias value. However, if an attribute does not have an alias value, the attribute is not part of the XML message to IBM TRIRIGA.

The object structure provides attributes from the following source objects:

- The PERSON object
- The PHONE object
- The EMAIL object

The following table lists the attributes and alias values that are configured for the PLUSYPERSONTO2 object structure.

Table 36. Attributes and alias values in the PLUSYPERSONTO2 object structure

Maximo Asset Management attribute	Alias in the IBM TRIRIGA staging table	Set by publish channel
PERSONID	triIdTX	No
FIRSTNAME	triFirstNameTX	No
LASTNAME	triLastNameTX	No
ADDRESSLINE1	triAddressTX	No
POSTALCODE	triZipPostalTX	No
CITY	triCityTX	No
STATEPROVINCE	triStateProvTX	No

Table 36. Attributes and alias values in the PLUSYPersonTO2 object structure (continued)

Maximo Asset Management attribute	Alias in the IBM TRIRIGA staging table	Set by publish channel
COUNTRY	triCountryTX	No
HIREDATE	triActiveStartDA	No
TERMINATIONDATE	triActiveEndDA	No
TITLE	triTitleTX	No
TIMEZONE	triTimeZonesCL	Yes
LANGUAGE	triUserLanguageLI	Yes
PRIMARYEMAIL	triEmailTX	No
PRIMARYPHONE	triWorkPhoneTX	No
STATUS	triStatusCL	Yes
LOCATION	plusyPrimaryLocationTX	No
PLUSYID	plusyIdTX	Yes
PERSONUID	plusyRecordIdTX	No
SENDERSYSID	plusyIntegrationBL	Yes
EMPLOYEEETYPE	triPersonTypeLI	Yes
PLUSYRECORDID	(No alias provided.)	Yes
OWNERSYSID	triCurrencyUO	Yes
DROPPPOINT	plusyPersonStatusCL	Yes

Publish channel for sending updates of person data:

The PLUSYPersonTO2 publish channel captures updates in Maximo Asset Management and sends the updates to IBM TRIRIGA. Processing rules and integration controls are used to process and format the data.

The PLUSYPersonTO2 publish channel uses object events to capture updates to the person data in Maximo Asset Management and uses an IBM TRIRIGA web service to send the updates to IBM TRIRIGA. The PLUSYPersonTO2 publish channel is associated with the PLUSYEXTSYS external system and with the PLUSYBC end point.

The processing rule 10 prevents an update to the location of an existing person record when the PLUSYID field is not null, which means that the record was already integrated and the location can be updated only in IBM TRIRIGA.

The processing rule 15 stops actions on a person record when the value in the PLUSYID field is set to PENDING. Person records are pending when the records are sent to IBM TRIRIGA but the IBM TRIRIGA ID is not yet included in the Maximo Asset Management record.

The processing rule 20 omits any person record that meets the following criteria:

- The employee type of the record does not exist in the PLUSYEMPTYPETYPE integration control.
- The status of the record does not exist in the PLUSYPERSTATUS integration control.

The processing rule 30 sets field values in the message that sends the updated fields to IBM TRIRIGA. The following table lists the cross-references controls that set the field values.

Table 37. Cross-reference controls that are associated with the PLUSYPERSON publish channel

Cross-reference control	Description
PLUSYPERSTATUSXREF	Sets the value of the person status field.
PLUSYEMPTYPEXREF	Sets the employee type that maps to the person form label in IBM TRIRIGA.
PLUSYTIMEZONEXREF	Sets the value of the time zone field.
PLUSYLANGUAGEXREF	Sets the value of the language field.

The processing rule that is named rule 50 sets default multiple values in the IBM TRIRIGA XML for the OWNERSYSID, PLUSYID, and SENDERSYSID fields.

Integration controls associated with person integration components

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of person data XML messages.

The following table shows the integration controls that are associated with person integration components:

Table 38. Cross-reference controls that are used to set values in IBM TRIRIGA

Integration control	Domain_t	Default value (case-sensitive)	Default external value (case-sensitive)	Description
PLUSYPERSTATUSXREF	PERSONSTATUS	ACTIVE INACTIVE	Active Retired	Sets the IBM TRIRIGA person status based on the Maximo Asset Management person status
PLUSYEMPTYPEXREF	EMPLOYEEEETYP	1 2 3	triEmployee triConsultant triExternalContact	Sets the IBM TRIRIGA employee type based on the Maximo Asset Management employee type
PLUSYTIMEZONEXREF	TIMEZONE	America/ New_York	(GMT -5) Eastern Time (US, Canada) [US/Eastern]	Converts the Maximo Asset Management time zone to the IBM TRIRIGA time zone
PLUSYLANGUAGEXREF	N/A	EN	US English	Converts the Maximo Asset Management language code to the IBM TRIRIGA language.
PLUSYEMPLOYEEEETYP	EMPLOYEEEETYP	1	n/a	Lists the Maximo Asset Management employee types to filter person data
PLUSYPERSONSTATUS	PERSONSTATUS	ACTIVE INACTIVE	n/a	Lists the person status values to filter person data.

Table 38. Cross-reference controls that are used to set values in IBM TRIRIGA (continued)

Integration control	Domain_t	Default value (case-sensitive)	Default external value (case-sensitive)	Description
PLUSYFRPERSTATUSXREF	PERSONSTATUS	ACTIVE ACTIVE INACTIVE	Active Active User Retired	Sets the Maximo Asset Management person status based on the IBM TRIRIGA person status

Components for work order integration

Work order integration components include object structures that define the format and structure of integration data, publish channels that process and send outbound data, and an enterprise service that receives and processes inbound data. The publish channels and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Table 39. Predefined work order integration components on Maximo Asset Management

Object structure	Channel or service	Description
PLUSYWOTO	PLUSYWOPUBLISH CHANNEL	Ongoing updates of work order data from Maximo Asset Management to IBM TRIRIGA
PLUSYWOCOST	PLUSYWOCOST PUBLISH CHANNEL	Ongoing updates of work order cost data from Maximo Asset Management to IBM TRIRIGA
PLUSYWOFR	PLUSYWOPUBLISH CHANNEL	Creation of a work order in Maximo Asset Management from an IBM TRIRIGA work task

Components for importing work order data to Maximo Asset Management

Maximo Integrators for TRIRIGA includes an object structure, enterprise service, processing rules, and integration controls for importing IBM TRIRIGA work tasks to Maximo Asset Management.

Inbound data mapping for work orders:

The PLUSWOFR object structure specifies how work order data is mapped to Maximo Asset Management from IBM TRIRIGA.

The PLUSYWOFR object structure includes the WORKORDER object, the PLUSYMOVELINEITEMS object, the PLUSYOPPORTUNITY object, and the object. The WORKORDER object and the PLUSYOPPORTUNITY object are primary objects. A WORKORDER object can have a one-to-many relationship with multiple PLUSYMOVELINEITEMS objects, and a PLUSYOPPORTUNITY object can have a one-to-many relationship with multiple PLUSYOPPDETAILS objects.

The following table shows the data that a work task from IBM TRIRIGA provides that maps to attributes in the WORKORDER, PLUSYMOVELINEITEMS, PLUSYOPPORTUNITY, and PLUSYOPPDETAILS objects.

Table 40. Field mapping for inbound work task records

Business Object	Maximo Asset Management fields	IBM TRIRIGA work task record fields
WORKORDER	PLUSYDEPENDENCY	
	PLUSYFORMLABELS	
	PLUSYPROJECTID	
	PLUSYPROJECTNAME	
	PLUSYID	triIdTX
	PLUSYTASKTYPE	triTaskTypeCL
	WOPRIORITY	triPriorityClassCL
	WONUM	AutoKey – configured as Set Restricted
	DESCRIPTION	triNameTX
	WORKTYPE	TRISP or TRIPW
	SITEID	triIdTX of the related property record
	TARGSTARTDATE	
	TARGCOMPDATE	
	LOCATION	Valid Location within Site
	DESCRIPTION_LONGDESCRIPTION	triDescriptionTX
	OWNER	Valid Person
	WOCLASS	WOCLASS – Synonym Domain
	STATUS	triStatusCL
	PLUSYRECORDID	triRecordIdTX
	PLUSYDEPENDENCY	triNameTX
	PLUSYFORMLABELS	triFormNameSY
	STATUS	
	OWNER	triIdTX
REPORTEDBY	triRequestedByTX	
ONBEHALFOF	triRequestedForTX	
PLUSYMOVELINEITEMS	PLUSYMOVELINEITEMS_PLUSYID	triIdTX
	PLUSYRECORDID	triRecordIdTX
	PLUSYASSETNUM	triNameTX
	PLUSYASSETDESC	triDescriptionTX
	PLUSYASSETFROMBLDG	triParentBuildingTX
	PLUSYASSETFROMFLOOR	triParentFloorTX
	PLUSYASSETFROMSPACE	triNameTX
	PLUSYASSETTOBLDG	triParentBuildingTX
	PLUSYASSETTOFLOOR	triParentFloorTX
	PLUSYASSETTOSPACE	triNameTX
	PLUSYMOVEINSTRUCT	triMoveInstructionsTX
	PLUSYPERSONID	triIdTX
	PLUSYPERSONDESC	triLastNameTX

Table 40. Field mapping for inbound work task records (continued)

Business Object	Maximo Asset Management fields	IBM TRIRIGA work task record fields
	PLUSPERSONFROMBLDG	
	PLUSPERSONFROMFLOOR	
	PLUSYASSETFROMSPACE	
	PLUSPERSONTOBLDG	
	PLUSPERSONTOFLOOR	
	PLUSPERSONTOSPACE	
	WONUM	
	SITEID	
	PLUSYRECORDID	
	PLUSYTARGETDESC	
	ORGID	
	PLUSYMLID	triNameTX
PLUSYOPPORTUNITY	WONUM	
	SITEID	
	ORGID	
	PLUSYID	Task ID
	PLUSYRECORDID	Opportunity internal ID
	PLUSYOPPID	Opportunity ID
	PLUSYOPPSTATUS	Opportunity status
	PLUSYOPPNAME	Opportunity name
	PLUSYOPPDESC	Opportunity description
	PLUSYOPPTYPE	Opportunity Type
	PLUSYOPPINSPECTBY	Opportunity inspect by
	PLUSYOPPINSPECTDATE	Opportunity inspect date
	PLUSYOPPCLASS	Opportunity class
	PLUSYOPPCOMMENT	Opportunity comment
	PLUSYOPPREPCLASS	Opportunity repair class
	PLUSYOPPREPCOMMENT	Opportunity repair comment
	PLUSYLOCNAME	Opportunity location
	PLUSYDEFPRIORITY	Opportunity priority
	PLUSYBLDGSYSTEM	Building system item
	PLUSYBLDGSYSCCLASS	Building system class
	PLUSYESTCOST	Opportunity estimated cost
	PLUSYSTARTDATE	Opportunity start date
PLUSYOPPDETAILS	WONUM	
	SITEID	
	PLUSYID	
	ORGID	
	PLUSYOPPID	

Table 40. Field mapping for inbound work task records (continued)

Business Object	Maximo Asset Management fields	IBM TRIRIGA work task record fields
	PLUSYASSETID	
	PLUSYASSETNAME	
	PLUSYSECLOCNAME	
	PLUSYSECBUILDING	
	PLUSYSECFLOOR	
	PLUSYASSETRECID	
	PLUSYSECLOCRECID	

The following table shows the attributes that the PLUSYWOFR object structure provides to the WORKORDER object.

Table 41. WORKORDER object attributes received from the PLUSYWOFR object structure

Attribute	Description
PLUSYDEPENDENCY	Reserved for future use.
PLUSYFORMLABELS	The label of the IBM TRIRIGA form that is used to create the work task.
PLUSYPROJECTID	The IBM TRIRIGA project ID if the work task is part of project.
PLUSYPROJECTNAME	The IBM TRIRIGA project name if the work task is part of a project.
PLUSYID	The work task ID.
PLUSYTASKTYPE	The work task type.
WOPRIORITY	Default value that is set by processing rule.
WONUM	The work order number is not provided by IBM TRIRIGA but is set based on the configuration of the AutoKey in Maximo Asset Management. You must configure the WONUM field to use the AUTOKEY.
DESCRIPTION	The work task name in IBM TRIRIGA.
WORKTYPE	Default value that is set by processing rule.
SITEID	The ID of the site that contains the location.
TARGSTARTDATE	Target start date for the work.
TARGCOMPDATE	Target completion date for the work.
LOCATION	Valid location within the site.
DESCRIPTION_LONGDESCRIPTION	The description of the work task in IBM TRIRIGA.
OWNER	Valid person.
WOCLASS	Default value that is set by processing rule.
STATUS	Value that is set by a cross-reference integration control that replaces the IBM TRIRIGA work task status with a Maximo Asset Management work order status.
PLUSYRECORDID	Unique internal record ID.
PLUSYOPPID	Opportunity ID.
PLUSYOPPSTATUS	Opportunity status.
PLUSYOPPNAME	Opportunity name.
PLUSYOPPDESC	Opportunity description.

Table 41. WORKORDER object attributes received from the PLUSYWOFR object structure (continued)

Attribute	Description
PLUSYOPPTYPE	Opportunity type.
PLUSYOPPINSPECTBY	Opportunity inspect by.
PLUSYOPPINSPECTDATE	Opportunity inspect date.
PLUSYOPPCLASS	Opportunity class.
PLUSYOPPCOMMENT	Opportunity comment.
PLUSYOPPCLASS	Opportunity repair class.
PLUSYOPPCLASS	Opportunity repair comment.
PLUSYLOCNAME	Opportunity location.
PLUSYDEFPRIORITY	Opportunity priority.
PLUSYBLDGSYSTEM	Building system item.
PLUSYBLDGSYSCLASS	Building system class.
PLUSYESTCOST	Opportunity estimated cost.
PLUSYSTARTDATE	Opportunity start date.

The PLUSYMOVELINEITEMS business object is a new business object that holds move line item details for work orders that are received from IBM TRIRIGA. The following table shows the PLUSYMOVELINEITEMS object attributes that are provided by the PLUSYWOFR object structure.

Table 42. PLUSYMOVELINEITEMS object attributes provided by the PLUSYWOFR object structure

Attribute	Description
PLUSYID	The same work task ID as stored in the parent WO object.
PLUSYMLID	The ID of the move line item.
PLUSYRECORDID	The same unique internal record ID as stored in the WO object.
PLUSYASSETNUM	The asset number of the asset to move.
PLUSYASSETDESC	Description of the asset to move.
PLUSYASSETFROMBLDG	Building from which to move the asset.
PLUSYASSETFROMFLOOR	Floor from which to move the asset.
PLUSYASSETFROMSPACE	Space from which to move the asset.
PLUSYASSETTOBLDG	Building to which the asset moves.
PLUSYASSETTOFLOOR	Floor to which the asset moves.
PLUSYASSETTOSPACE	Space to which the asset moves.
PLUSYMOVEINSTRUCT	Move instructions.
PLUSYPERSONID	The ID of the person to move.
PLUSYPERSONDESC	Description of the person to move.
PLUSYPERSONFROMBLDG	Building from which to move the person.
PLUSYPERSONFROMFLOOR	Floor from which to move the person.
PLUSYPERSONFROMSPACE	Space from which to move the person.
PLUSYPERSONTOBLDG	Building to which the person moves.
PLUSYPERSONTOFLOOR	Floor to which the person moves.
PLUSYPERSONTOSPACE	Space to which the person moves.

Table 42. *PLUSYMOVELINEITEMS* object attributes provided by the *PLUSYWOFR* object structure (continued)

Attribute	Description
PLUSYTARGETDESC	The description of the destination.
SITEID	The same site ID as stored in the parent WO object.
WONUM	The same work order number as stored in the parent WO object.
ORGID	The same ORGID as stored in the parent WO object.
PLUSYMOVELINEITEMSID	The internal ID of the Maximo Asset Management table

The PLUSYOPPORTUNITY business object is a new business object that holds the opportunities for a task in Maximo Asset Management. The following table shows the PLUSYOPPORTUNITY object attributes that are provided by the PLUSYWOFR object structure.

Table 43. *PLUSYOPPORTUNITY* object attributes provided by the *PLUSYWOFR* object structure

Attribute	Description
WONUM	The same work order number as stored in the parent WO object.
SITEID	The same site ID as stored in the parent WO object.
ORGID	The same organization ID as stored in the parent WO object.
PLUSYID	Task ID
PLUSYRECORDID	Opportunity internal record ID
PLUSYOPPID	Opportunity ID
PLUSYOPPSTATUS	Opportunity status
PLUSYOPPNAME	Opportunity name
PLUSYOPPDESC	Opportunity description
PLUSYOPPTYPE	Opportunity type
PLUSYOPPINSPECTBY	Opportunity inspect by
PLUSYOPPINSPECTDATE	Opportunity inspect date
PLUSYOPPCLASS	Opportunity class
PLUSYOPPCOMMENT	Opportunity comment
PLUSYOPPPREPCLASS	Opportunity repair class
PLUSYOPPPREPCOMMENT	Opportunity repair comment
PLUSYLOCNAME	Opportunity location
PLUSYDEFPRIORITY	Opportunity priority
PLUSYBLDGSYSTEM	Building system item
PLUSYBLDGSYSCLASS	Building system class
PLUSYESTCOST	Opportunity estimated cost
PLUSYSTARTDATE	Opportunity start date

The PLUSYOPPDETAILS business object is a new business object that holds opportunity details for work orders that are received from IBM TRIRIGA. The following table shows the PLUSYOPPDETAILS object attributes that are provided by the PLUSYWOFR object structure.

Table 44. PLUSYOPDETAILS object attributes provided by the PLUSYWOFR object structure

Attribute	Description
WONUM	The same work order number as stored in the parent WO object.
SITEID	The same site ID as stored in the parent WO object.
ORGID	The same organization ID as stored in the parent WO object.
PLUSYID	Task ID
PLUSYOPPID	Opportunity ID
PLUSYASSETID	The secondary asset ID.
PLUSYASSETNAME	The secondary asset name.
PLUSYSECLOCNAME	The secondary location name.
PLUSYSECBUILDING	The secondary building name.
PLUSYSECFLOOR	The secondary floor name.
PLUSYSECLOCRECID	The secondary location ID
PLUSYASSETRECID	Asset ID

Enterprise service for processing inbound work orders:

The PLUSYWO enterprise service receives work task data from IBM TRIRIGA and maps the data to the structure and formats that are specified in the PLUSYWOFR object structure.

The PLUSYWO enterprise service is associated with the PLUSYEXTSYS external system and the URL for the enterprise service is
<http://hostname:port/meaweb/es/PLUSYEXTSYS/PLUSYWO>.

Processing rules are configured on the enterprise service to provide certain values.

Processing rule 10 uses a REPLACE action to substitute the status value in the IBM TRIRIGA work task with its equivalent status value in the work order. The rule applies the PLUSYWOSTATUSXREF integration control to map the status values and the integration control is associated with the PLUSYWO enterprise service. You can modify the integration control to specify alternative mapping values that match the values that are used in your environment.

Processing rule 15 uses a REPLACE action to substitute the value in the WOPRIORITY field with the value configured in the PLUSYWOPRIORITYXREF cross-reference integration control. The PLUSYWOPRIORITYXREF integration control is associated with the PLUSYWO enterprise service.

Processing rule 20 uses a SET action to provide the following default values:

- The value in the WORKTYPE field is set to PLUSYTASKTYPE.
- The value in the WOCLASS field is set to WORKORDER.
- If the value in the WOPRIORITY field is null, the value is set in the field by the PLUSYWOPRIORITY value integration control. The PLUSYWOPRIORITY integration control is associated with the PLUSYWO enterprise service. The default value is 0 but you can change this value to suit the configurations in your environment.

Processing rule 30 uses a REPLACE action to substitute the value in the WORKTYPE field with the value configured in the PLUSYWOTYPEXREF

cross-reference integration control. The PLUSYWOTYPEXREF integration control is associated with the PLUSYWO enterprise service.

Components for outbound integration of work orders

Maximo Integrators for TRIRIGA installs an object structure on Maximo Asset Management that defines the format and structure of work order data to send to IBM TRIRIGA. Predefined publish channels process outbound work order data and send it to IBM TRIRIGA.

Outbound data mapping for work orders:

The PLUSYWOTO object structure specifies how work order data is mapped from Maximo Asset Management to IBM TRIRIGA XML fields.

The PLUSYWOTO object structure is based on the WO (work order) object. Alias values for attributes in the object structure identify the corresponding field names for IBM TRIRIGA XML data. In some cases, the object structure attribute acts as a placeholder to populate an IBM TRIRIGA XML field, and the value for the field is provided by a publish channel. The following table shows the attributes and alias values that are configured for work orders in the object structure.

Table 45. Attributes and alias values in the PLUSYWOTO object structure

Attribute	Alias IBM TRIRIGA work task field	Set by publish channel
WONUM	plusyWonumTX	No
SITEID	plusyIntegrationBL	Yes
PLUSYID	plusyIdTX	Yes
ACTSTART	plusyWoActualStartDT	No
ACTFINISH	plusyWoActualFinishDT	No
STATUS	plusyWoStatusTX	No
WORKORDERID	plusyRecordIdTX	No
WORKTYPE	No alias value. Used by processing rule.	No
REPORTEDBY	plusyReportedByTX	No
REPORTDATE	plusyReportedDT	No
DESCRIPTION	plusyWoDescriptionTX	No
STATUSDATE	plusyWoStatusDT	No
SCHEDSTART	plusyWoSchedStartDT	No
SCHEDFINISH	plusyWoSchedFinishDT	No
OWNER	plusyWoOwnerTX	No
OWNERGROUP	plusyWoOwnerGroupTX	No
SUPERVISOR	plusyWoSupervisorTX	No
VENDOR	plusyWoVendorTX	No
PHONE	plusyPhoneTX	No
ORGID	triCurrencyUO	Yes
SENDERSYSID	No alias value. Used to set the name of the action.	No
PLUSRECORDID	No alias value. Used to set the ID.	No

Publish channel for sending work order updates to IBM TRIRIGA:

The PLUSYWOTO publish channel sends outbound data from Maximo Asset Management based on the data mappings that are specified in the PLUSYWOTO object structure.

The PLUSYWOTO publish channel uses the PLUSYEXTSYS external system to send outbound messages from Maximo Asset Management to IBM TRIRIGA. The external system sends outbound messages to the PLUSYBC endpoint that calls the IBM TRIRIGA web service.

Processing rules

Processing rules are configured on the publish channel to ensure that the correct data is provided.

Rule 10 filters updates that are based on the values in the WORKTYPE and STATUS fields in Maximo Asset Management. Updates are sent only for work orders where the WORKTYPE value is TRISP. The PLUSYWOSTATUS integration control is associated with the publish channel. This integration control holds the following list of the status values that cause an update to be sent:

- APPR
- INPRG
- COMP
- CAN

Rule 20 provides the external key for the location record that is associated with the work order. The external key combines the values in the WONUM and SITEID fields into the PLUSYID field. The PLUSYDELIM integration control sets the separator between the values. The default delimiter value is ~ (tilde).

Rule 30 checks that the WORKTYPE of the work order is set to TRISPor to TRIPW, and sets the field value to triWorkTask.

Rule 40 sets the value in the ORGID field as the currency and sets the value in the SITEID field as the integration Boolean value. The default currency is US Dollars and the default integration Boolean value is TRUE.

Rule 50 specifies the action in the XML message. The default action is triSave. Rule 50 sets the value in the SENDERSYSID to the default value of null.

Rule 60 sets the value of the SENDERSYSID field to triComplete when the value in the work order status is set to COMP (complete).

Outbound data mapping for work order costs:

The PLUSYWOCOST object structure specifies how the cost data associated with a work order is mapped from Maximo Asset Management to IBM TRIRIGA. The integration sends work order costs for the top-level work order only. Costs for child work orders are not integrated.

The PLUSYWOCOST object structure holds data about the actual costs incurred for the materials, tools, labor, and services that are required to complete a work order.

The object structure adapts the data structure for different cost transactions, depending on the value in the SOURCEMBO field of object. The SOURCEMBO field holds one of the following values:

- MATUSETRANS: Cost of materials
- LABTRANS: Cost of labor
- SERVRECTRANS: Cost of service
- TOOLTRANS: Cost of tools

For a materials cost, for example, the SOURCEMBO value is MATUSETRANS. For a labor cost, the SOURCEMBO value is LABTRANS. The PLUSYWOCOST relationship supports the lookup of a work order related to a cost transaction.

Table 46. Relationship used by the PLUSYWOCOST object structure

Relationship name	Description	Parent	Child	SQL WHERE clause
WONUM	Work order related to cost	MXGLTXN	WORKORDER	wonum=:wonum and siteid=:siteid

Alias values for attributes in the object structure identify the corresponding field names for IBM TRIRIGA XML data. In some cases, the object structure attribute acts as a placeholder to populate a IBM TRIRIGA XML field, and the value for the field is provided by a publish channel. The following table shows the attributes and alias values that are configured for work order costs in the object structure.

Table 47. Attributes and alias values in the PLUSYWOCOST object structure

Attribute	Alias value IBM TRIRIGA XML field	Set by publish channel
SOURCEMBO	triNameTX	Yes
DESCRIPTION	triDescriptionTX	Yes
TRANSDATE	triDateDA	Yes
LINECOST	triTotalNU	Yes
BINNUM	triLinlineNumberNU	No
WONUM	TriTaskIdTX	Yes

Publish channel for sending work order cost updates to IBM TRIRIGA:

The PLUSYWOCOST publish channel sends work order costs from Maximo Asset Management based on the PLUSYWOCOST object structure.

The PLUSYWOCOST publish channel uses the PLUSYEXTSYS external system to send outbound messages from Maximo Asset Management to IBM TRIRIGA. The external system sends outbound messages to the PLUSYBC endpoint that calls the IBM TRIRIGA web service.

Processing rules

Processing rules are configured on the publish channel to ensure that the correct data is provided.

Processing rule 10 filters costs and does not process a cost record unless it is associated with a work order that was created in IBM TRIRIGA.

Processing rule 20 sets values in the TRANSTYPE and ORGID fields. The TRANSTYPE field holds the name of the IBM TRIRIGA form. All messages are mapped to the triWorkTask form. The rule also sets the value in ORGID field as the currency. The default value is US Dollars.

Processing rule 20 sets values in multiple fields. The TRANSTYPE field holds the name of the IBM TRIRIGA form. All messages are mapped to the plusyCostItemDTO form. The rule also sets the value in ORGID field as the currency. The default value is US Dollars. The rule also sets a default value of null in the WONUM and BINNUM fields and sets the ASSETNUM field to a value of -1. Subsequent processing by the publish channel updates these values.

The following processing rules set values in specific fields, based on the type of cost that is associated with the work order:

- Processing rule 30 sets the value in the SOURCEMBO field and is applied to material costs.
- Processing rule 40 sets values in the SOURCEMBO, DESCRIPTION, and ACTUALDATE fields and is applied to labor costs.
- Processing rule 50 sets values in the SOURCEMBO, DESCRIPTION, and ACTUALDATE fields and is applied to tool costs.
- Processing rule 60 sets values in the SOURCEMBO and ACTUALDATE fields and is applied to service costs.

The publish channel includes a Java processing class that retrieves the related work order to access the PLUSYID, PLUSYRECORDID, and WORKTYPE values for the IBM TRIRIGA work task. The mapping of data to the web service XML file varies based on the value in the SOURCEMBO field.

Integration controls associated with work order integration components

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of work order XML messages.

The following table shows the integration controls that are associated with work order integration components:

Table 48. Integration controls that are associated with work order integration components

Integration control	Type	Associated channel or service	Domain	Default value	Default external value	Description
PLUSYDELIM	Value	PLUSYWO publish channel	N/A	~ (tilde)	N/A	Sets the character that separates values when you combine multiple values to form a concatenated value.
PLUSYWOSTATUS	List	PLUSYWO publish channel	WOSTATUS	<ul style="list-style-type: none"> • APPR • INPRG • COMP • CAN 	N/A	Filters the list of work order statuses to provide updates to IBM TRIRIGA.
PLUSYWOSTATUSXREF	Cross-reference	PLUSYWO enterprise service	WOSTATUS	APPR	Active	Sets the status of the work order in Maximo Asset Management based on the status of the corresponding work task in IBM TRIRIGA.

Table 48. Integration controls that are associated with work order integration components (continued)

Integration control	Type	Associated channel or service	Domain	Default value	Default external value	Description
PLUSYWOTYPEXREF	Cross-reference	PLUSYWO enterprise service	WORKTYPE	<ul style="list-style-type: none"> • TRISP • TRIPW 	<ul style="list-style-type: none"> • Work • Planned 	Sets the type of the work order in Maximo Asset Management based on the type of the corresponding work task in IBM TRIRIGA.
PLUSYWOPRIORITY	Value	PLUSYWO enterprise service	N/A	0	N/A	Sets the value in the WOPRIORITY field in the Maximo Asset Management work order.
PLUSYWOPRIORITYXREF	Cross-reference	PLUSYWO enterprise service	None	<ul style="list-style-type: none"> • 1 • 2 • 3 • 4 	<ul style="list-style-type: none"> • Emergency • High • Medium • Low 	Sets the priority of the work order in Maximo Asset Management based on the priority of the corresponding work task in IBM TRIRIGA.

Components for service request integration

The service request interface includes object structures that define the format and structure of integration data, a publish channel that processes and sends outbound data, and an enterprise service that receives and processes inbound data. The publish channel and enterprise service use processing rules and integration controls to ensure that data is correctly mapped.

Maximo Integrators for TRIRIGA also includes IBM TRIRIGA ticket templates. The IBM TRIRIGA ticket templates contain predefined data that you can use to capture critical and consistent data for different service request types.

The following table lists the predefined service request integration components.

Table 49. Predefined service request integration components

Object structure	Channel or service	Description
PLUSYSRTO	PLUSYSR publish channel	Sends service requests from Maximo Asset Management to IBM TRIRIGA.
PLUSYSRFR	PLUSYSR enterprise service	Update of service request status from IBM TRIRIGA to Maximo Asset Management.

Components for sending service requests from Maximo Asset Management to IBM TRIRIGA

Predefined object structures and publish channels are provided for the outbound integration of service requests. The object structures define how service request data is formatted and sent from Maximo Asset Management to IBM TRIRIGA. Publish channels process the outbound service request data and send the data to IBM TRIRIGA.

Outbound data mapping for sending service request data:

The PLUSYSRTO object structure maps service request data for sending from Maximo Asset Management to IBM TRIRIGA.

The PLUSYSRTO object structure is used to extract service request data from Maximo Asset Management and to format the data to send to IBM TRIRIGA. Alias values for attributes in the object structure identify the corresponding field names

for the IBM TRIRIGA staging tables. In some cases, the object structure attribute acts as a placeholder to populate a field in the IBM TRIRIGA staging table. The value for the field in the IBM TRIRIGA staging table is provided by a publish channel.

The following table shows the attributes and alias values in the PLUSYSRTO object structure.

Table 50. Attributes and alias values in the PLUSYSRTO object structure

Attribute	Alias value IBM TRIRIGA task field	Set by publish channel
TICKETID	plusyIdTX	No
DESCRIPTION	triDescriptionTX	Yes
DESCRIPTION_LONGDESCRIPTION	Non-persistent configured as included No alias Used for populating Description	Yes
PLUSYMOVEFORM	triBuildingTX Used for internal processing	Yes
CLASS	No alias Used to set the value in the record ID field	Yes
TICKETUID	plusyRecordIdTX	No
AFFECTEDPERSON	plusyRequestedForIDTX	Yes
PLUSYRECORDID	plusyPrimaryLocationTX	Yes
PLUSYID	triCustomerOrgTX	Yes
REPORTDATE	triEffectiveFromDA	No
STATUS	plusyIntegrationBL	Yes
REPORTEDBY	plusyRequestByIdTX	Yes
AFFECTEDEMMAIL	triPersonTypeLI	Yes
REPORTEDEMMAIL	triPesonTypeLI	Yes
REPORTEDPHONE	triRequestForLI	yes

Publish channel for sending service requests:

The PLUSYSR publish channel sends outbound service requests that are related to space management from Maximo Asset Management to IBM TRIRIGA. Processing rules and integration controls are used to process and format the data.

The PLUSYSR publish channel uses the PLUSYEXTSYS external system to send outbound messages from Maximo Asset Management to IBM TRIRIGA. The external system sends outbound messages via the PLUSYBC endpoint that calls a web service. You can customize your implementation with different fields or mapping values.

Processing rules are configured on the PLUSYSR publish channel to support data processing.

Processing rule 10 filters the service request data so that only those requests that meet the following conditions are exported to IBM TRIRIGA.

- The service request is related to space management. Service requests that are related to space management have a value in the PLUSYMOVEFORM field.
- The status of the service request matches a status that is configured in the PLUSYSRSTATUS integration control.
- The service request was not previously exported to IBM TRIRIGA for the configured status. This check is implemented in the processing class of the publish channel.

Processing rule 20 provides the external key of the service request to IBM TRIRIGA by using the TICKETID field to concatenate the TICKETID and CLASS fields of the service request. The processing rule also uses a COMBINE action to concatenate the Description and Long Description fields into the DESCRIPTION field.

Processing rule 30 sets the STATUS field with the integration Boolean value of TRUE.

The processing class for the publish channel also does the following processing:

- Truncates the description field to 1000 characters to match the field size in IBM TRIRIGA
- Populates the space location of the affected by person
- Sets the email of the affected by person and reported by person
- Sets the HR Org of the affected by person

Components for updating service requests in Maximo Asset Management from IBM TRIRIGA

Maximo Integrators for TRIRIGA provides an object structure, enterprise service, processing rules, and integration controls for updating the status of service requests in Maximo Asset Management.

Inbound data mapping for service request data:

The PLUSYSRFR object structure specifies how updates to the statuses of service requests are mapped to Maximo Asset Management from IBM TRIRIGA.

The PLUSYSRFR object structure provides the following attributes from the SR object:

- TICKETID
- CLASS
- STATUS
- PLUSYRECORDID
- PLUSYID

Enterprise service for updating service requests:

The PLUSYSR enterprise service receives updates to service request status from IBM TRIRIGA. The enterprise service maps the data to the structure and formats that are specified in the PLUSYSRFR object structure. The inbound XML message specifies a sync action to update the status of an existing service request.

The PLUSYSR enterprise service is associated with the PLUSYEXTSYS external system and the URL for the enterprise service is `http://hostname:port/meaweb/es/PLUSYEXTSYS/PLUSYSR`.

A processing rule is configured on the PLUSYSR enterprise service to support data processing.

Processing rule 10 uses the PLUSYSRSTATUSXREF integration control to map the status value of the IBM TRIRIGA request to a corresponding status value of the Maximo Asset Management service request.

Integration controls

Publish channels and enterprise services use integration controls to adapt data formats and structures during the outbound and inbound processing of service request XML messages.

The following table shows the integration controls that are associated with service request integration components:

Table 51. Integration controls that are associated with service request integration components

Integration control	Domain	Default value (case-sensitive)	Default external value (case-sensitive)	Description
PLUSYDELIM	None	~ (tilde)	Not applicable	Sets the character that separates values when you combine multiple values to form a concatenated value.
PLUSYSRSTATUS	SRSTATUS	QUEUED	Not applicable	The status value for a service request that is used to filter status transactions that are sent to IBM TRIRIGA.
PLUSYSRSTATUSXREF	SRSTATUS	PENDING INPROG RESOLVED RESOLVED	Review in Progress Issued Completed Retired	A cross-reference integration control that is used to map an IBM TRIRIGA request status to a Maximo Asset Management service request status.

Conditions that are provided in Maximo Integrators for TRIRIGA

Several conditions are provided in Maximo Integrators for TRIRIGA to support object structure and control the display of IBM TRIRIGA data.

The following table lists the conditions that are provided in Maximo Integrators for TRIRIGA for use in processing rules.

Table 52. Conditions for use in processing rules

Condition	Description
BMXPLUSYLOC	IBM TRIRIGA location
BMXPLUSYPER	IBM TRIRIGA person
BMXPLUSYSHOW	IBM TRIRIGA display or hide action
BMXPLUSYSITE	IBM TRIRIGA site
BMXPLUSYSR	IBM TRIRIGA request
BMXPLUSYTKT	IBM TRIRIGA ticket template
BMXPLUSYWO	IBM TRIRIGA space work

IBM TRIRIGA integration components

IBM Maximo Integrators for TRIRIGA installs predefined components on IBM TRIRIGA to support integration with Maximo Asset Management.

IBM TRIRIGA components for location integration

Predefined integration objects and integration queries specify the data that is integrated. The DataConnect component provides staging tables and workflows for importing batches of location data. IBM TRIRIGA Connector for Business Applications provides a web service and workflows for receiving ongoing updates of data. Workflows are also provided that send ongoing updates to Maximo Asset Management via an HTTP servlet provided by Maximo Asset Management.

Components for receiving the initial load of location data from Maximo Asset Management

The Maximo Asset Management integration framework sends batches of location data to DataConnect staging tables. DataConnect workflows then import the data from the staging tables into IBM TRIRIGA.

Before location data is exported from Maximo Asset Management, the locations are configured with IBM TRIRIGA location hierarchy values. The location hierarchy for the integration has five levels: property, building, floor, space, and subspace. Location data is loaded in up to five separate exports, starting with the property locations at the top level of the location hierarchy and working sequentially down to the lowest level.

In IBM TRIRIGA, you must import the property locations and activate them. When you activate the property locations, updates are sent back to Maximo Asset Management. After these updates are received by Maximo Asset Management, the locations in the next level of the hierarchy are loaded to IBM TRIRIGA.

Staging tables

The following DataConnect staging tables receive location data from Maximo Asset Management:

- S_TRIPROPERTY
- S_TRIBUILDING
- S_TRIFLOOR
- S_TRISPACE contains space and subspace location records

Workflows

The following workflows import location data from the DataConnect staging tables:

- plusyPropertyJob - DC Process - Process Incoming Maximo Property Records
- plusyBuildingJob - DC Process - Process Incoming Maximo Building Records
- plusyFloorJob - DC Process - Process Incoming Maximo Floor Records
- plusySpaceJob - DC Process - Process Incoming Maximo Space Records

Business objects

Each workflow includes a DataConnect task that retrieves each record in the staging table and creates one of the following IBM TRIRIGA business objects:

- triProperty
- triBuilding
- triFloor
- triSpace

Components for sending new and updated location data from IBM TRIRIGA to Maximo Asset Management

After each batch of location data from Maximo Asset Management is imported into IBM TRIRIGA, the records are activated and sent back to Maximo Asset Management. The same predefined integration components also send new and updated integrated location records to Maximo Asset Management on an ongoing basis.

triActivate events

The following events start an asynchronous workflow to send location records to Maximo Asset Management:

- triProperty - triActivate - Integration - Maximo Integration
- triBuilding - triActivate - Integration - Maximo Integration
- triFloor - triActivate - Integration - Maximo Integration
- triSpace - triActivate - Integration - Maximo Integration

The workflow identifies which integration object is configured for the business object for the location record.

Integration objects

The following integration objects are provided, one for each business object:

- triProperty - HTTP Post - Maximo Integration
- triBuilding - HTTP Post - Maximo Integration
- triFloor - HTTP Post - Maximo Integration
- triSpace - HTTP Post - Maximo Integration

Integration queries

The integration objects use the following queries to determine which records to return to Maximo Asset Management:

- triProperty - Integration Object - Maximo Integration
- triBuilding - Integration Object - Maximo Integration
- triFloor - Integration Object - Maximo Integration
- triSpace - Integration Object - Maximo Integration

The query report labels have the same value as the name of the table column in the message that is sent. For example, the value in the Name field is triNameTX and the value in the Report Label field is also triNameTX.

Integration business objects

The following integration business objects validate the records for integration:

- plusyProperty
- plusyBuilding
- plusyFloor

- plusySpace

Integration processing workflows

After records are validated for integration, the following synchronous workflows manage integration processing:

- triProperty - Synchronous - Integration - Process Integration Object
- triBuilding - Synchronous - Integration - Process Integration Object
- triFloor - Synchronous - Integration - Process Integration Object
- triSpace - Synchronous - Integration - Process Integration Object

A Process Integration Object workflow can start several associated workflows, depending on the actions that are required. For example, the User Message workflow sets a message flag on a record if an error occurs, and the Send Data workflow sends the record to Maximo Asset Management. In IBM TRIRIGA, you can use the Workflow Builder to review the objects, queries, and workflows that are configured for an interface.

IBM TRIRIGA components for asset integration

Predefined integration objects and integration queries specify the data that is integrated. The DataConnect component provides staging tables and workflows for importing batches of asset data. IBM TRIRIGA Connector for Business Applications provides a web service and workflows for receiving ongoing updates of data. Workflows are also provided that send ongoing updates to Maximo Asset Management via an HTTP servlet provided by Maximo Asset Management.

Components for receiving the initial load of asset data from Maximo Asset Management

The Maximo Asset Management integration framework can load asset data to IBM TRIRIGA DataConnect staging tables. DataConnect workflows then import the data from the staging tables into IBM TRIRIGA.

Staging tables

The following DataConnect staging tables receive asset data from Maximo Asset Management:

- S_TRIBUILDINGEQUIPMENT
- S_TRIFURNITURE
- S_TRIOFFICEEQUIPMENT
- S_TRITECHNOLOGYASSETS
- S_TRITELEPHONES

Workflows

The following workflows import asset data from the DataConnect staging tables:

- plusyBuildingEquipmentJob - DC Process - Process Incoming Maximo Building Equipment Records
- plusyFurnitureJob - DC Process - Process Incoming Maximo Furniture Records
- plusyOfficeEquipmentJob - DC Process - Process Incoming Maximo Office Equipment Records
- plusyTechnologyAssetsJob - DC Process - Process Incoming Maximo Technology Assets Records

- plusyTelephonesJob - DC Process - Process Incoming Maximo Telephones Records

Business objects

Each workflow includes a DataConnect task that retrieves each record in the staging table and creates one of the following IBM TRIRIGA business objects:

- triBuildingEquipment
- triFurniture
- triOfficeEquipment
- triTechnologyAssets
- triTelephones

Components for sending new and updated asset data from IBM TRIRIGA to Maximo Asset Management

Predefined integration components send new and updated integrated asset records to Maximo Asset Management on an ongoing basis.

triActivate events

The following events start an asynchronous workflow to send asset records to Maximo Asset Management:

- triBuildingEquipment - triActivate - Integration - Maximo Integration
- triFurniture - triActivate - Integration - Maximo Integration
- triOfficeEquipment - triActivate - Integration - Maximo Integration
- triTechnologyAssets - triActivate - Integration - Maximo Integration
- triTelephones - triActivate - Integration - Maximo Integration

The workflow identifies which integration object is configured for the business object for the asset record.

Integration objects

The following integration objects are provided, one for each business object:

- triBuildingEquipment - HTTP Post - Maximo Integration
- triFurniture - HTTP Post - Maximo Integration
- triOfficeEquipment - HTTP Post - Maximo Integration
- triTechnologyAssets - HTTP Post - Maximo Integration
- triTelephones - HTTP Post - Maximo Integration

Integration business objects

The following integration business objects validate the records for integration:

- plusyBuildingEquipment
- plusyFurniture
- plusyOfficeEquipment
- plusyTechnologyAssets
- plusyTelephones

Integration processing workflows

After records are validated for integration, the following workflows manage integration processing:

- triBuildingEquipment - Synchronous - Integration - Process Integration Object
- triFurniture - Synchronous - Integration - Process Integration Object
- triOfficeEquipment - Synchronous - Integration - Process Integration Object
- triTechnologyAssets - Synchronous - Integration - Process Integration Object
- triTelephones - Synchronous - Integration - Process Integration Object

A Process Integration Object workflow can start several associated workflows, depending on the actions that are required. For example, the User Message workflow sets a message flag on a record if an error occurs, and the Send Data workflow sends the record to Maximo Asset Management. In IBM TRIRIGA, you can use the Workflow Builder to review the objects, queries, and workflows that are configured for an interface.

Components for receiving ongoing updates to assets from Maximo Asset Management

After assets are integrated, Maximo Asset Management can send ongoing updates to these assets via an IBM TRIRIGA web service.

To update integrated asset records, Maximo Asset Management sends an XML message to the URL for the IBM TRIRIGA web service. The message includes the following information:

- Values for fields in the asset record.
- The action to perform on the asset record.
- The name of the IBM TRIRIGA form, which is one of the following forms:
 - triBuildingEquipment
 - triFurniture
 - triOfficeEquipment
 - triTechnologyAssets
 - triTelephones

The web service calls the form that is specified in the inbound XML message and applies the same validation processes to the incoming record as are applied when you manually update a record in IBM TRIRIGA.

IBM TRIRIGA components for people integration

Predefined integration objects and integration queries specify the data that is integrated. The DataConnect component provides staging tables and workflows for importing batches of people data. IBM TRIRIGA Connector for Business Applications provides a web service and workflows for receiving ongoing updates of data. Workflows are also provided that send ongoing updates to Maximo Asset Management via an HTTP servlet provided by Maximo Asset Management.

Components for receiving the initial load of people data from Maximo Asset Management

The Maximo Asset Management integration framework can load people data to a IBM TRIRIGA DataConnect staging table. A DataConnect workflow then imports the data from the staging table into IBM TRIRIGA.

The following components load people data from Maximo Asset Management:

- Person records are loaded to the S_TRIPEOPLE DataConnect staging table.
- The plusyPeopleJob - DC Process - Process Incoming Maximo People Records workflow imports the data from the staging table.
- The data is imported into the triPeople business object.

Components for sending new and updated people data from IBM TRIRIGA to Maximo Asset Management

Predefined integration components send new and updated integrated people records to Maximo Asset Management on an ongoing basis.

The following components send new and updated people records to Maximo Asset Management:

- The triActivate event starts the triPeople - triActivate - Integration - Maximo Integration asynchronous workflow that starts the integration. The workflow identifies the integration object that is configured for the business object for the people record.
- triPeople - HTTP Post - Maximo Integration is the integration object for the triPeople object. The integration object is configured with an associated query that determines which records to send to Maximo Asset Management.
- plusyPeople is the integration business object that validates people records for integration.

After records are validated for integration, the triPeople - Synchronous - Integration - Process Integration workflow manages integration processing. The Process Integration Object workflow can start several associated workflows, depending on the actions that are required. For example, the User Message workflow sets a message flag on a record if an error occurs, and the Send Data workflow sends the record to Maximo Asset Management. In IBM TRIRIGA, you can use the Workflow Builder to review the objects, queries, and workflows that are configured for an interface.

Components for receiving ongoing updates to people from Maximo Asset Management

After people records are integrated, Maximo Asset Management can send ongoing updates to these records via an IBM TRIRIGA web service.

To update integrated people records, Maximo Asset Management sends an XML message to the URL for the IBM TRIRIGA web service. The message includes the following information:

- Values for fields in the people record.
- The action to perform on the people record.
- The name of the IBM TRIRIGA form, which is triPeopleDTO.

The web service calls the form that is specified in the inbound XML message and applies the same validation processes to the incoming record as are applied when you manually update a record in IBM TRIRIGA.

IBM TRIRIGA components for work task integration

Predefined integration objects and integration queries specify the data that is integrated. Workflows are provided that send new and completed work tasks to Maximo Asset Management via an HTTP servlet provided by Maximo Asset Management. IBM TRIRIGA Connector for Business Applications provides a web service and workflows for receiving ongoing updates of data.

Components for sending a new work task from IBM TRIRIGA to Maximo Asset Management

When you mark a work task for integration with Maximo Asset Management, predefined integration components send the record to Maximo Asset Management. After the record is sent, the work task is set to read-only mode in IBM TRIRIGA.

The following components send the new work task to Maximo Asset Management:

- The triActivate event starts the triWorkTask - triActivate - Integration - Process Integration Object asynchronous workflow that starts the integration. The workflow identifies the integration object that is configured for the business object for the work task record.
- triWorkTask - HTTP Post - Maximo Integration is the integration object for the triWorkTask object. The integration object is configured with an associated query that determines which records to send to Maximo Asset Management.
- plusyWorkTask is the integration business object that validates work task records for integration.

After a work task record is validated for integration, the triWorkTask - triActivate - Integration - Process Integration Object workflow starts the triWorkTask - Synchronous - Integration - Send Data workflow to send the record to Maximo Asset Management. If an error occurs, the triWorkTask - Synchronous - Integration - User Message - Integration Data Not Sent workflow returns an error message to the user in IBM TRIRIGA.

Components for receiving ongoing updates to work tasks from Maximo Asset Management

After an integrated work task is sent to Maximo Asset Management, updates are sent to IBM TRIRIGA via a web service.

To update integrated work task records, Maximo Asset Management sends an XML message to the URL for the IBM TRIRIGA web service. The message includes the following information:

- Values for fields in the work task record, such as status updates or other attributes.
- The action to perform on the work task record.
- The name of the IBM TRIRIGA form for the record, which is the triWorkTask form.

The same validation processes are applied to the incoming record as are applied when you manually update a record in IBM TRIRIGA.

Components for sending updates to Maximo Asset Management on completion of a work task

When the work on an integrated work task is complete, predefined integration components send messages to Maximo Asset Management with updates of the assets and people that are affected by the move.

Asset data updates

For each move line item in the completed work task, the following components update the assets that are affected by the move:

- The triCloseOut event starts the triMoveRequestLineItem - triCloseOut - Integration - Process Maximo Integration asynchronous workflow that starts the integration. The workflow identifies the integration object that is configured for the business object for the asset record.
- Depending on the asset type, one of the following integration objects is used:
 - triBuildingEquipment - HTTP Post - Maximo Integration
 - triFurniture - HTTP Post - Maximo Integration
 - triOfficeEquipment - HTTP Post - Maximo Integration
 - triTechnologyAssets - HTTP Post - Maximo Integration
 - triTelephones - HTTP Post - Maximo Integration

The integration object is configured with an associated query that determines which records to send to Maximo Asset Management.

- The integration object uses one of the following integration business objects to validate the asset record for integration:
 - plusyBuildingEquipment
 - plusyFurniture
 - plusyOfficeEquipment
 - plusyTechnologyAssets
 - plusyTelephones
- After an asset record is validated for integration, one of the following workflows manages the integration:
 - triBuildingEquipment – Synchronous – Integration – Process Integration Object
 - triFurniture – Synchronous – Integration – Process Integration Object
 - triOfficeEquipment – Synchronous – Integration – Process Integration Object
 - triTechnologyAssets – Synchronous – Integration – Process Integration Object
 - triTelephones – Synchronous – Integration – Process Integration Object

The Process Integration Object workflow can start several associated workflows, depending on the actions that are required. For example, the User Message workflow sets a message flag on a record if an error occurs, and the Send Data workflow sends the record to Maximo Asset Management.

People data updates

For each move line item in the completed work task, the following components update the people that are affected by the move:

- The triCloseOut event starts the triMoveRequestLineItem - triCloseOut - Integration - Process Maximo Integration asynchronous workflow that starts the integration. The workflow identifies the integration object that is configured for the business object for the asset record.
- triPeople - HTTP Post - Maximo Integration is the integration object for the triPeople object. The integration object is configured with an associated query that determines which records to send to Maximo Asset Management.
- plusyPeople is the integration business object that validates work task records for integration.

After records are validated for integration, the triPeople - Synchronous - Integration - Process Integration workflow manages integration processing. The Process Integration Object workflow can start several associated workflows,

depending on the actions that are required. For example, the User Message workflow sets a message flag on a record if an error occurs, and the Send Data workflow sends the record to Maximo Asset Management.

IBM TRIRIGA components for service request integration

Predefined integration objects and integration queries specify the data that is integrated. IBM TRIRIGA Connector for Business Applications provides a web service and workflows for receiving service requests from Maximo Asset Management. Workflows are provided that send service request updates to Maximo Asset Management via an HTTP servlet provided by

Components for receiving service requests from Maximo Asset Management

Space planning service requests that are created in Maximo Asset Management are received via an IBM TRIRIGA web service.

To send a service request, Maximo Asset Management sends an XML message to the URL for the IBM TRIRIGA web service. The message includes the following information:

- Values for fields in the service request record.
- The action to perform on the service request record.
- The name of the IBM TRIRIGA form, which is triMoveRequest.

The web service calls the form that is specified in the inbound XML message and applies the same validation processes to the incoming record as are applied when you manually update a record within IBM TRIRIGA.

Components for sending service request status updates from IBM TRIRIGA to Maximo Asset Management

Predefined integration components send status updates for integrated service requests to Maximo Asset Management on an ongoing basis.

Status update events

The following events start an asynchronous workflow to send status updates to Maximo Asset Management for integrated service requests:

- triCreateDraft
- triIssue
- triFinalApprovalHidden
- triSave
- triSaveAndClose
- triCompleteFinalHidden
- triComplete
- triRetire
- triUnretire

The workflow identifies which integration object is configured for the business object for the service request record.

Asynchronous workflows

Each status change event calls the associated asynchronous workflow, which is one of the following workflows:

- triMoveRequest - triCreateDraft - Integration
- triMoveRequest - triIssue - Maximo Integration
- triMoveRequest - triFinalApprovalHidden - Integration - Maximo Integration
- triMoveRequest - triSave - Maximo Integration
- triMoveRequest - triSaveAndClose - Maximo Integration
- triMoveRequest - triCompleteFinalHidden - Integration - Maximo Integration
- triMoveRequest - triComplete - Maximo Integration
- triMoveRequest - triRetire - Maximo Integration
- triMoveRequest - triUnretire - Maximo Integration

The asynchronous workflow uses the following components to send status updates for the service request to Maximo Asset Management:

- triMoveRequest- HTTP Post - Maximo Integration is the integration object for the triMoveRequest object. The integration object is configured with an associated query that determines which records to send to Maximo Asset Management.
- plusyMoveRequest is the integration business object that validates service request updates for integration.

After a service request status update is validated for integration, the triMoveRequest - Synchronous - Integration - Maximo Integration workflow sends the record to Maximo Asset Management. Other workflows are also used, depending on the logic that is required for the status update.

Chapter 8. Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

The first step in the troubleshooting process is to describe the problem completely. Problem descriptions help you and the IBM technical-support representative know where to start to find the cause of the problem. This step includes asking yourself basic questions:

- What are the symptoms of the problem?
- Where does the problem occur?
- When does the problem occur?
- Under which conditions does the problem occur?
- Can the problem be reproduced?

What are the symptoms of the problem?

When starting to describe a problem, the most obvious question is “What is the problem?” This question might seem straightforward; however, you can break it down into several more-focused questions that create a more descriptive picture of the problem. These questions can include:

- Who, or what, is reporting the problem?
- What are the error codes and messages?
- How does the system fail? For example, is it a loop, hang, crash, performance degradation, or incorrect result?

The answers to these questions typically lead to a good description of the problem, which can then lead you a problem resolution.

Two main ways to approach any problem you encounter are understanding messages and using log files.

Messages

Messages are issued when unexpected events occur. Messages can have any of these severities:

Informational

The message confirms an event that was requested or describes another normal occurrence. Informational messages generally do not require any action. The identifier of an informational message ends with the letter I.

Warning

The message describes an event that might indicate a problem. Read the message text and determine whether the event is normal or a problem. The identifier of a warning message ends with the letter W.

Error The message describes an event that requires a response. Read the message description and the suggested response. The identifier of an error message ends with the letter E.

You can find a message description easily by entering its identifier into the Search box in the information center.

Log files

When a problem occurs, log files can often provide clues as to what occurred and what precipitated the event. You can use the Log Analyzer to collect and analyze relevant log files.

Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to focus on where the problem occurs to isolate the problem layer:

- Is the problem specific to one platform or operating system, or is it common across multiple platforms or operating systems?
- Is the current environment and configuration supported?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem environment, including the operating system and version, all corresponding software and versions, and hardware information. Confirm that you are running within an environment that is a supported configuration. Many problems can be traced back to incompatible levels of software that are not intended to run together or have not been fully tested together.

When does the problem occur?

Develop a detailed timeline of events leading up to a failure, especially for those cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you need to look only as far as the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as upgrading or installing software or hardware?

Responding to these types of questions can give you a frame of reference in which to investigate the problem.

Under which conditions does the problem occur?

Knowing which systems and applications are running at the time that a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the root cause of the problem:

- Does the problem always occur when the same task is being performed?
- Does a certain sequence of events need to occur for the problem to surface?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might have occurred around the same time, the problems are not necessarily related.

Can the problem be reproduced?

From a troubleshooting standpoint, the ideal problem is one that can be reproduced. Typically, when a problem can be reproduced you have a larger set of tools or procedures at your disposal to help you investigate. Consequently, problems that you can reproduce are often easier to debug and solve. However, problems that you can reproduce can have a disadvantage: If the problem is of significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation.

- Can the problem be re-created on a test system?
- Are multiple users or applications encountering the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?

Problems and solutions

Solution information helps you to understand the causes of an issue with your product and learn what to do to diagnose or resolve the problem.

Cannot send location or asset data from Maximo Asset Management to IBM TRIRIGA after installation

You cannot send portfolio data for locations or for assets from Maximo Asset Management to IBM TRIRIGA.

Symptoms

After you complete the installation process, you create a shared set of locations that is managed by IBM TRIRIGA, and a shared set of assets that can be managed in Maximo Asset Management or in IBM TRIRIGA. In some cases, the administrator might receive a notice that the initial load of location or asset data was not successful. However, in some cases, the only symptom of the problem is that the records are not automatically activated in IBM TRIRIGA and sent back to Maximo Asset Management.

Causes

- The external system or publish channel is not enabled.
- The JMS cron task for the outbound queue is not active.
- The import of IBM TRIRIGA staging tables is not operational, or the time interval for importing is set too high, or both.

Diagnosing the problem

- Verify that the IBM TRIRIGA external system and the corresponding publish channel are enabled.
- Verify that the JMS cron task for the SQOUT outbound queue is active.
- Verify that integration messages arrive at the IBM TRIRIGA staging table but are not imported to IBM TRIRIGA.

Resolving the problem

- In Maximo Asset Management, select **Integration > External Systems** and select **Enabled** for the IBM TRIRIGA external system and the corresponding publish channel.
- In Maximo Asset Management, select **System Integration > Platform Integration > Cron Task Setup** and select **Active** for the cron task.
- In IBM TRIRIGA, configure the staging table data to be processed. Also, ensure that the time interval is set to a short interval value such as 1 minute.

Cannot write to IBM TRIRIGA staging tables

Error message BMXAA5207E occurs when you attempt to send data to the IBM TRIRIGA staging tables.

Symptoms

When you attempt to send data to the IBM TRIRIGA staging tables, you receive error message BMXAA5207E: Could not write staging table records in target environment for package *package name*.

Causes

The PLUSYDC endpoint is not configured correctly.

Diagnosing the problem

Verify that the PLUSYDC endpoint is configured to point to the IBM TRIRIGA database

Resolving the problem

In Maximo Asset Management, select **Integration > End Points**. Select the PLUSYDC endpoint and specify the URL, table space name, and user details to ensure that the cron task can connect to the IBM TRIRIGA database.

Cannot send updated data from Maximo Asset Management to IBM TRIRIGA

After data is initially loaded from Maximo Asset Management to IBM TRIRIGA, you can update integrated data in Maximo Asset Management, but the updated data is not sent to IBM TRIRIGA.

Symptoms

Updated data is not sent from Maximo Asset Management to IBM TRIRIGA. In some cases, the administrator might receive a notice that a message is stuck in the queue. However, in some cases, the only symptom of the problem is the realization that data is out of sync between the two systems.

Causes

The problem can have one of the following causes:

- The external system or publish channel is not enabled.
- The JMS cron task is not activated.

- The PLUSYBC endpoint is not set correctly.

Diagnosing the problem

If you receive an error message in the outbound queue about a problem with invoking the IBM TRIRIGA web service, the problem is with the PLUSYBC endpoint.

If you do not receive any error messages, then the problem might be with the external system, the publish channel, or the JMS cron task.

Resolving the problem

1. In Maximo Asset Management, in the External System application, ensure that the **Enabled** flags for IBM TRIRIGA and the publish channel are selected.
2. In Maximo Asset Management, in the Cron Tasks application, activate the SQOUT JMS cron task.
3. In Maximo Asset Management, in the End Points application, configure the PLUSYBC endpoint with the correct URL, service name, user name, and password for connection with the IBM TRIRIGA web service.

Cannot send updated data from IBM TRIRIGA to Maximo Asset Management

After data is initially loaded from Maximo Asset Management to IBM TRIRIGA, you can update integrated data in IBM TRIRIGA, but the updated data is not sent to Maximo Asset Management.

Symptoms

Updated data is not sent from IBM TRIRIGA to Maximo Asset Management.

Causes

In IBM TRIRIGA, the URL in the integration object is not configured correctly for the Maximo Asset Management enterprise service.

Resolving the problem

1. In IBM TRIRIGA, select **Tools > System Setup > Integration > Integration Object** and select an HTTP Post - Maximo Integration object.
2. Set the value of the URL in the integration object to the correct value for the corresponding enterprise service in Maximo Asset Management.
3. Repeat step 2 for each Maximo integration object.
4. Click **Execute**.

Primary location and organization are missing from request because Request For person not found in IBM TRIRIGA

A request in IBM TRIRIGA that was created from Maximo Asset Management contains a warning message that states that the primary location and organization are required to process the request.

Symptoms

After a request is sent from Maximo Asset Management to IBM TRIRIGA, a warning message appears in the Attention section of IBM TRIRIGA. The warning message states that the primary location and organization are required to process the request.

Causes

The person that is specified in the **Request For** field does not have a corresponding record in IBM TRIRIGA.

Diagnosing the problem

1. In IBM TRIRIGA, verify that a record does not exist for the person that is specified in the **Request For** field.
2. In Maximo Asset Management, determine whether the person record was exported.
3. If the person record was exported, check the outbound JMS queue and the IBM TRIRIGA staging table for the record.

Resolving the problem

1. If the person record is in the outbound JMS queue and the IBM TRIRIGA staging table, complete the unfinished integration.
2. If the person record was not exported, export the person record from Maximo Asset Management to IBM TRIRIGA:
 - a. In Maximo Asset Management, in the External Systems application, select the PLUSYEXTSYS external system and open the **Publish Channels** tab.
 - b. Select the PLUSYPERSON publish channel and click **Data Export**.
 - c. In the **Export Condition** field, enter `personid='person'` to restrict the export to only that person record.
 - d. Click **OK** to run the export.

Errors when status updates are sent from IBM TRIRIGA to Maximo Asset Management

When status updates are sent from IBM TRIRIGA to Maximo Asset Management, errors occur because of status values that are invalid.

Symptoms

The integration of status updates from IBM TRIRIGA to Maximo Asset Management results in errors because of invalid status values.

Causes

Each integration cross-reference control contains a list of valid values. The status value that is sent to the Maximo Asset Management record is not a valid value for the integration cross-reference control.

Diagnosing the problem

1. In the reference chapter of this guide, locate the inbound service that you are using and find the status cross-reference control that is used by this service.
2. In Maximo Asset Management, open the cross-reference control and verify that the status value that is sent from IBM TRIRIGA is listed as a valid value.

Resolving the problem

In Maximo Asset Management, open the cross-reference control and add the value from IBM TRIRIGA to the list of valid values. Ensure that the status values are properly mapped to valid Maximo Asset Management values.

Integrated person records are not updated

If your environment contains integrations to multiple products, problems can occur when integrated person records are updated. For example, an integration with a human resources system routinely updates Maximo person records. After the person record is integrated with IBM TRIRIGA, the human resources software system is unable to change the location or site for the person record.

Symptoms

Person records that are integrated with IBM TRIRIGA cannot be updated in Maximo Asset Management. Location values for Maximo person records that IBM TRIRIGA manages cannot be updated.

Causes

A STOP processing rule for the PERSON object prevents the update of the location for an existing person record when the data is maintained in IBM TRIRIGA.

Diagnosing the problem

Confirm that the integration is either changing a person's location or updating a person record for which the value of the IBM TRIRIGA ID is set to PENDING.

Resolving the problem

If you have external software systems that integrate with Maximo Asset Management, design the integration so that the person records are checked for integration with IBM TRIRIGA and, when integrated, site and location for person records are not changed. You might decide to change the integration of person data to Maximo Asset Management. You can also adjust the integration of person data from Maximo Asset Management to IBM TRIRIGA to match other integrations that are implemented, such as integrations with HR systems.

Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
1623-14, Shimotsuruma, Yamato-shi
Kanagawa 242-8502 Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation
2Z4A/101
11400 Burnet Road
Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at www.ibm.com/legal/copytrade.shtml.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Microsoft, Windows, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other product and service names might be trademarks of IBM or other companies.

Glossary

This glossary includes terms and definitions for Maximo Integrators for TRIRIGA.

The following cross-reference is used in this glossary:

- *See* refers you from a term to a preferred synonym, or from an acronym or abbreviation to the defined full form.

To view glossaries for other IBM products, go to www.ibm.com/software/globalization/terminology (opens in new window).

B

business object

In IBM TRIRIGA, the definition of a data object.

building

In Maximo Integrators for TRIRIGA, the second level of the fixed location hierarchy: Property - Building - Floor - Space - Subspace.

C

condition assessment

In Maximo Integrators for TRIRIGA, a set of specialized workflows that supports the process of inspecting facilities.

E

endpoint

A Maximo Asset Management integration component that identifies the target destination and the transport mechanism that is used to publish data or to call a service on an external system.

enterprise service

A Maximo Asset Management integration component that receives and processes data that is sent by an external system.

external system

An external system is the remote system in an integration scenario. In Maximo Asset Management, an external system is an integration component that specifies the publish channels and enterprise

services that are used to send and receive integration data. The external system must be enabled for integration to occur.

F

floor In Maximo Integrators for TRIRIGA, the third level of the fixed location hierarchy: Property - Building - Floor - Space - Subspace.

I

inbound data

In Maximo Integrators for TRIRIGA, data that is sent from IBM TRIRIGA to Maximo Asset Management through an enterprise service.

L

location hierarchy

In IBM TRIRIGA, a structure of locations that shows how the locations are related to each other. Maximo Integrators for TRIRIGA uses a fixed hierarchy of Property - Building - Floor - Space - Subspace.

M

move work task

In IBM TRIRIGA, a record that lists the work that is required to complete a request for a space move.

O

object structure

The common data layer that the integration components use for outbound and inbound application message processing. An object structure consists of one or more related business objects that define the content of an XML message or schema.

opportunity

In IBM TRIRIGA, a defect or condition

that is observed during the condition assessment and that requires action to remedy.

organization

In Maximo Asset Management, a record that identifies a unique legal entity. The data set for an organization includes information that companies or other distinct legal entities might share, such as calendars, vendors, and financial information. An organization can contain one or more sites. See also site.

outbound data

In Maximo Integrators for TRIRIGA, data that is sent from Maximo Asset Management to IBM TRIRIGA through a publish channel.

P

people

In IBM TRIRIGA, a record that contains data about an individual, such as an employee or contractor. See also person.

person

In Maximo Asset Management, a record that contains data about an individual in an organization, such as an employee. See also people.

planned work task

In IBM TRIRIGA, a record that lists the work that is required to complete the work that is related to an opportunity.

project

In IBM TRIRIGA, a logical grouping of work tasks. See also work task.

property

In Maximo Integrators for TRIRIGA, the first level of the fixed location hierarchy: Property - Building - Floor - Space - Subspace.

publish channel

An integration component that is used for sending asynchronous messages to an external system.

S

seed data

Data that is loaded from one database to another database to provide the initial data for integration. Seed data can go

from a Maximo database to an IBM TRIRIGA database or from an IBM TRIRIGA database to a Maximo database.

site

In Maximo Asset Management, a work location, such as a plant or facility. See also organization.

space

In Maximo Integrators for TRIRIGA, the fourth level of the fixed location hierarchy: Property - Building - Floor - Space - Subspace.

space move planning

In IBM TRIRIGA, a set of specialized workflows that supports planning for the efficient use of space and moving assets and people within the spaces.

subspace

In Maximo Integrators for TRIRIGA, the fifth level of the fixed location hierarchy: Property - Building - Floor - Space - Subspace.

W

work order

In Maximo Asset Management, a record that contains information about work that must be completed. See also work task.

work task

In IBM TRIRIGA, a record that lists the work that is required. Do not use the term "task". See also work order.

Index

A

- asset integration
 - components
 - inbound 79
 - outbound 78
 - overview 77
 - configuring in IBM TRIRIGA 42
 - DataConnect
 - business objects 109
 - staging tables 109
 - workflows 109
 - enterprise services
 - PLUSYASSET 40, 80
 - exporting asset data 41
 - IBM TRIRIGA components 109
 - integrating assets 39
 - integration objects 110
 - integration processing workflows 110
 - integration queries 110
 - object structures
 - PLUSYASSETFR 79
 - PLUSYASSETTO 78
 - PLUSYASSETTO2 81
 - overview 39
 - processing rules 82
 - publish channel
 - PLUSYASSET 40
 - PLUSYASSET2 40
 - publish channels
 - PLUSYASSET 78
 - PLUSYASSET2 81
 - updating integrated records 111

B

- business scenarios
 - overview 1

C

- conditions
 - processing rules 106
- configuration
 - endpoints 26
 - external system 28
 - field lengths 25
 - IBM TRIRIGA
 - assets 42
 - connection to Maximo Asset Management 29
 - people 51
 - work tasks 29
 - integration controls
 - cross-reference controls 27
 - list controls 27
 - locations in IBM TRIRIGA 36
 - overview
 - IBM TRIRIGA 28
 - Maximo Asset Management 25

- cross-reference integration controls
 - configuring 27
 - configuring for many-to-one mapping 61
- currencies
 - changing types 62
- customizations
 - adding new fields 64
 - adding new fields to IBM TRIRIGA business objects 66

D

- database fields
 - configuring lengths of fields 25
- DataConnect
 - business objects
 - asset integration 109
 - location integration 107
 - person integration 111
 - service request integration 115
 - work order integration 113
 - staging tables
 - asset integration 109
 - location integration 107
 - person integration 111
 - service request integration 115
 - work order integration 113
 - workflows
 - asset integration 109
 - location integration 107
 - person integration 111
 - service request integration 115
 - work order integration 113

E

- employee types
 - integrating person data 45
- endpoints
 - configuring 26
 - PLUSYBC 26
 - PLUSYDC 26
- enterprise services
 - asset integration
 - PLUSYASSET 40, 80
 - processing rules 80
 - enabling the external system 28
 - location integration
 - PLUSYLOCHIER 76
 - processing rules 76
 - overview 5
 - person integration
 - PLUSYPERSON 47, 88
 - processing rules 88
 - service request integration
 - PLUSYSR 106
 - processing rules 106
 - work order integration
 - PLUSYW0 54, 98

- enterprise services (*continued*)
 - work order integration (*continued*)
 - processing rules 98

H

- hierarchy levels
 - integrating location data 34
- hierachy values
 - integrating location data 34

I

- IBM Maximo Integrators for TRIRIGA
 - importing patch helper
 - on IBM TRIRIGA 24
 - installing
 - on IBM TRIRIGA 23
 - on Maximo Asset Management 22
 - overview 1
 - removing data 63
- IBM TRIRIGA
 - business objects
 - adding new fields 66
 - asset integration 109
 - location integration 107
 - person integration 111
 - service request integration 115
 - work order integration 113
 - web service
 - asset integration 111
 - person integration 112
 - work order integration 113
 - work tasks
 - integrating work orders 52
 - preventing unauthorized updates 29
 - work types
 - assigning to organizations 54
- implementations
 - environments that support multiple integrations 18
 - integrating portfolio data 12
 - loading initial data
 - from IBM TRIRIGA to Maximo Asset Management 16
 - from Maximo Asset Management to IBM TRIRIGA 13
 - planning 11
 - preparing for integration 12
 - reference documents 19
- installation
 - IBM Maximo Integrators for TRIRIGA
 - overview 21
 - importing patch helper
 - on IBM TRIRIGA 24
 - installing 24
 - on IBM TRIRIGA 23

- installation (*continued*)
 - installing (*continued*)
 - on Maximo Asset Management 22
 - prerequisites 21
 - troubleshooting sending location or asset data 119
- integration controls
 - asset integration
 - PLUSYASSETSTATUS 83
 - PLUSYASSETSTATUSXREF 83
 - PLUSYASSETTYPE 83
 - PLUSYDELIM 83
 - PLUSYFRASSETSTATUSXREF 83
 - PLUSYFRASSETTYPEXREF 83
 - PLUSYLOCHLEVEL 83
 - PLUSYTOASSETTYPEXREF 83
 - cross-reference integration controls
 - configuring 27
 - configuring for many-to-one mapping 61
 - errors sending status updates 122
 - list integration controls
 - configuring 27
 - location integration
 - PLUSYDELIM 77
 - PLUSYDELIM2 77
 - PLUSYLOCSTATUS 77
 - overview 5
 - person integration
 - PLUSYEMPLOYEEYPE 91
 - PLUSYEMPTYPEXREF 91
 - PLUSYLANGUAGEXREF 91
 - PLUSYPERSONSTATUS 91
 - PLUSYPERSONSTATUSXREF 91
 - PLUSYTIMEZONEXREF 91
 - service request integration
 - PLUSYDELIM 106
 - PLUSYSRSTATUS 106
 - PLUSYSRSTATUSXREF 106
 - work order integration
 - PLUSYDELIM 100, 102
 - PLUSYWOPRIORITYXREF 102
 - PLUSYWOSTATUS 100, 102
 - PLUSYWOSTATUSXREF 98, 102
- integration objects
 - asset integration 110
 - location integration 108
 - person integration 112
 - service request integration 115
 - work order integration 113
- integration processing workflows
 - asset integration 110
 - location integration 108
 - person integration 112
 - service request integration 115
 - work order integration 113
- integration queries
 - asset integration 110
 - location integration 108
 - person integration 112
 - service request integration 115
 - work order integration 113
- integrations
 - adding
 - fields for ongoing updates 65
 - new fields 64, 65

- integrations (*continued*)
 - adding (*continued*)
 - new fields during implementation 64
 - initial load of Maximo Asset Management into IBM TRIRIGA 28
 - integrating portfolio data 12
 - loading initial data
 - from IBM TRIRIGA to Maximo Asset Management 16
 - from Maximo Asset Management to IBM TRIRIGA 13
 - preparing for integration 12
 - removing data 63
 - sequence of integrating 11
- L**
 - list integration controls
 - configuring 27
 - location integration
 - assigning
 - hierarchy levels 34
 - hierarchy values 34
 - components
 - initial load from Maximo Asset Management 67
 - ongoing updates from Maximo Asset Management 74
 - overview 67
 - DataConnect
 - business objects 107
 - staging tables 107
 - workflows 107
 - enabling sites for integration 34
 - enterprise services
 - PLUSYLOCHIER 76
 - exporting locations from Maximo Asset Management 35
 - hierarchy 31
 - IBM TRIRIGA components 107
 - initial load
 - building data 69
 - floor data 70
 - floor location data 71
 - property data 67, 68
 - space and subspace data 72
 - space locations 73
 - subspace locations 73
 - integration objects 108
 - integration processing
 - workflows 108
 - integration queries 108
 - managing in IBM TRIRIGA 36
 - object structures
 - PLUSYBLDG 69
 - PLUSYFLOOR 70
 - PLUSYLOCHIER 75
 - PLUSYPROP 67
 - overview 31
 - PLUSYEXTSYS external system 35
 - preparing data 34
 - processing rules 76
 - publish channels
 - PLUSYBLDG 69
 - PLUSYFLOOR 71
 - PLUSYPROP 68

- location integration (*continued*)
 - scenario 1
 - setting the Location System value 34
 - staging tables 35
 - S_TRIBUILDING 69
 - S_TRIPROPERTY 68

M
mxe.int.keyresponse property 18

O
object structures

- asset integration
 - PLUSYASSETFR 79
 - PLUSYASSETTO 78
 - PLUSYASSETTO2 81
- location integration
 - PLUSYBLDG 69
 - PLUSYFLOOR 70
 - PLUSYLOCHIER 75
 - PLUSYPROP 67
 - PLUSYSYSPACE 72
- overview 5
- person integration
 - PLUSYPERSONFR 87
 - PLUSYPERSONTO 85
 - PLUSYPERSONTO2 85
- service request integration
 - PLUSYSRFR 105
 - PLUSYSRTO 103
- work order integration
 - PLUSYWOCOST 100
 - PLUSYWOFR 92
 - PLUSYWOTO 99
- organizations
 - assigning IBM TRIRIGA work types 54
- overview
 - architecture 5
 - business scenarios 1
 - data flow 2
 - data management 7
 - enterprise services 5
 - integration components 5
 - object structures 5
 - processing rules 5
 - product features 1
 - publish channels 5
 - scenarios
 - creating planned work tasks 4
 - moving employees and assets to new locations 1

P
patch helper

- importing 24

 people integration

- See person integration

 person integration

- components
 - inbound 87
 - outbound 85, 89
 - overview 85

- person integration (*continued*)
 - configuring in IBM TRIRIGA 51
 - data processing 47
 - DataConnect
 - business objects 111
 - staging tables 111
 - workflows 111
 - employee types 45
 - exporting to IBM TRIRIGA 49
 - IBM TRIRIGA components 111
 - integrating person data 44
 - integration controls
 - overview 91
 - integration objects 112
 - integration processing workflows 112
 - integration queries 112
 - object structures
 - PLUSYPersonFR 87
 - PLUSYPersonTO 85
 - PLUSYPersonTO2 89
 - overview 44
 - processing rules 90
 - status 44
 - troubleshooting
 - integrated person records are not updated 123
 - Request For person not found in IBM TRIRIGA 121
 - updating from external HR systems 47
 - updating integrated records 112
- portfolio data
 - assets 39
 - integration scenario 12
 - locations 31
 - overview 9
 - persons 44
- processing rules
 - conditions 106
- publish channels
 - asset integration
 - PLUSYASSET 40, 78
 - PLUSYASSET2 40, 81, 82
 - enabling the external system 28
 - location integration
 - PLUSYBLDG 69
 - PLUSYFLOOR 71
 - PLUSYPROP 68
 - PLUSYSpace 73
 - PLUSYSspace 73
 - overview 5
 - person integration
 - PLUSYPerson 47, 86
 - PLUSYPerson2 47, 90
 - service request integration
 - PLUSYSR 104
 - work order integration
 - PLUSWO 100
 - PLUSYWOCOST 101

S

- scenarios
 - integrating portfolio data 12
 - loading initial data
 - from IBM TRIRIGA to Maximo Asset Management 16

- scenarios (*continued*)
 - loading initial data (*continued*)
 - from Maximo Asset Management to IBM TRIRIGA 13
 - preparing for integration 12
 - service request integration
 - components
 - inbound 105
 - outbound 103
 - overview 103
 - configuring service request status 57
 - DataConnect
 - business objects 115
 - staging tables 115
 - workflows 115
 - enterprise services
 - PLUSYSR 106
 - IBM TRIRIGA components 115
 - integrating data 56
 - integration controls
 - PLUSYDELIM 106
 - PLUSYSRSTATUS 106
 - PLUSYSRSTATUSXREF 106
 - integration objects 115
 - integration processing workflows 115
 - integration queries 115
 - object structures
 - PLUSYSRFR 103
 - PLUSYSRTO 103
 - overview 47
 - processing rules 104
 - publish channels
 - PLUSYSR 104
 - ticket templates 58
 - staging tables
 - adding new fields 64
 - integrating
 - locations 31
 - integrating person data 49
 - S_TRIBUILDING 69
 - S_TRIPROPERTY 68
 - troubleshooting 120
 - system properties
 - mxe.int.keyresponse property 18

T

- ticket templates
 - service request integration 58
- transactional data
 - overview 9
 - service requests 56
 - work orders 52
 - work task 52
- troubleshooting
 - errors sending status updates 122
 - identifying problems 117
 - integrated person records are not updated 123
 - missing primary location and organization 121
 - Request For person not found in IBM TRIRIGA 121
 - sending location or asset data after installation 119
 - sending updates from IBM TRIRIGA to Maximo Asset Management 121

- troubleshooting (*continued*)
 - sending updates from Maximo Asset Management to IBM TRIRIGA 120
 - systematic problem solving 117
 - writing to IBM TRIRIGA staging tables 120

W

- work order costs
 - integrating work orders 52
- work order integration
 - components
 - inbound 92
 - outbound 99
 - overview 92
 - configuration tasks 54
 - configuring
 - PRIORITY default value 54
 - WOCLASS default value 54
 - DataConnect
 - business objects 113
 - staging tables 113
 - workflows 113
 - enterprise services
 - PLUSYWO 54, 98
 - IBM TRIRIGA components 113
 - IBM TRIRIGA work tasks 52, 55
 - integration controls
 - PLUSYDELIM 100
 - PLUSYWOPRIORITYXREF 102
 - PLUSYWOSTATUS 100
 - PLUSYWOSTATUSXREF 98
 - integration objects 113
 - integration processing workflows 113
 - integration queries 113
 - object structures
 - PLUSYWOCOST 100
 - PLUSYWOFR 92
 - PLUSYWOTO 99
 - organizations
 - assigning TRIRIGA work types 54
 - processing rules 98
 - publish channels
 - PLUSWO 100
 - PLUSYWOCOST 101
 - status updates 52
 - updating integrated records 113
 - work order costs 52
- work task
 - move 52
 - planned 52
- work task integration
 - See* work order integration
- work tasks
 - scenario 4
- work type
 - inspection 54
 - move 54
 - planned 54
- workflows
 - asset integration
 - asynchronous 109, 110
 - importing from staging tables 109
 - integration processing 110
 - synchronous 110

- workflows (*continued*)
 - location integration
 - asynchronous 108
 - importing from staging tables 107
 - integration processing 108
 - synchronous 107, 108
 - person integration
 - asynchronous 111, 112
 - importing from staging tables 111
 - integration processing 112
 - synchronous 112
 - service request integration
 - asynchronous 115
 - importing from staging tables 115
 - integration processing 115
 - synchronous 115
 - work order integration
 - asynchronous 113
 - importing from staging tables 113
 - integration processing 113
 - synchronous 113



Printed in USA