Tivoli® software

IBM Maximo Enterprise Adapter
Version 7.6

System Administrator Guide
(SAP Applications)

IBM®

Note

Before using this information and the product it supports, read the information in "Notices" on page 337.

Contents

Integration framework architecture

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Anyone involved in the implementation or day-to-day administration of the integration framework applications must be familiarized with the integration framework architecture. Familiarity with the architectural concepts is essential for using the application and implementing framework components.

Integration framework overview

The integration framework facilitates bidirectional data exchange between Maximo® Asset Management and external applications in real time or batch mode. Through the integration framework, you can exchange data synchronously and asynchronously by using a variety of communication protocols.

The integration framework also provides features that support the integration with operational management products, such as IBM® Tivoli®Provisioning Manager. You also can use a system application user interface to launch an external application user interface.

Integration framework for data exchange

Through the integration framework, you can send and receive XML messages between Maximo Asset Management and external applications. The integration framework provides the following capabilities:

- Build, transform, and customize message content

- Send and receive messages using multiple protocols, including:

  - Web services

  - Hypertext Transfer Protocol (HTTP)

  - Java™ Message Service (JMS)

- Exchange data synchronously and asynchronously

- Exchange event-based messages

- Import and export messages in batch mode

The following integration framework components support data integration:

Component	Description
Object structures	Define message content.
Services	Receive data into Maximo Asset Management.
Channels	Send data out of Maximo Asset Management.
External systems	Define external applications and services that integrate with Maximo Asset Management.
Endpoint	Modes that you use to communicate with external applications. Modes include Web services, HTTP, Enterprise bean (EJB), and flat files.

Component	Description
Events	The business object events that you use to initiate data exchange. Events include data import, data export, and record status changes.
Web services	Query message and receive data by the integration framework.
Content	System content that is configured to enable various integration components.

Operational management product integration

Operational management product integration facilitates the automation of information technology services, such as software deployment. A process management product calls an integration module which in turn communicates with the operational management product to perform a logical management operation.

With this framework, you can automate logical management operation actions, such as software deployment. The process management product initiates the integration module to invoke the operational management product to perform automated actions.

By using the integration framework, you can configure integration modules to support specific logical management operations and operational management products. You configure an endpoint and handler to identify the communication protocol (HTTP, Web service) that the integration module uses to invoke the operational management product.

The integration module can map the service response so that it is returned to the process management product. The service response then can be processed in multiple ways. The service can open a response in a user interface application, or save the response data to the application database.

You use the integration framework to integrate operational management products by using an assisted approach.

The following integration framework components use operational management product integration:

Component	Description
Logical management operations	An application that you use to define the actions that the integration module supports for an operational management product, such as software deployment.
Integration modules	An application that you use to define the configurations and the relationships to integration modules, logical management products, and operational management products.

Component	Description
Actions	You use actions to implement an automated or semi-automated invocation of integration modules and operational management products by a process management product. You can initiate actions from user interface applications, escalations, and workflows.

Integration framework for UI integration

The integration framework provides a mechanism for you to navigate from a system application user interface to an external application user interface. You can define the context to facilitate the navigation into the external application interface. The integration framework supports URL substitutions of any values of any system business object. For example, you can configure Maximo Asset Management to display a specific part number in an external application.

You can use operational management product-specific features when you launch to an operational management product application user interface. Features include retrieving the registered host name of the operational management product and a configured item source token for the operational management product.

Through the Launch in Context application, you can navigate to any external application other than the operational management product. You also can navigate to a system user interface from an external application (Land in Context).

Integration framework for data exchange

The integration framework consists of individual data exchange components and features.

Object structures

An object structure is the common data layer that the integration framework uses for all outbound and inbound application data processing. An object structure consists of one or more business objects that make up the content of an XML message. You can use the message content of a single object structure to support inbound and outbound messages.

When you define multiple objects in the object structure, the objects must have a reference to a valid parent-child relationship within Maximo Asset Management.

The object structure has a Java definition class that you can code to perform logic such as filtering for outbound messages. For inbound messages, you can use an object structure Java processing class to invoke specific business object logic that is beyond the normal integration framework insert, update, and delete processing.

The object structure is the building block of the integration framework that lets framework applications to perform the following functions:

- Publish and query application data

- Add, update, and delete application data

- Import and export application data

You also can use the object structure as a service to support inbound message processing. You can invoke the object structure service as a Web service, as an enterprise bean, or by using HTTP. The object structure service supports system data updates, and queries that are started outside of Maximo Asset Management.

Publish channels

A publish channel is the pipeline for sending data asynchronously from Maximo Asset Management to an external system. Events that initiate publish channel processing are object events (insert, update, and delete), application-initiated calls, and data export.

The content of a publish channel XML message is based on the associated object structure. When you trigger publish channel processing, the integration framework builds the XML message based on the object structure. Maximo Asset Management then moves the message through multiple processing layers before placing the message into a queue and releasing the initiator of the transaction.

The publish channel can use the following processing layers:

- Processing rules – The integration framework provides a rule engine where you can filter and transform the XML message. You can implement rules in the Publish Channel application.

- User exit – Represents a Java class that you can use to filter data, transform data, and implement business logic. You can use this class as part of an installation-customization.

- Data processing class – Represents a Java class that you can use to filter, transform data, and implement business logic. Adapters for Oracle and SAP provide processing classes to support integration to these products.

- XSL map – Represents an XSLT style sheet that you can use to transform data and perform mapping of the XML message to another format.

After Maximo Asset Management places the message into the queue, a polling thread (Maximo cron task) picks up the message and sends it to an external system through a configured endpoint. The endpoint identifies the protocol that Maximo uses to send data, such as HTTP or Web services. The endpoint also identifies the property values that are specific to that endpoint, such as URL, user name, and password.

Invocation channels

The Service Oriented Architecture (SOA) enables the use of external services to process data from multiple sources. Invocation channels support a generic service-oriented architecture capability by enabling Maximo Asset Management to call an external service synchronously. The invocation channel returns the response of the service back to the caller for subsequent processing.

For example, you might want to use an external system to calculate the tax amount for a product that you want to purchase. You can configure an invocation channel to call the external tax service. The invocation channel then can save the value of the external tax amount in Maximo database.

The initiation of an invocation channel is implemented by using an action class, which then calls an invocation channel. You can implement an action by using the following means:

- A user interface control (within an application)

- Workflow routing

- Escalation

Maximo Asset Management execution of an invocation channel is synchronous, and a response can be returned from the external service to the caller.

The content of an invocation channel data structure is based on the associated object structure. When the invocation channel processing starts, the integration framework builds the XML message based on the object structure. The message then moves through multiple processing layers before calling the external service.

The invocation channel can use the following processing layers:

- User exit – Represents a Java class that you can use to filter data, transform data, and implement business logic. You can use this class as part of an installation-customization.

- Data processing class – Represents a Java class that you can use to filter, transform data, and implement business logic. Adapters for Oracle and SAP provide processing classes to support integration to these products.

- XSL map – Represents an XSLT style sheet that you can use to transform data and perform mapping of the XML message to another format.

After the message goes through the processing layers, the integration framework uses the configured endpoint to call the external service. The endpoint identifies the protocol Maximo Asset Management uses to send data, such as HTTP or a Web service. The endpoint also identifies the property values that are specific to that endpoint, such as URL, user name, and password.

When the message is delivered to the endpoint, the response of the service is returned to the invocation channel. The response message can use similar processing layers that are available on the response portion of the invocation channel: user exit, process class, and XSL map. The response XML is mapped back to the response object structure, which can be the same or different from the object structure that initiated the message. The data mapped in the object structure is returned to the caller of the channel for subsequent processing. The invocation channel can be configured to ignore the response that is returned from the external service and return no data to the caller of the channel.

Enterprise services

The enterprise service is a pipeline for querying system data and importing data into Maximo Asset Management from an external system. You can configure enterprise services to process data synchronously (without a queue) or asynchronously (with a queue). Enterprise services can use multiple protocols, such as Web services and HTTP.

The enterprise service has data processing layers that transform data and apply business processing rules to data before it reaches Maximo objects. When the inbound message reaches the object structure layer, the XML message must be in the format of the object structure schema. Maximo Asset Management then can process the message successfully.

The enterprise service can use the following processing layers:

- Processing rules – The integration framework provides a rule engine where you can filter and transform the XML message.

- User exit – Represents a Java class that you can use to filter, transform data, and implement business logic. You can use this class as part of an installation-customization.

- Data processing class – Represents a Java class that you can use to filter, transform data, and implement business logic. Adapters for Oracle and SAP provide processing classes to support integration to these products.

- XSL Map – Represents an XSLT style sheet that you can use to transform data and perform mapping of the XML message to another format.

External systems

Any business application that sends data to Maximo Asset Management or receives data from Maximo Asset Management is an external system. External systems are an integral part of enterprise service and publish channel processing. You use and configure enterprise services and publish channels to exchange data with one or more external systems.

Object structure services and invocation channels do not use external systems.

You can use the External Systems application to perform the following functions:

- Name the external applications or systems that exchange data with the integration framework

- Specify the protocol that the integration framework uses to send data to the external system

- Identify the publish channels and enterprise services that each system implements

- Create interface tables

To create an external system, you specify an endpoint, the queues, and the integration control values in the External System application.

You can also define the following properties on the external system:

- The endpoint that identifies how and where the integration framework exchanges data with Maximo Asset Management

- The Java Message Service (JMS) queues that Maximo Asset Management uses

- Whether the external system is ready to begin integration processing

Web services

External applications, Enterprise Service Bus, and Business Process Execution Language processes can use Web services to query or send transactions to the integration framework.

The integration framework provides three types of services that you can deploy as a Web service:

- Object structure service
- Enterprise service
- Standard service

When you deploy Web services, Maximo Asset Management generates a schema and Web Services Description Language (WSDL) file that you can access with a

URL. Optionally, a Universal Description Discovery and Integration (UDDI) registry can be updated for each deployed service.

The integration framework supports the following Web services:

- Object structure Web service - Object structure Web services are created from an object structure and do not provide a processing layer which is available to enterprise services. An object structure Web service supports five operations: create, delete, query, sync, and update.

- Enterprise Web service - Enterprise Web services are created from an enterprise service and provide exit processing and optional JMS support. The integration framework creates individual enterprise Web services for the operation that is defined in an enterprise service (one operation per service).

  The operations that are supported in an object structure service are also supported in an enterprise Web service. You can deploy an enterprise Web service to use a JMS queue (asynchronous process) or to bypass the JMS queue (synchronous process).

- Standard Web service - Standard Web services are created from methods that are defined in application services. The methods must be annotated in the application service to be available for Web service implementation. The integration framework links input and output parameters of the methods to the Web Services Description Language operation parameters.

Data import and data export

With the integration framework, you can load data from either flat files, such as comma separated, or XML files. You can initiate the data load through an application user interface. You also can start a data load from a scheduled background process by using a system cron task.

With the integration framework, you can export data in a batch mode. You can start a data export of the content that is associated with the publish channel from the application user interface. You can filter the content to limit the amount of data that is being exported. You can export data to a destination by using any of the available endpoints and handlers that the integration framework provides.

Content

The integration framework provides predefined content that facilitates your integration to external applications and services. The predefined content available for your use includes:

- Over 40 predefined object structures that use many of the primary business objects within Maximo Asset Management. Object structures have one or more business objects and contain the relationships that are needed between business objects.

- Corresponding enterprise services and publish channels for the predefined object structures.

- One external system that is configured to use all the predefined enterprise services and publish channels.

- Eight predefined handlers that support different communication protocols, such as Web services and HTTP.

Integration framework for operational management product integration

The integration framework provides components and features that support the integration between Maximo Asset Management and the operational management products.

Process management products

Process management products, or system built applications, escalations, and workflows, use the integration framework to make calls to operational management products by using defined logical management operations and integration modules. Process management products can integrate with operational management products in an automated mode using integration modules. Process management products also can integrate with operational management products in an assisted mode by using launch in context.

Most process management products have mechanisms to automate tasks such as software deployment by using Maximo supported logical management operations and integration modules. The process management product provides an action class that initiates the call to an integration module, and subsequently the operational management product. The process management product then processes the response from the operational management product. Process management product processing can involve saving a value to Maximo database or displaying the response to you from a user interface, or both.

Action

A process management product can implement a custom action Java class to call an integration module. An action can be associated with a system application, a system workflow, or a system escalation. When you initiate the action, Maximo Asset Management runs the registered Java class, which can be coded to call an integration module. The integration module then calls the operational management product.

Logical management operations

A logical management operation, such as a software deployment, defines the action that the process management product takes on the operational management product. Typically, a process management product takes action against a configuration item, such as a server.

Logical management product definitions act as the interface between the process management product and the integration module. The logical management operation allows the integration module and the process management product to be designed and implemented, independent of each other.

A logical management product created by an integration module would identify the actions that the integration module supports for an operational management product. A logical management product created by a process management

product identifies the actions the process management product needs the integration module to support.

The logical management product record identifies the following properties:

- The name and description of the action that it supports

- Whether operational management processing is synchronous or asynchronous

- The input (source) and output (target) objects and fields that are required for the logical management product

Integration modules

The integration module provides a mechanism for a process management product, such as change or release, to invoke an external operational management product.

The integration module provides the capability for a process management product to communicate with an operational management product for specific logical management operation actions. The integration module is the integration component that resides between the process management product and the operational management product.

When invoked by a process management product, the integration module uses data that is passed by the process management product to assist in the invocation of the operational management product service. The integration module may also return the operational management product response data to the process management product.

When installed, integration modules include the logical management operations that they support for an operational management product. Depending upon the level of complexity, you can implement an integration module as a Java class or an invocation channel.

Operational management products

Operational management products are external products that you can use to perform information technology services. IBM® Tivoli® Application Dependency Discovery Manager, Tivoli Provisioning Manager, and IBM® Tivoli® Configuration Manager are examples of operational management products. Operational management products provide services that external applications (integration modules) can invoke to initiate operational management product actions.

Operational management product definitions are registered in Maximo Asset Management and can be loaded from the discovery engine using the Integration Composer. You can also load operational management product definitions by using the features of the integration framework, such as object structure services.

The operational management product definitions include properties of the operational management product, such as a host name. The definitions also include configuration item relationships for those configuration items that are managed by the operational management product.

Integration framework for user interface integration

The integration framework provides components and features that support user interface-based integration between Maximo Asset Management applications and the external applications.

Launch entries

You create a launch entry record in the Launch in Context application. A launch entry defines the URL of an external application that you use to open an external application.

Launch entries can have the following properties:

- Specific business objects or multiple objects to identify the objects that can restrict the use of a launch entry to certain applications

- Context by substituting object field values into the URL string

- An object classification value that controls the launch entry visibility in a user interface (only show the launch entry on the user interface based on the classification value of current data being processed in the user interface)

- Operational management product-specific features including the automatic substitution of operational management product host name, and the configuration item source token into the URL based on configuration item Maximo Asset Management processes in the user interface

Land in context

You can use the land in context to have an external application open a system application user interface and to pass context information as part of the URL string.

SAP integration processing

2

The key features of the Maximo® Enterprise Adapter for SAP Applications (Maximo enterprise SAP adapter) are summarized in the following list:

- Manages the integration processing between Maximo Asset Management and SAP

- Provides a comprehensive set of predefined interfaces in Maximo Asset Management

- Provides a comprehensive set of predefined integration templates in the SAP NetWeaver Process Integration Enterprise Service Repository

- Provides custom SAP BAPI and ABAP programs for real time, batch, and user-initiated processing of outbound and inbound data

- Supports customization of the predefined integration objects

- Supports load and performance scalability using multiple queues and/or multiple queue consumers

The installation of the Maximo enterprise SAP adapter customizes the Maximo Enterprise Adapter. This chapter describes additional components that the Maximo enterprise SAP adapter installs, and the outbound and inbound processing flows.

Anyone involved in the implementation or day-to-day administration of the Maximo enterprise SAP adapter should read this chapter. Familiarity with the concepts in this chapter is essential for understanding the remaining documentation and using the application.

SAP adapter components

The following software components work together to transfer data between Maximo Asset Management and SAP systems:

- Maximo enterprise SAP adapter objects in Maximo Asset Management
- Java programs
- External exits
- Customized SAP Applications ABAP programs and BAPIs
- SAP NetWeaver Process Integration 7.4

The Maximo enterprise SAP adapter tracks the events that cause data to be transferred between systems and the locations of data in each system. The adapter also manages the internal functions of Maximo Asset Management to ensure that transfers occur smoothly and consistently. The adapter contains the business rules that move data between Maximo Asset Management and SAP. It also contains sophisticated error-trapping logic to ensure that no data is lost as it moves through the interface.

Integration component requirements

The integration between Maximo Asset Management and SAP requires the installation or testing of the following components:

- Maximo Asset Management 7.6
- SAP ERP 6.0
- SAP NetWeaver Process Integration (PI) 7.4
- Maximo – SAP integration software for Maximo Asset Management 7.6

SAP integration processes

The SAP adapter installs the following enterprise services and publish channel processes:

- Enterprise services
  - Chart of accounts and GL components
  - Labor
  - Craft
  - Time reporting
  - Vendor
  - Purchase requisition status update
  - Purchase order
  - Contract
  - Inv Vendor
  - Receipt
  - Invoice
  - Invoice variance
  - Item
  - Inventory
  - Inventory Balances
  - Material issue
- Publish channels
  - General ledger journal transaction
  - Time reporting
  - Purchase requisition
  - Purchase order
  - Receipt
  - Invoice
  - Material reservation
  - Material issue
  - Work order

Maximo enterprise SAP adapter interfaces

The Maximo enterprise SAP adapter installs the following interfaces in Maximo Asset Management.

Maximo enterprise SAP adapter type SAP Applications enterprise services

enterprise service name	Description
MXPC_FRSAP05	SAP Contract to Maximo
MXCRAFT_FRSAP05	SAP Craft to Maximo
MXDOMAIN_FRSAP05	SAP Domain Data to Maximo
MXGLACCT_FRSAP05	SAP GL Accounts to Maximo
MXINVBAL_FRSAP05	SAP Inventory Balance to Maximo
MXINVENTORY_FRSAP05	SAP Inventory to Maximo
MXINVOICE_FRSAP05	SAP MM Invoice to Maximo
MXINVVENDOR_FRSAP05	SAP Purchase Info Record to Maximo
MXINVISSUE_FRSAP05	SAP Issue to Maximo
MXITEM_FRSAP05	SAP Item to Maximo
MXLABOR_FRSAP05	SAP Labor to Maximo
MXEMPACT_FRSAP05	SAP Labor Time Reporting to Maximo
MXPO_FRSAP05	SAP Purchase Order to Maximo
MXPR_FRSAP05	SAP Purchase Requisition Status Change to Maximo
MXRECEIPT_FRSAP05	SAP Receipt to Maximo
MXVENDOR_FRSAP05	SAP Vendor to Maximo

Maximo enterprise SAP adapter type SAP Applications publish channels

publish channels	Description
MXGLTXN_TOSAP05	Maximo GL Transaction to SAP
MXINVOICE_TOSAP05	Maximo Invoice to SAP
MXINVRES_TOSAP05	Maximo Reservation to SAP
MXINISSUE_TOSAP05	Maximo Issue to SAP
MXEMPACT_TOSAP05	Maximo Labor Time Reporting to SAP
MXPO_TOSAP05	Maximo Purchase Order to SAP
MXPR_TOSAP05	Maximo Purchase Requisition to SAP
MXRECEIPT_TOSAP05	Maximo Receipt to SAP
MXWODETAIL_TOSAP05	Maximo Work Order and Reservation to SAP

Integration components

The Maximo enterprise SAP adapter is a version of the Maximo External Adapter that includes components configured specifically for handling business transactions between Maximo Asset Management and an SAP Applications system. Some components are on the Maximo side of the integration; some are on the SAP side. This section describes the integration components in the following list:

- Maximo Enterprise Adapter for SAP Applications
- SAP custom ABAP programs
- SAP ERP system ABAP Dictionary Objects
- SAP custom BAPIs (business APIs)
- SAP IDOCs (intermediate documents)
- SAP NetWeaver Process Integration (XI or PI)
- PI Integration Builder and Enterprise Service Repository templates

Integration component descriptions

Integration components

Integration component	Description
Maximo Enterprise Adapter for SAP Applications	The Maximo enterprise SAP adapter is located on the Maximo application server. It transfers data between Maximo Asset Management and the external system using business objects.
SAP custom ABAP (Advanced Business Application Programming) programs	ABAP is the programming language of SAP. The components of application programs that are responsible for data processing in the SAP system are ABAP programs. ABAP stands for "Advanced Business Application Programming." ABAP contains a special set of commands called OPEN SQL. This allows you to read from and write to the database regardless of the database you are using. The database interface converts the OPEN SQL commands into commands of the relevant database.

Integration component	Description
SAP ERP system ABAP Dictionary Objects	The ABAP Dictionary centrally describes and manages all the data definitions used in the ERP system. The ABAP Dictionary is completely integrated in the ABAP Workbench. All the other components of the Workbench can actively access the definitions stored in the ABAP Dictionary. The ABAP Dictionary supports the definition of user-defined types (data elements, structures and table types). You can also define the structure of database objects (tables, indexes and views).
SAP custom BAPIs (Business Application Programming Interfaces)	BAPIs are the standard SAP interfaces. They play an important role in the technical integration and in the exchange of business data between SAP components, and between SAP and non-SAP components. BAPIs enable you to integrate these components and are therefore an important part of developing integration scenarios where multiple components are connected to each other, either on a local network or on the Internet. BAPIs allow integration at the business level, not the technical level.
SAP IDOCs (intermediate documents)	IDOCs, or interface/electronic data interchange, is the interface SAP uses to exchange data for a business transaction with an external system like Maximo Asset Management. The IDOC interface consists of the definition of a data structure and a processing logic for the structure. The data structure is an IDOC, which is the exchange format that unites the communicating systems.

Integration component	Description
SAP NetWeaver Process Integration (PI)	The SAP NetWeaver Process Integration (PI) enables you to implement cross-system processes. It enables you to connect systems from different vendors (like Maximo Asset Management) in different versions and implemented in different programming languages (Java, ABAP, and so on) to each other. SAP PI is based on open architecture, uses open standards (in particular those from the XML and Java environments). SAP PI is based on general standards so as to enable external systems to be integrated. At the center of the infrastructure is an XML-based communication that uses HTTP. The application-specific contents are transferred in messages in user-defined XML schema from the sender to the receiver using the integration server. Every system that can exchange messages with the integration server can also exchange messages with all the other systems that are connected to the integration server.
PI integration builder and enterprise service repository templates	The integration builder is the central development environment for the development of all design objects for the enterprise service repository. The integration builder provides you with an environment with which you can describe integration scenarios, integration processes, interfaces, and mappings independently of a system landscape. You can import RFCs, BAPIs, and IDocs into the enterprise service repository, and for external systems you have the option of loading message schemas in WSDL, XSD, or DTD into the enterprise service repository.

Overview of integration touch points

There are three different sets of primary integration touch points between Maximo Asset Management and SAP Applications. The set your integration uses is defined by the system which controls material management and purchasing for your company.

This section refers to three different integration touch point configurations as Scenarios 1, 2, and 3. The integration points in the following three scenarios have been tested and are supported by IBM Corporation. You are not limited to using the integration components shown in these scenarios. You can implement the integration points available from the Maximo enterprise SAP adapter that meet your business requirements.

Scenario 1: material management and purchasing in SAP

This configuration assumes the following business integration parameters:

- Purchase Requisition, Work, and Asset Management in Maximo Asset Management

- Centralized Purchasing, Material (ITEM), and Inventory in the SAP system

- General Ledger and Accounts Payable in the SAP system

- Labor Master from the SAP HR system to Maximo Asset Management

- Time Reporting: either SAP CA-TS to Maximo Asset Management, or Maximo Asset Management to SAP CO Activity Posting

The following diagram shows the touch points for data exchange for Scenario 1:

Scenario 1: material management and purchasing in SAP

Maximo Asset Management		SAP ERP 6.0
Chart of Accounts	←	Cost Objects/ Assets/ GIs/ WBS
Transactions	→	FI/GL Posting
Item	←	MM Material
Inventory		MM Storeroom
Inventory Balance	←	Material Reservation
Material Reservation	→	Material Issue
Material Issue	→	
Purchase Requisitions	← Status →	Purchase Requisitions
Purchase Orders	←	Purchase Orders
Goods Receipts	←	Goods Receipts
Invoices	←	MMLog Invoices
		FI GL Invoices
Invoice Variances	←	Invoice Variances
Companies	←	Vendors
Work Orders	→	Internal Orders
Craft	←	Cost Center w/ Activity Code
Time Reporting	→ ←	CO Actual Posting
		CA-TS
Labor	←	HR Personal Data — SAP HR

Scenario 2: material management in Maximo Asset Management, purchasing in SAP

This configuration assumes the following business integration parameters:

- Purchase Requisition, Work and Asset Management, and centralized Inventory in Maximo

- Centralized Purchasing, General Ledger, and Accounts Payable in SAP system

The following diagram shows the touch points for data exchange for Scenario 2:

Scenario 2: material management in Maximo Asset Management, purchasing in SAP
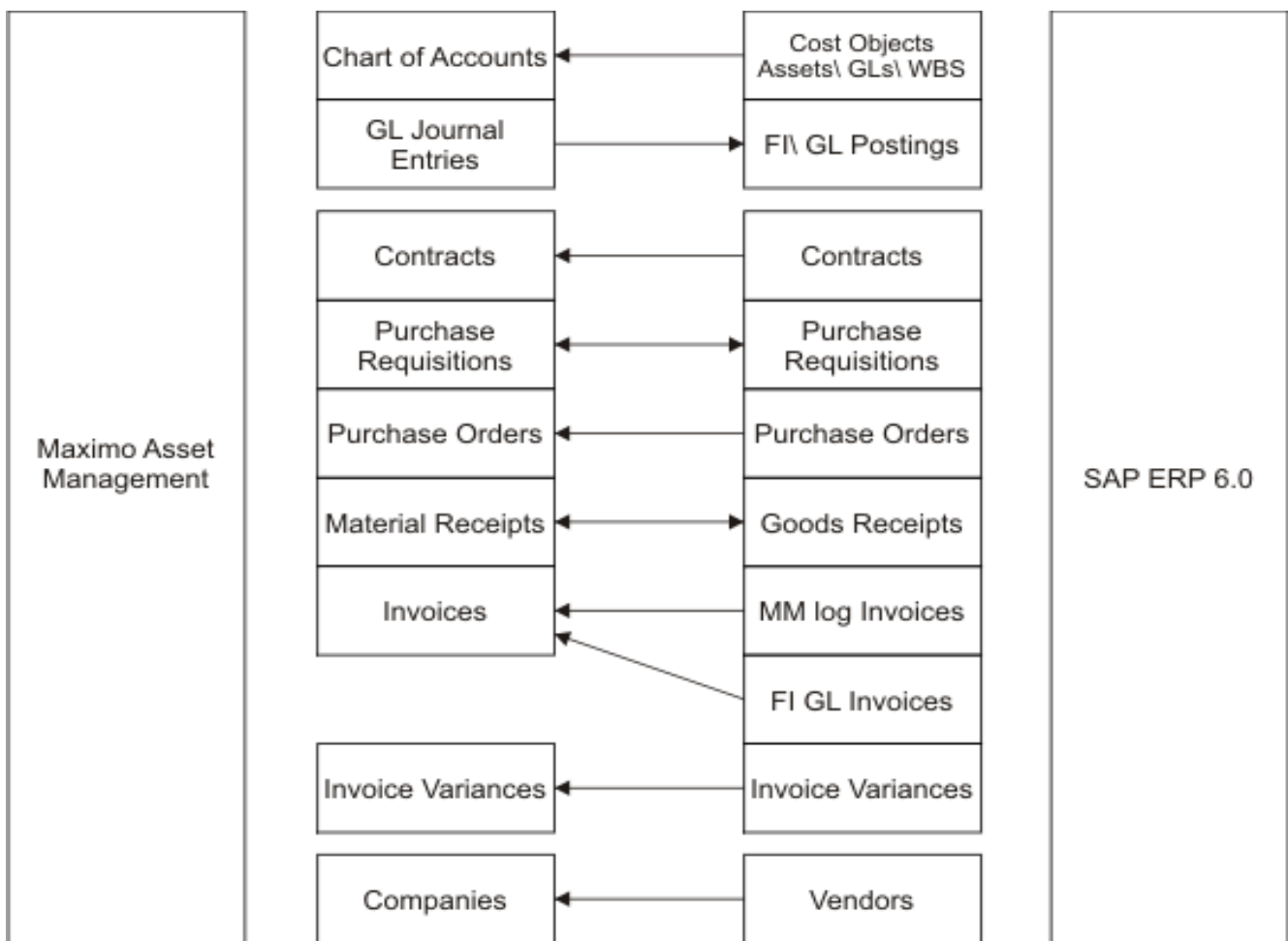
Scenario 3: material management and purchasing in Maximo Asset Management

This configuration assumes the following business integration parameters:

- Work and Asset Management, centralized Purchasing, and Inventory in Maximo Asset Management

- General Ledger and Accounts Payable in SAP system

The following diagram shows the touch points for data exchange for Scenario 3:

Scenario 3: material management and purchasing in Maximo Asset Management
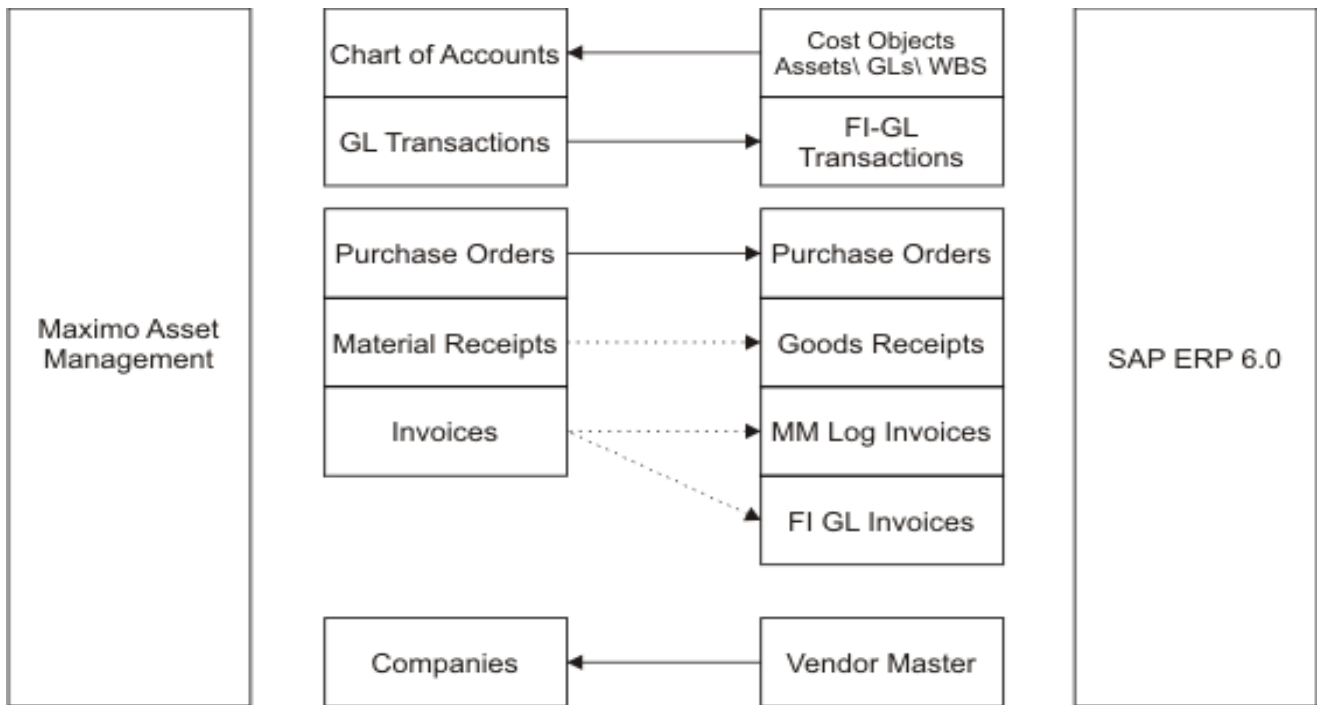
A dotted line in the Scenario 3 illustration indicates that the integration transaction is optional. The following integration transactions are optional:

- Maximo Asset Management material receipts to SAP goods receipts

- Maximo Asset Management invoices to SAP MM log invoices

- Maximo Asset Management invoices to SAP FI GL invoices

Maximo enterprise SAP adapter outbound and inbound processing

The Maximo enterprise SAP adapter handles the transfer of business data between Maximo Asset Management and SAP according to the configurations described in the previous section. This section describes the processing of transactions that originate in either Maximo Asset Management or SAP systems. When discussing the Maximo enterprise SAP adapter integration, transaction flows from Maximo Asset Management to SAP are referred to as **outbound** transactions; transaction flows from SAP to Maximo Asset Management are referred to as **inbound** transactions.

Outbound processing from Maximo Asset Management

The Maximo enterprise SAP adapter performs real time outbound integration processing, initiated via data entry in Maximo Asset Management.

The outbound processing flow is shown in the following figure:

Outbound processing flow from Maximo Asset Management to SAP
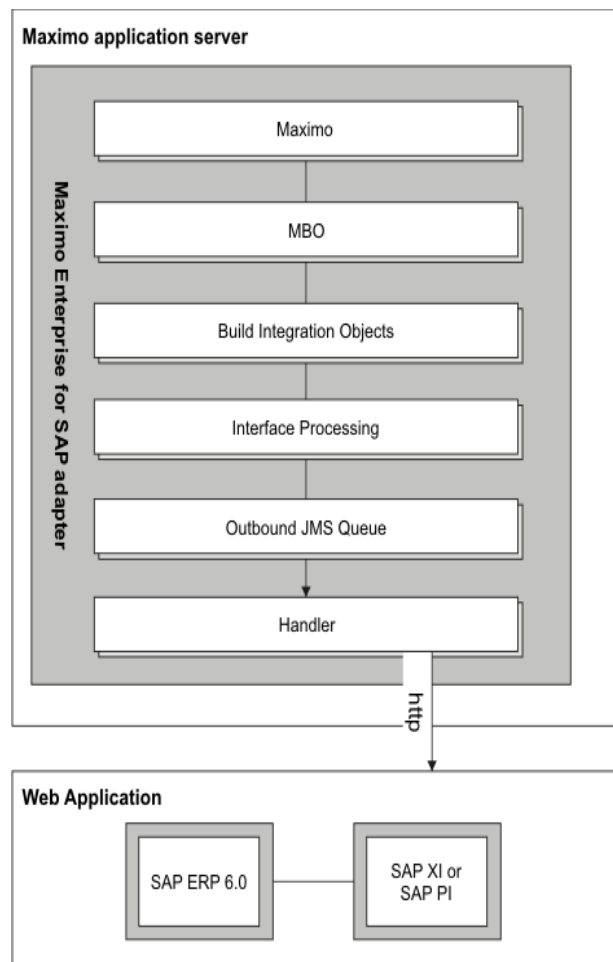
The following prerequisites apply to outbound processing for the Maximo enterprise SAP adapter:

- All applicable Maximo integration objects, integration points, interfaces, and external systems must be completely defined.

- The Maximo External System application must be configured with SAP as the end point.

- The Maximo outbound JMS queue must be configured.

- The following Maximo entities must be enabled:

  - External system
  - Applicable interfaces
  - Applicable outbound event listeners
  - The cron tasks that poll the outbound queues

For more information about configuration, see Chapter 9, Configuring the Maximo Enterprise Adapter for SAP Applications on page 81.

Inbound processing to Maximo Asset Management

When SAP sends a message to Maximo Asset Management, it uses XML via the integration gateway using HTTP post.

The inbound processing flow to Maximo Asset Management is shown in the following figure:

Inbound processing flow from SAP to Maximo Asset Management
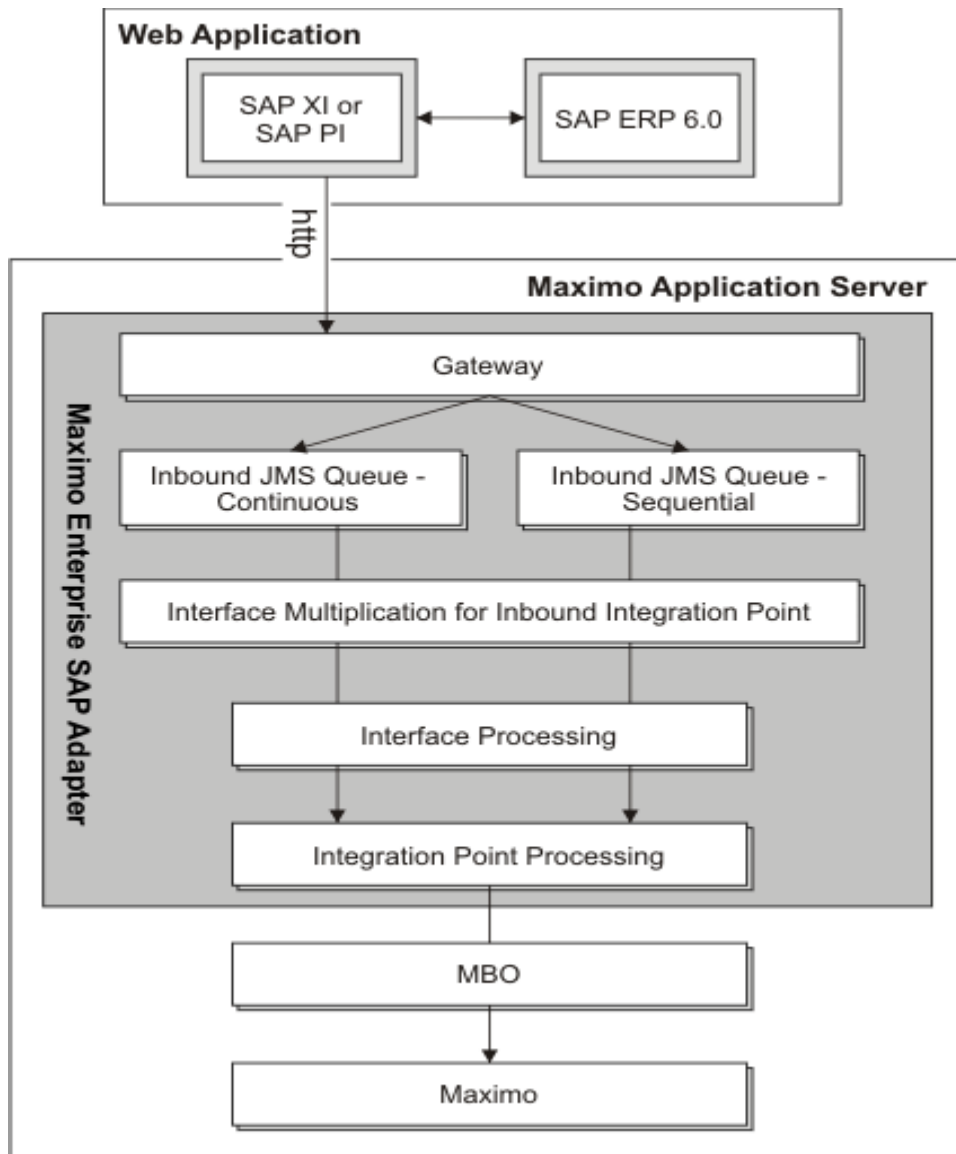
The Maximo enterprise SAP adapter supports processing of messages inbound to Maximo Asset Management through a sequential queue, a continuous queue, or a combination of the two. The sequential queue processes messages on a strict FIFO basis, while the continuous queue supports multi-threaded processing of transactions.

The following prerequisites apply to inbound processing for the Maximo enterprise SAP adapter integration:

- You must completely define all applicable Maximo integration objects, integration points, interfaces, and external systems.

- You must enable the following Maximo entities:

  - External system
  - Applicable interfaces
  - The cron task that polls the inbound sequential queue

For more information about configuration, Chapter 9, Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81.

SAP system outbound and inbound processing

When discussing the SAP system, transaction flows from SAP to Maximo Asset Management are referred to as **outbound** transactions; transaction flows from Maximo Asset Management to SAP are referred to as **inbound** transactions.

Outbound processing from the SAP system

SAP performs two types of outbound integration processing for handling by the SAP PI integration server and subsequently the Maximo enterprise SAP adapter:

- Batch Reports
- Intermediate Documents (IDocs)
- BAPIs

The outbound processing flow is shown in the following figure:

SAP PI outbound flow to Maximo Asset Management
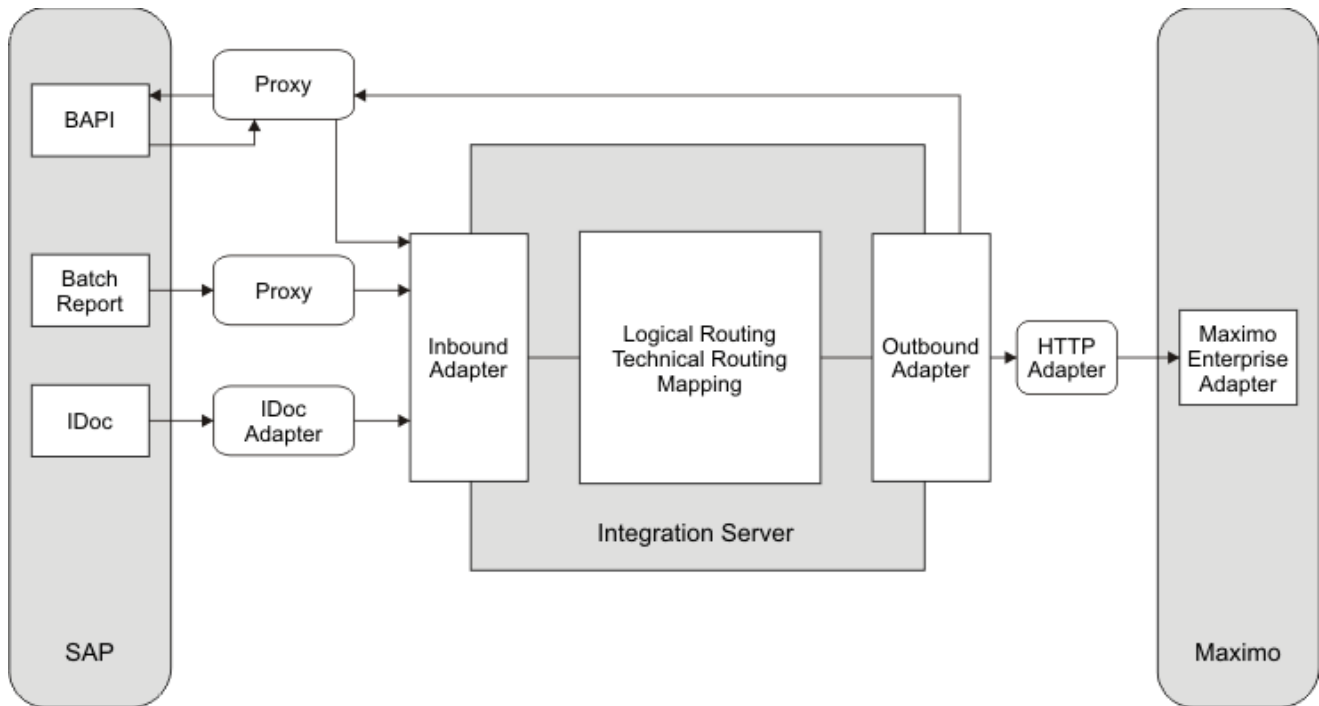
Batch report
A batch report is an executable ABAP program that implements reporting. It extracts data from SAP to be sent to Maximo Asset Management.

Intermediate document (IDoc)
An Intermediate Document (IDoc) is an SAP format for transferring the data for a business transaction. SAP uses IDocs to transfer data between SAP applications, and between SAP and external systems, in this case, the Maximo enterprise SAP adapter and Maximo Asset Management. An IDoc serves as a source document for all other documents created in the SAP system.

Inbound processing to SAP system

BDC

BDC is a processing mode for a batch input session in SAP. The Maximo enterprise SAP adapter includes custom BDC programs for sending batch data from Maximo Asset Management to SAP.

Business application programming interfaces (BAPIs)

SAP uses Business Application Programming Interfaces, or BAPIs, to handle data sent inbound to SAP. A BAPI is a standardized programming interface that enables external applications, in this case, Maximo Asset Management, to access business process and data in an SAP system.

The Maximo enterprise SAP adapter includes custom BAPIs for posting data from Maximo Asset Management to SAP.

Organizational structure

3

Before you can configure the integration between Maximo Asset Management and SAP, you must understand the relationships between organization levels in Maximo Asset Management and SAP.

This chapter is directed to the system administrators, implementation team members, and SAP and Maximo consultants who configure the integration.

SAP organizational structure

For integration purposes, it is important to understand the cross-relationship between SAP and Maximo organizational levels.

For example, a Maximo organization is like an SAP company code, a Maximo site corresponds to an SAP plant, and a Maximo storeroom is like an SAP storage location.

The following table provides a brief description for each SAP organizational level.

SAP organizational levels

Level	Description
Client	The highest level in the SAP system hierarchy, with separate master records and its own set of tables. Any specifications or data you enter at this level are valid for all company codes and for all other organizational structures. For example, a client can be a corporate group.
Company code	The smallest organization unit for which a complete self-contained set of accounts can be drawn up for purposes of external reporting.
Purchase organization	An organizational unit serving to subdivide an enterprise according to the requirements of Purchasing. It procures materials and services, negotiates conditions of purchase with vendors, and is responsible for such transactions.
Plant	An organizational unit serving to subdivide an enterprise according to production, procurement, maintenance, and materials planning aspects. It is a place where either materials are produced or goods and services provided.
Storage location	An organizational unit allowing the differentiation of material stocks within a plant. All data referring to a particular storage location is stored at storage location level.

The following figure shows the hierarchy structure of SAP organizational levels.

SAP hierarchical structure
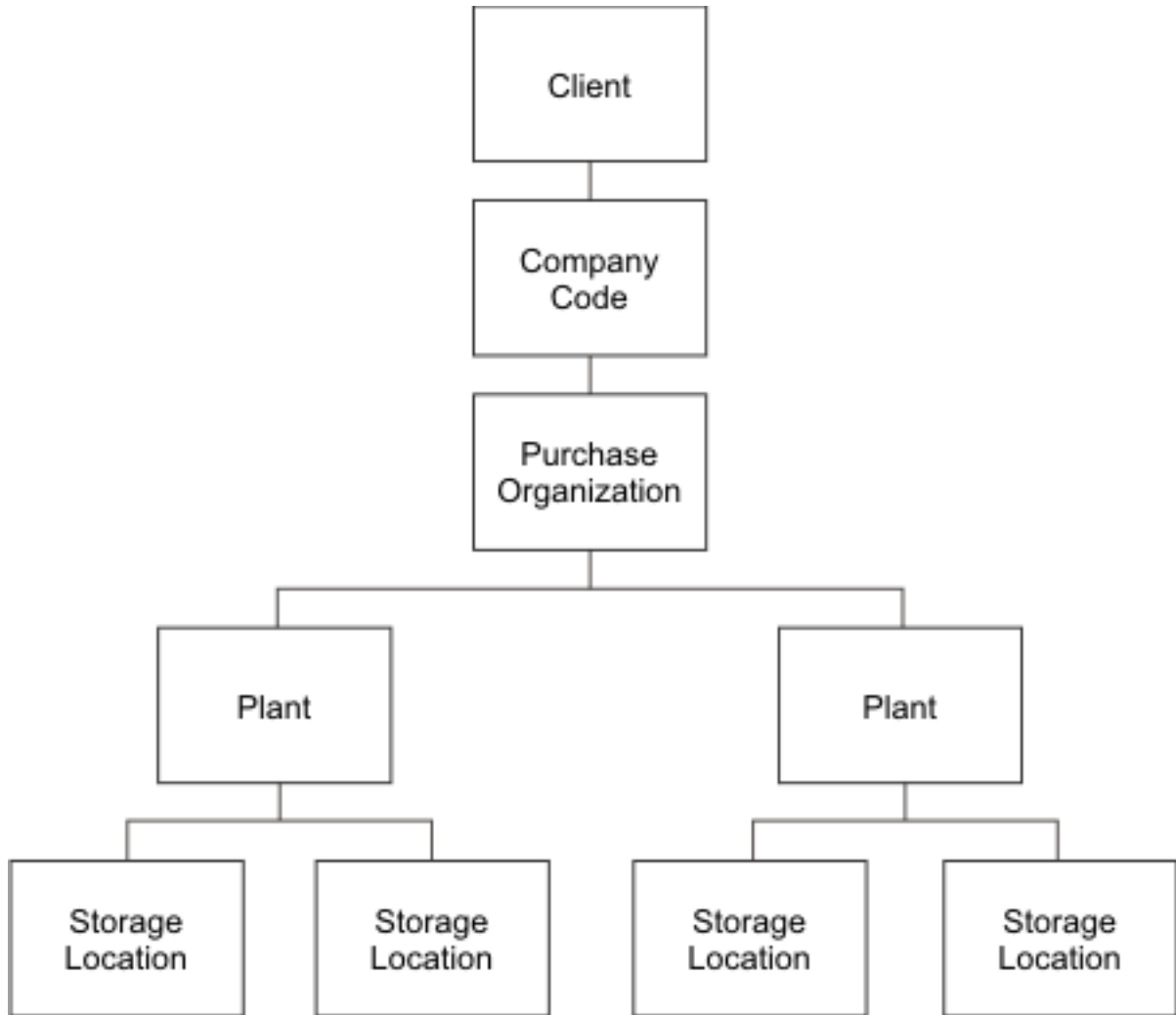
Maximo organizational structure

In Maximo Asset Management, an organization is a legal entity to which one or more sites belong. You define the chart of accounts and base currency at the organization level, and each site uses the values from the organization to which it belongs. You also define items, labor, purchase agreements, and vendors at the organization level. You define data such as equipment, inventory, purchase orders, and work orders at the site level, so that each site has its own set of equipment, inventory, and so on, that other sites cannot share or view.

In Maximo Asset Management, you can have a multisite implementation that lets different company sites share data from a single database, while keeping their operations separate.

Organization   Within a multisite implementation, an organization is a major division or legal entity of a company, which contains one or more sites. For integration purposes, it is important for you to understand how Maximo Asset Management uses organizations:

- Items sets let multiple organizations within a company view and choose from a common set of items. When you create an organization, you associate an item set to it. Company sets enable you to share information about companies between multiple organizations. You associate each organization with a company set.

- Organizations identify unique data sets.

- Any data that pertains to an organization has an organizational ID (ORGID).

- There can be many organizations within a single Maximo database.

- An organization identifies a unique chart of accounts, base currencies, and financial periods.

- Many sites can belong to the same organization.

- The organization identifies unique operating data within the system. The definition of companies (vendors), items, taxes, and item assembly structures are created for an organization.

- Purchase agreements are defined at the organizational level. A purchase order is created for a site, but can use agreements defined for the organization to which the site belongs.

Site   A site is a subdivision of an organization that can track inventory and other data separately from other sites. Sites generally share the same options for work orders, equipment, labor, and other types of data. Each site has its own set of equipment, locations, work orders, and job plans that it does not share with other sites. For integration purposes, it is important for you to understand how Maximo Asset Management uses sites:

- A site identifies a logical work location. For example, a plant or facility.

- A site belongs to only one organization.

- All transactions are carried out within a site (i.e., work orders, PRs, POs, Invoices, Issues, and Transfers).

- Assets and locations belong to a site.

- Assets and locations must be unique within a site.

The following figure shows the hierarchy structure of Maximo organizational levels.

Maximo hierarchical structure
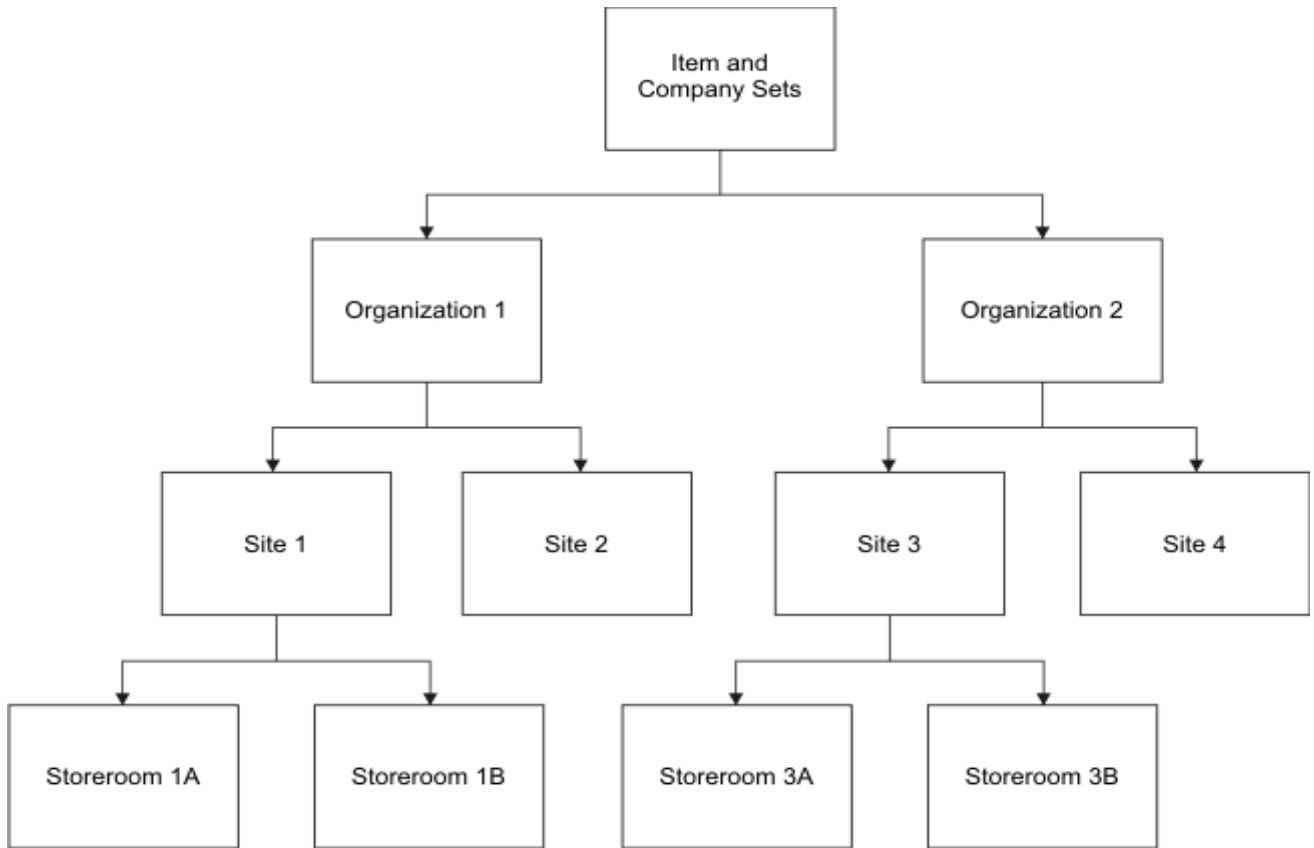
The following figure shows how the Maximo organizational levels map to the SAP organizational levels.

Mapping Maximo Asset Management and SAP organizational structures

Maximo		SAP ERP 6.0
Item and Company Sets	⟷	Client
Organization	⟷	Company Code
SAP Purchase Site Cross-Reference	⟵	Purchase Organization
Site	⟷	Plant
Storeroom	⟷	Storage Location
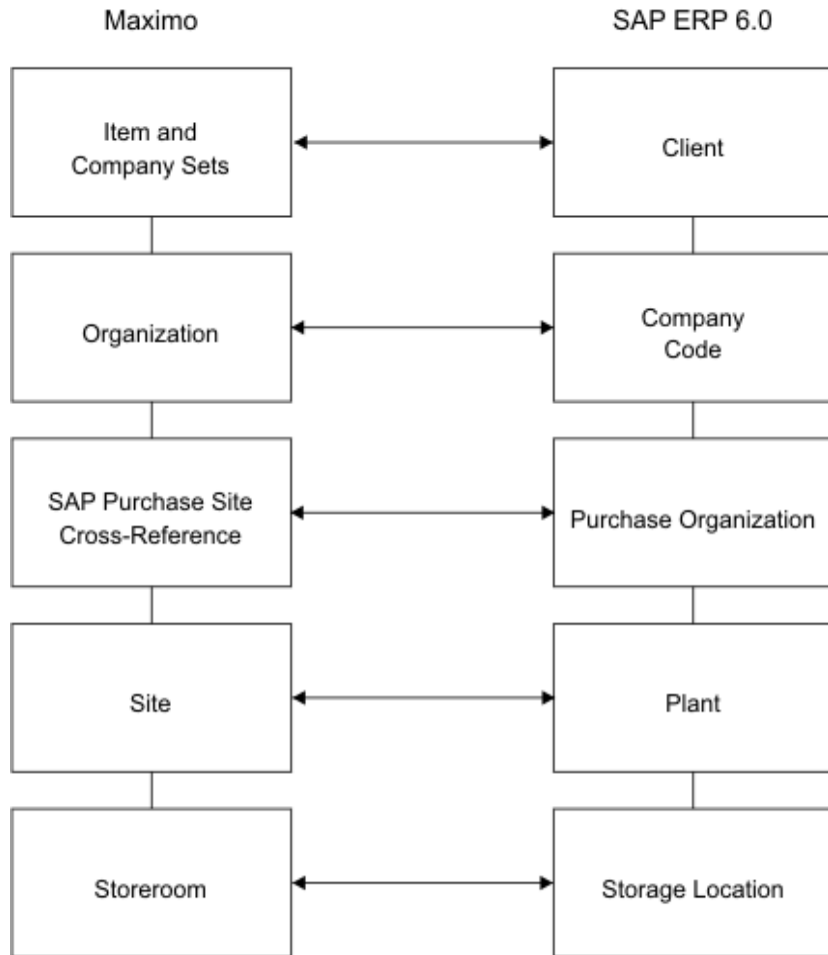
Interface controls

4

Interface controls let you configure the behavior of the integration processing according to the requirements of individual organizations and sites.

This chapter is directed to the system administrators, implementation team members, and SAP and Maximo consultants who are responsible for configuring interface controls.

Maximo enterprise SAP adapter interface controls

The Maximo interface controls contain values that the integration uses to perform such functions as translating Maximo values to SAP values and vice versa, providing default values for null columns, validating data values, and so on. The controls are defined within the SAP adapter and are used by Java processing code. If you create custom processing rules, the rules can reference the controls. Interface controls can be configured at the system, organization, or site level.

Interface Control Levels

Control Value	Description
System level	A system-level value applies to all Maximo organizations and sites. If the control is not configured for organization- or site-level values, the integration processing uses the system default. If the control is configured for organization- or site-level values but none exists for a particular organization or site, the integration processing uses the system-level value.
Organization level	An organization-level value applies to all Maximo sites within an organization. If a control is configured for organization-level values but none exists for a particular organization, the integration processing uses the system-level value.
Site level	A site-level value applies to a specific site within a Maximo organization. If a control is configured for site-level values but none exists for a particular site, the integration processing uses the organization-level value; if none exists, it uses the system-level value.

Maximo Asset Management uses four types of interface controls:

- Boolean type controls
- Cross-reference type controls
- List type controls
- Value type controls

Boolean Type Controls

A Boolean type interface control specifies a value of 0 (false) or 1 (true).

List type controls

A list type interface control contains a list of values. You can enter multiple values for the control and optionally assign a Maximo domain to the control. Assigning a domain ensures the validation of values entered for that control, at any level. If a domain is not assigned, there is no validation of the values entered.

Value type controls

A value type interface control contains a single value. You can enter a single value for the control and optionally assign a Maximo domain to the control.

Cross-reference type controls

A cross-reference type control replaces one value with another. In an outbound interface, Maximo Asset Management converts a Maximo value to an external system value. In an inbound interface, Maximo Asset Management converts an external system value to a Maximo value. You can optionally assign a Maximo domain to a cross-reference control. If a domain is specified, any Maximo value specified for the control is validated against that domain. If a domain is not assigned, there is no validation of the values entered.

In general, a processing error results if a one-to-many mapping exists between the Maximo and external values. A one-to-many mapping is valid if the cross-reference control is defined as a multiplication control. A multiplication control is a cross-reference control that copies, or multiplies, an inbound message for multiple organizations or sites. It has one SAP value and multiple Maximo values. You identify the control as a multiplication control on the Inbound Integration Points subtab of the Interface tab, in the Interfaces application.

The standard Maximo enterprise SAP adapter does not contain any multiplication controls, but you can define them for custom processing.

Cross-reference control

Maximo Asset Management sites correspond to business units of an external system, but the two systems use different values for these entities. A cross-reference control can perform the translation between the two values. For example, a cross-reference control in an inbound interface can translate business unit EX001 to Maximo site MX001. In an outbound direction, the same control can translate MX001 to EX001.

Multiplication control

A multiplication control can update the company in every organization in the Maximo database.

Creation and configuration of interface controls

Unless you create an interface or modify the processing of an existing interface, you probably do not need to create new interface controls. Modifying control values at the external system level is generally sufficient to customize predefined interface processing.

If you need to create a new control, you can do so via the Create Integration Controls dialog box in the enterprise services or publish channels application. The online help in that application s you through the process of creating a new control and associating it to the corresponding enterprise service or publish channel.

Keep in mind the following points:

- Ensure that the control name is unique across all adapters that you install.

- You must manually associate the control to existing enterprise services or publish channels that will use it

You set the value of the predefined interface controls in the External Systems application.

The table on the following page lists the interface controls installed by the SAP Applications adapter. The following columns are within the table:

Interface Controls

Column Name	Description
Control Name	Name of the interface control.
Description	A brief description of the control.
Type	The type of control: B = Boolean L = List V = Value X = Cross-reference
Domain	If applicable, the name of the Maximo domain that contains the valid values for the control: N/A = Domains are not applicable to the control N = No domain
Org/Site	Indicates if the system-level control value can be overridden at the organization or site level: N = Neither O = Organization S = Site
Default Values	One or more predefined values of the control. If the control is a cross-reference type control, the value on the left is entered in the Maximo Value field when configuring the control, and the value on the right is entered in the External Value field.

Maximo enterprise SAP adapter interface controls

Control name	Description	Type	Domain	Org/ site	Default values
GLSOURCE	Transaction type of Maximo journals that Maximo Asset Management *does not* send to SAP.	L	GLSOURCE	S	INVOICETRANS INVTRANS LABTRANS MATRECTRANS MATUSETRANS SERVRECTRANS TOOLTRANS
IVSEND	One or more statuses at which invoices are sent from Maximo Asset Management to SAP. Any Maximo status is a valid value.	L	IVSTATUS	S	APPR
POSEND	One or more statuses at which purchase orders are sent from Maximo Asset Management to SAP. Any Maximo status is a valid value.	L	POSTATUS	S	APPR
PRSEND	One or more statuses at which purchase requisitions are sent from Maximo Asset Management to SAP. Any Maximo status is a valid value.	L	PRSTATUS	S	APPR
SAPAAC	SAP account assignment category setting.	X	N	N	A = ASSET F = INTERNALORDER K = COSTCENTER L = ACTTYPE P = WBSELEMENT R = PROFITCENTER U = BUSAREA Z = GLACCOUNT
SAPAPOUT	Indicates if Maximo Asset Management sends FI or MM invoices to SAP.	B	N/A	N	1 [true]

Control name	Description	Type	Domain	Org/ site	Default values
SAPAPTYPE	SAP invoice (AP/accounts payable) type; specifies whether outbound invoices are posted to SAP FI or MM module.

MM and FI are valid values. | V | N | N | MM |
| SAPCALSTART | SAP calendar start date. | V | N | N | 01-01-1990 |
| SAPCONTRACTTYPE | Cross-reference Maximo contract type and SAP contract type. | X | N | N | BLANKET = MK
PRICE = WK |
| SAPFIGLACCT | SAP general ledger account for FI invoices. | V | N | O | [No default value] |
| SAPGLCOMP | SAP general ledger component settings.

For more information, see Chapter 10, Financial integration, on page 119. | X | N | N | 0 = WORKTYPE
1 = AACFLAG
2 = ASSET
2 = COSTCENTER
Null = ACTTYPE
Null = BUSAREA
Null = GLACCOUNT
Null = INTERNALORDER
Null = KOKRS
Null = PROFITCENTER
Null = WBSELEMENT
1 = CONCATGL |
| SAPGLCONCAT | SAP general ledger concatenation settings.

For more information, see Chapter 10, Financial integration, on page 119. | X | N | N | AACFLAG = ASSET
AACFLAG = COSTCENTER
AACFLAG = WBSELEMENT
Null = AACFLAG
Null = ACTTYPE
Null = BUSAREA
Null = GLACCOUNT
Null = INTERNALORDER
Null = KOKRS
Null = PROFITCENTER
Null = WORKTYPE
| = CONCATCHAR |

Control name	Description	Type	Domain	Org/ site	Default values
SAPINVOICESITEID	Determines whether the SAP client uses centralized invoicing, or decentralized invoicing. The default is to use decentralized invoicing. With decentralized invoicing, if an SAP Invoice contains POs from different sites in an organization, Maximo Asset Management creates and stores an invoice for each site on the SAP invoice. To enable centralized invoicing, set this value to the site ID of the Maximo site where invoices are processed. See Invoice and credit memo integration in Chapter 12 for more information.	V		O	Null = use decentralized invoicing
SAPINVOICESTATUS	Determines the default status for reversed invoices received from SAP.	V	IVSTATUS	S	APPR (default) or PENDREV
SAPIOSTATUS	Cross-reference Maximo work order status and SAP internal order status.	X	N	N	APPR = 20 CAN = 91 CLOSE = 90 COMP = 40 INPRG = 30 WAPPR = 10 WMATL = 20 WSCH = 20
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix. This prefix is concatenated with the Maximo work order number on outbound transactions. List all internal order types that are used in Maximo Asset Management.	X	N	N	MAXI = M MINV = I

Control name	Description	Type	Domain	Org/ site	Default values
SAPITEMSETID	Cross-reference Maximo ITEMSETID value and SAP system ID/client. If both systems use the same value, leave both parameters blank.	X	N	N	[No default value]
SAPLINETYPE	Cross-reference Maximo line type and SAP general ledger account for purchase orders.	X	N	O	SERVICE = DEFAULT
SAPMATLTYPE	Cross-reference Maximo inventory category and SAP material type.	X	N	N	The Maximo value for the following external values is STK: ERSA, FERT, FHMI, HALB, HAWA, HIBE, INTR, LEER, PIPE, PROC, ROH, UNBW, VERP, VKHM The Maximo value for the following external values is NS: CONT, DIEN, IBAU, KMAT, NLAG, PROD
SAPMAXBSNAME	Maximo business system name in SAP PI.	V	N	N	[No default value]
SAPMX5SITEPREFIX	Maximo Site ID prefix.	V	N	S	[No default value]
SAPNSTKROOM	Dummy Maximo storeroom location for non-stock items.	V	N	S	[No default value]
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID. If both systems use the same value, leave both parameters blank.	X	N	N	[No default value]
SAPPOTYPE	SAP purchase order document type.	V	N	N	PO
SAPPRTYPE	SAP purchase requisition document type.	V	N	N	PR

Control name	Description	Type	Domain	Org/ site	Default values
SAPPURCHSITEID	Cross-reference Maximo site and SAP purchasing organization.	X	N	O	[No default value]
SAPQOS	Indicates if the integration sends outbound interfaces to the sequential or continuous queue associated with the interface. The Maximo value is the name of an outbound interface. The external system value is one of the following: EO (continuous queue) EOIO (sequential queue) The integration sends all interfaces not referenced in this control to the continuous queue.	X	N	N	[No default value]
SAPRSVOUT	Indicates if Maximo Asset Management sends reservation transactions to SAP.	B	N/A	N	1 [true]
SAPRSVPRIORITY	Cross reference to convert Maximo hard/soft reservation to SAP reservation priority types	X	Y	N	[No default value]
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID.	X	N	N	
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location. If both systems use the same value, leave both parameters blank.	X	N	S	

Control name	Description	Type	Domain	Org/ site	Default values
SAPUNLIMITTOLERA NCE	SAP only allows receipt tolerances of up to 99.9%. If the Maximo PO Line's Receipt Tolerance is greater than 99.9%, set this control cause the POLINE.RECEIPTTOLERANCE to be null. If this control is false, an error message tells the user that the receipt tolerance exceeds 99.9% and that they need to specify a valid SAP value.	B	N	O	1 (true)
SAPWOOUT	Indicates if Maximo sends work order transactions to SAP.	B	N/A	N	1 [true]
WOSTART	One or more statuses at which work orders are sent from Maximo Asset Management to SAP. Any Maximo status is a valid value.	L	WOSTATUS	S	APPR WMATL WSCH

Customization with user exits

5

Every publish channel and enterprise service has corresponding Java user exit procedures where you can override or otherwise customize the predefined integration processing.

This chapter is addressed to developers who customize the integration.

You also can customize the integration via interface controls and processing rules. For more information, refer to the following documentation:

- Chapter 4: Interface controls

- *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center.*

Java User exit procedures

The integration applies Java user exit procedures immediately before and after it executes the predefined processing for the corresponding interface. Use preprocessing and postprocessing methods within a user exit to indicate when the code is to be applied.

Although you can give any name to a user exit procedure, consider using the following naming conventions.

User exit naming conventions

Direction of data transfer	File naming convention
Inbound	Max*ObjectStructureNameDirection*User.class
Outbound	Mout*ObjectStructureNameDirection*User.class

The SAP Applications adapter does not install any predefined user exit procedures.

If you use the Maximo enterprise application archive (maximo.ear) file, you must build and deploy it manually after updating Java user exit procedures. For more information, refer to *Administering Maximo Asset Management* in the *IBM Maximo Asset Management 7.6 Information Center.*

The Java ERP exit procedures reside in the following directory:

rootdirectory\applications\maximo\businessobjects\classes\ psdi\iface\sap2005

Multiple language support

6

Both Maximo Asset Management and SAP support multiple languages. This chapter discusses the specific data that can be translated into multiple languages and the SAP and Maximo configuration needed to implement multi-language integration processing.

This chapter is directed to system administrators, implementation team members, and SAP and Maximo consultants. It assumes that you have first read the information about multi-language processing in the *Administering Maximo Asset Management* in the *IBM Maximo Asset Management 7.6 Information Center*.

Multiple language support in SAP

SAP can save the following data in multiple languages.

- Material unit of measure codes and descriptions
- Short and long descriptions
- Purchase order (PO) text

Language codes are written to the SPRAS field in related SAP database tables.

ZBC_SAPMXCONFIG table

The ZBC_SAPMXCONFIG table in SAP identifies the Maximo base language and additional languages that the integration recognizes.

The required MXBASELANG variable in that table identifies the Maximo base language. The table can contain one MXBASELANG entry.

The optional MXLANGUAGE variable identifies additional languages. The table can contain zero, one, or multiple MXLANGUAGE entries. The ABAP and IDOC programs use the ZBC_SAPMXCONFIG table to determine the languages in which to send descriptions and purchase order text to Maximo Asset Management.

In SAP you work in the base language associated with your company code and employee profile. If the same data exists in multiple languages in SAP, the integration sends the data to Maximo Asset Management in each language that is included in the ZBC_SAPMXCONFIG table.

Example

If the SAP description of a material exists in English, French, and German, and those three languages are defined in MXBASELANG and MXLANGUAGE variables in the ZBC_SAPMXCONFIG table, the integration generates one inbound item interface containing the item description in three languages.

Units of measure

SAP can maintain units of measure in multiple languages. However, the integration sends unit of sure codes to Maximo Asset Management in the SAP base language (the MXBASELANG variable in the ZBC_SAPMXCONFIG table) only.

Descriptions and PO text

The integration can send short and long descriptions and PO text to Maximo Asset Management in the languages referenced by the MXBASELANG and MXLANGUAGE variables in the ZBC_SAPMXCONFIG table.

If an SAP material master record contains a long description and PO text, the integration sends just the PO text, which it stores in the LONGDESCRIPTION table in Maximo Asset Management.

Multiple language support in the Maximo enterprise SAP adapter

When you log into Maximo Asset Management, you choose to use the Maximo base language or another language. Outbound transactions that you generate contain translatable values in the language in which you logged in.

Within any Maximo application, you can enter language-specific values for the following columns:

- Short and long descriptions
- Unit of measure description and remarks
- Status values

Language codes are written to the TRANS_LANGCODE field in related integration interfaces.

When Maximo Asset Management receives data from SAP in multiple languages, it writes all the instances of the data to the database. If necessary, you can customize the processing code to filter the records.

Short and long descriptions

Every Maximo database table that contains translatable columns has a corresponding table called L_*TABLENAME,* where *TABLENAME* is the name of the Maximo database table. The L_*TABLENAME* table stores the non-base language values for every translated column except long description. For example, the short description for an item, in a non-base language, is stored in the L_ITEM table.

All long descriptions, in both the base language and translated languages, are stored in the LONGDESCRIPTION table.

Example

You log into Maximo Asset Management as a French user and update an item description in French. The outbound message generated by that activity will contain the item description in French.

If the Maximo base language is English, the ITEM table contains the short description on the item in English; the L_ITEM table contains the short description of the item in French; and the LONGDESCRIPTION table contains the long description of the item in English and French.

Units of measure

Maximo Asset Management can store unit of measure descriptions and remarks in multiple languages, in the MEASUREUNIT table.

Status values

You can translate the default Maximo status values that are used in interface controls to other languages. To do so, add the foreign language values in the following places:

- as an external value in the appropriate Maximo domain
- in place of the default Maximo value in the interface control

This option is available with the following controls:

- IVSEND
- POSEND
- PRSEND
- WOSART

Configuration of the Maximo enterprise SAP adapter for multiple language support

To include translated description values in outbound transactions, add the L_*TABLENAME* and LONGDESCRIPTION MBOs to the applicable integration objects.

Some interfaces contain a column called TRANS_LANGCODE, which contains the language code for the translated columns within the transaction. This column exists in all predefined integration objects that have translatable columns. If you build new integration objects and you want to support translatable columns, add this field. as a user field, to the top-level MBO of the integration object.

Many Maximo MBOs include a persistent column called LANGCODE. The Maximo user interface uses this column for text searching. The column is not related to the language of the transaction. Do not include it in integration objects that you create.

Error handling

7

This chapter contains information on errors you can encounter when transferring data between Maximo Asset Management and SAP Applications. It describes strategies and procedures for error handling in SAP.

For more information about how Maximo Asset Management handles errors, see *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

SAP to Maximo Asset Management errors

This section includes information on error handling for transactions you send from SAP to Maximo Asset Management.

IDoc processing

It is important that all IDocs created for the Maximo Enterprise SAP adapter are sent and processed correctly. To be sure that no IDocs remain unprocessed in the SAP system because of connection errors, schedule the report RSARFCEX at least daily.

If you see any connection or performance errors, refer to the corresponding SAP Notes, or contact Support.

PI message processing

The Maximo Enterprise SAP adapter does not use integration-specific configurations or methods for PI message processing. It uses the global SAP NetWeaver Process Integration settings and procedures.

The Runtime Workbench of the SAP NetWeaver Process Integration provides monitoring and error handling (reprocessing of messages).

Use this tool in the following cases:

- To track the status of messages
- To find errors that have occurred and establish their causes
- To restart messages, if the retry interval of the queues has passed
- To set up Alert services for getting information about errors by E-mail, fax, text message, and so on

For more information about PI message processing and error handling, see the corresponding SAP documentation about the SAP NetWeaver Process Integration.

Maximo Asset Management to SAP errors

Error handling on transactions sent from Maximo Asset Management to SAP can be done externally or internally depending on how you configure the SAP Application Server. Refer to *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center* for additional configuration information.

External error handling

All SAP function modules return the table RETURN back to the calling proxy. In the case of an error, this table will contain the error message preventing the successful posting of the record.

The proxy code loops over this table. If there is an error, RETURN TYPE=E, an exception with the error message of table RETURN is sent back to SAP PI. The message stays in the queue with the status "Application Error."

Required actions on this error must be done in SAP PI by either of the following methods:

- SAP PI Message Monitoring, supports the edit of payloads.

- A third-party product you use with PI for Monitoring and Error Handling.

Internal error handling

SAP internal error handling depends on the process mode of the transaction coming into SAP. This process mode is maintained in the ZBC_INBPROGRAMS table, in the BDCPR_MODE_ACT field.

- If the process mode is BDC, the function module creates a Batch-Input-Map.

- If the process mode is BAPI, the function module stores the record in tables. Use the program ZBC_BAPI_ADMIN to reprocess these errors.

For both process modes:

- An E-mail is sent to the specified receivers containing all necessary information about the error.

- A record is written into the log table ZBC_MSIF.

- The RETURN table is manipulated to contain only a Success - Message (RETURN-TYPE=S).

Batch input map

A Batch-Input-Map contains the record of the inbound session. Use transaction code **sm35** to review the map and correct faulty or insert missing data.

At the end of the map, the transaction is posted in SAP.

ZBC_BAPIADMIN report

If the internal error handling process uses BAPIs to post the data into SAP, the record is written to certain tables in the case of an error. All processes write an entry into the table ZBC_BAPIADMIN containing information about the message, the index, and the error. The data itself is written to a "process-specific" table, referenced by the index value. For example, Work Order error data is written to ZBC_BAPI_WORKOR, Reservation error data is written to ZBC_BAPI_RESERV, and so on. These tables match the structures which were used to send the data into SAP.

Use the report ZBC_BAPIADMIN to reprocess these records.

Configuring the ZBC_BAPIADMIN report

The first screen of this report is a selection screen, allowing a filtered view on entries in table ZBC_BAPIADMIN.

The next screen shows all selected entries in ZBC_BAPI_ADMIN.

Double-click on an entry to jump to the process-specific table, where you can change the data (except some key fields) and reprocess or delete the record.

If you reprocess the record, the message in the header line gets updated in case a follow-on error occurs. If the record gets reprocessed successfully (or manually deleted), the record gets deleted from the tables and the program returns to the prior screen containing the message list.

ZBC_BAPI_XXXX process-specific tables

Every Process has a different table to store the messages that errored out. They match the structures that transfer the data (SAP-IR).

ZBC_BAPI_XXXX process-specific tables

Process	Table	Structure name
GL Postings	ZBC_BAPI_GLINVOI	ZBC_M2S_GLINVOICES
Invoices	ZBC_BAPI_INVOIC	ZBC_M2S_MMINVOICES
Issues	ZBC_BAPI_ISSUES	ZBC_M2S_ISSUES
Labor Hours	ZBC_BAPI_LABHOUR	ZBC_M2S_LABORHOURS
Purchase Order	ZBC_BAPI_PURCHO	ZBC_M2S_PURCHASEORDER
Purchase Req	ZBC_BAPI_PURREQ	ZBC_M2S_PURCHASEREQ
Receipt	ZBC_BAPI_RECEIP	ZBC_M2S_RECEIPTS
Reservation	ZBC_BAPI_RESERV	ZBC_M2S_RESERVATIONS
Work Order	ZBC_BAPI_WORKOR	ZBC_M2S_WORKORDERS

Integration transactions

8

This chapter describes SAP transaction codes used for the integration of the Maximo enterprise SAP adapter.

The tables in this chapter show commonly used transaction codes for the modules and integration components included in the Maximo enterprise SAP adapter.

Your implementation of the Maximo enterprise SAP adapter might not use all these possible integration points. They are provided here for your reference when setting up authorization groups for integration users.

Logistics module, materials management

The following table shows the SAP Logistics module, materials management transactions that are part of this integration:

SAP Logistics module, materials management transactions

SAP materials management applications	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Purchasing/Purchase Order (MM-PUR-PO)	Purchase Order	ME21N	Not applicable	Create Vendor/Supplying Plant Known
Purchasing/Purchase Order (MM-PUR-PO)	Purchase Order	ME22N	Not applicable	Change
Purchasing/Purchase Requisition (MM-PUR-REQ)	Purchase Requisition	ME51N	Not applicable	Create
Purchasing/Purchase Requisition (MM-PUR-REQ)	Purchase Requisition	ME52N	Not applicable	Change
Purchasing/Outline Agreement (MM-PUR-OA) Contract	Contract	ME31K	Not applicable	Create
Purchasing/Outline Agreement (MM-PUR-OA) Contract	Contract	ME32K	Not applicable	Change
Purchasing/Master Data Info Record (MM-PUR-VM)	Info Record	ME11	Not applicable	Create
Purchasing/Master Data Info Record (MM-PUR-VM)	Info Record	ME12	Not applicable	Change

SAP materials management applications	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Purchasing/Master Data Info Record (MM-PUR-VM)	Info Record	ME15	Not applicable	Flag for Deletion
Purchasing/Master Data Vendor/Purchasing (LO-MD-BP)	Purchasing	MK01	Not applicable	Create
Purchasing/Master Data Vendor/Purchasing (LO-MD-BP)	Purchasing	MK02	Not applicable	Change (Current)
Purchasing/Master Data Vendor/Purchasing (LO-MD-BP)	Purchasing	MK06	Not applicable	Flag for Deletion
Inventory Management/Goods Movement (MM-IM) Goods Receipt/For Purchase Order	For Purchase Order	MIGO	Not applicable	GR for Purchase Order
Inventory Management/Goods Movement (MM-IM) Goods Issue	Goods Issue	MB1A	Not applicable	Goods Issues
Inventory Management/Goods Movement (MM-IM) Reservation	Reservation	MB21	Not applicable	Create
Inventory Management/Goods Movement (MM-IM) Reservation	Reservation	MB22	Not applicable	Change

SAP materials management applications	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Logistics Invoice Verification (MM-IV-LIV) Document Entry (Invoice)	Invoice	MIRO	Not applicable	Enter Invoice
Material Master/Material (LO-MD-MM) Create (General)	Create	MM01	Not applicable	Immediately
Material Master/Material (LO-MD-MM) Change	Change	MM02	Not applicable	Immediately
Material Master/Material (LO-MD-MM) Flag for Deletion	Flag for Deletion	MM06	Not applicable	Immediately

Accounting module

The following table shows the SAP Accounting module transactions that are part of this integration:

SAP accounting module transactions

SAP accounting module applications	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Financial Accounting General Ledger/Posting (FI-GL)	General Ledger/Posting	FB01L	Not applicable	Enter General Posting for Ledger Group
Financial Accounting (FI) Vendors/Document Entry/ Invoice	Invoice	F-43	Not applicable	Invoice - General
Controlling/Cost Element Accounting (CO-OM-CEL) Master Data/Accrual Order (Internal Order)	Accrual Order	KO01	Not applicable	Create
Controlling/Cost Element Accounting (CO-OM-CEL) Master Data/Accrual Order (Internal Order)	Accrual Order	KO02	Not applicable	Change
Controlling/Cost Element Accounting (CO-OM-CEL) Actual Postings/Activity Allocation (Post Labor Hours)	Activity Allocation	KB21N	Not applicable	Enter

SAP accounting module applications	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Project System (PS) Project/Special Maintenance Functions/ Work Breakdown Structure (WBS)	Work Breakdown Structure	CJ01	Not applicable	Create
Project System (PS) Project/Special Maintenance Functions/ Work Breakdown Structure (WBS)	Work Breakdown Structure	CJ02	Not applicable	Change

Human resources module

The following table shows the SAP Human Resources module transactions that are part of this integration. Bold print in the SAP Human Resources Module Applications column indicates the level at which you perform the transaction.

SAP human resources module transactions

SAP human resources module application	Level at which transaction is performed	Old transaction code	New transaction code	Transaction code description
Personnel Management Administration/HR Master Data (PA-PA)	HR Master Data	PA30	Not applicable	Maintain
Time Management Time Sheet/CATS Classic (CATS)	CATS Classic	CAT2	Not applicable	Record Working Times

Configuring the Maximo Enterprise Adapter for SAP Applications

9

The Maximo Enterprise Adapter for SAP Applications enables you to exchange and process data between Maximo Asset Management and SAP Applications. Integration does not change the basic functions of the two systems. Most of the data exchanges involve work orders, purchasing processes, inventory processes, and the general ledger.

Coordinating shared data

When Maximo Asset Management and SAP share information, certain settings must be the same in both systems. Manually configure the following Maximo settings to match the corresponding settings in SAP. You only need to configure these settings once.

- financial calendars
- base currencies
- all currency codes
- units of measure and conversion factors
- user names
- GL account configuration

The integration does not automatically create Maximo company master records for inbound SAP vendors. Configure Maximo Asset Management to create a company master record for each new inbound vendor that has not previously existed in the Maximo database. To avoid errors when you bulk load inbound SAP vendor data, select the Automatically Add Companies to Company Master check box in the Maximo Sets application. During a bulk load of inbound vendor data, this setting will create Company Master records only for vendors new to Maximo Asset Management.

If the two applications share data, determine how to make the settings compatible. For example, if SAP defines base currency in terms of the British Pound and Maximo Asset Management is configured to use the U.S. Dollar, determine which base currency to use. Make this base currency the consistent definition for both applications.

If you pass journal entries from Maximo Asset Management to the SAP General Ledger (GL), define the components of your Maximo GL account keys to support SAP financial postings.

Configuration task overview

Perform the following tasks for configuring the exchange of data between your Maximo Asset Management and SAP Applications systems.

- Configuring Maximo Asset Management
  - Synchronizing GL components
  - Reconfiguring Maximo table columns
  - Configuring Maximo field lengths
  - Synchronizing units of measure
  - Synchronizing currency codes
  - Synchronizing item categories
  - Synchronizing Work Order status
  - Configuring interface controls

- Configuring SAP Applications
  - Maintaining configuration tables
  - Scheduling reports

- Configuring SAP NetWeaver Process Integration (PI) 7.4
  - Setting receiver determination for multiple Maximo systems (if your integration has more than one Maximo instance exchanging data with SAP)

Configuring Maximo Asset Management

This section provides information on how to configure the Maximo side of the integration.

CAUTION   If you need to maintain SAP cost objects in different Maximo GL account structures per organization (SAP company codes), you must coordinate with your Maximo system administrator to configure the Maximo GL account structures per organization (SAP company code) prior to your SAP integration.

Synchronizing GL components

The general ledger interface transfers new and updated cost objects from SAP to Maximo Asset Management, and optionally transfers account combinations from SAP to Maximo Asset Management. You initiate these actions through various ABAP programs.

The GL structure for integration objects in Maximo Asset Management is composed of cost elements from SAP. You cannot store SAP cost objects in the Maximo database as Maximo GL Components the same way they are stored in SAP.

SAP cost objects correspond to Maximo general ledger components. You define Maximo general ledger components at the Maximo system level. All organizations within the Maximo database share the general ledger components that you define.

SAP cost objects

SAP Cost accounting summarizes and posts cost objects by account assignment category (AAC). The integration processes the following SAP account assignment categories:

SAP account assignment categories

AACFLAG	Description	Maximo Enterprise Adapter for SAP applications field
K	Cost center	COSTCENTER
F	Internal order	INTERNALORDER
P	WBS element	WBSELEMENT
A	Asset	ASSET
Z	GL account	GLACCOUNT
L	Labor activity type	ACTTYPE
U	Business area	BUSAREA
R	Profit center	PROFITCENTER

The following section describes how to configure Maximo Asset Management to allow SAP cost objects to synchronize with the Maximo GL account structure.

Configuring the Maximo GL account format to match the Maximo Enterprise Adapter for SAP applications GL format

Maximo Asset Management allows you to maintain different general ledger (GL) account structures for different organizations in one Maximo database. The system-level GL account structure must be configured to accommodate the GL account structures of all organizations.

Follow the instructions in this section to change the Maximo GL account structure to the match the Maximo Enterprise Adapter for SAP applications GL account structure.

1   In Maximo Asset Management, choose **Go To** > **System Configuration** > **Platform Configuration** > **Database Configuration**.

2   Choose **GL Account Configuration** from the Select Action menu.

3   Create the following standard GL Account structure for the integration in Maximo Asset Management:

nnnnnn~n~nnnnnnnnnnnnnn

where

   nnnnnn represents the length of the first GL component.

   n represents the length of the second GL component.

   nnnnnnnnnnnnnn represents the length of the third GL component.

Remember to enter the screen separator as a tilde (~) for all segments except for the last one. You can use the tilde as the separator so that it does not conflict with any special characters in an SAP cost object.

The following table lists the standard Maximo Enterprise Adapter for SAP applications GL account configuration requirements:

Maximo Enterprise Adapter for SAP applications GL account configuration requirements

Component	Length	Type	GL Order	Reqd.	Screen Separator
First component	6	ALN	0	Y	~
Second component	1	ALN	1	Y	~
Third component	14	ALN	2	Y	

If you are using WBS Elements as cost objects, that component can be up to 25 characters in length.

If your business requirements dictate otherwise, you do not have to use the standard GL account configuration. If you decide to modify the standard GL components, you are required to enter the first component. Additionally, if you decide to implement a non-standard GL configuration, you can contact IBM Corporation for assistance.

4 In the GL Account Configuration screen, click the arrow next to the COST CENTER component to open the Details panel. Complete the following fields using the information in the preceding table, to build the Maximo Enterprise Adapter for SAP applications GL account format:

- Component (for example, enter WORKTYPE for Maximo internal order type)
- Length (for example, six characters)
- Type (for example, ALN or alphanumeric)
- Required (for example, enter check for Yes)
- Screen separator (enter ~)
- GL order (for example, 0 for first position)

5 Repeat Step 4 and replace existing Maximo component fields with the SAP 2nd and 3rd component field information from the preceding table.

Organization-specific GL account structure

The following steps describe configuring organization-specific G/L account structure.

1 In Maximo Asset Management, choose **Go To** > **Financial** > **Chart of Accounts**.

2 Choose Add/Modify Account Structure from the Select Action menu.

3 Modify the GL account length for the specific organization.

For more information on reconfiguring the Maximo GL account structure to support the Maximo Enterprise Adapter for SAP applications GL accounts, see Chapter 10, Financial integration, on page 119. Chapter 10, Financial integration, includes a detailed example and information on concatenating cost elements.

Note: For Maximo Asset Management Multitenancy Users

Any changes to the Maximo GL account structure must be applied to the database.

Before you begin

Before the tenant administrator can apply the changes to the database, the following system property must have a value assigned in the System Properties application:

System property	Global value
mxe.adminEmail	<Email address of the tenant administrator>

Procedure

1 In the Database Information application, select **Manage Tenant Admin Mode**.

2 Click **Turn Admin Mode ON**, and enter values into the required fields in the Electronic Signature Authentication window.

3 Click **Apply Changes**.

4 To turn admin mode off, select **Manage Tenant Admin Mode**, and then click **Turn Admin Mode OFF**.

For more information about configuring general ledger accounts, see *Configuration of general ledger accounts for a tenant* in the *IBM Maximo Asset Management Multitenancy 7.6 Information Center.*

Configure interface controls

You can use the Maximo Enterprise Adapter for SAP applications to synchronize SAP and Maximo GL components by using the SAPGLCOMP and SAPGLCONCAT interface controls.

You specify the format of the Maximo account numbers through the values in SAPGLCOMP and SAPCLCONCAT. The format is based on the Maximo GL account structures *per organization* with a corresponding SAP company code.

When formatting the controls, keep in mind the following:

- A Maximo account number can have any number of segments.

- Maximo Asset Management specifies a maximum length, rather than a fixed length, for general ledger components. If a component is smaller than the maximum length, Maximo Asset Management does not require any filler characters.

SAPGLCOMP The SAPGLCOMP interface control specifies the elements that make up the Maximo GL account number, and the sequence in which those elements appear within the number. You build the account number from the following elements:

- SAP company code
- SAP controlling area
- Maximo internal order type
- Cost type
- Cost center object
- Internal order object
- WBS element object
- Asset object
- GL account
- Labor activity type
- Business area
- Profit center

This control lets you specify which SAP cost elements to store in Maximo Asset Management as possible GL components. The Value field of the parameter contains the Maximo GL Order number, which controls the positioning of the component in the GL account format.

You can build account numbers from the elements listed in the following table. If you do not use a cost element for a Maximo GL component, then set the Value field of the parameter to NULL. Also, for the CONCATGL parameter, the number represents a Boolean value (1 or 0); not a position within the account number.

SAPGLCOMP interface control parameters

External value parameter	Description	Maximo value
CONCATGL	Concatenate	1
KOKRS	SAP Controlling area	NULL
WORKTYPE	Maximo Internal Order Type	0
AACFLAG	Cost Type	1
COSTCENTER	Cost Center Object	2
ASSET	Asset Object	2
WBSELEMENT	WBS Element Object	2
INTERNALORDER	Internal Order Object	NULL
GLACCOUNT	GL Account Object	NULL
ACTTYPE	Labor Activity Type	NULL
BUSAREA	Business Area	NULL
PROFITCENTER	Profit Center	NULL

The GL account number you build can contain any number of components. The GL Order number for a fourth component would be 3; the GL Order number for a fifth component would be 4, and so on.

If multiple cost objects can appear in the same component within an account number, assign the same GL Order number to each of those cost objects. For example, if the cost object appears as the third component in some accounts and the asset appears in the third component in some accounts, enter 2 as the value for both COSTCENTER and ASSET.

SAPGLCONCAT   You can use the SAPGLCONCAT interface control to concatenate two cost objects in a single component within the Maximo account number.

To concatenate two cost objects within a component of the Maximo GL account number, first enter a value of 1 (true) in the GLCONCATGL parameter of the SAPGLCOMP interface control.

If you enter 1, also enter a special character to use as the separator between the concatenated values. You configure the separator using the CONCATCHAR parameter of the SAPGLCONCAT interface control. If you do not plan on concatenating two cost objects, then set the value of the CONCATCHAR parameter to NULL.

The remaining parameters in the SAPGLCONCAT control are the same as the corresponding parameters in the SAPGLCOMP control as shown in the following table.

SAPGLCONCAT interface control parameters

External value parameter	Description	Maximo value
CONCATCHAR	Concatenation Separator Character Default = | [pipe]	| [pipe]
KOKRS	SAP controlling area	NULL
WORKTYPE	Maximo internal order type	NULL
AACFLAG	SAP cost type	NULL
COSTCENTER	SAP cost center object	AACFLAG
ASSET	SAP asset object	AACFLAG
WBSELEMENT	SAP WBS element object	AACFLAG
INTERNALORDER	SAP internal order object	NULL
GLACCOUNT	SAP GL account	NULL
ACTTYPE	SAP labor activity type	NULL
BUSAREA	SAP business Area	NULL
PROFITCENTER	SAP profit center	NULL

Enter the name of the element that you want to appear first in the concatenated value in the Maximo value column of the element that you want to appear second. For example, to concatenate cost type (AACFLAG) and cost center (COSTCENTER), enter the literal AACFLAG in the Maximo value column of the COSTCENTER parameter.

The following example shows how to configure the SAPGLCONCAT control to concatenate cost type with the COSTCENTER, ASSET, and WBSELEMENT cost objects using the pipe character (|) as the separator. The third component will contain one of the following values

- AACFLAG value |COSTCENTER value
- AACFLAG value | ASSET value
- AACFLAG value | WBSELEMENT value

The resulting account numbers will have one of the following formats:

- WORKTYPE value~AACFLAG value~
  AACFLAG value | COSTCENTER value

- WORKTYPE value~AACFLAG value~
  AACFLAG value |ASSET value

- WORKTYPE value~AACFLAG value~
  AACFLAG value | WBSELEMENT value

Default Account Configuration

The default values in the SAPGLCOMP and SAPGLCONCAT controls generate Maximo account numbers with the following format:

Position of component in account number	Component value
1	WORKTYPE value
2	AACFLAG value
3	AACFLAG value | COSTCENTER value or AACFLAG value | ASSET value or AACFLAG value | WBSELEMENT value

The SAPGLCOMP control contains the following default values: *

SAPGLCOMP interface control default values

Parameter (external value)	Maximo value
CONCATGL	1 (Yes, concatenate)
WORKTYPE	0
AACFLAG	1
COSTCENTER	2
ASSET	2
WBSELEMENT	2

The SAPGLCONCAT control contains the following default values: *

SAPGLCONCAT interface control default values

Parameter (external value)	Maximo value
CONCATCHAR	| (pipe)
COSTCENTER	AACFLAG
ASSET	AACFLAG
WBSELEMENT	AACFLAG

*The value of the remaining parameters in the control is NULL.

Reconfiguring Maximo table columns

Ensure that database columns corresponding to each field of data coming from SAP are defined in the Maximo database tables. Also reconfigure Maximo database columns to be compatible with the corresponding columns in SAP. If you do not, Maximo Asset Management cannot store the imported data.

Compare the Maximo tables to the tables in your SAP applications. All columns containing data shared by Maximo Asset Management and your external applications must have the same:

- Column length
- Data type
- NULL settings

To reconfigure the Maximo table columns so they are compatible with the corresponding columns in the SAP system, use the Database Configuration application in Maximo Asset Management. For instructions on using the Database Configuration application, refer to *Administering Maximo Asset Management* in the *IBM Maximo Asset Management 7.6 Information Center*.

Configuring Maximo field lengths

The following table lists Maximo fields which you must modify for integrations between Maximo Asset Management and SAP. Certain Maximo fields are reserved by default for use with the SAP integration. In order to ensure that your configuration works correctly, do not use these reserved Maximo fields for any other purpose. Fields denoted in bold are SAP reserved fields.

Maximo Fields that you must modify

Object	Attribute	SAP reserved field	Length
CRAFT	CRAFT	No	10
PO	PONUM	No	10
INVOICE	INVOICENUM	No	10
INVOICE	EXTERNALREFID	Yes	50
CONTRACT	CONTRACTNUM	No	10
MATRECTRANS	EXTERNALREFID	Yes	50
MATUSETRANS	EXTERNALREFID	Yes	50
SERVRECTRANS	EXTERNALREFID	Yes	50
LABTRANS	EXTERNALREFID	Yes	50
INVVENDOR	EXTERNALREFID	Yes	50
MATRECTRANS	ORGRCVEXTERNALREFID	Yes	50
SERVRECTRANS	ORGRCVEXTERNALREFID	Yes	50
MXRECEIPT	ORGRCVEXTERNALREFID	No	50

Applying changes to the database in Maximo Asset Management

Run CONFIGDB.BAT whenever you change Maximo field lengths. For instructions on running CONFIGDB.BAT, refer to *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

Applying changes to the database in Maximo Asset Management Multitenancy

Any changes to Maximo field lengths must be applied to the database by the global administrator. To apply changes to the database, see *Configuring the database in administration mode* in the *IBM Maximo Asset Management Multitenancy 7.6 Information Center*.

Synchronizing units of measure

Use the same units of measure in both Maximo Asset Management and SAP. For example, "CAS" is a unit of measure recognized by SAP, so define it in Maximo Asset Management also.

The Add/Modify Units of Measure dialog box is a Select Action item available from more than one Maximo Asset Management application, like Purchase Requisitions. Use this dialog box to add new units of measure.

Any units of measure that you add become available in Maximo Asset Management for use when ordering or issuing items.

Use the following procedure to configure units of measure in Maximo Asset Management.

1   Open the Purchase Requisitions application in the Purchasing module.

2   From the Select Action drop down, select Add/Modify Units of Measure.

3   Add any units needed by SAP.

PR line units of measure conversion factor

If you interface an item from SAP to Maximo Asset Management (Item/Inventory replicated from SAP), then the SAP Units of Measure (UOM) and the Conversion Factor for that item must also be maintained in Maximo Asset Management. Add or update UOM and Conversion Factor values for SAP-owned items in SAP, as this data comes to Maximo Asset Management during the Item integration.

If you create a PR in Maximo Asset Management for an SAP-owned item, and you enter a different Order UOM than the Issue UOM and there is **no** defined Conversion Factor relationship, then Maximo Asset Management sets the Conversion Factor to "1" by default. For example, assume you create a PR for an SAP stock item with an Issue UOM of EA and a quantity of "1." If you then change the Order UOM for the PR line to PAL and enter a Conversion Factor of 10, save and approve the PR in Maximo Asset Management, when you open the PR line in SAP, it has a value of 1 EA and not 10 EA. This behavior occurs because the integration, in this instance, uses the Maximo default UOM conversion factor of 1.

Outbound Maximo PO/PR number prefixes

Use the Autonumber Setup action in the Maximo Organizations application to add the following prefixes to the Maximo PONUM/PRNUM at the site level:

- SAP PR Document Number prefix
- SAP PO Document Number prefix
- Maximo SITEID prefix

The PONUM/PRNUM length must be ten characters to match the SAP PO/PR number length. The PONUM is equal to the SAP PO Document Number prefix plus the Maximo Site ID prefix. The PRNUM is equal to the SAP PR Document Number prefix plus the Maximo Site ID prefix.

The standard Maximo Enterprise Adapter for SAP applications supports only one SAP PO/PR document type per integration. Create a Maximo PO and PR Document type in your SAP system and define the number ranges for these document types. Then store these values in the Maximo SAPPOTYPE and SAPPRTYPE value controls.

Outbound Maximo WO number prefixes

Add the following two prefixes to the outbound Maximo WONUM:

1 Use the Autonumber Setup action in the Maximo Organizations application to add the Maximo SITEID prefix to the outbound Maximo WONUM at the site level:

2 Use the SAPIOTYPEPREF cross-reference control to add the appropriate SAP Internal Order (IO) Document number prefix.

The standard Maximo Enterprise Adapter for SAP applications supports two internal SAP document types: Maintenance and Investment. The Maximo Enterprise Adapter for SAP applications uses the SAPIOTYPEPREF cross reference control to add the SAP Internal Order (IO) Document Number to the Maximo work order number.

The WONUM length must be ten characters to match the SAP WO number length. Make sure the added prefixes do not cause the total length of the WONUM to exceed ten characters.

Outbound Maximo WO task ID prefixes

If you use Task IDs in Maximo work orders, you need to add the Maximo Site ID prefix to the Task ID.

Synchronizing currency codes

The same currency code must be used in both systems. For example, USD (U.S. Dollar) is a currency recognized by both SAP and Maximo Asset Management.

If USD is not your base currency and you want to define it as a second currency in Maximo Asset Management, use the following procedure:

1 Open the Currency Code application in the Financial module.

2   Add any currency codes needed by SAP that do not exist in Maximo Asset Management.

Synchronizing item categories

You can enter the material types used in SAP and match them to the stock type values in Maximo Asset Management. This section is only applicable if the client supports the items/inventory integration.

You can synchronize SAP material types and Maximo stock type values using the SAPMATLTYPE interface control.

For more information, refer to the Configuring interface controls, Cross-Reference Controls section of this chapter.

Synchronizing work order status

You can enter the work order status used in SAP and match them to the work order status values in Maximo Asset Management. This section is only applicable if the client supports the work order integration.

You can synchronize SAP and Maximo work order status values using the SAPIOSTATUS interface control.

For more information, refer to the Configuring Interface Controls, Cross-Reference Controls section of this chapter.

Enabling publish channel events listeners

Enabling integration event listeners directs Maximo Asset Management to build and process related outbound interfaces when certain Maximo user actions occur.

A user action in Maximo Asset Management (for example, the update of an item via the Maximo Item application) triggers the event listener. The event listener, in turn, triggers the processing of one or more related interfaces. By default, integration events are disabled.

If you plan to send all outbound data through the data export feature, do not enable outbound event listeners. Integration Event listeners do not apply to inbound transactions.

To enable an event listener, complete the following steps:

1   In the publish channels application, select the system that you want to update.

2   Select Enable/Disable Integration Events from the Select Action menu.

3   Click **OK**.

Configuring interface controls

Configure SAP-specific integration controls to specify how your Maximo and SAP systems exchange data. Use the external systems application in the Integration module to configure interface controls.

For more information on setting up integration controls or changing their default values, see *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

To set up your Maximo Enterprise Adapter for SAP applications integration, configure the SAP controls listed in the following tables.

Value controls

Interface control	Description	Additional detail
SAPCALSTART	SAP Transaction Start Date	The default is 01-01-1990
SAPAPTYPE	SAP Invoice Type	The default is MM.
SAPINVOICESITEID	Centralized Invoicing Site	The default is null (decentralized invoicing)
SAPINVOICESTATUS	Determines the default status for reversed invoices received from SAP.	APPR (default) or PENDREV
SAPPRTYPE	SAP PR Document Type	The default is PR.
SAPPOTYPE	SAP PO Document Prefix Type	The default is PO.
SAPFIGLACCT	SAP GL Account for FI Invoices	Use ORG Override.
SAPNSTKROOM	SAP Non-Stocked Room	Use Site Override
SAPMAXBSNAME	Maximo Business System Name in SAP PI	[No default value]

Boolean controls

Interface control	Description	Additional detail
SAPUNLIMITTOLERANCE	Allow 'Unlimited' Receipt Tolerances for PO Line	TRUE or FALSE
SAPWOOUT	SAP Work Order Out Status	TRUE or FALSE
SAPRSVOUT	SAP Reservation Out Status	TRUE or FALSE
SAPAPOUT	SAP Invoice Out Status	TRUE or FALSE

List controls

Interface control	Description	Additional detail
WOSTART	SAP Work Order Send Status	APPR, WMATL, and WSCH
PRSEND	SAP PR Send Status	APPR
POSEND	SAP PO Send Status	APPR
IVSEND	SAP Invoice Send Status	APPR
GLSOURCE	SAP GL Source List	INVOICETRANS INVTRANS LABTRANS MATRECTRANS MATUSETRANS SERVRECTRANS TOOLTRANS

Cross-reference controls

Interface control	Description	Additional detail
SAPORGID	Maximo Organization to SAP Company Code	For example, EAGLENA may be the Maximo value and 0001 the SAP value
SAPSITEID	Maximo Site to SAP Plant	For example, BEDFORD may be the Maximo value and 0001 the SAP value
SAPSTORERM	Maximo Storeroom to SAP Storage Location	For example, CENTRAL may be the Maximo value and 0001 the SAP value
SAPMATLTYPE	Maximo Category to SAP Material Type	Maximo Material category (Stock or Non-Stock) to SAP Material Types (See SAPMATLTYPE table on page 97.)
SAPGLCOMP	SAP GL Component Settings	See SAPGLCOMP table on page 87
SAPGLCONCAT	SAP GL Concatenation Settings	See SAPGLCONCAT table on page 88
SAPITEMSETID	Maximo Item Set ID to SAP SystemID/Client	For example, ITEMSET1 may be the Maximo value and D47002 the SAP value
SAPLINETYPE	Maximo LineType to SAP GL Account	For example, SERVICE or MATERIAL are Maximo values and DEFAULT and 400000 may be the SAP values
SAPIOTYPEPREF	SAP Internal Order Type Prefix	See SAPIOTYPEPREF table on page 97
SAPIOSTATUS	SAP Internal Order Status Translation	See SAPIOSTATUS table on page 98

Interface control	Description	Additional detail
SAPPURCHSITEID	Maximo Site to SAP Purchasing Organization	For example, BEDFORD could be a Maximo site value and 0001 an SAP purchasing org value
SAPRSVPRIORITY	Maximo hard/soft reservation to SAP reservation Requirement Urgency code	For example, Maximo hard reservation could be the value of '01' for the SAP Reservation Requirement in SAP
SAPAAC	SAP Account Assignment Category Settings	See SAP AAC table on page 84
SAPCONTRACTTYPE	SAP Contract Type Translation	For example, BLANKET could be a Maximo contract type value and MK an SAP value
SAPQOS	Quality of Service (QOS) in SAP PI	Specify the SAP QOS for outbound interfaces. Valid values for QOS can be EO (Exactly Once) for SAP PI continuous queue, or EOIO (Exactly Once in Order) for SAP PI sequential queue. If an interface name does not exist, that means outbound transactions will go to the continuous queue. If an outbound interface name exists (for example, MXPO_TOSAP05), then the external value represents the sequential queue name in SAP PI (for example, PI_PO_SEQ_Q)

SAPMATLTYPE cross-reference control

Maximo value	SAP external value
STK (stock)	DEFAULT, FHMI, FERT, ERSA, HALB, HAWA, HIBE, INTR, LEER, PIPE, PROC, ROH, UNBW, VERPR, VKHM
NS (non-stock)	NLAG, CONT, DIEN, IBAU, KMAT, PROD, WETT

SAPIOTYPEPREF cross-reference control

Maximo value	SAP external value
MAXI	M (Prefix for SAP Maintenance Order Type)
MINV	I (Prefix for SAP investment Order Type)

SAPIOSTATUS cross-reference control

Maximo value	SAP external value
WAPPR	10
WMATL	20
WSCH	20
APPR	20
INPROG	30
COMP	40
CLOSE	90
CANCEL	91

Configuring SAP Applications

Complete the following configuration tasks in outbound SAP Applications for the integration between Maximo Asset Management and SAP.

- Maintain custom configuration tables
- Run reports

Maintaining custom configuration tables

This section discusses maintaining the following custom configuration tables:

- ZBC_INBPROGRAMS
- ZBC_FILTERS
- ZBC_SAPMXCONFIG
- ZBC_RUNTIMES
- ZBC_DESTINATION

To access and maintain the Maximo Enterprise Adapter for SAP Applications custom tables, use the SAP transaction code SM30. You can create special authorization groups for the Maximo Enterprise Adapter for SAP Applications tables and assign only certain users to these authorization groups. To display or query the Maximo Enterprise Adapter for SAP Applications custom tables, you can use the SAP transaction code SE16. However, to maintain the Maximo Enterprise Adapter for SAP Applications custom tables, you must use the SAP transaction code SM30.

These instructions are generic. Details specific to the integration custom tables follow this section.

1 Open the **Maintain Table Views: Initial Screen** for working with tables. You can use transaction code **SM30**.

2 Enter the table name, for example, ZBC_FILTERS. Click **Enter**. The transport file creates the table using default values. It shows all processes inbound into SAP. The Data Browser screen for that table opens.

3 Click **Execute**. The Change View screen opens.

4 To edit table fields, select the check box in leftmost column for a row in the table, then click pencil icon.

If you double click an entry row, the display mode opens. To change values, use edit mode.

5 Make changes, then save. The changes you save here will make changes to the database.

Maintaining ZBC_INBPROGRAMS

This table controls SAP inbound program processing methods and error handling of inbound programs from Maximo Asset Management to SAP.

For every process, specify the following modes:

- processing mode
- error handling mode

SAP has two inbound processing modes:

- BAPI (process by BAPI)
- BDC (process by Batch input)

but not all apply to each program.

The Maximo Enterprise Adapter for SAP applications has two inbound error handling modes:

- INT (Internal messaging system) - Integration server is notified that there are no errors, you must handle errors within the SAP system (this mode is the default).

  With this option you can also specify error notification to up to four SAP users' E-mail addresses.

  To create E-mail or SAP user notification:

  - select recipient
  - specify reception type:
    - B= SAP user for that client
    - U= internet address

  To enable error message display on screen, select express.

If you select INT error handling:

- In the case of BDC processing, you will get batch input maps to reprocess the error.

- In the case of BAPI processing, you will need a program, ZBC_BAPIADMIN, provided with the integration, to reprocess errors.

• EXT (External messaging system) - We send back a return code to the SAP PI server.

The following table shows the processing modes used by each program in this integration.

Program processing modes

IDENT	DESCRIPTION	Processing mode
MICFI	CREATE FI INVOICE	BDC / BAPI
MICMM	CREATE MM INVOICE	BAPI
MISU	CREATE GOODS ISSUE	BDC / BAPI
MPOI	CREATE PURCHASE ORDER	BDC / BAPI
MPOU	UPDATE PURCHASE ORDER	BDC / BAPI
MPRI	CREATE PURCHASE REQUISITION	BDC / BAPI
MRCV	CREATE RECEIPT	BDC / BAPI
MRSVD	DELETE RESERVATION	BDC
MRSVI	CREATE RESERVATION	BDC / BAPI
MSRVU	UPDATE RESERVATION	BDC
MWI	CREATE WORKORDER	BDC / BAPI
MWU	UPATE WORKORDER	BDC
MLPYI	CREATE LABOR HOURS	BDC / BAPI
MICGL	CREATE GL POSTINGS	BDC / BAPI

Maintaining ZBC_FILTERS

This table controls what data content from an SAP IDoc transaction is sent to Maximo Asset Management. It is where you set the rules for every receiver that defines the data sent to the Maximo ER structure. The filtering rule is an "OR" relationship, so you can set up operators, field values, and so on.

The receiver must have the same name as the definition of the Maximo business system in the SAP PI system landscape directory and ZBC_DESTINATION

This SAP IDOC transaction filtering table can be configured for the following possible objects:

ZBC_FILTERS

ZBC_FILTERS object	Description
MATMASTER	Material Master
PURCHORDER	Purchase Order
INVOICE	Invoice
GOODSMOV	Goods Movement
CONTRACT	contract
CONTRACTAU	Contract Authorization
LABMASTER	Labor Master
CREMASTER	Vendor Master Data
INFORECORD	Purchasing information

This SAP IDOC transaction filtering table has the following fields:

ZBC_FILTERS fields

ZBC_FILTERS field	Value
MANDT	SAP Client value
RECEIVER	Maximo destination name
OBJECT	MATMASTER (Material Master IDOC Object name)
RULENUMBER	Condition sequence number for the IDOC object
FIELDNAME	any field name from the Material Master Message table
OPERATOR	any SAP Relationship operator
FIELDVALUE	value to be checked against the operator

RULENUMBER

The ABAP report handles the rulenumber as follows:

If the same OBJECT uses the same RULENUMBER more than once, then ABAP handles them all as "AND" conditions [all are true].

If the same OBJECT has more than one RULENUMBER, then ABAP handles this as "OR" conditions.

Before setting up this table, you should create a document defining all the rules for the data to send. This will make it easier to maintain the table and to ensure the consistency and logic of the definitions. You can add/change/delete entries of this table later on, but you'll have to make sure that the sequence of the rules remains consistent. When maintaining this table later on, you can reduce the displayed data of this table by using "RECEIVER" and "OBJECT" selection criteria.

Filtering the data

To filter the data content of processes you can use any field of the following structures:

Data content filters

Purchase order	ZBC_S2M_PURCHASEORDER
Material Master	ZBC_S2M_MATERIALMASTER
Labor Master	ZBC_S2M_LABORMASTER
Invoice	ZBC_S2M_MMINVOICE
Goods Movements	ZBC_S2M_GOODSMOVEMENT
Contracts	ZBC_S2M_PURCHASEORDER
	ZBC_S2M_CONTRACTAUTH

For mapping information for these structures, see Appendix D, SAP ABAP structures for IDOC transaction filtering on page 283.

The following examples will show you how to maintain the table and help you set up valid configuration possibilities.

Example 1: Send all purchase orders related to Maximo work orders or Maximo purchase requisitions

This example is based on the following assumptions:

- Maximo work orders are identified by the number ranges starting with MA and MB.
- Maximo purchase requisitions are identified by the number range starting with PR.

This example describes how to set up the following syntax in the ZBC_FILTERS table:

```
Send Purchase Order, if
Work order number (field AUFNR) = MA*        OR
Work order number (field AUFNR) = MB*        OR
Purchase requisition number (field BANFN) = PR*
```

Use the following procedures to set up this syntax.

1. In transaction **se16** enter the table name ZBC_FILTERS and click the **Create Entries** button.

2. Enter the values shown in the following table to set up the IDoc filtering for work orders relating to Maximo purchase orders in the number range starting with MA.

ZBC_FILTERS insert field	Value for example 1, rule 1
RECEIVER	\<your Maximo business system name\>
OBJECT	PURCHORDER
RULENUMBER	1
FIELDNAME	AUFNR
OPERATOR	=
FIELDVALUE	MA*

3. Save your entries. The status message "Database record successfully created" appears on the bottom of your SAP Session window. The values you entered remain in the screen.

4. To define the next rule, complete the following steps:

   a. Change the rule number to 2.

   b. Change the field value to MB*.

5. Save your entries. The second rule for the work order prefix was created in the table.

6. To define the next rule:

   a. Change the rule number to 3.

   b. Change the field name to BANFN (purchase requisition number).

   c. Change the field value to PR*.

7. Save your entries. All rules to send Purchase Orders to Maximo Asset Management are now defined. Table ZBC_FILTERS for object PURCHORDER now contains three entries.

You should set up the filters for receipts and invoices with the same criteria as you did for purchase orders. This way you'll make sure that all follow-on transactions, which are related to the purchase orders you'll send, are transferred as well.

Example 2: Send all receipts related to purchase orders with Maximo work orders or Maximo purchase requisitions

This example is based on the following assumptions:

- Maximo Work Orders are identified by the number ranges starting with MA and MB.
- Maximo Purchase Requisitions are identified by the number range starting with PR.
- Issues and receipts use the structure ZBC_S2M_GOODSMOVEMENT to send data out of SAP.
- Receipts are identified by the field IDENT having the value XRCVI (issues will have the value XISU).

This example describes how to set up the following syntax in the ZBC_FILTERS table:

```
Send Receipts, if
(  Identifier (field IDENT) = XRCVI AND
Work order number (field AUFNR) = MA*) OR

(  Identifier (field IDENT) = XRCVI AND
Work order number (field AUFNR) = MB*) OR

(  Identifier (field IDENT) = XRCVI AND
Purchase requisition number (field BANFN) = PR*)
```

Use the following procedures to set up this syntax.

1 In transaction **se16** enter the table name ZBC_FILTERS and click the **Create Entries** button.

The Table ZBC_FILTERS Insert screen opens.

2 Enter the values shown in the following table to set up the IDoc filtering for receipts relating to Maximo purchase orders.

ZBC_FILTERS insert field	Value for example 2, rule 1
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	1
FIELDNAME	IDENT
OPERATOR	=
FIELDVALUE	XRCVI

3 Save your entries.

4 To define the next criteria within the same rule (AND – condition).

    a Change the field name to AUFNR (work order number).

b Enter the field value MA*.

5 Save your entries. This creates the first rule.

6 Repeat steps 2 through 5 to define rules 2 and then 3 to send receipts.

a Use the following parameters for the first part of Rule 2.

ZBC_FILTERS **insert field**	**Value for example 2, rule 2, first criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	2
FIELDNAME	IDENT
OPERATOR	=
FIELDVALUE	XRCVI

b Save your entries.

c Use the following parameters for the next part of Rule 2.

ZBC_FILTERS **insert field**	**Value for example 2, rule 2, second criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	2
FIELDNAME	AUFNR
OPERATOR	=
FIELDVALUE	MB*

d Save your entries. This creates Rule 2.

e Use the following parameters for the first part of Rule 3.

ZBC_FILTERS insert field	Value for example 2, rule 3, first criteria
RECEIVER	\<your Maximo business system name\> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	3
FIELDNAME	IDENT
OPERATOR	=
FIELDVALUE	XRCVI

f Save your entries.

g Use the following parameters for the next part of Rule 3.

ZBC_FILTERS insert field	Value for example 2, rule 3, second criteria
RECEIVER	\<your Maximo business system name\> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	3
FIELDNAME	BANFN
OPERATOR	=
FIELDVALUE	PR*

h Save your entries.

7 Table ZBC_FILTERS for object GOODSMOV now contains six entries.

Example 3: Send all issues related to Maximo work orders

This example is based on the following assumptions:

- Maximo Work Orders are identified by the number ranges starting with MA and MB.
- Issues are identified by the field IDENT having value XISU.

This example describes how to set up the following syntax in the ZBC_FILTERS table:

```
Send Issues, if
(   Identifier (field IDENT) = XISU AND
Work order number (field AUFNR) = MA*) OR

(   Identifier (field IDENT) = XISU AND
Work order number (field AUFNR) = MB*)
```

Use the following procedures to set up this syntax.

1 In transaction **se16** enter the table name ZBC_FILTERS and click the **Create Entries** button. The Table ZBC_FILTERS Insert screen appears.

2 Enter the values shown in the following table to set up the IDoc filtering for issues relating to Maximo work orders.

ZBC_FILTERS **insert field**	**Value for example 3, rule 4, first criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	4 (1-3 for GOODSMOV are already used to define the receipt rules)
FIELDNAME	IDENT
OPERATOR	=
FIELDVALUE	XISU

3 Save your entries.

4 Use the following parameters to define the next criteria within the same rule (AND – condition).

ZBC_FILTERS **insert field**	**Value for example 3, rule 4, second criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	4
FIELDNAME	AUFNR (work order number)
OPERATOR	=
FIELDVALUE	MA*

5 Save your entries.

6 Repeat these steps to create the next rule for sending issues. Use the following parameters to create the next rule for sending issues.

ZBC_FILTERS insert field	Value for example 3, rule 5, first criteria
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	5
FIELDNAME	IDENT
OPERATOR	=
FIELDVALUE	XISU

7 Save your entries.

8 Use the following parameters to create the next rule for sending issues.

ZBC_FILTERS insert field	Value for example 3, rule 5, second criteria
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	GOODSMOV
RULENUMBER	5
FIELDNAME	AUFNR (work order number)
OPERATOR	=
FIELDVALUE	MB*

9 Save your entries.

Now all rules are defined to send receipts to Maximo. Table ZBC_FILTERS for object GOODSMOV contains now 10 entries.

Since the filter on work order numbers is similar for Receipts and Issues, you could simplify the rules of examples 2 and 3 to the following syntax:

```
Send Goods Movements (Issues and Receipts), if
Work order number (field AUFNR) = MA*) OR

Work order number (field AUFNR) = MB*) OR

(  Identifier (field IDENT) = XRCVI AND
Purchase requisition number (field BANFN) = PR*)
```

This would reduce the count of rules from five to three and the count of rows for these filters from ten to four, without changing the declaration for the data to send.

Example 4: Send material master data of material type "spare part", if the data was created/changed on the client level or in plant 0001

This example is based on the following assumptions:

- The material type is identified by the field MTART having the value ERSA.

- The plant is identified by the field WERKS having the value 0001.

- To send data that was changed on the client level, you'll have to check for an initial WERKS.

This example describes how to set up the following syntax in the ZBC_FILTERS table:

```
Send Material Master, if
(  Material Type  (field MTART) = ERSA AND
Plant (field WERKS) is initial) OR

(  Material Type  (field MTART) = ERSA AND
Plant (field WERKS) = 0001)
```

Use the following procedures to set up this syntax.

1 In transaction **se16** enter the table name ZBC_FILTERS and click the **Create Entries** button. The Table ZBC_FILTERS Insert screen appears.

2 Enter the values shown in the following table to set up the IDoc filtering for sending specific material master data to Maximo.

ZBC_FILTERS insert field	Value for example 4, rule 1, first criteria
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	MATMASTER
RULENUMBER	1
FIELDNAME	MTART (Material Type)
OPERATOR	=
FIELDVALUE	ERSA

3 Save your entries. This creates the first rule.

4 To define the next criteria within the same rule (AND – condition) use the following parameters.

ZBC_FILTERS **insert field**	**Value for example 4, rule 1, second criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	MATMASTER
RULENUMBER	1
FIELDNAME	WERKS (work order number)
OPERATOR	=
FIELDVALUE	(leave this field blank)

5 Save your entries. This completes the first rule.

6 Repeat steps 2 through 5 to create the 2nd rule for sending material master data. Use the following parameters for the first part of Rule 2.

ZBC_FILTERS **insert field**	**Value for example 4, rule 2, first criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	MATMASTER
RULENUMBER	2
FIELDNAME	MTART
OPERATOR	=
FIELDVALUE	ERSA

7 Save your entries.

8 Use the following parameters for the second part of Rule 2.

ZBC_FILTERS **insert field**	**Value for example 4, rule 2, second criteria**
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	MATMASTER
RULENUMBER	2
FIELDNAME	WERKS
OPERATOR	=
FIELDVALUE	0001

9 Save your entries.

Now all rules are defined to send material data to Maximo. Table ZBC_FILTERS for object MATMASTER now contains 4.

Example 5: Send material master data of material type "spare part", if the data was created or changed on the client level or in plant 0001 or in plant 0002. Send the changes of the client level on material only, if the material exists in plant 0001 or 0002

This rule covers the following business case:

You do not want to send material information to Maximo if only the base view was created. Changes on the material base view should be sent only if the material was created within one of the plants you have integrated with Maximo.

This example is based on the following assumptions:

- The material type is identified by the field MTART having the value ERSA.
- If the material is maintained in plant 0001 or 0002, the information is identified by the field MXPLNT having the value X.

The ABAP code is looking into table ZBC_SAPMXCONFIG for the variable MXPLANT. If the material was maintained in any of the plants found there, the field MXPLNT will get flagged with the value X. If you use this functionality, the table ZBC_SAPMXCONFIG must contain the plants you have integrated with Maximo.

This example describes how to set up the following syntax in the ZBC_FILTERS table:

```
Send Material Master, if
(  Material Type  (field MTART) = ERSA AND
Indicator (field  MXPLANT) = X')
```

Use the following procedures to set up this syntax.

1 In transaction **se16** enter the table name ZBC_FILTERS and click the **Create Entries** button. The Table ZBC_FILTERS Insert screen appears.

2 Enter the values shown in the following table to set up the IDoc filtering as described in the example 5 title.

ZBC_FILTERS insert field	Value for example 5, rule 1, first criteria
RECEIVER	<your Maximo business system name> in this example, MAXIMO_A
OBJECT	MATMASTER
RULENUMBER	1
FIELDNAME	MTART
OPERATOR	=
FIELDVALUE	ERSA

3 Save your entries.

4 Use the following parameters to define the next criteria within the same rule (AND – condition).

   a Change the fieldname to MXPLANT (indicator if material exists in at least one of the plants defined in ZBC_MXCONFIG).

   b Change the field value to X.

5 Save your entries.

Now you have defined all the rules to send material data to Maximo.
Table ZBC_FILTERS for object MATMASTER now contains two entries.

Maintaining ZBC_SAPMXCONFIG

This table stores the variables and values of Maximo data that the Maximo enterprise adapter for SAP needs during transactions inbound from SAP to Maximo.

This table filters for Maximo PR numbers, so that only PR numbers recognized by Maximo Asset Management will go out from SAP to Maximo Asset Management.

System name must match the name of the receiver system in the XI SLD and ZBC_DESTINATION.

You must set up this table manually.

ZBC_SAPMXCONFIG table

Varname	Description	Required	Dependencies
APINVUPD	Send Inventory (price) update after Invoice	No	None
BAPIME51N	Enter a value of X if you want to use the new SAP PR BAPI (BAPI_PR_CREATE) that supports additional data for the SAP Enjoy Purchase Requisition feature. Leave this field blank if you want to use the standard PR BAPI (BAPI_REQUISITION_CREATE).	No	If you want to use the new SAP PR BAPI, you must apply the SAP Hotpackage SAPKH6005 in your SAP Applications system.
GR_POLINE	MAXIMO to SAP Remove POLine distribution suffix	No	None
GR_SETCOST	MAXIMO to accept GR costs from SAP	No	None
MXBASELANG	Maximo base language	Yes	Receiving system-dependant
MXLANGUAGE	Additional base languages per receiver	No	Per receiver
MXPLANT	SAP plant codes for each plant integrated with Maximo. If an item is used in Maximo, the ZBC_FILTERS table looks at this field to see if the plant is one that is used in Maximo.	No	Receiving system-dependant
POPREFIX	Prefix that uniquely identifies an outbound PO as a Maximo PO number	No	None
PRPREFIX	Prefix that uniquely identifies an outbound PR as a Maximo PR number	No	None
MX5UPGDATE	Customers who upgraded from Release 5.x Maximo Enterprise Adapter for SAP R/3 4.7 must manually configure this column to store date of upgrade.	No	None
SEQ_QUEUE	Specify one queue name per receiver. If a queue name is specified here, all records for the receiving system are written into the specified queue.

If no queue name is specified, PI uses multiple random queues. When messages are split, PI writes the resulting records to the same queue. | No | Receiving system-dependant |
| WOPARSETTL | Used for Work Order settling rules | No | Receiving system-dependant |

Specify the base language of Maximo Asset Management.

If you are using more than one Maximo instance, all instances of Maximo Asset Management must share the same base language.

Then, other languages supported can be added later.

Languages are per receiver system.

All fields of this table are key fields. You cannot change any values after definition.

To correct a definition, you will have to delete the corresponding row and to re-create it.

Maintaining ZBC_RUNTIMES

This table stores the last execution dates of the reports for SAP to Maximo Asset Management.

The Maximo Enterprise Adapter for SAP Applications delivers this table with default values. Configure it to meet the requirements of your integration.

Change only the CPUDT and PARAM columns:

Change CPUDT, the last run date, to the actual date during installation or after transporting the table to a new environment. For example, after transporting it to a test system or production system.

The PARAM column is customer-specific.

- For report ZBCXIREPR007 (vendor download) the parameter column contains the value of the company code for which the report was executed.

- For report ZBCXIREPR013 (info record download) the parameter specifies the purchase organization for which the report was executed.

The DESTINATION column must be the SAP PI Business System name (also defined in ZBC_DESTINATION) for all rows. The destination is a logical name, not a physical location, and is used to differentiate the integration rows in this table from all other entries.

If no table entry exists during the first execution of the report, the programs will create the entries in this table by themselves, if the checkbox "Update table ZBC_RUNTIMES" was marked.

Nevertheless, the date of the program "INVOICE" needs to be set manually in each system you'll install the link. If this parameter wasn't set to the actual date when implementing the interface, the functionality to send MM Invoices from SAP to Maximo Asset Management won't work properly.

Maintaining ZBC_DESTINATION

This table controls where SAP data is sent to Maximo Asset Management.

To maintain this table, complete the following steps:

1 In the initial screen for this table, click the **Create Entries** button. The **Insert** screen opens.

2 Enter the following parameters:

ZBC_DESTINATION parameters

ZBC_DESTINATION Field	Value
RFCDEST	<your Maximo business system name in XI>
DESCRIPTION	Description of your Maximo business system

3 Save your entries.

4 Repeat these steps if you use multiple Maximo systems.

Running reports

This section describes the reports you run for the integration between Maximo Asset Management and SAP. Some are required and some are optional.

Required reports

Scheduling the following reports as jobs is necessary to ensure the integration from SAP to Maximo Asset Management.

Report RBDMIDOC - Creating IDocs from change pointers

When sending material or labor master data from SAP to Maximo Asset Management, every change creates a change pointer on the database. To create an IDoc, this report needs to get scheduled periodically. For more information please refer to *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

Report RSARFCEX - Execute RFC calls not yet executed

IDocs get sent by RFC to the SAP PI system. If the SAP PI system is not able to receive the IDoc (for example, due connection errors), the IDocs will remain on the SAP Application Server. Depending on the settings within the RFC-Destination, the Application Server will retry to send out the IDoc. Once the retry – interval is over and the connection errors still remain, the IDoc will remain in the outbound queue without further actions. The report RSARFCEX will execute these outstanding IDocs and try to send them out. To ensure that all IDocs are sent, this report should get scheduled at least on a daily interval (if not done already for other IDoc-Integrations).

Optional reports

Scheduling the following reports as jobs ensures the proper integration from SAP to Maximo Asset Management.

Report RBDMOIND - Status conversion with Successful RFC execution

IDocs getting sent to the RFC-Destination will have the status 03. This report verifies the successful sending of the IDocs (confirms the delivery to SAP PI) and changes the IDoc status to 12. This makes it easier to identify any connection errors and IDocs that remained in the system.

Also, only IDocs of status 12 can get archived in SAP, so the conversion is necessary before doing archiving.

Optimal frequency: daily.

Report ZBC_INVSENT_REORG - Reorganize table ZINVSENT

To prevent the Sending of duplicates, the document numbers of invoices processed are stored in table ZINVSENT. This table should get reorganized from time to time to reduce the count of entries there. The report ZBC_INVSENT_REORG updates the rundate in table ZBC_RUNTIMES for module INVOICE and deletes obsolete entries from table ZINVSENT.

Optimal frequency: weekly.

Configuring SAP PI

If you are integrating one SAP system with more than one instance of Maximo Asset Management, configure each instance of Maximo separately in PI. See *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*. Perform all the procedures in the chapter for each instance of Maximo Asset Management.

After completing the configuration procedures, modify the receiver determination for Interfaces out of the SAP Application Server.

The receiver for the message already gets provided out of the Application Server in the field SYSTEM. You can use this field to determine the business system that you want to receive the data.

Financial integration

10

Maximo Asset Management and SAP can exchange the following types of financial data:

- Enterprise services
  - General ledger components / cost objects
  - Charts of accounts
- Publish channels
  - General ledger journals

This chapter is directed to system administrators, implementation team members, and SAP and Maximo consultants. It discusses factors that you need to be aware of when integrating Maximo Asset Management and SAP financial activity. It assumes that you are familiar with standard general ledger processing in Maximo Asset Management and SAP.

General ledger components and chart of account integration

The general ledger interface transfers new and updated cost objects from SAP to Maximo Asset Management, and optionally transfers account combinations from SAP to Maximo Asset Management. You initiate these actions through various ABAP programs.

Structure of SAP and Maximo financial data

The SAP chart of accounts is defined at the client level and is assigned to one or more company codes. The Maximo chart of accounts is maintained at the Maximo organization level, which is equivalent to the SAP company code level.

SAP cost objects correspond to Maximo general ledger components. Maximo Asset Management defines general ledger components system level and all organizations within the Maximo database share them.

SAP cost objects

SAP cost accounting summarizes and posts cost objects by account assignment category (AAC). The integration processes the following SAP account assignment categories:

SAP account assignment categories processed by the integration

AACFLAG	Description	SAP adapter field
K	Cost center	COSTCENTER
F	Internal order	IORDER
P	WBS element	WBSELEMENT
A	Asset	ASSET
Z	GL account	GLACCOUNT
L	Labor activity type	ACTTYPE
U	Business area	BUSAREA
R	Profit center	PROFITCENTER

Transfer of cost objects from SAP to Maximo Asset Management

SAP cost objects are sent to the Maximo GLCOMPONENTS (GLCOMP) and CHARTOFACCOUNTS (COA) tables by various ABAP reports. Each report generates general ledger components and, optionally, builds a chart of account in Maximo Asset Management. Whether you choose to build accounts determines which of two general ledger integration points the integration uses.

General ledger ABAP reports

ABAP program	Description
ZBCXIREPR001	Download Cost Centers
ZBCXIREPR002	Download Assets
ZBCXIREPR003	Download WBS Elements
ZBCXIREPR006	Download SAP Financial GL/Accounts
ZBCXIREPR012	Download Internal Orders

Batch report selection criteria

The SAP cost object batch reports have the following selection criteria. Numbers in the Reports column represent the last three characters of the ABAP program name (for example, 001 refers to ZBCXIREPR001).

Cost object batch report selection criteria

ABAP selection criteria	Reports	Description
Workorder Type	All	Choose one work order type per each run of the batch report.
Cost Object Type	All	Choose one cost object type per each run of the batch report.
Company Code	All	Choose one company code per each run of the batch report.
Build COA Combinations	All	To direct the integration to build accounts from the downloaded cost elements, select the Build COA combinations check box. To download cost elements without building accounts, clear the check box.
Language	001, 006	Choose one language code per each run of the batch report.
Cost Center	001	You can select zero, one, or a range of cost centers. If you select no cost centers, the report runs for all cost centers within the company.
Asset	002	You can select zero, one, or a range of assets. If you select no assets, the report runs for all assets within the company.
WBS Element	003	You can select zero, one, or a range of WBS elements. If you select no WBS elements, the report runs for all WBS elements within the company.
GL Account	006	You can select zero, one, or a range of GL accounts. If you select no GL accounts, the report runs for all GL accounts within the company.
Order Type	012	You can select zero, one, or a range of order types. If you select no order types, the report runs for all order types within the company.
Order	012	You can select zero, one, or a range of internal orders. If you select no orders, the report runs for all orders within the specified order types.

Batch report processing options

The cost object batch reports have the following processing options:

Batch report processing options

ABAP process mode	Description
Bulk Load Applies to report ZBCXIREPR006	Sends all active and inactive cost elements that meet the selection criteria.
Send all *<cost element>* Applies to all GL reports other than ZBCXIREPR006	Sends all active and inactive cost elements that meet the selection criteria.
Send new *<cost element>* Applies to all GL reports other than ZBCXIREPTR006	Sends all active and inactive cost elements that meet the selection criteria, that have been created or updated since the report last ran. That date is recorded in the ZBC_RUNTIMES table.

Configuration of Maximo accounts

You specify the format of Maximo GL component order numbers through the values in the SAPGLCOMP and SAPCLCONCAT interface controls. Each external system uses one SAPGLCOMP control and one SAPGLCONCAT control.

When formatting the controls, keep in mind the following points:

- A Maximo account number can have any number of segments.

- Maximo Asset Management specifies a maximum length, rather than a fixed length, for general ledger components, and does not required any filler characters if a component is smaller than the maximum length.

The SAPGLCOMP control

The SAPGLCOMP interface control specifies the elements that make up the account number, and the sequence in which those elements appear within the number. You build the Maximo account number from the following elements:

- SAP company code
- SAP controlling area
- SAP internal order type
- SAP account assignment category (AACFLAG)
    - Cost center
    - Internal order
    - WBS element
    - Asset
    - GL account
    - Labor activity type
    - Business area
    - Profit center

If you interface Maximo work orders with SAP internal orders, you might need to include the Maximo work type (SAP IO document type) as part of the Maximo GL account. For more information, see Work order interfaces on page 128.

Concatenating cost elements

Any component can optionally be a concatenation of two values, typically a cost type and the corresponding cost object. Concatenation allows for sorting and differentiating between multiple types of cost objects with the same value.

Configuring the SAPGLCONCAT parameter

To concatenate two values within a component of the Maximo account number, enter 1 (true) in the SAPGLCONCAT parameter; otherwise, enter 0 (false).

If you enter 1, you must then enter a special character, which will be used to separate the concatenated values, in the CONCATCHAR parameter of the SAPGLCONCAT interface control. Otherwise, set the value of the CONCATCHAR parameter to null.

Configuring the remaining parameters

For each remaining parameter in the SAPGLCOMP control, enter a sequence number (integer) that indicates the position of the corresponding element within the account number, or a null value, as follows:

SAPGLCOMP account number sequence

Sequence within account number*	Parameter value
First component	0
Second component	1
Third component	2
Not included	NULL

* The account number can contain any number of components. The sequence number for a fourth component would be 3; the sequence number for a fifth component would be 4, and so on.

If multiple cost objects can appear in the same component within an account number, assign the same integer to each of those cost objects. For example, if the cost object appears as the third component in some accounts and the asset appears in the third component in some accounts, enter 2 as the value for both COSTCENTER and ASSET.

If you wish to concatenate two elements, enter a sequence number only for the element that you want to appear second within the concatenation. Specify the first element within the concatenation when you configure the SAPGLCONCAT control.

Example

To concatenate cost type (AACFLAG) and cost center (COSTCENTER), enter a sequence number for the COSTCENTER parameter only.

In the preceding example, enter a sequence number for AACFLAG if AACFLAG also appears in another component within the account number, in addition to being concatenated with COSTCENTER.

The following example of a SAPGLCOMP control shows the configuration for an account number with three components and no concatenation. The first

component contains the Maximo internal order (work order) type and the second contains the SAP cost type. The third component contains the SAP cost center object, asset object, *or* project object, depending upon the type of account. The ABAP programs populate the third component with the appropriate cost object.

External value parameter	Description	Maximo Value
CONCATGL	Boolean value that indicates whether to concatenate two cost elements 0 = No 1 = Yes	0
KOKRS	SAP controlling area	NULL
WORKTYPE	Maximo internal order type	0
AACFLAG	SAP cost type	1
COSTCENTER	SAP cost center object	2
ASSET	SAP asset object	2
WBSELEMENT	SAP project object	2
IORDER	SAP internal order object	NULL
GLACCOUNT	SAP GL account	NULL
ACTTYPE	SAP labor activity type	NULL
BUSAREA	SAP business area	NULL
PROFITCENTER	SAP profit center	NULL

The resulting account numbers have one of the following formats:

- WORKTYPE value~AACFLAG value~COSTCENTER value

- WORKTYPE value~AACFLAG value~ASSET value

- WORKTYPE value~AACFLAG value~WBSELEMENT value

The SAPGLCONCAT interface control

In the preceding example, no concatenation takes place, because the value of the SAPCONCAT parameter is 0. This section explains how to configure the SAPGLCONCAT interface control to concatenate two cost objects in a single component within the Maximo account number.

Configuring the CONCATCHAR parameter

To concatenate two values within a component of the Maximo account number, enter a value of 1 (true) in the SAPGLCONCAT parameter; otherwise, enter 0. If you enter 1, you must enter a special character, which will be used to delimit the concatenated values, in the CONCATCHAR parameters of the SAPGLCONCAT interface control. Otherwise, set the set the value of the CONCATCHAR parameter to null.

Configuring the remaining parameters

The remaining parameters in the SAPGLCONCAT control are the same as the corresponding parameters in the SAPGLCOMP control. Enter the name of the element that will appear first in the concatenated value in the Maximo value column of the element that will appear second. For example, to concatenate cost type (AACFLAG) and cost center (COSTCENTER), enter the literal AACFLAG in the Maximo value column of the COSTCENTER parameter.

The following example shows how to configure the SAPGLCONCAT control to concatenate cost type with each cost object specified in the earlier example (COSTCENTER, ASSET, and WBSELEMENT), using the pipe character (|) as the separator. The third component will contain one of the following values

- AACFLAG value |COSTCENTER value

- AACFLAG value | ASSET value

- AACFLAG value | WBSELEMENT value

SAPGLCONCAT parameters

External value parameter	Description	Maximo Value
CONCATCHAR	Concatenation Separator Character Default =| [Pipe]		[pipe]
KOKRS	SAP controlling area	NULL
WORKTYPE	Maximo internal order type	NULL
AACFLAG	SAP cost type	NULL
COSTCENTER	SAP cost center object	AACFLAG
ASSET	SAP asset object	AACFLAG
WBSELEMENT	SAP WBS element object	AACFLAG
IORDER	SAP internal order object	NULL
GLACCOUNT	SAP GL account	NULL
ACTTYPE	SAP labor activity type	NULL
BUSAREA	SAP business area	NULL
PROFITCENTER	SAP profit center	NULL

The resulting account numbers will have one of the following formats:

- WORKTYPE value~AACFLAG value~
  AACFLAG value | COSTCENTER value

- WORKTYPE value~AACFLAG value~
  AACFLAG value |ASSET value

- WORKTYPE value~AACFLAG value~
  AACFLAG value | WBSELEMENT value

Default account configuration

The default values in the SAPGLCOMP and SAPGLCONCAT controls will generate Maximo account numbers with the following format:

Default account number format

Position of component within account number	Component value
1	WORKTYPE value
2	AACFLAG value
3	AACFLAG value | COSTCENTER value or AACFLAG value | ASSET value or AACFLAG value | WBSELEMENT value

The SAPGLCOMP control contains the following default values: *

Default SAPGLCOMP values

Parameter (external value)	Maximo value
CONCATGL	1 Note: This number represents a Boolean value, not a position within the account number.
WORKTYPE	0
AACFLAG	1
COSTCENTER	2
ASSET	2

* The value of the remaining parameters in the control is Null.

The SAPGLCONCAT control contains the following default values: *

Default SAPGLCONCAT values

Parameter (external value)	Maximo value
CONCATCHAR		(pipe)
COSTCENTER	AACFLAG
ASSET	AACFLAG
WBSELEMENT	AACFLAG

* The value of the remaining parameters in the control is Null.

Maximo Asset Management always writes a delimiter to the database.

Maximo general ledger configuration requirements

This section addresses configuration requirements for accounts related to work orders and general ledger journals.

Work order interfaces

If you send Maximo work orders to SAP, include the SAP internal order (IO) type within the Maximo GL account. The following table describes how to do this, depending on whether Maximo Asset Management uses one or more SAP internal order document types.

Interface control configuration for SAP IO types

Number of SAP IO document types	Interface control configuration
One	Include the WORKTYPE parameter as part of the account number (that is, assign a sequence number/ integer to WORKTYPE in the SAPGLCOMP interface control). OR Assign a null value to the WORKTYPE parameter in the SAPGLCOMP interface control, and let the integration use the default internal order type in the SAPIOTYPEPREF interface control.
Multiple	Include the WORKTYPE parameter as part of the account number (that is, assign a sequence number/ integer to WORKTYPE in the SAPGLCOMP interface control).

Journal interfaces

If you send general ledger journals from Maximo Asset Management to SAP, configure the SAPGLCOMP interface control to provide SAP FI account, cost type, and cost object in each transaction.

If you send both Maximo work order interfaces and related journals to SAP, configure SAPGLCOMP to include the following cost elements in the account number:

- WORKTYPE
- GLACCOUNT
- AACFLAG
- Any of the following cost elements that are applicable:
  - ASSET
  - COSTCENTER
  - IORDER
  - WBSELEMENT

If you send work order-related journals to SAP but you do not send work order interfaces, configure SAPGLCOMP to include the following cost elements in the account number:

- GLACCOUNT
- AACFLAG
- Any of the following cost elements that are applicable:
  - ASSET
  - COSTCENTER
  - IORDER
  - WBSELEMENT
- Set WORKTYPE to null

In both cases, configure the SAPGLCONCAT to concatenate values in the GL account, if applicable.

Effectivity of GL components

Maximo Asset Management uses the **mxe.int.updatecoafromglcomp** system property to set the Maximo Chart of Accounts (COA) ACTIVEDATE and EXPIREDATE based on the Maximo GL Components 'Active' flag. When SAP Cost Objects are synchronized to Maximo GL Components, the Maximo COA effective dates will be updated according to the mxe.int.updatecoafromglcomp property.

SAP adapter bulk load action

When you select the bulk load option, **Bulk Load**, of the ABAP programs
ZBCXIREPR001, ZBCXIREPR002, ZBCXIREPR003, ZBCXIREPR006, or
ZBCXIREPR012, the SAP adapter performs the following actions during the
handling of the bulk load of chart of accounts or general ledger component data
received from SAP:

- Sets the value of the COA.SAP_UPDATE or GLCOMPONENT.SAP_UPDATE
  field to 1 (Active) for each SAP record included in the bulk load.

- Inserts the values for all Maximo Organizations associated with the incoming
  data into the Organization parameter of the Maximo cron task
  SAPMASTERDATAUPDATE.

- Sets the value of the Enabled parameter of the Maximo cron task
  SAPMASTERDATAUPDATE to 1.

Cron task SAPMASTERDATAUPDATE action

The Maximo cron task SAPMASTERDATAUPDATE updates chart of accounts
and GL component records in Maximo Asset Management to mark the SAP cost
elements and GL components in the Maximo database that have been deleted and
archived in SAP. When the cron task runs, it performs the following actions:

- Resets the ACTIVE field to 0 for each record where the SAP_UPDATE field = 0
  and the ACTIVE field = 1.

Whenever you run an SAP bulk load for one of the following:

- Chart of Accounts
- GL Components

You should next immediately run the SAPMASTERDATAUPDATE cron task.
This process sets to "inactive" any Maximo records that correspond to bulk-
loaded SAP records that have been archived or deleted in SAP.

See the previous section, SAP adapter bulk load action, for bulk load report
names.

If you are running more than one of these bulk loads, run the cron task after the
last bulk load report is run.

Do not run any change or update reports while the SAPMASTERDATAUPDATE
cron task is running, or errors can occur.

For more information about this Cron Task, see *Integrating Data with External
Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

Field added to COA and GLCOMP tables

When the SAP adapter is installed, it adds the following field to the Maximo COA and GLCOMP tables.

New field in COA and GLCOMP tables

New field in COA and GLCOMP	Description	Type	Len	Usage
SAP_UPDATE	Indicates whether the COA or GLCOMP record has been removed from the SAP system. 0 = COA or GLCOMPONENT record has been removed from SAP 1 = COA or GLCOMPONENT record is active in the SAP system	YORN	1	This field is updated during a run of the ABAP Batch Reports ZBCXIREPR001* ZBCXIREPR002* ZBCXIREPR003* ZBCXIREPR006* ZBCXIREPR012* * for the bulk load option only The SAP_UPDATE column in the Maximo COA and GLCOMP tables is for internal use.

Related interface controls

The general ledger integration uses the following enterprise service interface controls.

General ledger-related interface controls

Control	Description
SAPGLCOMP	SAP GL component settings
SAPGLCONCAT	SAP GL concatenation settings
SAPORGID	Cross-references the Maximo organization ID and SAP company code ID

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo enterprise service

The SAP adapter uses the following enterprise service for the GLCOMP and COA integration:

•MXGLACCT_FRSAP05

Related Maximo object structures

The SAP adapter uses the following object structures for the GLCOMP and COA integration:

- MXCOA
- MXGLCOMP

General ledger journal integration

The general ledger journal interface can transfer the following types of general ledger journal transactions from Maximo Asset Management to the SAP FI module:

General ledger journal transaction types

Transaction	Transaction type
Inventory and inventory cost adjustment	INVTRANS
Invoices matched and approved in Maximo Asset Management	INVOICETRANS
Actual cost of labor usage on a work order	LABTRANS
Issue and transfer of material (including receipts of rotating items and transfers of purchase order line items that require inspection)	MATUSETRANS
Direct issue material receipts	MATRECTRANS
Service receipt	SERVRECTRANS
Actual cost of tool usage on a work order	TOOLTRANS

Configuration of journals

For information about configuring account numbers in journal transactions, see Journal interfaces on page 128.

In most cases, you configure the integration so that Maximo Asset Management sends to SAP either an actual transaction or the corresponding journal entry, but not both. For example, you configure the integration to send an inventory adjustment or a service receipt, but not both. To skip the generation of a journal transaction, you enter the transaction type in the GLSOURCE interface control.

However, the standard invoice interface does not send tax information. Therefore, under certain conditions, the integration sends both the invoice interface and a TAX1 type invoice journal. The following factors determine whether the integration sends a TOTAL type invoice journal or a TAX1 type invoice journal:

- The value of Pay Tax to Vendor? (on the Company tab in the Companies application)

- The value of Add Tax 1 Amount to Vendor Price (in the Tax Options dialog box in the Organizations application)

- The value of the SAPAPOUT interface control

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The following tables show the type of invoice journal, if any, that the integration sends to SAP. *Skipped* means that the journal was generated but stopped; *No transaction* means that the integration processing does not generate an invoice journal.

If this situation applies to your invoices, ensure that the GLSOURCE interface control does not include transaction type INVOICETRANS.

Invoice journal generated when SAPAPOUT value = Y

Value of Add Tax 1 Amount to Vendor Price	Value of Pay Tax to Vendor?	TOTAL type invoice journal	TAX1 type invoice journal (material)	TAX1 type invoice journal (service)
For No items	0	Skipped	Sent to SAP	Sent to SAP
For No items	1	Skipped	Skipped	Skipped
For Issue on Receipt Items Only	0	Skipped	Sent to SAP	Skipped
For Issue on Receipt Items Only	1	Skipped	Skipped	No transaction
For All items	0	Skipped	Sent to SAP	Sent to SAP
For All items	1	Skipped	No transaction	No transaction

Invoice journal generated when SAPAPOUT value = N

Value of Add Tax 1 Amount to Vendor Price	Value of Pay Tax to Vendor?	TOTAL type invoice journal	TAX1 type invoice journal (material)	TAX1 type invoice journal (service)
For No items	0	Skipped	Sent to SAP	Sent to SAP
For No items	1	Skipped	Skipped	Skipped
For Issue on Receipt Items Only	0	Skipped	Sent to SAP	Skipped
For Issue on Receipt Items Only	1	Skipped	Skipped	No transaction
For All Items	0	Skipped	Sent to SAP	Sent to SAP
For All Items	1	Skipped	No transaction	No transaction

Filters

If the following conditions are met, the integration transfers journals from Maximo Asset Management to SAP:

- The transaction type is *not* included in the GLSOURCE interface control.

- The transaction date is greater than the value in the SAPCALSTART interface control.

- The GL debit and credit accounts are not null.

- The GL debit and credit accounts are fully specified.

- The GL debit and credit accounts are different.

- The transaction cost is not zero.

- (Invoice journals) The vendor is not disabled.

- (Service receipt journals) the transaction status is COMP (complete).

Related interface controls

The general ledger journal integration uses the following publish channel interface controls.

General ledger journal-related interface controls

Control	Description
SAPAAC	SAP Account Assignment Category
GLSOURCE	Transaction type of Maximo journals that Maximo Asset Management *does not* send to SAP.
SAPAPOUT	Indicates if Maximo Asset Management sends FI or MM invoices to SAP.
SAPGLCOMP	SAP GL component settings
SAPCALSTART	SAP calendar start date
SAPGLCONCAT	SAP GL concatenation settings
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross-references the Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo ID and SAP plant
SAPSTORERM	Cross-reference Maximo storeroom to SAP
SAPMAXBSNAME	Maximo business system name in SAP NetWeaver Process Integration
SAPQOS	SAP quality of service

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo publish channel

The SAP adapter user the following publish channel for the general ledger journal integration:

- MXGLTXN_TOSAP05

Related Maximo object structure

The SAP adapter user the following object structure for the General Ledger Journal integration:

- MXGLTXN

Related SAP tables

The Maximo Enterprise Adapter for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo to SAP.

SAP tables related to general ledger journals

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_GLPOSTING_BDC.
	BAPI	Uses Z_BC_CREATE_GLPOSTING_BAPI.

For more information about configuration details for selecting journal input methods, see Chapter 9, Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81.

Craft and labor integration

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Maximo Asset Management and SAP can exchange the following types of labor data:

Labor data exchange types

Integration point	Direction
Craft	Inbound
Labor	Inbound
Labor time reporting	Outbound, Inbound

This chapter is directed to system administrators, implementation team members, and SAP and Maximo consultants. It discusses factors that you need to be aware of when integrating Maximo and SAP labor and craft activity. It assumes that you are familiar with standard labor and cost processing in Maximo Asset Management and SAP.

This chapter contains the following sections:

- Overview of craft and labor integration
- For more information about interface controls, see Chapter 4, Interface controls, on page 51.
- Craft integration
- Labor integration
- Labor time reporting integration

Overview of craft and labor integration

SAP maintains craft (cost center and activity type) and labor (personnel) data in multiple modules. The Controlling (CO) module maintains cost center, activity, and labor rates, and the Human Resources (HR) module maintains personnel data.

Integrating craft and labor data between SAP and Maximo Asset Management is a two-step process, which you can perform in one of the following ways.

You can use the SAP adapter for both steps, as follows:

1 Use the SAP adapter to send cost center and activity type data from SAP ERP CO to Maximo Asset Management.

2 Use the SAP adapter to send personnel data from SAP HR to Maximo Asset Management

You can also use a combination of manual data entry and the SAP adapter, as follows:

1 Use the SAP adapter to send cost center and activity type data from the SAP ERP system to Maximo Asset Management.

2 Use the SAP adapter to send personnel data from SAP HR to Maximo Asset Management.

You can also use a combination of manual data entry and the MEA for SAP Applications, as follows:

1 Use the MEA for SAP Applications to send cost center and activity type data from the SAP ERP system to Maximo Asset Management.

2 Manually create personnel and pay rates for all combinations of craft and skill level, in Maximo Asset Management.

Configuration of skill levels and pay rates

One way in which you can configure pay rates in Maximo Asset Management is through the use of premium pay codes, which are factors by which Maximo multiplies an employee's base pay to calculate overtime pay.

The following tables illustrate a configuration using premium pay codes.

Craft rate

Craft	Skill level	Rate
Electrician	First class	22.00

Premium pay codes

Premium pay code	Description	Rate	Rate type
OT1	More than eight regular hours per shift	1.5	Multiplier
OT2	More than 40 regular hours per week	1.5	Multiplier
OT3	Sunday hours	2.0	Multiplier
OT4	Holiday hours	3.0	Multiplier

The SAP adapter does not support the use of premium pay codes. Instead, configure activity codes in SAP, and skill levels in Maximo Asset Management, for every pay rate that applies to a combination of employee and craft.

The following table shows how you can configure the same pay rates without using premium pay codes.

Configuration of pay rates

Craft	Skill level	Rate
Electrician	First class RG	22.00
Electrician	First class OT1	33.00
Electrician	First class OT2	33.00
Electrician	First class OT3	44.00
Electrician	First class OT4	66.00

Related interface controls

The labor, craft, and time sheet integrations use the following interface control.

Labor, craft, and time sheet-related interface control

Control	Description
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID.
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix.
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPCALSTART	SAP calendar start date.
SAPGLCOMP	SAP general ledger component settings.
SAPGLCONCAT	SAP general ledger component settings
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPMAXBSNAME	Maximo Business System Name in SAP XI
SAPQOS	SAP Quality of Service

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Craft integration

The craft interface transfers new, updated, and deleted cost center and activity type data from the SAP ERP CO module to Maximo Asset Management. You initiate this activity through an ABAP report.

Note   The craft integration is a prerequisite to the labor integration.

Structure of SAP and Maximo craft data

The SAP ERP CO system maintains cost center and activity type data at the company code level. The SAP cost center corresponds to the Maximo craft and SAP activity type corresponds to the Maximo skill level. The integration creates Maximo craft data at the organization level, in the following tables:

Maximo craft data tables

Maximo table	Description
CRAFT	Basic information about a craft (cost center)
CRAFTSKILL	Basic information about a skill (activity type)
CRAFTRATE	Standard labor rates for combination of craft and skill

The following diagram illustrates the integration object and the relationship among the Maximo tables updated during the craft integration.

Structure of craft integration object in Maximo Asset Management
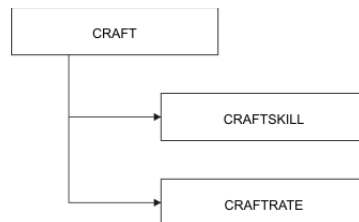
The integration verifies the skill against the Maximo SKILLLEVEL domain. If the skill does not exist in that domain, the integration adds it to the domain.

If an SAP cost center is marked for deletion, the integration deletes the corresponding CRAFT, CRAFTSKILL, CRAFTRATE records from Maximo Asset Management. It also deletes the LABORCRAFTRATE record that the Labor integration creates.

The integration always passes the labor rates for the current accounting period.

Transfer of cost center and activity type data from SAP to Maximo Asset Management

SAP cost center and activity type data is sent to Maximo Asset Management by ABAP batch report ZBCXIREPR170, "Download Cost Centers, Activities, and Prices to Craft in Maximo." Batch report ZBCXIREPR170 is the only method used by this integration to transfer craft data from SAP to Maximo Asset Management.

Batch report ZBCXIREPR170 selection criteria

Batch report ZBCXIREPR170 has the following selection criteria:

ZBCXIREPR170 Selection criteria

ZBCXIREPR170 Selection Criteria	Description
Company Code	Choose one company code or a range of company codes per each run of the batch report.
Fiscal Year	Choose one fiscal year per each run of the batch report.
Language	Choose one language per each run of the batch report.
Cost Center	Choose zero, one, or a range of cost centers per each run of the batch report. If you do not choose a cost center, the report runs for all cost centers.
Activity Type	Choose zero, one, or a range of activity types per each run of the batch report.

Effectivity of craft data

The EXT_ACTIVE column in the Maximo CRAFT table indicates whether the craft is active (value 1) or no longer exists in SAP (value 0). The integration validates this column when transactions are sent from Maximo Asset Management to SAP.

SAP adapter bulk load action

When you select the bulk load option, **Send all**, of the ABAP program ZBCXIREPR170, the SAP adapter performs the following actions during the handling of the bulk load of craft data received from SAP:

- Sets the value of the CRAFT.SAP_UPDATE field to 1 (Active) for each SAP Vendor record included in the bulk load.

- Inserts the values for all Maximo organizations associated with the incoming craft data into the Organization parameter of the Maximo cron task SAPMASTERDATAUPDATE.

- Sets the value of the Enabled parameter of the Maximo cron task SAPMASTERDATAUPDATE to 1.

Cron task SAPMASTERDATAUPDATE action

The Maximo cron task SAPMASTERDATAUPDATE updates craft records in Maximo Asset Management to mark the SAP activity type or cost center records in the Maximo database that have been deleted and archived in SAP. When the cron task runs, it performs the following actions:

- Resets the EXT_ACTIVE field to 0 for each record where the SAP_UPDATE field = 0 and the EXT_ACTIVE field = 1.

Note   Whenever you run the ZBCXIREPR170 bulk load program for craft records, next immediately run the SAPMASTERDATAUPDATE cron task. This process sets to "inactive" any Maximo records that correspond to bulk-loaded SAP records that have been archived or deleted in SAP. If you are running more than one of these bulk loads, run the cron task after the last bulk load report is run.

Note   Do not run any change or update reports while the SAPMASTERDATAUPDATE cron task is running, or errors may occur.

For more information about this Cron Task, see *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center*.

Fields added to CRAFT table

When the SAP adapter is installed, it adds the following fields to the Maximo CRAFT table.

Field added to CRAFT table	Description	Type	Len	Usage
EXT_ACTIVE	Indicates whether the record is active in SAP. 0 = is not an active SAP activity type or cost center 1 = is an active SAP activity type or cost center	YORN	1	This field is mapped from SAP during a run of ABAP Batch Report ZBCXIREPR170. This field is updated during a run of Maximo cron task SAPMASTERDATAUPDATE.
SAP_UPDATE	Indicates whether the activity type or cost center record has been removed from the SAP system. 0 = activity type or cost center record has been removed from SAP 1 = activity type or cost center record is active in the SAP system	YORN	1	This field is updated during a run of the ABAP Batch Report ZBCXIREPR170*. * for the bulk load option only The SAP_UPDATE column in the Maximo CRAFT table is for internal use.

Related interface control

The craft integration uses the following enterprise service and interface control.

Craft enterprise service interface control

Control	Description
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID.

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo enterprise service

The SAP adapter uses the following enterprise service for the craft integration:

- MXCRAFT_FRSAP05

Related Maximo object structures

The SAP adapter uses the following object structures for the craft integration:

- MXCRAFT
- MXDOMAIN

Labor integration

The labor interface transfers new and updated personnel data from SAP HR to Maximo Asset Management. You initiate this activity through an ABAP report or an IDOC.

If you do not use the SAP HR system to maintain labor records, manually enter labor and craft rate information in Maximo Asset Management if you wish to use labor time reporting in Maximo Asset Management. You perform this action in the Labor application in the Maximo Resources module.

The labor integration uses data in the CRAFTRATE record to populate the LABORCRAFT rate record; therefore, the craft integration is a prerequisite to labor and labor time integration.

Structure of SAP and Maximo labor data

The SAP HR module maintains personnel data. It can contain multiple records per employee, based on effective dates. Any updates to personnel information are made to the current active period of the personnel record.

The integration creates Maximo labor data in the following tables.

Maximo labor data tables

Maximo table	Description
LABOR	Labor information about an employee, such as status location and year to date hours worked. This record is maintained at the organization level in Maximo.
PERSON	General information about an employee such as name, address, and hire date. This record is maintained at the system level in Maximo.
LABORCRAFTRATE	Rates and general ledger accounts applicable to the employee.

The following diagram illustrates the integration object and the relationship among the Maximo tables updated during the labor integration.

Structure of labor integration object in Maximo Asset Management
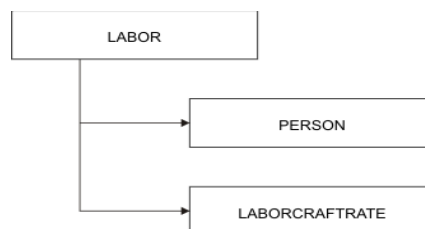
The integration writes SAP personnel data to the LABOR and PERSON records in Maximo Asset Management. It uses the SAP personnel cost center to access the corresponding Maximo CRAFTRATE table, from which it derives the data necessary to populate the LABORCRAFTRATE table. If the CRAFTRATE table contains multiple records for a cost center, the integration creates a LABORCRAFTRATE record for each combination of craft and skill that applies to the employee.

Transfer of personnel data from SAP to Maximo Asset Management

SAP personnel data is sent to Maximo Asset Management by ABAP batch report ZBCXIREPR150, "Download Labors to Maximo."

Batch report ZBCXIREPR150 selection criteria

Batch report ZBCXIREPR150 has the following selection criteria:

ZBCXIREPR150 Selection criteria

ZBCXIREPR150 Selection criteria	Description
Company Code	Choose one company code per each run of the batch report.
Personnel Number	Choose zero, one, or a range of personnel numbers per each run of the batch report.
Language	Choose one language per each run of the batch report.
Change Date	Choose zero, one, or a range of change dates per each run of the batch report.

Batch report ZBCXIREPR150 processing options

Batch report ZBCXIREPR150 has the following processing options:

ZBCXIREPR150 processing options

ZBCXIREPR150 Processing Option	Description
Send all Labor Master records	ABAP sends all active Labor Master records, including those that you might have blocked. It does not delete any Labor Master records in Maximo Asset Management.
Send changed labor master	ABAP sends all active and inactive personnel that meet the selection criteria, that have changed since the last run of the ZBCXIREPR150 report. The ABAP report is executed as part of a scheduled job.
Send labor master immediately	ABAP sends all labor master records that meet the selection criteria. The ABAP report is executed immediately.

IDOC processing

You can also send IDOC personnel inserts and updates to Maximo Asset Management through the HRMD_AIDOC.

You can use the object filter object in the ZBC_FILTER table to filter the personnel data that SAP sends to Maximo Asset Management.

Effectivity of labor data

SAP HR indicates an employee's status (active or inactive) through a combination of status and effective dates. The integration provides Maximo Asset Management with the SAP status, but not the effective dates.

Related interface controls

The labor integration uses the following enterprise service interface control.

Labor enterprise service interface control

Control	Description
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID.

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related enterprise service

The SAP adapter uses the following enterprise service for the labor integration:

- MXLABOR_FRSAP

Related Maximo object structure

The SAP adapter uses the following object structure for the labor integration:

- MXLABOR

Labor time reporting integration

The SAP CA-TS (Cross Application Time System) and ERP CO modules maintain time sheets. The inbound labor time integration transfers approved time sheets from CA-TS or CO to Maximo Asset Management, and the outbound integration transfers approved labor time reporting from Maximo Asset Management to SAP ERP CO.

Note   The outbound integration does not send time reporting to SAP CA-TS.

Before you can integrate labor time reporting between Maximo Asset Management and SAP, corresponding LABOR and LABORCRAFT records must exist in Maximo Asset Management. You can create these records manually or with the labor integration.

Structure of SAP and Maximo labor time data

SAP generates one time sheet for each combination of personnel ID, cost center, and activity type. If a time sheet is changed after it is approved, SAP CA-TS creates a new, active time sheet and uses start and finish dates to flag the previous time sheet as inactive. The time sheets must include a Maximo work order number.

SAP does not send pay rates to Maximo Asset Management; rather, Maximo Asset Management uses the personnel ID, cost center, and activity type that it receives from SAP to retrieve the corresponding pay rate from the Maximo LABORCRAFTRATE table.

If an SAP time sheet is changed after it is approved, the integration sends two records to Maximo Asset Management: the new time sheet and an adjustment to the previous time sheet. The adjustment contains a negative number of hours.

Maximo Asset Management creates a LABTRANS record from each SAP labor time sheet that it receives. If the integration has sent an adjustment to a previous time sheet, Maximo Asset Management generates a LABTRANBS record with a transaction type of ADJUSTMENT.

Transfer of labor time data from SAP to Maximo Asset Management

SAP time sheet data is sent to Maximo Asset Management by ABAP batch report ZBCXIREPR160, "Download Time Sheets to Maximo." Batch report ZBCXIREPR160 is the only method used by this integration to transfer time sheet data from SAP to Maximo Asset Management.

Batch report ZBCXIREPR160 selection criteria

Batch report ZBCXIREPR160 has the following selection criteria:

ZBCXIREPR160 Selection criteria

ZBCXIREPR160 Selection Criteria	Description
Counter	Choose zero, one, or a range of time sheet transaction IDs.
Personnel Nr	Choose zero, one, or a range of personnel numbers per each run of the batch report.
Language	Choose one language per each run of the batch report.
Work Order Number	Choose zero, one, or a range or work orders per run of the batch report.
Change Date	Choose zero, one, or a range of change dates per each run of the batch report.

Batch report ZBCXIREPR160 also displays fields where you can select attendance codes for normal work time, overtime, and travel time. However, the integration supports only attendance codes 0800, 0801, and 0400.

Batch report ZBCXIREPR160 processing options

Batch report ZBCXIREPR160 has the following processing options:

ZBCXIREPR160 processing options

ZBCXIREPR160 processing option	Description
Send new time sheets	ABAP sends all active, approved time sheets and adjustments that meet the selection criteria, that have been created since the last run of the ZBCXIREPR150 report. The ABAP report is executed as part of a scheduled job.
Send time sheets by value	ABAP sends all active, approved time sheets and adjustments that meet the selection criteria, that have been created since the last run of the ZBCXIREPR150 report. The ABAP report is executed immediately.

Related interface controls

The time sheet integration uses the following enterprise service and publish channel interface controls.

Time sheet-related enterprise service interface controls

Control	Description
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID.
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.

Time sheet-related publish channel interface controls

Control	Description
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID.
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPCALSTART	SAP calendar start date
SAPGLCOMP	SAP general ledger component settings
SAPGLCONCAT	SAP general ledger component settings
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPMAXBSNAME	Maximo Business System Name in SAP PI
SAPQOS	SAP Quality of Service

Related Maximo enterprise service

The SAP adapter uses the following enterprise service for the labor time reporting integration:

- MXEMPACT_FRSAP05

Related Maximo publish channel

The SAP adapter uses the following publish channel for the labor time reporting integration:

- MXEMPACT_TOSAP05

Related Maximo object structure

The SAP adapter uses the following object structure for the labor time reporting integration:

- MXEMPACTIN
- MXEMPACTOUT

Related SAP tables

The Maximo Enterprise Adapter for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo to SAP.

SAP Tables related to labor time

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_LABORHOURS_BDC.
	BAPI	Uses Z_BC_CREATE_LABORHOURS_BAPI.

For more information about configuration details for selecting labor time input methods, see Chapter 9, Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81

Purchasing integration

12

Maximo Asset Management and SAP can exchange the following types of purchasing data:

- Enterprise services
  - Purchase requisition
  - Purchase order
- Publish channels
  - Vendor
  - Contract
  - Purchase requisition status update
  - Purchase order
  - Invoices
  - Invoice Variances
  - Domains

This chapter is for system administrators, implementation team members, and SAP and Maximo consultants. It discusses factors that you must be aware of when integrating Maximo Asset Management and SAP purchasing activity. It assumes that you are familiar with standard purchasing processing in Maximo Asset Management and SAP.

Purchasing scenarios

This section provides a brief overview of the most common purchasing and invoicing scenarios between Maximo Asset Management and SAP. A shaded rectangle indicates the system in which you create the document.

Purchasing and invoicing scenario 1

In this scenario, you conduct material management and purchasing functions in SAP Applications.

Maximo Asset Management manages purchase requisitions.

SAP manages centralized purchasing and invoicing.

Purchasing and invoicing scenario 1
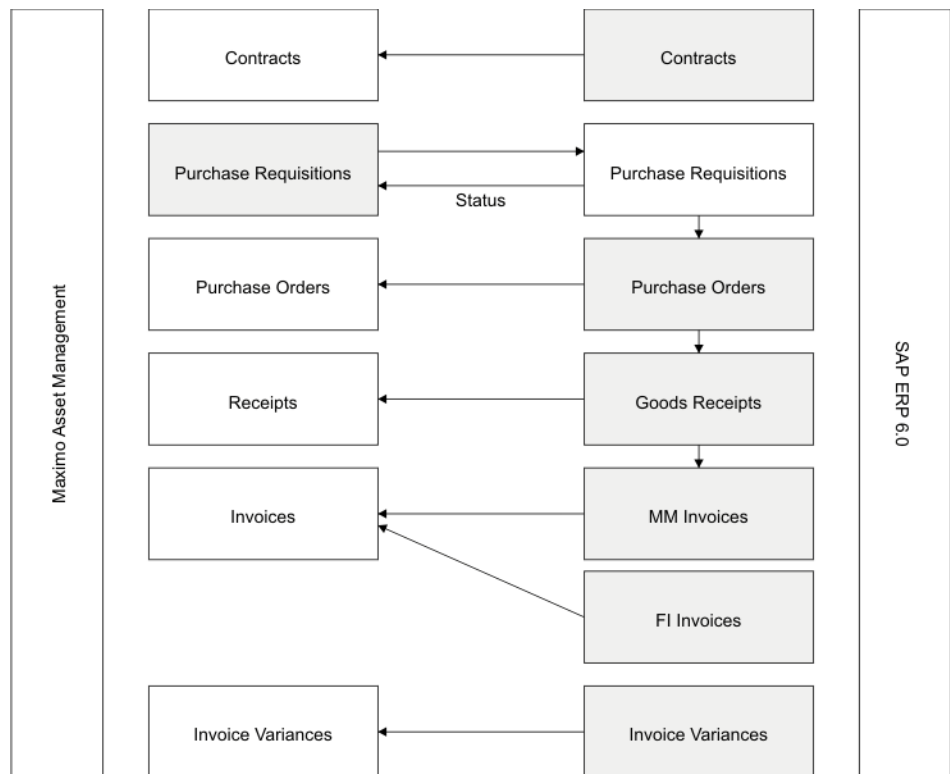
In this scenario, you create the document in the following systems:

Maximo Asset Management:

- Purchase Requisitions

SAP ERP 6.0:

- Contracts
- Purchase Orders
- Goods Receipts
- MM Invoices
- FI Invoices
- Invoice Variances

Purchasing and invoicing scenario 2

In this scenario, material management and purchasing functions are conducted in Maximo Asset Management, accounting functions are conducted in SAP.

Maximo Asset Management manages centralized purchasing.

SAP manages general ledger and accounts payable.

Purchasing and invoicing scenario 2
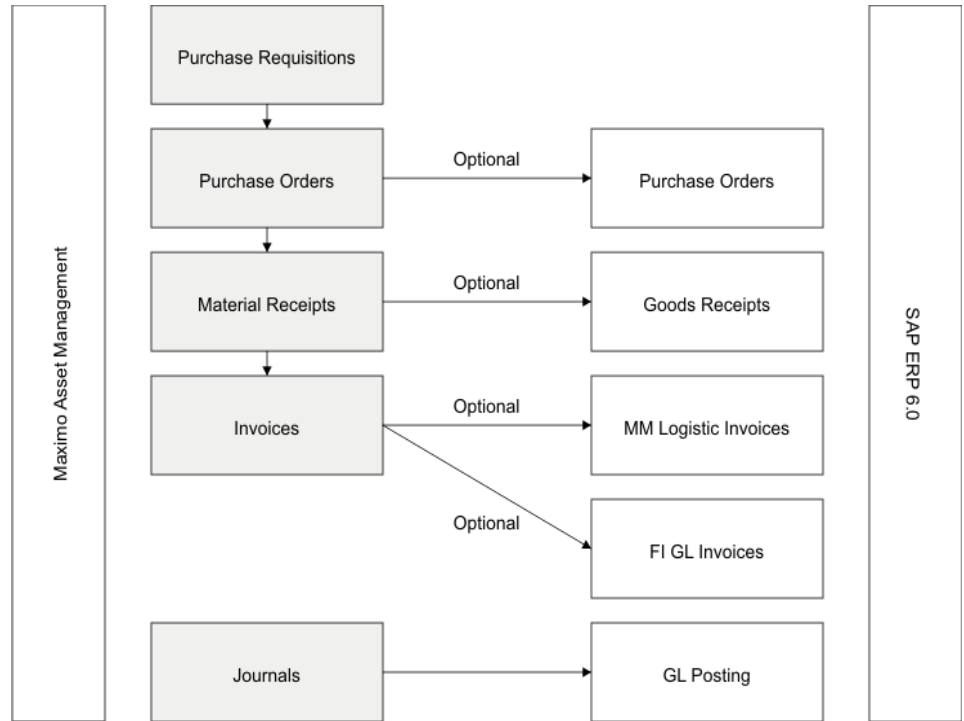
In this scenario, you create the document in the following systems:

Maximo Asset Management:

- Purchase Requisitions
- Purchase Orders
- Material Receipts
- Invoices
- Journals

IBM Corporation has tested and supports the integration points in the preceding two scenarios. You are not limited to using the integration components shown in the preceding scenarios. You can implement the integration points available from the Maximo Enterprise Adapter for SAP that meet your business requirements.

Purchasing and invoicing considerations

This section describes features and functionality shared by the purchasing and invoicing integrations.

Structure of purchasing hierarchies

In SAP, the purchasing functions are handled by a different organizational structure than the purchasing functions in Maximo Asset Management. The default settings in the Maximo Enterprise Adapter for SAP map the relationships between the two systems for purchasing functions as shown in the following figure.

Maximo Asset Management and SAP purchasing hierarchies
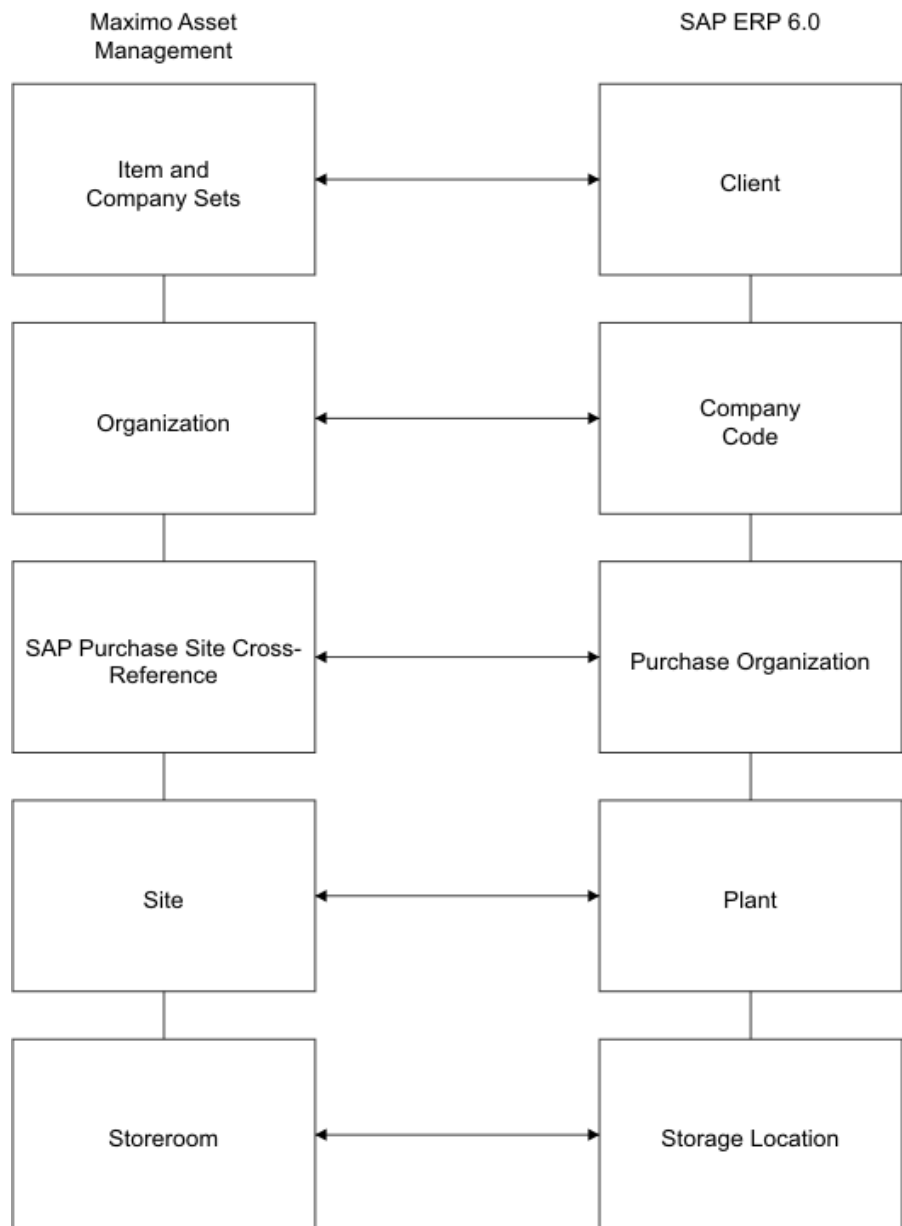
Status controls for outbound transactions

A Maximo interface control associated with each purchasing and invoice interface specifies the statues at which the integration sends a document to SAP. The following table lists the interfaces and their corresponding controls:

Purchasing and invoice interface controls

Maximo Interface	Maximo SEND Control
Purchase requisition	PRSEND
Purchase order	POSEND
Invoice	IVSEND

By default, the value of each control is APPR; that is, the integration sends the corresponding interface to SAP when the document status is APPR, or approved. If you modify the values in a control, include all synonyms for the statuses associated with the control.

Purchasing line types

Maximo Asset Management requires each PO line and contract line to have a defined line type.

The Maximo Enterprise Adapter for SAP integrates purchasing data for only the following Maximo line types

- ITEM
- MATERIAL
- SERVICE

For purchase order or contract lines in the following Maximo transactions

- contracts
- purchase requisitions
- purchase orders

When an inbound purchasing transaction is for an item that does not refer to a Maximo PR line, the Maximo Enterprise Adapter for SAP derives the Maximo line type from the presence or absence of an item number and/or the value in the SAPLINETYPE cross-reference control.

This integration does not support Maximo PO Line Types "Special Order" (SP ORDER) or "Standard Service" (STD SERVICE).

Item number mapping

On outbound purchasing documents, item numbers are not mapped from Maximo Asset Management to SAP if items are not SAP-owned items.

For more information about item number mapping, see the Purchase Requisition Integration and Purchase Order Integration sections of this chapter.

Multiple distributions

Multiple distributions of purchasing line costs are handled differently in Maximo Asset Management than they are in SAP. Distributions in Maximo Asset Management are handled in GL Accounts. In SAP, Account Assignment Category (AAC) cost objects handle distributions.

Multiple distributions inbound

Multiple distributions are supported for purchase orders inbound from SAP to Maximo Asset Management. The integration creates a separate PO line in Maximo Asset Management for each item distribution on an inbound purchase order. For example, if a PO from SAP has one line with an item with three distributions, then the resulting PO in Maximo has three PO lines.

Inbound purchase order line numbers

The adapter uses the PO line number field to hold ID information about the incoming SAP PO line number and SAP distribution line number. If the inbound PO item does not have multiple distribution, the integration adds the SAP line number and "01" to the POLINENUM.

Multiple distributions outbound

Multiple distributions are not supported in purchase requisitions or purchase orders outbound from Maximo Asset Management to SAP. Maximo multiple distribution uses only the GL account number to distribute the cost for a line. In SAP, multiple distribution occurs at the cost object (WO, Asset, WBS Element, Cost Center, and so on) not in GL accounts.

Outbound purchase order line numbers

The adapter uses the PO line number field to hold ID information about the SAP PO line number and SAP distribution line number. If the outbound PO item does not have multiple distribution, the integration adds the SAP line number and "01" to the POLINENUM.

Vendor integration

The vendor interface transfers new and updated vendors from SAP to Maximo Asset Management. SAP maintains and updates vendor data. SAP Vendors are the equivalent of Maximo Companies.

If you create a vendor in SAP, make all updates to that vendor in SAP. If you update the vendor in Maximo, the change does not appear in SAP.

Structure of vendor data

SAP vendor data consists of Basic data at the Client level, Accounting data at the Company Code level, and Purchasing data at the Purchase Organization level.

Vendor data hierarchy (SAP)
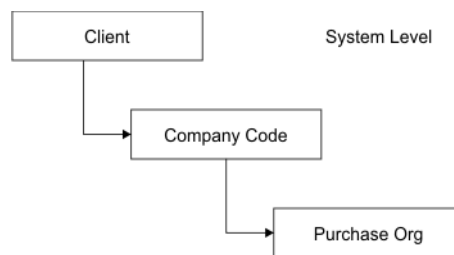
Maximo vendor data consists of a vendor master at the set level and one or more vendor records at the organization level. An organization has only one vendor set, but a vendor set can belong to more than one organization.

Maximo Asset Management refers to vendors as companies.

Company structure (Maximo Asset Management)
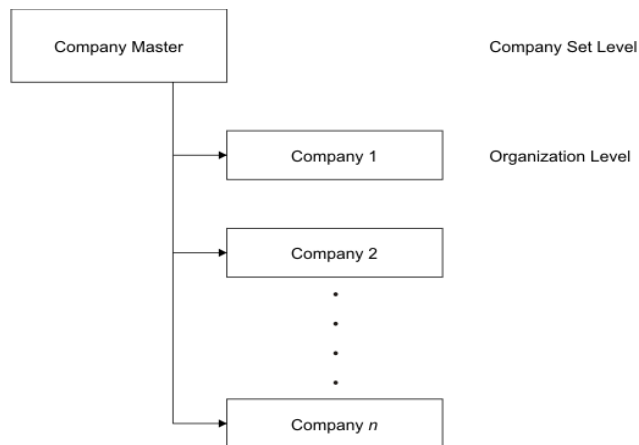
The integration passes SAP vendor data to Maximo Asset Management according to the selection criteria you use when running the ZBCXIREPR007 ABAP report.

Before using the integration, configure the relationship between company master sets and Maximo organizations. You perform this configuration in the Maximo Sets application.

The SAP Vendor organization hierarchy is different than the Companies organization hierarchy in Maximo Asset Management. The following table shows organization mapping between the hierarchies.

Vendor organization mapping between Maximo Asset Management and SAP

Maximo	SAP System
COMPANIES.COMPANYSETID	Client (MANDT)
COMPANIES.ORGID	Company Code (BUKRS)
SAPPURCHSITEID cross-reference control	Purchase Organization (EKORG)

The following figure shows the data mapping between the hierarchies.

Maximo Enterprise Adapter for SAP vendor inbound integration
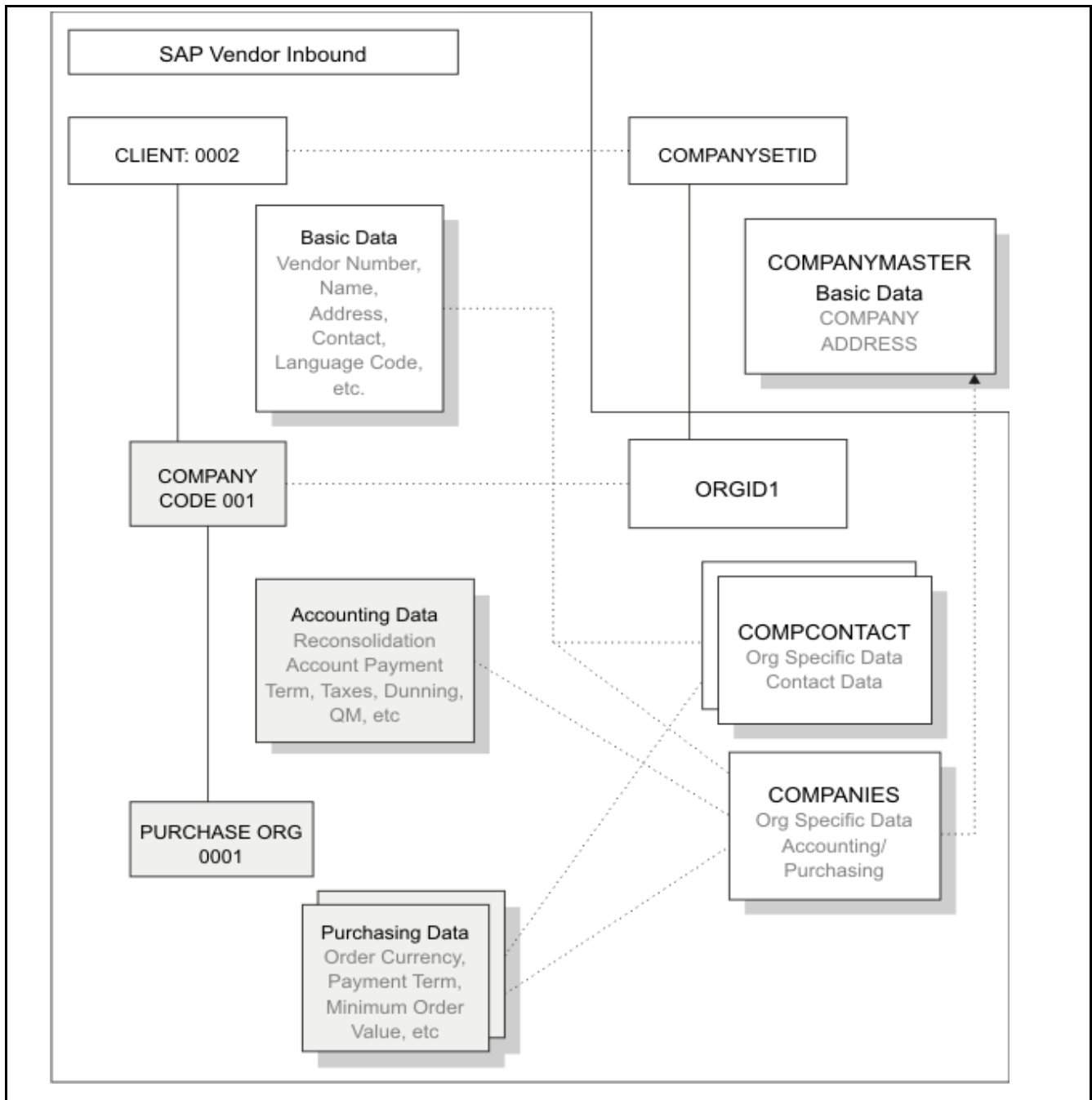
Creating Maximo company masters

The integration does not by default automatically create Maximo company masters. Configure Maximo Asset Management to create a company master for each new inbound vendor record that has not previously existed in the Maximo database. Select the **Automatically Add Companies to Company Master** check box in the Maximo Sets application. If you do not, errors occur. During a bulk load of inbound vendor data, this setting creates company master records only for vendors new to Maximo Asset Management.

Although Maximo Asset Management allows a one-to-many relationship between company masters and company record, there is a one-to-one relationship for vendors added via the vendor integration.

Transferring vendor data from SAP to Maximo Asset Management

Use the ABAP Batch Report ZBCXIREPR007, "Download Vendors to Maximo," to send SAP Vendor Master data to the Maximo COMPANIES table. Batch Report ZBCXIREPR007 is the only method that this integration uses to transfer Vendor Master data from SAP to Maximo Asset Management.

Select the Maximo Company Code you want to send to Maximo Asset Management when you run the Batch Report ZBCXIREPR007, because ZBC_RUNTIMES does not store the company codes. If you want to send reports for more than one Maximo Company Code, run ZBCXIREPR007 multiple times, once for each Company Code for which you want a report.

Batch report ZBCXIREPR007 selection criteria

Batch Report ZBCXIREPR007 has three selection criteria:

ZBCXIREPR007 Selection criteria

ZBCXIREPR007 Selection criteria	Description
Company Code	Choose one Company Code per each run of the batch report.
Purchase Organization	Choose one Purchase Organization per each run of the batch report.
Vendor number range	(Optional) Select a number range for the SAP Vendors to be sent to Maximo.

Batch Report ZBCXIREPR007 processing options

Batch Report ZBCXIREPR007 has three processing options:

ZBCXIREPR007 Processing options

ZBCXIREPR007 Processing option	Description
Send all Vendors	ABAP sends all active Vendors, including those that you might have blocked. It does not delete any Vendors in Maximo.
Send changed Vendors	ABAP sends only Vendor data that has changed since the last run of the ZBCXIREPR007 report.
Send Vendors immediately	ABAP sends all Vendor records that meet the selection criteria. SAP executes the ABAP report immediately.

Process flow for send all vendors (Bulk Load) processing option

1 When you select **Send all Vendors**, ABAP program ZBCXIREPR007 selects all active SAP vendors meeting the selection criteria, including those that might be blocked. This option is also known as a bulk load.

2 The Maximo Enterprise Adapter for SAP receives the Vendor data from SAP.

3 The Maximo Enterprise Adapter for SAP inserts the SAP Vendor data into the Maximo Companies table.

Process flow for send changed vendors (Incremental Update) processing option

1 When you select **Send changed Vendors**, ABAP program ZBCXIREPR007 selects all changed SAP vendors meeting the selection criteria.

2 The Maximo Enterprise Adapter for SAP receives the Vendors from SAP that have been changed or created since the last time the report was run.

3 The Maximo Enterprise Adapter for SAP inserts the changed SAP Vendor data into Maximo Asset Management to update the relevant Companies records.

Process flow for send vendor immediately processing option

1 When you select **Send Vendors immed**, ABAP program ZBCXIREPR007 sends the selected Vendor records immediately to Maximo Asset Management.

2 The Maximo Enterprise Adapter for SAP receives the Vendors from SAP.

3 The Maximo Enterprise Adapter for SAP inserts the selected SAP vendor data into the Maximo companies table.

CREMAS IDOC method

With CREMAS IDOC method, you can send SAP Vendor Master data to the Maximo Companies table in real time. The CREMAS IDOC method includes the RBDMIDOC program. The program is the standard SAP report that creates IDOCs from change pointers.

When you create or update SAP vendors, SAP periodically runs a scheduled job of the RBDMIDOC program to analyze the change pointers. Change pointers are the SAP database tables that contain new or changed vendor records. If the scheduled job detects changes in the change pointers, it indicates for the RBDMIDOC program to create IDOCs for the affected vendors.

Effectivity of vendor data

The EXT_ACTIVE column in the Maximo COMPANIES table indicates whether the vendor is active (value 1) or no longer exists in SAP (value 0). The integration validates this column when transactions are sent from Maximo to SAP.

Maximo Enterprise Adapter for SAP bulk load action

When you select the bulk load option, **Send all Vendors**, of the ABAP program ZBCXIREPR007, the Maximo Enterprise Adapter for SAP performs the following actions during the handling of the bulk load of vendor data received from SAP:

- Sets the value of the COMPANIES.SAP_UPDATE field to 1 (Active) for each SAP vendor record included in the bulk load.

- Inserts the values for all Maximo Organizations associated with the incoming vendor data into the Organization parameter of the Maximo cron task SAPMASTERDATAUPDATE.

- Sets the value of the enabled parameter of the Maximo cron task SAPMASTERDATAUPDATE to 1.

Cron Task SAPMASTERDATAUPDATE action

The Maximo cron task SAPMASTERDATAUPDATE updates Company records in Maximo to mark the SAP vendors in the Maximo database that you have deleted and archived in SAP. When the cron task runs, it performs the following actions:

- Resets the EXT_ACTIVE field to 0 for each record where the SAP_UPDATE field = 0 and the EXT_ACTIVE field = 1.

Whenever you run the ZBCXIREPR007 SAP bulk load program for vendor records, immediately afterwards run the SAPMASTERDATAUPDATE cron task. This process sets to "inactive" any Maximo records that correspond to bulk-loaded SAP records that have been archived or deleted in SAP. If you are running more than one of these bulk loads, run the cron task after the last bulk load report is run.

Do not run any change or update reports while the SAPMASTERDATAUPDATE cron task is running, or errors may occur.

For more information about this Cron Task, refer to *Integrating Data with External Applications* in the *IBM Maximo Asset Management 7.6 Information Center.*

Fields added to COMPANIES Table

After you install the Maximo Enterprise Adapter for SAP, it adds the following fields to the Maximo COMPANIES table.

Fields added to companies table

Field added to COMPANIES table	Description	Type	Len	Usage
EXT_ACTIVE	Indicates whether the company is an active SAP vendor. 0 = is not an active SAP vendor 1 = is an active SAP vendor	YORN	1	This field is mapped from SAP during a run of ABAP Batch Report ZBCXIREPR007. This field is updated during a run of Maximo cron task SAPMASTERDATAUPDATE.
SAP_UPDATE	Indicates whether the vendor record has been removed from the SAP system. 0 = vendor record has been removed from SAP 1 = vendor record is active in the SAP system	YORN	1	This field is updated during a run of the ABAP Batch Report ZBCXIREPR007*. * for the bulk load option only The SAP_UPDATE column in the Maximo COMPANIES table is for internal use.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the vendor integration:

- MXVENDOR_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the vendor integration. It enables vendors inbound.:

- MXVENDOR

Related interface control

The Vendor integration uses the following Maximo interface control.

Vendor-related enterprise service interface control

Interface control	Control type
SAPORGID	Cross-reference

For more information about interface controls, see Interface controls, on page 51.

Contract integration

The contract interface transfers contracts from SAP to Maximo Asset Management. The Maximo Enterprise Adapter for SAP integration handles only contracts inbound from SAP to Maximo Asset Management. Contracts are transferred from SAP to Maximo Asset Management using IDoc type EKSEKS01.

Structure of contract data

In SAP, contract type and number ranges are defined at the Client level. Contract records are created at the Purchase Organization level. Any Plants within a Purchase Organization can use the same contract record to create a purchase order. Contract lines are created at the Purchase Organization or Plant levels.

Contract structure (SAP)
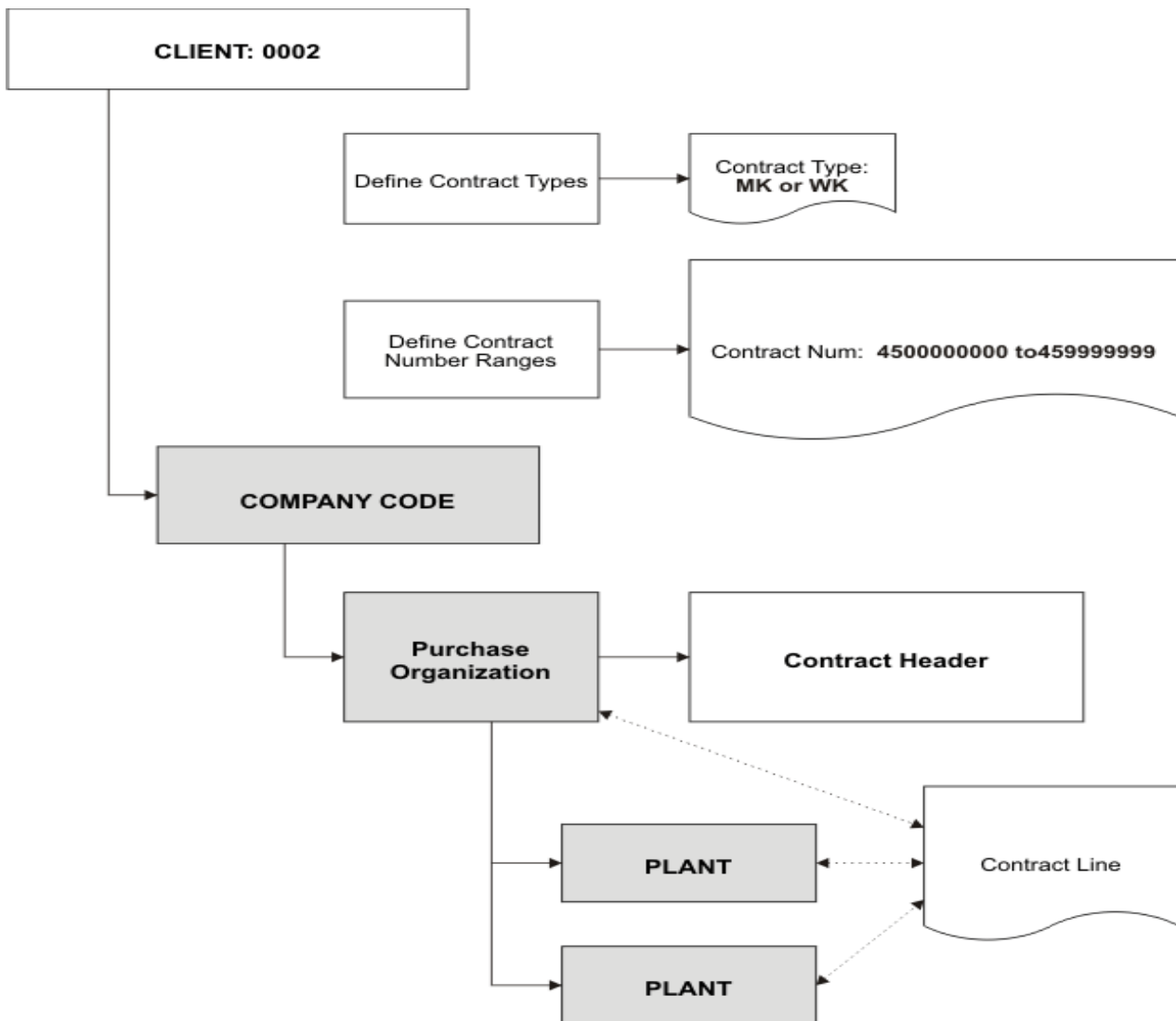
In Maximo Asset Management, contracts are created at the Organization level (ORGID). When you create a contract, you authorize the sites that can reference and use the contract.

Contract structure (Maximo Asset Management)
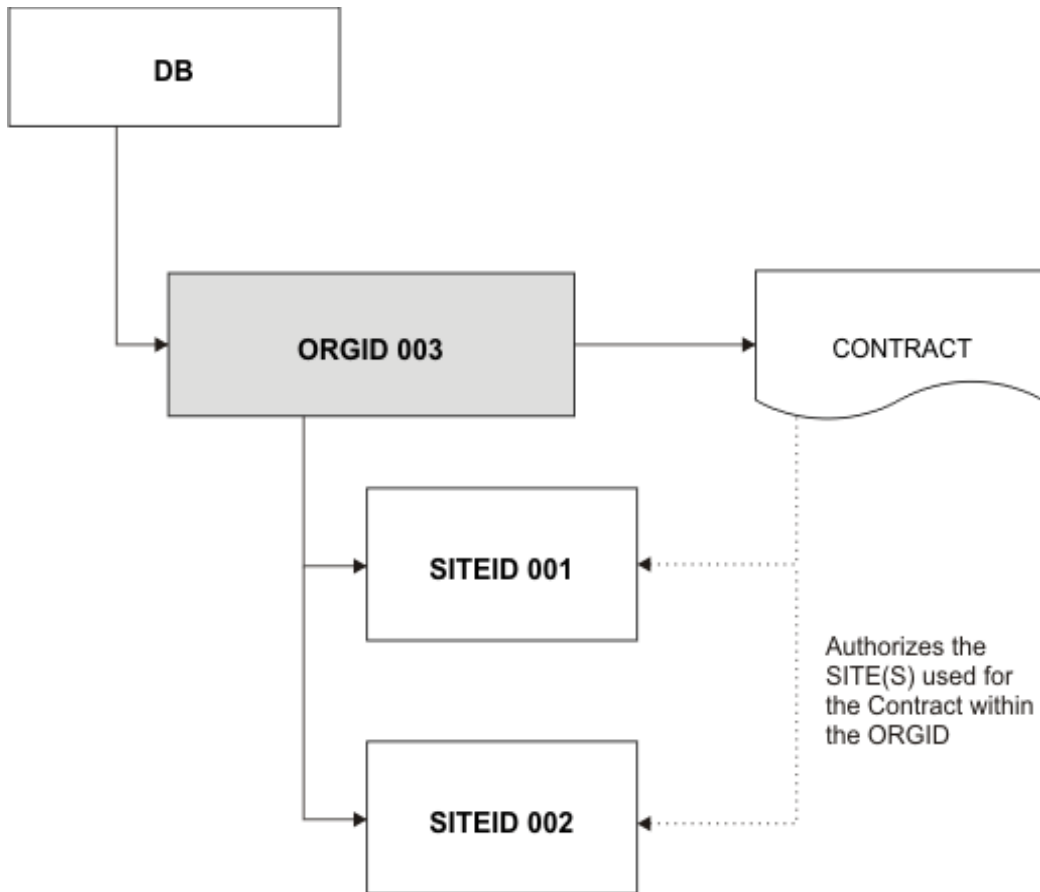
Types of contracts

The Maximo Enterprise Adapter for SAP handles contracts inbound from SAP to the Maximo Contracts application for only the following Maximo types of contracts:

- Blanket
- Price

A Maximo blanket contract is an agreement with a particular vendor to spend a pre-determined amount for materials or services for a defined period of time.

A Maximo price contract is an agreement with a particular vendor to purchase items or services at agreed-upon prices for a defined period of time.

The following table shows the mapping of SAP and Maximo contract types.

Contract type mapping

SAP contract document type	Maximo contract type
Quantity (MK)	Blanket
Price (WK)	Pricing

Contract integration requirements

Before sending contracts from SAP to Maximo Asset Management, perform the following configurations in Maximo Asset Management:

- Define SAP Company Codes to be used in the contract integration in the SAPORGID interface control.

- Define SAP Plants to be used in the contract integration in the SAPSITEID interface control.

- Define SAP contract document types to be mapped to Maximo Asset Management in the SAPCONTRACTTYPE interface control.

- Define Maximo line types to be used in the contract integration in the SAPLINETYPE interface control.

- DO NOT select the PO Option **Allow the Generation of Special Order Items?** checkbox in the Organizations application.

When contracts are revised in SAP the revisions are integrated into the original contracts in Maximo Asset Management. Do not create a new revision number for a contract in Maximo Asset Management because SAP can not recognize the new revision number.

For specific configuration procedures and details, see Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81.

Filters

The integration transfers contracts from SAP to Maximo Asset Management when the following conditions are met.

- An item number on an inbound contract line must exist already in Maximo Asset Management.

- The vendor for an item on an inbound contract line must exist already in Maximo Asset Management.

- The contract is of either SAP contract document type Price (WK) or Quantity (MK).

Contracts inbound to Maximo Asset Management include SAP contract line base data such as item number, description, quantity, and price. The integration does not support SAP line item cost objects and distribution functionalities.

IDoc type EKSEKS01 filtering

SAP Contracts are sent to Maximo Asset Management by the IDoc type EKSEKS01.

The Maximo Enterprise Adapter for SAP allows the following Contract parameters:

- A contract created by an SAP purchase organization can be used by any plant within that purchase organization.

- A contract created by an SAP purchase organization can be specific to one plant.

- A contract created by an SAP plant must contain contract lines referring only to that plant.

Contract authorization

Maximo contracts are created at the organization level. When you create a contract in Maximo Asset Management, authorize the Maximo sites that can use that contract. The authorized SITEIDs are at the contract header level.

In SAP, contracts can be created at the Purchase Organization level and at the Plant level. A purchase organization can authorize all plants within that purchase organization to use the contract, or just one. A plant can create a contract that contains lines from only that plant, or can include lines from other plants. This integration does not support contracts created at the plant level (equivalent to Maximo site level, where contract lines are from more than one plant.

The integration authorizes the plants (Maximo sites) that can use the inbound contract based on the filtering parameters described in the previous section, "IDOC Type EKSEKS01 Filtering."

Creation of purchase orders from contracts

A Maximo user can create a release purchase order from a contract that originated in SAP. The lines on the contract are read-only, and you can add data only on the contract header and in the terms and conditions.

To be able to create a release PO against a blanket contract in Maximo Asset Management, select the **Create Release?** check box on the Properties tab of the Maximo Contracts application for the contract, after the contract is received from SAP.

Maximo contract line status

The contract line status can be changed in Maximo Asset Management. If a Maximo contract line status is changed from APPR to CAN, this contract line status cannot be changed back to APPR. If you use the line later, change the status to WAPPR, rather than CAN. If an SAP contract line is marked for deletion, the Maximo Enterprise Adapter for SAP changes the status to WAPPR.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the contract integration:

- MXPC_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the contract integration. it enables contracts inbound.

- MXPC

Related interface controls

The contract integration uses the following enterprise service interface controls.

Contract-related interface controls

Interface control	Control type
SAPORGID	Cross-reference
SAPSITEID	Cross-reference
SAPITEMSETID	Cross-reference
SAPCONTRACTTYPE	Cross-reference
SAPLINETYPE	Cross-reference

Purchase requisition integration

The purchase requisition (PR) interface transfers purchase requisitions from Maximo Asset Management to SAP when the status of the purchase requisition matches a status in the PRSEND interface control. Configure the integration to send PRs to SAP by either the BDC or the BAPI input method.

Structure of purchase requisition data

In SAP, PR numbers are unique at the client level. PR types and number ranges are defined at the client level. PR records are created at the Purchase Organization level. PR lines are created by the Plants within Purchase Organizations.

PR structure (SAP)
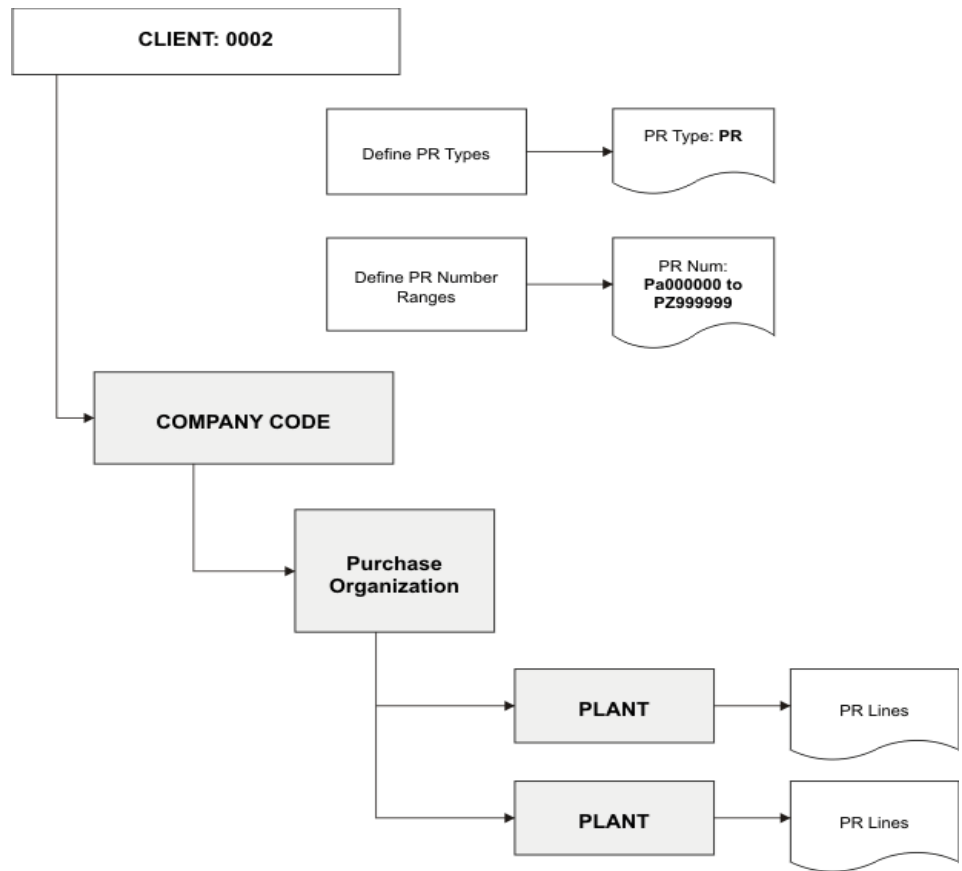
In Maximo Asset Management, PRs are generated at the Site level (SITEID).

PR structure (Maximo Asset Management)
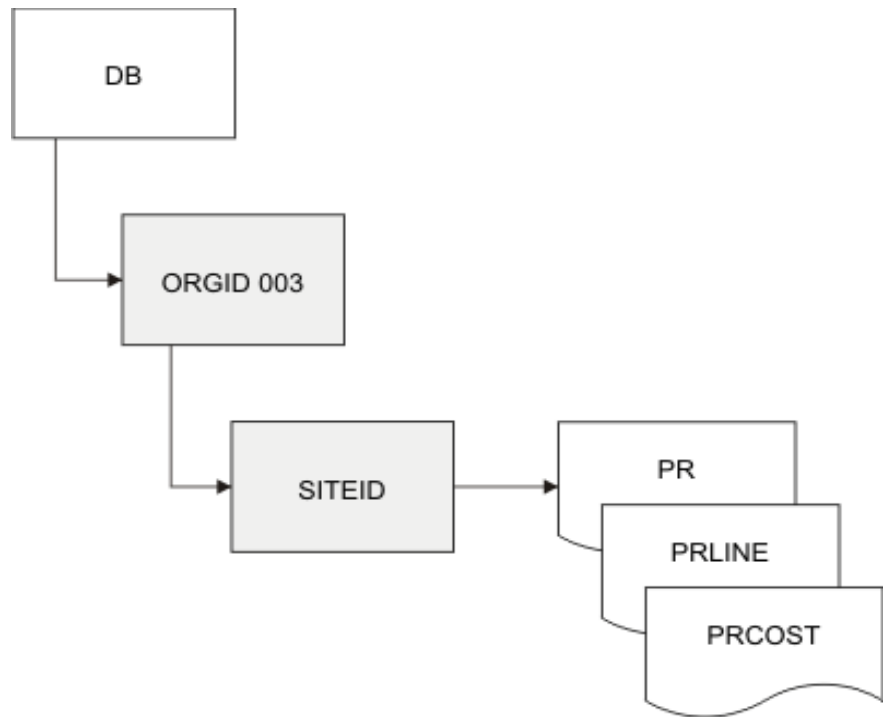
Purchase requisition integration requirements

Before sending PRs from Maximo Asset Management to your SAP system, perform the following configurations in SAP:

- Define a Maximo PR document type and corresponding number ranges.

- Select either the batch (BDC) or old or new BAPI input method for sending Maximo PRs to SAP.

- SAP Material Purchasing and Accounting views must exist for each SAP-owned item to be included on a PR.

Before sending PRs from Maximo Asset Management to your SAP system, perform the following configurations in Maximo Asset Management:

- Set up PR Autonumbering at the Maximo Site level.

- Enable the integration event for outbound purchase requisitions, MXPR.

- Add SAP PR Document Number prefix and Maximo SITEID prefix

- Define status values in the PRSEND interface control.

- Configure the SAP PR document type in the SAPPRTYPE interface control.

- Define SAP Company Codes to be used in the PR integration in the SAPORGID interface control.

- Define SAP Plants to be used in the PR integration in the SAPSITEID interface control.

- Define SAP Storerooms to be used in the PR integration in the SAPSTORERM interface control.

- Define a UOM conversion factor for each SAP-owned item to be included on a PR.

- Set the default value for the SAP_GLACCT column and configure the value list for the Domain.

For specific configuration procedures and details, see Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81.

Structure of purchase requisition numbers for outbound PRs

In Maximo Asset Management, the PRNUM is unique per site, but more than one Maximo site can use the same PR number. Therefore, to differentiate PRs from multiple Maximo sites for PRs outbound from Maximo to SAP, the integration adds the Maximo SITEID prefix to the PRNUM to make the PRNUM unique per site and the Maximo PR numbers unique in the SAP system. If your integration does not use multiple Maximo sites, you do not need to add the site prefix.

On PRs outbound from Maximo to an SAP system, the PRNUM is an autonumbered concatenation of the SAP PR Document Number prefix, the Maximo SITEID prefix, and the Maximo PR number. The SAP PR Document Number prefix determines the number range assigned to the PR in SAP.

If your outbound PR number prefix is numeric, consisting of numbers rather than alphabetic characters, the SAP system adds leading zeros to the PR number to pad the number if it has fewer than ten alphanumeric characters. The integration removes the leading zeros when the transaction returns to Maximo from SAP as a PR status update or purchase order. If your outbound PRNUM does not begin with a number, then SAP does not add leading zeros to the PRNUM.

The PRNUM length must be no more than ten characters to match the SAP PR number length. Make sure the added prefixes do not cause the total length of the PRNUM to exceed ten characters.

For more information about configuring autonumbering , see Outbound Maximo PO/PR number prefixes, on page 93.

Field added to PR table

When the Maximo Enterprise Adapter for SAP is installed, it adds a column to the Maximo PR table.

If this column uses only one value, then you can set the default value for the column in the database during the implementation and do not need to display it on the PR screen.

If this column uses more than one value, set the value list for the Domain for this column during implementation.

The following table describes the column that the adapter adds to PR.

Column added to PR table

Column added to PR table	Description	Type	Len	Domain	Usage
SAP_UPG	Value of 1 indicates that you originally created the PR in Release 5.x. Maximo Enterprise Adapter for SAP R/3 4.7.	YORN	1		Outbound PRs only

Fields added to PRLINE table

When the Maximo Enterprise Adapter for SAP is installed, it adds three columns to the Maximo PRLINE table.

If any column uses only one value, you can set the default values for the columns in the database during the implementation and do not need to display them on the PRLINE screen.

If any column uses more than one value, set the value list for the Domain for the columns during implementation.

The following table describes the columns that the adapter adds to PRLINE.

Columns added to prline table

Columns added to PRLINE table	Description	Type	Length	Domain
SAP_MATL_GRP	Holds SAP Material Group value. Used when PR line type is SERVICE.	ALN	9	SAP_MATL_GRP
SAP_PURCH_GRP	Holds SAP Purchase Group value. Default values are from INVENTORY.SAP_PURCH_GRP for stock and non-stock item categories.	ALN	3	SAP_PURCH_GRP
SAP_GLACCT	Holds SAP PR FI GL account value. Required in SAP if PRLINE Material Number is null.	ALN	10	SAP_GLACCT

Filters

The integration transfers purchase requisitions from Maximo to SAP, for PR line items that are SAP-owned items, when the following conditions are met:

• The status of the PR is equal to a status in the PRSEND control.

• The date of the PR falls after the date in the SAPCALSTART control.

- All SAP-owned PRLINE items are active items in SAP Material Master.

- All SAP-owned PRLINE items have pre-existing SAP Purchasing and Accounting views.

- The Vendor for each PRLINE item is not disabled in SAP.

- PR line type is ITEM, MATERIAL, or SERVICE.

When items on a PR being sent from Maximo to SAP are not SAP-owned, they are sent as miscellaneous type items, and the item numbers are not mapped to SAP.

Related interface controls

The Maximo Enterprise Adapter for SAP uses the following publish channel interface controls for the purchase requisition integration:

Purchase requisition-related **interface controls**

Interface control	Control type
SAPORGID	Cross-reference
SAPSITEID	Cross-reference
SAPSTORERM	Cross-reference
SAPGLCOMP	Cross-reference
SAPGLCONCAT	Cross-reference
SAPCALSTART	Value
SAPIOTYPEPREF	Cross-reference
SAPMX5SITEPREFIX	Value
SAPPRTYPE	Value
SAPAAC	Cross-reference
PRSEND	List
SAPMAXBSNAME	Value
SAPQOS	Cross-reference
SAPWOOUT	Indicates if Maximo sends work order transactions to SAP

For more information about interface controls, see Interface controls, on page 51.

Related Maximo publish channel

The Maximo Enterprise Adapter for SAP uses the following publish channel for the purchase requisition integration:

- MXPR_TOSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the Purchase requisition integration. It enables purchase requisitions outbound.

- MXPR

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo Asset Management to SAP.

SAP Tables related to purchase requisitions

Table	Processing Mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_PURCHASEREQ_BDC.
	BAPI	Uses Z_BC_CREATE_PURCHASEREQ_BAPI.
	BAPI	Uses Z_BC_CREATE_PURCHASEREQ_N_BAPI.

The following table contains information on the SAPMXCONFIG table, as it relates to purchase requisitions.

Configuration of ZBC_SAPMXCONFIG for purchase requisitions

Table	Variable	Description
ZBC_SAPMXCONFIG	BAPIME51N	To use the new SAP PR BAPI that supports additional data for the SAP Enjoy Purchase Requisition feature, enter a value of X for the BAPIME51N variable. To use the standard PR BAPI, leave this field blank.

Purchase requisition status update integration

Purchase requisitions are created in Maximo Asset Management and sent to SAP. After the PR is sent to SAP, the SAP system owns the PR. The Maximo Enterprise Adapter for SAP integration lets PR Status updates be sent to Maximo Asset Management based on status changes to the SAP PR lines.

Purchase requisition considerations

This section describes differences between how Maximo Asset Management and SAP handle purchase requisitions.

Reuse of closed PR lines in SAP

Maximo Asset Management can be configured to change the status of a PR to CLOSE automatically when all PR lines are copied to a purchase order. In Maximo Asset Management, after a PR is closed (status is changed to CLOSE), it cannot be reopened to reuse the PR lines. In SAP, you are allowed to open a closed PR to reuse PR lines. If you reuse a PR line item in SAP, and the corresponding Maximo PR status is CLOSE, the update from SAP to Maximo Asset Management causes an error.

To prevent this error, do not select the Maximo PO option **Close PR/RFQ When All PR/RFQ Lines Have Been Copied to POs or Contracts?**. This option is in the Organizations application > Select Action menu > Purchasing Options > PO Options dialog box.

Using multiple purchase order numbers per PR line in SAP

Maximo Asset Management allows one PO and PO line number per each PR line. SAP allows multiple PO and PO line numbers per each PR line.

If you create a PO for a partial quantity from an SAP PR Line, SAP sends a PR status update to Maximo for the originating Maximo PR. When subsequent POs are created for the same PR line in SAP, the Maximo Enterprise Adapter for SAP inserts the new PO data into Maximo without referencing the originating Maximo PR number or PR line number.

Transfer of PR status update data from SAP to Maximo Asset Management

SAP purchase requisition status update data is sent to Maximo Asset Management by ABAP Batch Report ZBCXIREPR005, "Download PR Status Updates to Maximo." This report sends only PR header data to Maximo Asset Management. It sends only PR status data, it does not send PR line data. The report sends PR status changes of either CANCEL or CLOSE.

If your PR number prefix is numeric, consisting of numbers rather than alphabetic characters, the SAP system adds leading zeros to the PR number to pad the number if it has fewer than ten alphanumeric characters. The integration removes the leading zeros when the transaction returns to Maximo Asset Management from SAP as a PR status update or purchase order. If your outbound PRNUM does not begin with a number, then SAP does not add leading zeros to the PRNUM.

Batch report ZBCXIREPR005 selection criteria

Batch Report ZBCXIREPR005 has three selection criteria:

ZBCXIREPR005 selection criteria

ZBCXIREPR005 Selection Criteria	Description
Select PR number range	Select the number range for the SAP PRs whose status value updates you want to send to Maximo.
Send PR Status CANCEL	You can choose to send data for PR status values of CANCEL.
Send PR Status CLOSE	You can choose to send data for PR status values of CLOSE.

Batch report ZBCXIREPR005 processing options

Batch Report ZBCXIREPR005 has two processing options:

ZBCXIREPR005 processing options

ZBCXIREPR005 Processing option	Description
Send new Status Changes	ABAP sends PR status data that has changed since the last run of the ZBCXIREPR005 report.
Send Status Changes in range	ABAP sends PR status data that has changed for PRs within the selected date range.

Filters

The integration transfers purchase requisition status updates from SAP to Maximo Asset Management when any of the following conditions in the SAP system are met for Maximo integration items, depending on the selection criteria used at the run of ZBCXIREPR005:

- All of the SAP PR Lines are marked for deletion or blocking.

- All of the SAP PR Lines are fully ordered.

- An SAP PR Line has been ordered and that PR Line is closed.

Interface controls

The Maximo Enterprise Adapter for SAP uses the following interface controls for the purchase requisition status update integration:

Purchase requisition status update-related interface controls

Interface control	Control type
SAPORGID	Cross-reference
SAPSITEID	Cross-reference
SAPMX5SITEPREFIX	value
SAPPRTYPE	value

For more information about interface controls, see Interface controls, on page 51.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the purchase requisition status update integration:

- MXPR_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the purchase requisition status update integration. It enables purchase requisition status updates inbound.

- MXPR

Purchase order integration

The Maximo Enterprise Adapter for SAP can be configured to handle purchase orders inbound to Maximo Asset Management or outbound from Maximo Asset Management. The interface you use, inbound or outbound, depends on the system that manages purchasing functions.

Inbound purchase orders

The inbound purchase order interface, MXPO_FRSAP05, transfers purchase orders from SAP to Maximo Asset Management when purchase order activity occurs in SAP. The basic PO inbound assumption is that purchasing and material management are done in the SAP system. Purchase orders are transferred from SAP to Maximo Asset Management using IDoc type EKSEKS01.

Outbound purchase orders

The outbound purchase order interface, MXPO_TOSAP05, transfers purchase orders from Maximo Asset Management to SAP when the status of the Maximo purchase order is equal to a status in the POSEND interface control. The basic PO outbound assumption is that purchasing and material management are done in Maximo Asset Management.

Configure the integration to send POs to SAP by either the BDC or the BAPI input method.

Purchase order integration requirements

Before sending purchase orders between Maximo Asset Management and SAP, configure the sending and receiving systems as described in the following sections.

Inbound and outbound POs

Before sending POs between Maximo Asset Management and your SAP system, perform the following configurations in Maximo Asset Management:

- Define SAP Company Codes to be used in the PO integration in the SAPORGID interface control.

- Define SAP Plants to be used in the PO integration in the SAPSITEID interface control.

- Define SAP Purchasing Organizations to be used in the PO integration in the SAPPURCHSITEID interface control.

- Define SAP Storerooms to be used in the PO integration in the SAPSTORERM interface control.

- DO NOT select the PO Option **Allow the Generation of Special Order Items?** checkbox in the Organizations application.

Outbound POs only   Before sending POs from Maximo Asset Management to SAP, perform the
following configurations in Maximo:

- Set up PO Autonumbering. For more information, see Structure of purchase
  order numbers for outbound POs, on page 181.

- Enable the integration event for outbound purchase orders, MXPOOUT.

- Define SAP purchase order document type to be used in the PO integration in
  the SAPPOTYPE interface control.

- Define status values in the POSEND interface control.

- If outbound POs contain receipt tolerance greater than 99.9%, set the
  SAPUNLIMITTOLERANCE integration control to true. See "Receipt
  tolerance" on page 182.

- The Maximo default receipt tolerance (percentage or amount) for outbound
  PO line items is "unlimited". Set the PO Line items tolerance amount or
  percentage to 0 to override this behavior.

Before sending POs from Maximo Asset Management to SAP, perform the
following configurations in SAP:

- Define a Maximo PO document type and corresponding number ranges.

- Select either the batch (BDC) or BAPI input method for sending Maximo POs
  to SAP (for POs outbound).

Structure of purchase order numbers for outbound POs

In Maximo Asset Management, the PONUM is unique per site, but more than one
Maximo site can use the same PO number. Therefore, to differentiate POs from
multiple Maximo sites, the integration adds the Maximo SITEID prefix to the
PONUM to make the PONUM unique per site and the Maximo PO numbers
unique in the SAP system. If your integration does not use multiple Maximo sites,
you do not need to add the site prefix.

On POs outbound from Maximo Asset Management to an SAP system, the
PONUM is an autonumbered concatenation of SAP PO Document Number
prefix, the Maximo SITEID prefix, and the Maximo PO number. The SAP PO
Document Number prefix determines the number range assigned to the PO in
SAP.

If your outbound PO number prefix is numeric, consisting of numbers rather than
alphabetic characters, the SAP system adds leading zeros to the PO number to
pad the number if it has fewer than ten alphanumeric characters. The integration
removes the leading zeros when the transaction returns to Maximo Asset
Management from SAP. If your outbound PONUM does not begin with a number,
then SAP does not add leading zeros to the PONUM.

The PONUM length must be 10 characters to match the SAP PO number length.
Make sure the added prefixes do not cause the total length of the PRNUM to
exceed ten characters.

For more information about configuring autonumbering, see Outbound Maximo PO/PR number prefixes, on page 93.

Structure of purchase order line numbers for inbound POs

On POs inbound, the POLINENUM is a concatenation of the five-digit SAP PO line number, (EBELP), and the two-digit SAP distribution line number, (ZEKKN).

The last two digits of a Maximo Enterprise Adapter for SAP integration purchase order line number represent the sequential number of the distributions in SAP. The default purchase order line number ends in "01," indicating there was no distribution. If a line item was distributed in SAP, the last two digits show the multiple distribution line number value accordingly, for example, "02" or "03."

Receipt tolerance

Maximo Asset Management adds columns to POLINE to provide a way to limit the quantity of goods or service that can be received, in excess of the amount or quantity specified on a purchase order. This limitation is accomplished by specifying a tolerance, which, if not exceeded, allows the overage to be received and paid for. The receipt tolerance can be specified as a percentage of items that can be received, over the amount specified on a PO, in the PO line quantity. You can also express a receipt tolerance as a quantity, to indicate the number of items that you can receive, over the total specified on the PO order quantity, or as a monetary amount that can be received over the total specified on the PO line cost.

To support receipt tolerances, the following columns have been added to POLINE:

- RECEIPTTOLERANCE - This column contains the receipt tolerance percentage, which specifies the percentage of items that can be received, over the number specified on the PO order quantity.
- RECEIPTTOLAMT - This column contains the receipt tolerance amount, which specifies a limit on the monetary amount of received items, above the amount specified by the PO line cost.
- RECEIPTTOLQTY - This column contains the receipt tolerance quantity, which specifies a limit on the quantity of items that can be received, above the quantity specified on the PO line quantity.

If you specify a tolerance as a percentage, the corresponding value for the tolerance amount is calculated automatically. Similarly, if you specify an amount, the percentage is calculated for you.

SAP only allows an over tolerance of up to 99.9 %. Maximo Asset Management allows over 99.9 %. If outbound POs contain receipt tolerance greater than 99.9%, set the SAPUNLIMITTOLERANCE integration control to true.

SAP's over tolerance and unlimited tolerance will be used for the inbound PO which is coming from SAP to Maximo Asset Management.

Fields added to PO table

When the Maximo Enterprise Adapter for SAP is installed, it adds columns to the Maximo PO table.

If these columns use only one value, then you can set the default values for the columns in the database during the implementation and do not need to display it on the PO screen.

If these columns use more than one value, set the value list for the Domain for these columns during implementation.

The following table describes the columns that the adapter adds to PO.

Columns added to PO table

Column added to PO table	Description	Type	Len	Domain	Usage
SAP_PURCH_GRP	Holds SAP Purchase Group value. This column is not mapped from SAP. Default value is from PRLINE. SAP_PURCH_GRP.	ALN	3	SAP_PURCH_GRP	Outbound POs only
SAP_UPG	Value of 1 indicates that you originally created the PO in release 5.x. Maximo Enterprise Adapter for SAP R/3 4.7.	YOR N	1		Outbound POs only

Fields added to POLINE table

When the Maximo Enterprise Adapter for SAP is installed, it adds three columns to the Maximo POLINE table.

If any of these columns uses only one value, then you can set the default values for the columns in the database during the implementation and do not need to display them on the PRLINE screen.

If any of these columns uses more than one value, set the value list for the Domain for these columns during implementation.

The following table describes the columns that the adapter adds to POLINE.

Columns added to POLine table

Columns added to POLINE table	Description	Type	Len	Domain	Usage
SAP_MATL_GRP	Holds SAP Material Group value. This column is not mapped from SAP. Default value is from PRLINE.SAP_MATL_GRP	ALN	9	SAP_MATL_GRP	Outbound POs only
SAP_GLACCT	Holds SAP PR FI GL account value. This column is not mapped from SAP. Default value is from PRLINE.SAP_GLACCT.	ALN	10	SAP_GLACCT	Outbound POs only
SAP_RECV_REQ	Used for receipts required for service line item or distributed line item. 1 = receipts required 0 = receipts not required	YORN	1		Inbound POs only

Filters

Inbound purchase orders
The integration transfers purchase orders from SAP to Maximo Asset Management when the following conditions are met.

- A Maximo PO type purchase order is completed in SAP.

- The vendor for the purchase order is not disabled in SAP.

- An inbound PO line must refer to a Maximo Purchase Requisition number or Maximo Work Order number.

- If a PO line does not refer to a Maximo PRLINE item, a valid POLINE LINETYPE for that item must exist in the Maximo SAPLINETYPE cross-reference control.

- If a PO line item refers to a Maximo PR line item with a status of CLOSED, the adapter removes the PRNUM and PRLINENUM for the PO line item.

Outbound purchase orders	The integration transfers purchase orders from Maximo to SAP, when the following conditions are met:

- The status of the PO is equal to a status in the POSEND control.

- The date of the PO falls after the date in the SAPCALSTART control.

- All SAP-owned POLINE items are active items in SAP Material Master, with valid SAP storage location or cost object values.

- All SAP-owned POLINE items have pre-existing SAP Purchasing and Accounting views.

- POLINE items with no item number are either Material or Service line types that use SAP cost objects

- The vendor for each POLINE item is not disabled in SAP.

When items on a PO being sent from Maximo to SAP are not SAP-owned, they are sent as miscellaneous type items, and the item numbers are not mapped to SAP.

Purchase order ownership

The integration defines an SAP-owned purchase order as one that is created and managed in SAP, and a Maximo-owned purchase order as one that is created and managed in Maximo Asset Management. The integration determines purchase order ownership by the value in the OWNERSYSID column of the Maximo PO.

Purchase order ownership

Owner of purchase order	OWNERSYSID value
Maximo	Null
SAP	SAP1

Transfer of purchase order data from SAP to Maximo Asset Management

The following topics pertain to purchase orders inbound from SAP to Maximo Asset Management.

IDoc type EKSEKS01

The IDoc type EKSEKS01 sends SAP Purchase Orders to Maximo Asset Management.

Blanket contracts

Maximo Asset Management allows only one Blanket Contract per Purchase Order. Therefore, the integration supports only one blanket contract per purchase order.

Receipts for inbound GR non-valued PO line items

SAP does not create the Material Document, (MATRECTRANS/ SERVRECTRANS), for GR non-valued items, therefore no Receipts transaction comes from the SAP system to Maximo Asset Management. The Maximo Enterprise Adapter for SAP uses the POLINE.SAP_REC_REQ column to flag the transaction to indicate it is a non-valued item. The Maximo Enterprise Adapter for SAP checks this field during the Invoice interface to determine if a receipt must be created.

For more information, see Invoices inbound from MM logistics invoice verification, on page 192.

Transfer of purchase order revision data from SAP to Maximo Asset Management

The purchase inbound integration supports the purchase order revision feature.

With this feature, you can send purchase order revision information from SAP to Maximo Asset Management.

The purchase integration transfers sends purchase order revision data from SAP to Maximo Asset Management in the following way:

- When you create a purchase order in SAP, the purchase integration sends the purchase order to Maximo Asset Management and the revision number is set to 0 in Maximo.
- Whenever you update the purchase order in SAP, the integration sends the updates to Maximo.
- Maximo creates a revision of the purchase order.
- When the integration sends a purchase order from SAP to Maximo Asset Management, the purchase order can have two status in Maximo:
    - APPR (approved), which indicates that a purchase order was created and approved in SAP.
    - REVISD (revised), which indicates that a purchase order was updated in SAP.
- Only one revision of a purchase order can be active at a time.

Transfer of purchase order data from Maximo Asset Management to SAP

The following statements pertain to purchase orders outbound from Maximo Asset Management to SAP.

- Outbound purchase orders can contain purchase order lines from more than one Maximo site.

- Outbound purchase orders do not support multiple distributions. For more information, see Multiple distributions outbound, on page 158.

- This integration does not support PO line types "Special Order" (SP ORDER) or "Standard Service" (STD SERVICE).

Transfer of purchase order revision data from Maximo Asset Management to SAP

Although the purchase outbound integration supports the purchase order revision feature, purchase order revision is not sent from Maximo Asset Management to the SAP system. SAP does not provide purchase order revision. When you create a purchase request, receipt, or invoice in SAP, Maximo Asset Management uses the most recent approved purchase order from SAP.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the purchase order integration:

- MXPO_FRSAP05

Related Maximo publish channel

The Maximo Enterprise Adapter for SAP uses the following publish channel for the purchase order integration:

- MXPO_TOSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the **purchase order** integration.

- MXPO

Related interface controls

The Maximo Enterprise Adapter for SAP uses the following enterprise service and publish channel interface controls for the Purchase Order integration:

Purchase order-related enterprise service interface control

Interface control	Control type
SAPORGID	Cross-reference
SAPSITEID	Cross-reference
SAPSTORERM	Cross-reference
SAPMX5SITEPREFIX	Value
SAPIOTYPEPREF	Cross-reference
SAPPURCHSITEID	Cross-reference
SAPLINETYPE	Cross-reference
SAPPOTYPE	Value
SAPITEMSETID	Cross-reference

Purchase order-related publish channel interface control

Interface control	Control type
SAPSTORERM	Cross-reference
SAPGLCOMP	Cross-reference
SAPGLCONCAT	Cross-reference
SAPIOTYPEPREF	Cross-reference
SAPPURCHSITEID	Cross-reference
SAPLINETYPE	Cross-reference
SAPAAC	Cross-reference
SAPCALSTART	Value
POSEND	List
SAPQOS	Cross-reference
SAPWOOUT	Boolean
SAPMX5SITEPREFIX	Value
SAPORGID	Cross-reference
SAPPOTYPE	Value
SAPSITEID	Cross-reference
SAPMAXBSNAME	value
SAPUNLIMITTOLERANCE	Boolean

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo Asset Management to SAP.

SAP tables related to purchase orders

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_PURCHORDER_BDC.
	BAPI	Uses Z_BC_CREATE_PURCHORDER_BAPI.

Invoice and credit memo integration

The invoice and credit memo integration transfers invoices between Maximo Asset Management and SAP Material Management Logistics Invoice Verification or SAP FI modules. You configure the integration to transfer invoices inbound to Maximo or outbound from Maximo depending on your business requirements.

Inbound invoices

The basic invoice inbound assumption is that purchasing and material management are done in the SAP system.

The Maximo Enterprise Adapter for SAP has one enterprise service for inbound invoices that will handle MM invoices, FI invoices and invoice variances:

- MXINVOICE_FRSAP05 transfers both invoices and credit memos from the SAP MM Logistics Invoice Verification module to Maximo using IDoc and batch type EKSEKS.

Outbound invoices

The basic invoice outbound assumption is that purchasing and material management are done in Maximo. Invoices are transferred from Maximo to SAP when the status of the Maximo invoice is equal to a status in the IVSEND interface control.

The Maximo Enterprise Adapter for SAP has one interface for outbound invoices:

- MXINVOICE_TOSAP05 transfers invoices from Maximo to the SAP MM Logistics Invoice Verification module using Z_BC_CREATE_MMINVOICE_BAPI, or, it transfers invoices from Maximo to the SAP FI module using the BDC method, Z_BC_CREATE_APINVOICE_BDC.

Control GL posting date behavior

Within Maximo Asset Management, an organization-level MAXVAR called UPDATEGLPSTDATE can be set to cause the vendor's invoice date to be copied to the general ledger posting date. To support this MAXVAR, a GLPOSTDATE column has been added to INVOICE records. The UPDATEGLPSTDATE setting does not affect inbound invoices from the MXINVOICE_FRSAP05 enterprise service; for inbound invoices, the SAP MM and FI posting dates are mapped to the Maximo INVOICE general ledger posting date.

Another organization-level MAXVAR, INVCEGLPSTDTVALSAV, allows you to choose to validate an invoice's general ledger posting date against the financial period that is open when the invoice is saved. If this MAXVAR is not set, the financial period validation takes place when the invoice is approved and paid.

Reverse invoice

Invoices, or credit and debit memos, can be reversed (canceled) without having to return the goods or services listed on the original document. The reversal operation can be performed in either Maximo or SAP.

Only approved or paid invoices, credit memos, or debit memos can be reversed.

For reversed invoices from SAP, the SAPREVINVOICESTATUS integration control is used to specify the default status of a invoice that is reversed. When an approved invoice is reversed, the original invoice status changes to REVERSED.

To support reverse invoice functions, the following columns have been added to INVOICE:

- REVERSEINVOICENUM - contains the invoice number of the reversed document.
- REVREASON - contains the reason that the invoice was reversed.

Invoice integration requirements

Before sending invoices between Maximo and SAP, configure the sending and receiving systems as described in the following sections.

Inbound and outbound invoices

Before sending invoices between Maximo and your SAP system, perform the following configurations in Maximo:

- Define SAP Company Codes to be used in the Invoice integration in the SAPORGID interface control.

- Define SAP Plants to be used in the Invoice integration in the SAPSITEID interface control.

Outbound invoices only

Before sending invoices from Maximo Asset Management to SAP, perform the following configurations in Maximo:

- Set up Invoice Autonumbering.

- Enable the integration event for outbound invoices, MXINVOICEOUT.

- Define the receiving SAP invoice module in the SAPAPTYPE interface control, either SAP MM Logistics Invoice Verification or SAP FI.

- If outbound invoices are to be sent to SAP FI, configure SAP GL account information in the Maximo SAPFIGLACCT value interface control.

Before sending Invoices from Maximo to SAP, perform the following configurations in SAP:

- Select either the batch (BDC) or BAPI input method for sending Maximo invoices to SAP (for invoices outbound)

Inbound invoice considerations

The following factors must be considered for all invoices sent from SAP to Maximo Asset Management.

Invoice credit quantity values

Maximo Asset Management uses a positive value for an invoice quantity when the invoice type is Invoice. Maximo Asset Management allows you to enter a negative value for an invoice quantity when the invoice type is credit. In an SAP system, invoice quantity is entered as a positive value when the invoice type is credit. The Maximo Enterprise Adapter for SAP converts the quantity value based on the invoice type.

Currency code handling

If the currency code of an invoice item is different from the SAP base currency code, then the Maximo Enterprise Adapter for SAP calculates the invoice unit cost with the exchange rate and sends the exchange rate to Maximo Asset Management with the invoice transaction.

Filtering

The integration transfers invoices from SAP to Maximo Asset Management when the following conditions are met:

- For invoices referring to a purchase order, the PO number must exist in both SAP and Maximo Asset Management.

- For invoices referring to a work order, the WO number must exist in both SAP and Maximo Asset Management.

Invoices referring to PO lines with goods receipts (GR) and invoice receipts (IR)

If an SAP Invoice refers to a PO Line that is selected for Goods Receipts (GR) and Invoice Receipts (IR), send the Goods Receipts transaction to Maximo Asset Management before sending the Invoice. Otherwise, the Invoice transaction errors out in Maximo, because there is no corresponding Receipt in Maximo. SAP allows the creation of an Invoice without corresponding Goods Receipts having already taken place. However, Maximo requires the Goods Receipts transaction before it accepts the Invoice.

Invoices inbound from MM logistics invoice verification

The SAP MM Logistics Invoice Verification module sends invoices to Maximo Asset Management using Intermediate Document (IDoc) type EKSEKS.

Inbound MM invoice considerations

The following factors must be considered for invoices sent from the SAP MM Logistics Invoice Verification module to Maximo Asset Management.

Required receipts	Maximo Asset Management requires receipts when the Receipts Required field of a purchase order is set to yes, or when the Maximo POLINE.SAP_RECV_REQ field is set to yes. SAP may not require receipts for such transactions. If an invoice sent from SAP does not require a receipt, but Maximo does, then, based on the POLINE LINETYPE, the Maximo Enterprise Adapter for SAP creates a receipt in the following cases:

- when the PO line item is a service with no receipt required (SERVRECTRANS)

- when the PO line is for a non-valuated item that has had multiple distributions in SAP (MATRECTRANS)

Invoice matching	Maximo Asset Management supports three-way matching of an invoice if the items are non-rotating and do not require inspection. Three-way matching is used when the Receipts Required field of a purchase order is set to Yes.
Maximo invoice site reference	If an invoice refers to a Maximo PO number, the Maximo Enterprise Adapter for SAP uses the PO line SITEID to look up the destination Maximo invoice site. For more information, see Structure of purchase order numbers for outbound POs, on page 181.
Multiple Maximo site destinations	An MM invoice in SAP can contain purchase orders from multiple purchasing sites if the POs originated in Maximo Asset Management, or from multiple purchasing organizations if the POs originated in SAP.

In Maximo Asset Management, an invoice can contain purchase orders whose PO lines are from multiple PO sites (PO.TOSITEIDs) if the PO sites are within the same organization. In this centralized invoicing scenario, the originating PO site ID (PO.SITEID) does not have to be the same as the invoice site ID (INVOICE.SITEID).

To indicate whether you want to use centralized invoicing in Maximo, you set the SAPINVOICESITEID integration control. You can define this integration control at the system or organization level. By default, the SAPINVOICESITEID integration control is set to Null. This integration control setting indicates that the invoicing is decentralized in Maximo Asset Management. When SAPINVOICESITEID is set to Null, Maximo Enterprise Adapter for SAP uses the Maximo PO site ID as the invoice site ID. If your integration sends an invoice from SAP to Maximo Asset Management, and the invoice references PO lines from multiple Maximo originating PO site IDs, the integration splits the invoice into multiple invoices.

When you specify an invoice site ID in the SAPINVOICESITEID integration control, the invoicing becomes centralized. If the invoice references PO lines from multiple Maximo originating PO site IDs, only one SAP invoice is saved in Maximo.

Invoices inbound from FI

The SAP FI accounting module sends financial invoice postings to Maximo by ABAP report ZBCXIREPR014. FI invoices are usually sent for Maximo-generated work orders.

Inbound FI invoice considerations

The following factors must be considered for invoices sent from the SAP FI module to Maximo Asset Management.

Maximo work order numbers

Invoices sent from the FI module in the SAP system to Maximo must refer to a Maximo Work Order.

Maximo invoice site reference

If an invoice refers to a Maximo WO number, the Maximo Enterprise Adapter for SAP uses the WO number prefix to look up the WO autokey for the SITEID for the invoice site.

Transferring FI invoice data from SAP to Maximo

ABAP Batch Report ZBCXIREPR014, "Download of CO Postings against Maximo Workorders," sends SAP FI invoice data to Maximo.

You can run this report one or more times per day.

Batch Report ZBCXIREPR014 selection criteria

Batch Report ZBCXIREPR014 has three selection criteria:

ZBCXIREPR014 Selection Criteria

ZBCXIREPR014 Selection Criteria	Description
Controlling Area	Select your controlling area.
Transaction	Select Original CO business transaction ID **RFBU** (for FI Postings).
Internal Order Number	Select one or a range of Maximo work order numbers.

Outbound invoices

The outbound invoice interface transfers invoices from Maximo Asset Management to SAP when the status of the invoice matches a status in the IVSEND interface control.

You can send Maximo invoices to one of two different modules in an SAP system, MM Logistics Invoice Verification or FI. Outbound invoices can be sent to SAP for purchase orders that originated in Maximo and may or may not be replicated to the SAP system. You configure a Maximo Enterprise Adapter for SAP interface control, SAPAPTYPE, to send the invoice to the appropriate SAP destination module based on the following criteria:

- If purchase orders originate in Maximo and are not replicated to SAP, send invoices to FI.

- If purchase orders originate in Maximo and are replicated to SAP, send invoices to MM Logistics Invoice Verification.

If purchase orders for service items without PO and POLINE numbers originate in Maximo and are replicated to SAP, and the SAPAPTYPE interface control is set to MM, the integration treats the transactions like finance invoices and send them to FI.

Outbound invoice integration requirements

Before sending invoices from Maximo Asset Management to your SAP system, perform the following configurations in SAP:

- Select either the batch (BDC) or BAPI input method for sending Maximo Asset Management invoices to SAP.

    - MM invoices can use only BAPI or BDC

    - FI invoices can use only BDC

Before sending invoices from Maximo Asset Management to your SAP system, perform the following configurations in Maximo:

- Set up Invoice Autonumbering at the Maximo Site level.

- Configure the SAP invoice type in the SAPAPTYPE interface control.

- Define status values in the IVSEND interface control.

- Configure SAPAPOUT control for outbound tax journal transactions. For more information, see Configuration of journals, on page 133.

- Ensure that the GLSOURCE interface control does *NOT* contain the value INVOICETRANS. For more information, see Configuration of journals, on page 133.

- Configure the default FI GL account value in the SAPFIGLACCT value control.

- Define SAP Company Codes to be used in the invoice integration in the SAPORGID interface control.

- Define SAP Plants to be used in the invoice integration in the SAPSITEID interface control.

SAPAPTYPE value control

Use the SAPAPTYPE value control to identify which invoice module to send your Maximo Invoice to in the SAP system.

SAPAPTYPE value control

Integration scenario	SAP module	SAPAPTYPE	Requirement
Purchasing (PO & Receipts) is done in Maximo and replicated to SAP.	MM Logistics Invoice Verification	MM*	Invoice refers to PO number and PO line number
Purchasing (PO & Receipts) is done in Maximo, but not replicated to SAP. • PO is done in Maximo, but not replicated to SAP. However, Receipt is done in Maximo and sent as Receipt Journal from Maximo to SAP FI.	FI Invoice	FI	

* Maximo Asset Management lets you create an invoice line item without PO number and POLINE number for a service item during the creation of the invoice. If you use SAPAPTYPE "MM" and create the invoice line item as a service item that does not have a PO and POLINE number, then you should not merge with invoice line items that use PO and POLINE numbers.

Outbound invoice considerations

Note the following information for all invoices sent from Maximo Asset Management to SAP.

Invoice credit quantity values

Maximo Asset Management uses a positive value for an invoice quantity when the invoice type is Invoice. Maximo Asset Management allows you to enter a negative value for an invoice quantity when the invoice type is credit. In an SAP system, invoice quantity is entered as a positive value when the invoice type is credit. The Maximo Enterprise Adapter for SAP converts the quantity value based on the invoice type.

Service line items

If a Maximo service invoice line item has no PO number then this invoice must be interfaced to the SAP FI module. The Maximo Enterprise Adapter for SAP treats this transaction as an FI invoice type.

Maximo invoice number

Maximo adds a SITEID prefix value to the Invoice number using the Auto Seed functionality.

Invoices outbound to MM logistics invoice verification

The basic MM Invoice outbound assumption is purchasing and receipts are done in Maximo and replicated to the SAP system.

The outbound invoice integration is designed to integrate with the SAP MM Logistics Invoice Verification module using an invoice type of Invoice or Credit.

Outbound MM invoice considerations

The Maximo Enterprise Adapter for SAP MM Logistics Invoice Verification outbound integration is based on the following assumptions:

- Maximo invoices that contain PO and PO line numbers are sent to the MM Logistics Invoice Verification module.

- Maximo allows the creation of a service invoice without PO and POLINE numbers. The service invoice without PO and POLINE numbers cannot be merged with an invoice with PO and POLINE numbers.

Transfer of invoice verification from Maximo Asset Management to SAP

The MM Invoice outbound data is transferred from Maximo Asset Management to SAP system using SAP R/ 3 BDC or BAPI methods.

Invoices outbound to FI

The FI Invoice outbound data is transferred from Maximo Asset Management to the SAP system by using the BDC method.

The basic FI Invoice outbound assumption is purchasing and receipts are done in Maximo and not replicated to the SAP system.

The outbound invoice integration is designed to integrate with the SAP FI module using an invoice type of Invoice or Credit.

SAPFIGLACCT value control

SAPFIGLACCT value control is used for the default SAP FI GL Account value. If Maximo Invoice GLDEBITACCT is null, then the adapter uses the SAPFIGLACCT value control for the GLDEBITACCT. This control is defined at the ORGID level.

Maximo invoice number

Maximo Asset Management adds the SITEID Prefix value to the Invoice number using the Auto Seed functionality.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the invoice integration:

MXINVOICE_FRSAP05

Related Maximo publish channel

The Maximo Enterprise Adapter for SAP uses the following publish channel for the invoice integration:

MXINVOICE_TOSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the invoice integration.

MXINVOICE

Related interface controls

The Maximo Enterprise Adapter for SAP uses the following enterprise service and publish channel interface controls for the invoice integration.

Invoice-related enterprise service interface controls

Interface control	Control type
SAPORGID	Cross-reference
SAPINVOICESTATUS	Value
SAPREVINVOICESTATUS	Value
SAPINVOICESITEID	Value
SAPSITEID	Cross-reference
SAPITEMSITEID	Cross-reference
SAPIOTYPEPREF	Cross-reference
SAPMX5SITEPREFIX	Value

Invoice-related publish channels interface controls

Interface control	Control type
SAPORGID	Cross-reference
SAPSITEID	Cross-reference
SAPGLCOMP	Cross-reference
SAPGLCONCAT	Cross-reference
SAPAAC	Cross-reference
SAPIOTYPEPREF	Cross-reference
SAPWOOUT	Boolean
SAMX5SITEPREFIX	Value
SAPCALSTART	Value
SAPFIGLACCT	Value
SAPAPTYPE	Value
SAPMAXBSNAME	Value
SAPQOS	Cross-reference
IVSEND	List

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo Asset Management to SAP.

SAP tables related to invoices

Table	Processing mode	Description
ZBC_INBPROGRAMS	BAPI	Uses Z_BC_CREATE_MMINVOICE_BAPI.
	BAPI	Uses Z_BC_CREATE_APINVOICE_BAPI.
	BDC	Uses Z_BC_CREATE_APINVOICE_BDC.

When you send financial invoices from SAP to Maximo Asset Management, you can use either the BAPI or the BDC processing mode.

Invoice variance integration

The invoice variance integration transfers invoice variances from the MM Logistics Invoice Verification module to Maximo Asset Management. The Invoice Variance is a separate batch program that you schedule to run to synchronize the correct Invoices into Maximo Asset Management.

The Invoice Variance is interfaced separately from the MM Invoice interface, because the Variance data are not available at the MM Invoice Interface time.

Invoice variances are sent to Maximo Asset Management when price or quantity variances occur in invoices in SAP.

Invoice variance integration requirements

Before sending invoice variances inbound from SAP to Maximo Asset Management, perform the following configurations in Maximo:

- Define SAP Company Codes to be used in the Invoice Variance integration in the SAPORGID interface control

- Define SAP Plants to be used in the Invoice Variance integration in the SAPSITEID interface control

Inbound invoice variance considerations

The following factors must be considered for all invoice variances sent from SAP to Maximo Asset Management.

Invoice credit quantity values

Maximo Asset Management uses a positive value for an invoice quantity when the invoice type is Invoice. Maximo Asset Management allows you to enter a negative value for an invoice quantity when the invoice type is credit. In an SAP system, invoice quantity is entered as a positive value when the invoice type is credit. The Maximo Enterprise Adapter for SAP converts the quantity value based on the invoice type.

Currency code handling

If the currency code of an invoice variance item is different than the SAP base currency code, then the Maximo Enterprise Adapter for SAP calculates the invoice unit cost with the exchange rate and sends the exchange rate to Maximo with the invoice variance transaction.

Receipts for PO or WO invoice variances

If an invoice variance transaction refers to a Maximo purchase order (PO) or work order (WO) number then the interface creates a MATRECTRANS receipt.

Service items

There is no Invoice Variance for a Service Item. The MEA for SAP Applications creates Service Item Receipts in the Invoice interface using the Invoice Cost and Quantity. There are no price or quantity variances.

Maximo invoice site reference

If an invoice variance refers to a Maximo WO number, the Maximo Enterprise Adapter for SAP uses the WO number prefix to look up the WO autokey for the SITEID for the invoice variance site.

Filters

The integration transfers invoice variances from SAP to Maximo Asset Management when the following conditions are met:

- For invoice variances referring to a purchase order, the PO number must exist in both SAP and Maximo Asset Management, and, if the PO refers to a PR number, the PR must exist in Maximo.

- For invoice variances referring to a work order, the WO number must exist in both SAP and Maximo.

Transfer of invoice variance data from SAP to Maximo Asset Management

The ABAP Batch Report ZBCXIREPR014, "Download of CO Postings against Maximo Workorders," sends SAP invoice variance data Maximo.

You can run this report one or more times per day.

Batch report ZBCXIREPR014 selection criteria

Batch Report ZBCXIREPR014 has three selection criteria:

ZBCXIREPR014 selection criteria

ZBCXIREPR014 selection criteria	Description
Controlling Area	Select your controlling area.
Transaction	Select Original CO business transaction ID **RMRP** (MM Incoming Invoice).
Internal Order Number	Select one or a range of Maximo work order numbers.

Domain integration

Our standard Domain inbound interface transfers the following information from SAP to Maximo Asset Management:

- SAP Material Groups
- SAP Purchase Groups
- SAP FI GL Accounts

SAP ABAP reports update or insert these accounting values to the Maximo ALNDOMAIN table. These values populate value lists in the Purchase Requisition and Purchase Order applications in Maximo Asset Management.

The domain integration uses the following ABAP reports:

- ZBCXIREPR008 for SAPMATLGRP (SAP material groups)
- ZBCXIREPR009 for SAPPURCHGRP (SAP purchase groups)
- ZBCXIREPR011 for SAPGLACCOUNT (SAP FI GL accounts)

Fields added to MAXDOMAIN table

When the Maximo Enterprise Adapter for SAP is installed, it adds three columns to the Maximo MAXDOMAIN table.

The following table describes the columns that the adapter adds to MAXDOMAIN.

Columns added to Maxdomain table

Columns Added to MAXDOMAIN Table	Description	Type	Length
SAP_MATL_GRP	SAP Material Group values	ALN	9
SAP_PURCH_GRP	SAP Purchase Group values	ALN	3
SAP_GLACCT	SAP FI GL account value	ALN	10

Material groups

SAP requires a material group value during PR/PO processing. When a Maximo PR or PO Line Type is not ITEM, a user must select the proper SAP material group before the outbound PR/PO record is saved in Maximo. The selected material group value is held in the SAP_MATL_GRP column of the Maximo PR Line or PO Line table. The integration derives the material group for an item from the SAP Material table.

Transfer of material group data from SAP to Maximo Asset Management

SAP material group data is sent to the Maximo ALNDOMAIN table by ABAP Batch Report ZBCXIREPR008, "Download Material Groups to Maximo."

Batch report ZBCXIREPR008 selection criterion

Batch Report ZBCXIREPR008 has one selection criterion:

ZBCXIREPR008 selection criterion

ZBCXIREPR008 selection criterion	Description
Material Group	Select range of material groups to be included.

Purchase groups

SAP requires a purchase group value during PR/PO processing. When a Maximo PR or PO Line Type is not ITEM, a user must select the proper SAP purchase group before the outbound PR/PO record is saved in Maximo. The selected purchase group value is held in the SAP_PURCH_GRP column of the Maximo PR Line or PO Line table.

Transfer of purchase group data from SAP to Maximo Asset Management

SAP purchase group data is sent to the Maximo ALNDOMAIN table by ABAP Batch Report ZBCXIREPR009, "Download Purchasing Groups to Maximo."

Batch Report ZBCXIREPR009 selection criterion

Batch Report ZBCXIREPR009 has one selection criterion:

ZBCXIREPR009 selection criterion

ZBCXIREPR009 selection criterion	Description
Purchasing Group	Select range of purchase groups to be included.

FI GL accounts

SAP requires an FI GL Account value during PR/PO processing. When a Maximo PR or PO Line Type is not ITEM, a user must select the proper SAP FI GL Account before the outbound PR/PO record is saved in Maximo. The selected FI GL Account value is held in the SAP_GLACCT column of the Maximo PR Line or PO Line table.

Transfer of FI GL account data from SAP to Maximo Asset Management

SAP FI GL Account data is sent to the Maximo ALNDOMAIN table by ABAP Batch Report ZBCXIREPR011, "Download FI-G/L Accounts to Maximo Domain."

Batch Report ZBCXIREPR011 Selection Criterion

Batch Report ZBCXIREPR011 has one selection criterion:

ZBCXIREPR011 selection criterion

ZBCXIREPR011 Selection Criterion	Description
G/L Account	Select range of GL accounts to be included.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the domain integration:

MXDOMAIN_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the domain integration:

MXDOMAIN

Related interface controls

The Maximo Enterprise Adapter for SAP uses the following enterprise service interface controls for the domain integration.

Domain-related interface controls

Interface control	Control type
SAPORGID	Cross-reference

Item and inventory integration

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This chapter is directed to system administrators, implementation team members, and SAP and Maximo consultants. It discusses factors that to be aware of when you integrate Maximo and SAP item and inventory activity. It assumes that you are familiar with standard item and inventory processing in Maximo and material management in SAP.

SAP material master hierarchy

SAP creates multiple views of a material master record. The basic views display general data about the material, such as material number, description, and so on. The extended views display plant-level data, such as accounting, forecasting, and MRP information; and storage-level data, such as bin and shelf life information. The type and industry sector of a material determine the extended views that SAP creates for that material.

SAP stores material master data in a three-level hierarchy, as shown in the following table.

SAP material master data hierarchy levels

Hierarchy level	Data description	Corresponding views
Client	General data about the material, such as material number, type, description, base unit of measure, and so on.	Basic Views
Plant	Data specific to a material and plant combination.	Extended Views
Storage Location	Data specific to a material, plan, and storage location combination.	Extended Views

Client, plant, and storage location level data exists for stock material, which is material that is maintained in inventory. Only client and plant level data exist for non-stock material, which is material that is not maintained in inventory. The SAP material type (MTART) field, which corresponds to the Maximo item CATEGORY field, identifies an item as a stock or non-stock material.

The following table illustrates the views that apply to each level of the SAP material master hierarchy, for stock and non-stock parts.

SAP material master data hierarchy

Hierarchy level	Stock Material - Available Views	Non-Stock Material - Available Views
Client	Extended View	Extended View
Plant	Extended View	Extended View
Storage Location	Extended View	Not applicable

Material master data in SAP corresponds to item and inventory data in Maximo Asset Management. After you configure both products for the integration, they can exchange item and inventory data.

Maximo Asset Management and SAP exchange the following types of item and inventory data:

- Enterprise services (inbound direction)
  - Items
  - Inventory
  - Inventory balances
  - Inventory vendors
  - Receipt
  - Issues
  - Returns
- Publish channels (outbound direction)
  - Receipt
  - Issues
  - Returns

Item and inventory integration overview

Material master data in SAP corresponds to item and inventory data in Maximo Asset Management. This section discusses the relationship between the SAP and Maximo non consignment item data and the ways in which you initiate the integration process.

SAP material master hierarchy

SAP creates multiple views of a material master record. The basic views display general data about the material, such as material number, description, and so on. The extended views display plant-level data, such as accounting, forecasting, and MRP information; and storage-level data, such as bin and shelf life information. The type and industry sector of a material determine the extended views that SAP creates for that material.

SAP stores material master data in a three-level hierarchy, as shown in the following table.

SAP material master data hierarchy levels

Hierarchy level	Data description	Corresponding views
Client	General data about the material, such as material number, type, description, base unit of measure, and so on.	Basic Views
Plant	Data specific to a material and plant combination	Extended Views
Storage location	Data specific to a material, plant, and storage location combination	Extended Views

Client, plant, and storage location level data exists for stock material, which is material that is maintained in inventory. Only client and plant level data exist for non-stock material, which is material that is not maintained in inventory. The SAP material type (MTART) field, which corresponds to the Maximo item CATEGORY field, identifies an item as a stock or non-stock material.

Item and inventory integration requirements

To use the item and inventory integration, perform the following configuration tasks:

- Configure the ZBC_SAPMXCONFIG table (language and plant codes)
- Configure the ZBC_FILTER table (parameters for filter master data)
- Configure interface controls
- In Maximo ensure **Default Item Status** is set to active at the ORGID, ITEMORGINFO, or INVENTORY level

For more information about configuring the ZBC_SAPMXCONFIG and ZBC_FILTERS tables, see Chapter 9, Configuring the Maximo Enterprise Adapter for SAP Applications, on page 81.

The following table illustrates the views that apply to each level of the SAP material master hierarchy, for stock and non-stock parts.

SAP material master data hierarchy

Hierarchy Level	Stock Material - Available Views	Non-Stock Material - Available Views
Client	Basic view	Basic view
Plant	Extended view	Extended View
Storage Location	Extended view	Not applicable

Relationship between the SAP and Maximo Asset Management item and inventory hierarchies

Maximo Asset Management stores material data at the ITEMSETID and SITEIDLOCATION levels. The ITEMSETID level contains general data about the item, while the SITEID-LOCATION level contains plant and storeroom specific data.

The following table illustrates the relationship between the SAP and Maximo Asset Management item and inventory hierarchies. It lists the Maximo Asset Management tables that hold data at each level. It also provides examples of the SAP extended views whose data corresponds to the plant and storeroom level Maximo Asset Management tables.

SAP and Maximo Asset Management item and inventory hierarchies

SAP level	Corresponding Maximo Asset Management level	Corresponding Maximo database tables
Client	ITEMSETID	ITEMORGINFO.ITEM Hold data from SAP Basic views
Plant	SITEID	INVENTORY Holds data from SAP MRP1, 2,3 and Purchasing views
Storage Location	Location	INVBALANCE Holds data from SAP MRP4 and Plant/Store-room views

Units of measure

Maximo Asset Management stores the issue and order units of measure of an item in the ITEM record and uses them as defaults in the INVENTORY records for the item.

SAP uses three units of measure (UOM), while Maximo uses two.The following table shows how the integration maps SAP units of measure to Maximo.

Units of measure mapping

SAP UOM	Description	Maps to Maximo Asset Management
Base (MEINS)	Unit in which a material is stocked	Issue UOM
Order (BSTME)	Unit in which a material is purchased	Order UOM If SAP order UOM is null, map SAP UOM to Maximo order UOM
Issue (AUSME)	Unit in which a material is issued from storage	Not mapped to Maximo Asset Management

If an SAP material master contains a factor for converting between base and order units of measure, the integration transfers that conversion factor to Maximo Asset Management. Although the conversion factor is used when creating or updating SAP plant-level data, the conversion factor is sent on the item interface, not the inventory interface.

Quantities that the integration sends from SAP to Maximo Asset Management are in the SAP base unit of measure.

Related interface controls

The item and inventory integration uses the following interface controls:

Item and Inventory-related interface controls

Interface control	Description
SAPITEMSETID	Cross-reference Maximo ITEMSETID and SAP client ID
SAPMATLTYPE	Cross-reference SAP material type and Maximo inventory category.
SAPNSTKROOM	Dummy Maximo storeroom location for non-stock items
SAPORGID	Cross-reference SAP company code and Maximo ORGID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Item integration

The creation or update of client-level material master data triggers an insert or update of the Maximo ITEM record and all INVENTORY locations associated with the item.

SAP material master data is sent to Maximo by ABAP batch report ZBCXIREPR100, "Download Material Master Data to Maximo."

You can also send IDOC material master inserts and updates to Maximo.

Item processing

The item CATEGORY is maintained in the Maximo organization level in ITEMORGINFO records. The column specifies whether an item is a stock item (STK), non-stocked item (NS), or a special order item (SP). Maximo uses a REORDER column in INVENTORY records to indicate whether a stock item is automatically reordered when storeroom supplies are depleted.

The adapter continues to store SAP non-stock items as stock items in Maximo Asset Management by setting the CATEGORY to 'STK' and setting the REORDER flag to zero (0).

The SAP adapter uses a non-persistent column (SAP_MATERIAL_TYPE) to send the SAP material type (MTART) to Maximo Asset Management. The adapter uses the SAPNSTKROOM integration control to specify a dummy storeroom for non-stock items.

Receipt tolerances

Maximo Asset Management provides RECEIPTTOLERANCE columns on ITEM and ITEMORGINFO objects to support receipt tolerances for PO Lines.

See Appendix A for the applicable mappings between SAP and Maximo ITEM messages.

Effectivity of item master data

The EXT_ACTIVE flag in the Maximo ITEM table indicates whether an item is active (value 1) or no longer exists in SAP (value 0). The integration validates this column when transactions are sent from Maximo Asset Management to SAP.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the item integration:

MXITEM_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the item integration:

MXITEM

Batch report ZBCXIREPR100 selection criteria

Batch report ZBCXIREPR100 has the following selection criteria. The report does not have any processing options; the download is a bulk load of all data that meets the selection criteria.

ZBCXIREPR100 Selection criteria

ZBCXIREPR100 Selection criteria	Description
Send Base View Send Extended View	You can choose whether to send the base view, extended view, or both.
Material Number	You can choose zero, one, or a range of material numbers per each run of the batch report. If you do not choose a material master, the report runs for all material masters that meet the remaining selection criteria.
Send Items for given plants	You can choose to send all material masters within the specified plants and/or storerooms.
Plant	You can choose zero, one, or a range of plants per each run of the batch report. If you do not choose a plant, the report runs for all material masters that meet the remaining selection criteria.
Storeroom	You can choose zero, one, or a range of storerooms per each run of the batch report. If you do not choose a storeroom, the report runs for all material masters that meet the remaining selection criteria.

IDOC Processing

You can send real-time material master updates to Maximo Asset Management through the IDOC MATMAS and the following function modules.

Function modules for material master updates

Function module name	Description
Z_BC_BAPI_MATERIAL_GET_DESC	Get Material descriptions
Z_BC_BAPI_MATERIAL_GET_DETAIL	Get Material Detail informations

IDOCs for material master updates

IDOC name	Description
Z_BC_B_BAPI_MATERIAL_GET_DESC	Update material base data
Z_BC_B_BAPI_MATERIAL_GET_DETAIL	Update material extended data

You can use the ZBC_FILTERS table to filter the material master data that SAP sends to Maximo Asset Management.

The following table shows the data that the IDOCs send to Maximo Asset Management when you create and update material master data in SAP at the client, plant, and storage location levels.

IDOC data

Hierarchy level	SAP action	Integration action
Client	Insert data	Generates an item interface, to create a Maximo ITEM record.
Client	Update data	Generates item and inventory interfaces, to update Maximo ITEM record and all INVENTORY records for the item.
Plant	Insert data	Generates inventory interface, to create INVENTORY and INVCOST records For a stock item, this action occurs only if storage location extended views exist in SAP. Otherwise, the integration skips the transaction, because SAP cannot provide a storeroom location and Maximo cannot create an inventory record without a storeroom location. For a non-stock item, the integration uses the value in the SAPSTKROOM inventory control for the storeroom location.

Hierarchy level	SAP action	Integration action
Plant	Update data	Generates an inventory interface, to update all Maximo INVENTORY and INVCOST records, within the specified site
Storage location	Insert data	For a stock item, generates an inventory balance interface, to create the Maximo INVBALANCE table, if plant level extended views in SAP. Not applicable to non-stock items.
Storage location	Update data	For a stock item, generates an interface to update all Maximo INVBALANCE records with storeroom values for the item, within the specified site.

Related interface control

The item integration uses the following enterprise service interface controls:

Item-related interface controls

Interface control	Description
SAPITEMSETID	Cross-reference Maximo ITEMSETID and SAP client ID

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Inventory and inventory balances integration

The creation or update of plant-level material master data triggers an insert or update to the Maximo INVENTORY and INVCOST tables.

The creation or update of storage location-level material master data triggers an insert or update to the Maximo INVBALANCE table.

Integration of plant-level data

For a stock item, an insert occurs only if storage location extended views exist in SAP. Otherwise, the integration skips the transaction, because SAP cannot provide a storeroom location and Maximo cannot create an inventory record without a storeroom location.

When inserting a non-stock item, the integration uses the value in the SAPSTORERM inventory control for the storeroom location.

An update to plant-level data generates an inventory interface, to update all Maximo INVENTORY and INVCOST records for the item, within the specified site.

If the inbound transaction references a storeroom that does not exist in Maximo, an error occurs.

Integration of storage location-level data

For a stock item, an insert generates an inventory balance interface, to create a Maximo INVBALANCE record. An update generates an interface to update all Maximo INVBALANCE records with storeroom values for the item, within the specified site

Storage location-level updates do not apply to non-stock items.

Material cost valuation

SAP maintains the standard, moving average, and previous costs of a material at the company code and plant levels. The following table describes the impact that changes to the standard cost of an item in SAP have on the INVCOST records of the item in Maximo.

Impact of SAP standard cost changes on INVCOST records

Valuation level	Effect of standard cost change on Maximo INVCOST
Company code level	Affects all INVCOST records for the item, for all plants within the organization code that corresponds to the SAP company code.
Plant level	Affects all INVCOST records for the item, within the site that corresponds to the SAP plant.

The integration maps the SAP cost fields to the Maximo cost fields as follows:

Cost field mapping

SAP cost field source	Maximo cost field
Moving average cost (VERPR)	AVGCOST
Standard cost (STPRS)	STDCOST
previous cost (STPRV)	LASTCOST

Receipt tolerance

Maximo Asset Management provides a RECEIPTTOLERANCE column on INVENTORY records to support receipt tolerances for PO Lines.

See Appendix A for the applicable mappings between SAP and Maximo INVENTORY messages.

Related interface controls

The item and inventory integration uses the following enterprise service interface controls:

Inventory and balance-related interface controls

Interface control	Description
SAPITEMSETID	Cross-reference Maximo ITEMSETID and SAP client ID
SAPMATLTYPE	Cross-reference SAP material type and Maximo inventory category.
SAPNSTKROOM	Dummy Maximo storeroom location for non-stock items
SAPORGID	Cross-reference SAP company code and Maximo ORGID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo enterprise services

The Maximo Enterprise Adapter for SAP uses the following enterprise services for the inventory and inventory balances integration:

- MXINVBAL_FRSAP05
- MXINVENTORY_FRSAP05

Related Maximo object structures

The Maximo Enterprise Adapter for SAP uses the following object structures for the inventory and inventory balances integration:

- MXINVBAL
- MXINVENTORY

Inventory vendor integration

The inventory vendor interface transfers new, updated, and deleted standard purchase info data from the SAP Purchasing application to Maximo Asset Management. You initiate these actions through an ABAP program.

SAP and Maximo integration

The SAP Purchase Info record consists of general data and purchase detail data that is used as default data for purchase orders. This data is stored at the following levels in SAP:

Purchase Info data levels

Level	Description
Client level	General data
	Includes information about vendor, origins, unit of measure, and so on
Purchase organization or plant level	Purchasing detail data
	Includes information about prices, conditions, tolerance limits, last purchase order, and so on

Purchase detail data created at the purchase organization level applies to all plants assigned to that purchase organization. During integration, the Maximo Enterprise Adapter for SAP generates an INVVENDOR record for every plant assigned to the purchase organization, that also exists in Maximo. The Maximo Enterprise Adapter for SAP generates a single transaction for detail data created at the plant level. General data and detail data are included in the same message.

All purchase info record is written to an INVVENDOR record at the Maximo site level. The Maximo vendor and stock material item numbers must exist in Maximo, or an error occurs.

Transfer of purchase info data from SAP to Maximo Asset Management

SAP purchase info data is sent to the Maximo INVVENDOR table by ABAP batch report ZBCXIREPR013, "Download Purchasing Info records to Maximo."

IDOC processing

You can send real-time purchase info record updates to Maximo Asset Management through the IDOC INFREC01 and the following function module.

Function modules for purchase info data

IDOC name	Description
Z_BC_BAPI_INFOREC_GET_DETAIL	Get Purchasing Inforecords

You can use ZBC_FILTERS table to filter the purchase info records data that SAP sends to Maximo.

Batch report ZBCXIREPR013 selection criteria

Batch report ZBCXIREPR013 has the following selection criteria:

ZBCXIREPR013 Selection criteria

ZBCXIREPR013 Selection criteria	Description
Company Code	Choose one company code per each run of the batch report
Purchase Organization	Choose one purchase organization per each run of the batch report
Range of Plants	Select a number range for the SAP Vendors to be sent to Maximo
Range of Info records	

Batch report ZBCXIREPR013 processing options

Batch Report ZBCXIREPR013 has the following processing options:

ZBCXIREPR013 Processing options

ZBCXIREPR013 Processing option	Description
Send all info records	ABAP sends all purchase info records that meet the selection criteria
	SAP executes the ABAP report as part of a scheduled job.
Send new info records	ABAP sends all purchase info records that you have created or updated since the last run of the ZBCXIREPR013 report
Send Info Records immediately	ABAP sends all purchase info records that meet the selection criteria.
	SAP executes the ABAP report immediately.

Receipt tolerance

Maximo Asset Management provides a RECEIPTTOLERANCE column on INVVENDOR records to support receipt tolerances for PO Lines.

See Appendix A for the applicable mappings between SAP and Maximo INVVENDOR messages.

Effectivity of inventory vendor data

The EXT_ACTIVE column in the INVVENDOR table indicates whether the vendor is active (value 1) or no longer exists in SAP (value 0). The integration validates this column when transactions are sent from Maximo Asset Management to SAP.

Maximo Enterprise Adapter for SAP Bulk Load Action

When you select the bulk load option, **Send all info records**, of the ABAP program ZBCXIREPR013, the Maximo Enterprise Adapter for SAP performs the following actions during the handling of the bulk load of purchase info record data received from SAP:

- Sets the value of the INVVENDOR.SAP_UPDATE field to 1 (Active) for each SAP inventory vendor record included in the bulk load.

- Inserts the values for all Maximo Organizations associated with the incoming inventory vendor data into the Organization parameter of the Maximo cron task SAPMASTERDATAUPDATE.

- Sets the value of the Enabled parameter of the Maximo cron task SAPMASTERDATAUPDATE to 1.

Cron task SAPMASTERDATAUPDATE action

The Maximo cron task SAPMASTERDATAUPDATE updates INVVENDOR records in Maximo to mark the SAP vendors in the Maximo database that have been deleted and archived in SAP. When the cron task runs, it performs the following actions:

Resets the EXT_ACTIVE field to 0 for each record where the SAP_UPDATE field = 0 and the EXT_ACTIVE field = 1.

Whenever you run the ZBCXIREPR013 SAP bulk load program for inventory vendor records, you should next immediately run the SAPMASTERDATAUPDATE cron task. This process sets to "inactive" any Maximo records that correspond to bulk-loaded SAP records that have been archived or deleted in SAP. If you are running more than one of these bulk loads, run the cron task after the last bulk load report is run. Do not run any change or update reports while the SAPMASTERDATAUPDATE cron task is running, or errors may occur.

For more information about this Cron Task, refer to the *IBM Maximo Enterprise Adapter Integration*.

Fields added to INVVENDOR table

When the Maximo Enterprise Adapter for SAP is installed, it adds the following fields to the Maximo INVVENDOR table.

Fields added to INVVENDOR table

Field added to INVVENDOR table	Description	Type	Length	Usage
EXT_ACTIVE	Indicates whether the company is an active SAP vendor. 0 = is not an active SAP vendor 1 = is an active SAP vendor	YORN	1	This field is mapped from SAP during a run of ABAP Batch Report ZBCXIREPR013. This field is updated during a run of Maximo cron task SAPMASTERDATAUPDATE.
SAP_UPDATE	Indicates whether the vendor record has been removed from the SAP system. 0 = vendor record has been removed from SAP 1 = vendor record is active in the SAP system	YORN	1	This field is updated during a run of the ABAP Batch Report ZBCXIREPR013*. * for the bulk load option only The SAP_UPDATE column in the Maximo INVVENDOR table is for internal use.

Related interface controls

The inventory vendor integration uses the following enterprise service interface controls:

Inventory vendor-related interface controls

Interface control	Description
SAPITEMSETID	Cross-reference Maximo ITEMSETID value and SAP system ID/client
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the inventory vendor integration:

MXINVVENDOR_FRSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the inventory vendor integration:

MXINVVENDOR

Issues and receipts overview

The Maximo Enterprise Adapter for SAP can send real-time goods issues (inventory movement category GI) and goods receipts (movement category GR) from SAP to Maximo, and real-time receipts from Maximo to SAP.

Movement types

The integration supports the following movement types for issues and receipts.

Issues and receipts movement types

Integration	Movement type	Description
Outbound Receipts	101	Receipt for PO
Outbound Receipts	102	Reverse receipt for PO
Inbound receipts	101	Receipt for PO
Inbound receipts	102	Reverse receipt for PO
Inbound receipts	121	Receipt subsequent adjustment
Inbound receipts	122	Return to vendor
Inbound receipts	123	Reverse return to vendor
Inbound receipts	124	Receipt return blocked stock
Inbound receipts	561	Entry of first balance
Inbound receipts	562	Reverse entry of first balance
Inbound receipts	701	Receipt of physical inventory
Inbound receipts	702	Issue of physical inventory
Outbound Issues	201	Issue for cost center
Outbound Issues	202	Reverse issue for cost center
Outbound Issues	221	Issue for WBS
Outbound Issues	222	Reverse issue for WBS
Outbound Issues	241	Issue for asset
Outbound Issues	242	Reverse issue for asset
Outbound Issues	261	Issue for internal order
Outbound Issues	262	Reverse issue for internal order
Inbound Issues	261	Issue for internal order
Inbound Issues	262	Reverse issue for internal order

IDOC processing

You can send real-time inventory movement updates to Maximo through the
IDOC INVCON and the following function module.

Function module for inventory movement data

IDOC name	Description
Z_BC_BAPI_MATMOVE_GET_DETAIL	Get inventory movement updates

You can use the ZBC_FILTER table to filter the issues and receipts that SAP sends to Maximo.

Receipts integration

The integration can transfer purchasing receipts against SAP-generated POs that exist in Maximo and Maximo-generated POs that exist in SAP.

The Maximo Enterprise Adapter for SAP uses the line type of the related purchase order line to determine the transaction type of the interface as follows:

Determining transaction type

Purchase order line type	Receipt type	Transaction type
ITEM or MATERIAL	Material	MATRECTRANS
SERVICE or STDSRV	Service	SERVRECTRANS

Outbound receipts

The outbound receipt integration sends receipts or returns from Maximo to SAP when the status of the transaction is COMP (complete).

The receipt must contain the number of a purchase order that exists in Maximo and SAP. If the OWNERSYSID of the ITEM record is not the same as the EXTERNALSYSNAME of the PO record, the integration treats the receipt as a service receipt and writes null values to the material number and storeroom fields of the outbound interface.

Material receipts
The Maximo Enterprise Adapter for SAP generates an outbound material receipt transaction when the status of the receipt is COMP (complete). When the status changes to COMP depends on whether the receipt is for a rotating item and whether the item requires inspection.

If the receipt is for a rotating item, the outbound interface contains a null material number.

The following table shows when the status of a material receipts changes to COMP and the Maximo Enterprise Adapter for SAP sends the outbound transactions:

Material receipts status changes

Inspection required	Rotating item	Status changes to complete
No	No	When you save a receipt ISSUETYPE = RECEIPT Receipt quantity = quantity received
No	Yes	After you receive items and you serialize all the items that you received ISSUETYPE = RECEIPT Receipt quantity = quantity received
Yes	No	After items received and inspected ISSUETYPE = TRANSFER Receipt quantity = quantity accepted If you reject any received items, Maximo generates a second transaction. ISSUETYPE = RETURN Receipt quantity = quantity rejected
Yes	Yes	After items received, inspected, and serialized: ISSUETYPE = TRANSFER Receipt quantity = quantity accepted If you reject any received items, Maximo generates a second transaction. ISSUETYPE = RETURN Receipt quantity = quantity rejected

Service receipts

The Maximo Enterprise Adapter for SAP generates an outbound service receipt transaction when the status of the receipt is COMP (complete). When the status changes to COMP depends on whether the received item requires inspection.

The following table shows when the status changes to COMP and the Maximo Enterprise Adapter for SAP sends the transaction to SAP:

Outbound service receipts

Inspection required?	Integration action
No	The integration generates a transaction when receipt is saved. ISSUETYPE = RECEIPT Receipt quantity = quantity received
Yes	Generates transaction after you receive and inspect items ISSUETYPE = RECEIPT Receipt quantity = quantity received If you reject any received items, the integration generates a second transaction. ISSUETYPE = RETURN Receipt quantity = quantity rejected

SAP Cost elements

If the **REFWO** field is null and the GLDEBITACCT for the PO line is not null, the Maximo Enterprise Adapter for SAP uses the values in the SAPGLCONCAT and SAPGLCONFIG interface controls to retrieve the SAP account assignment category (AAC), cost object, and business area from the GLDEBITACCT field.

If the **REFWO** field is not null, the Maximo Enterprise Adapter for SAP may use the values in the CONCATGL and SAPGLCONFIG interface controls to retrieve the SAP internal order type from the GLDEBITACCT field. If the integration uses a single internal order type, the Maximo Enterprise Adapter for SAP retrieves that type from the SAPIOTYPEPREF control.

The Maximo Enterprise Adapter for SAP assigns a movement type as follows:

Movement types

Receipt quantity	Movement type (BWART)
Greater than 0	101
Less than 0	102

Related interface controls

The receipts integration uses the following enterprise service and publish channel interface controls:

Receipts-related enterprise service interface controls

Control	Description
SAPCALSTART	SAP calendar start date
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location
SAPMAXBSNAME	Maximo Business System Name in SAP PI

Receipts-related publish channel interface controls

Control	Description
SAPCALSTART	SAP calendar start date
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location
SAPMAXBSNAME	Maximo Business System Name in SAP PI
SAPPOTYPE	SAP purchase order document type
SAPQOS	SAP Quality of Service
SAPUNLIMITTOLERANCE	Enforces the SAP limitation where the tolerance percentage cannot exceed 99.9%

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Inbound receipts

The inbound receipt integration sends receipts from SAP to Maximo when a receipt is created or updated in SAP and inspection, if necessary, is complete.

The inbound receipts interface is designed for SAP stock materials that are used in Maximo. The PO number must be generated in SAP and the material must reside in a storage location in an SAP plant.

The integration concatenates the value of the SAPIOTYPEPREF control and the Maximo work order or reservation number when it generates the receipt interface. The integration strips off the prefix before saving the number in Maximo.

Items requiring inspection	If the received material requires inspection, the inspection must take place n SAP. The integration sends only the final goods receipt transaction to Maximo.
	For a non-serialized item or a service receipt, Maximo generates a transfer transaction to move the item to the storeroom or direct issue entity specified on the PO line.

Related Maximo enterprise service

Maximo Enterprise Adapter for SAP Applications uses the following enterprise service for the Receipts integration:

MXRECEIPT_FRSAP05

Related Maximo publish channel

Maximo Enterprise Adapter for SAP Applications uses the following publish channel for the Receipts integration:

MXRECEIPT_TOSAP05

Related Maximo object structure

The Maximo Enterprise Adapter for SAP uses the following object structure for the receipts integration:

MXRECEIPT

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo to SAP.

SAP Tables related to receipts

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_GRECEIPTS_BDC.
ZBC_INBPROGRAMS	BAPI	Uses Z_BC_CREATE_GRECEIPTS_BAPI.

Issues integration

The integration can transfer issues from Maximo to SAP and from SAP to Maximo.

Outbound issues

The outbound issues integration sends issues for stock items (CATEGORY = STK) from Maximo to SAP when the status of the transaction is COMP (complete).

The issue transaction must use the SAP material number, and a booking view must exist in SAP for that material. The value of the SAPWOOUT interface control must be 1.

Goods issues require a Maximo work order or reservation number. If the issue references a reservation, that reservation must exist in SAP. The integration concatenates the value of the SAPIOTYPEPREF control and the Maximo work order or reservation number when it generates the issue interface.

If the REFWO field is not null, the outbound integration processing sets the account assignment category to F.

If the REWFO field is null, the outbound integration processing uses the SAPGLCOMP and SAPGLCONCAT interface controls and the GLDEBITACCT (for issues) or GLCREDITACCT (for returns) values to determine the account assignment category, cost object, and business area

The Maximo Enterprise Adapter for SAP assigns a movement type as follows:

Movement types

AAC	Quantity	Movement type
A	Greater than 0	241
A	Less than 0	242
F	Greater than 0	261
F	Less than 0	262
K	Greater than 0	201
K	Less than 0	202
P	Greater than 0	221
P	Less than 0	222

Inbound issues

The outbound issues integration sends an issue transaction to Maximo when a goods issue is created or updated in SAP. The issue must be for a stock material that resides in a storage location in an SAP plant.

The integration sends line cost, unit costs, and loaded costs to Maximo in the SAP base currency.

SAP concatenates the value of the SAPIOTYPEPREF control and the Maximo work order or reservation number when it generates the issue interface. The integration strips off the prefix before saving the number in Maximo.

Related interface controls

The issues integration uses the following enterprise service and publish channel interface controls:

Issues-related enterprise service interface controls

Interface control	Description
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPITEMSETID	Cross-reference Maximo ITEMSETID value and SAP system ID/client
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location

Issues-related publish channel interface controls

Interface control	Description
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPAAC	SAP account assignment category setting
SAPCALSTART	SAP calendar start date
SAPGLCOMP	SAP general ledger component settings
SAPGLCONCAT	SAP general ledger concatenation settings
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross-reference Maximo organization ID and SAP company code ID
SAPSITEID	Cross-reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross-reference Maximo storeroom and SAP storage location
SAPWOOUT	Indicates if Maximo sends work order transactions to SAP
SAPMAXBSNAME	Maximo Business System Name in SAP PI
SAPQOS	SAP Quality of Service

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo enterprise service

The Maximo Enterprise Adapter for SAP uses the following enterprise service for the issues integration:

MXINVISSUE_FRSAP05

Related Maximo publish channel

The Maximo Enterprise Adapter for SAP uses the following publish channel for the issues integration:

MXINVISSUE_TOSAP05

Related Maximo object structures

The Maximo Enterprise Adapter for SAP uses the following object structures for the issues integration:

MXISSUE

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo Asset Management to SAP.

SAP tables related to issues

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Z_BC_CREATE_GOODISSUE_BDC
ZBC_INBPROGRAMS	BAPI	Z_BC_CREATE_GOODISSUE_BAPI

Work orders and reservations

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Maximo Asset Management and SAP can exchange the following types of work order and reservations publish channels data:

- Work orders
- Reservations

This chapter is directed to system administrators, implementation team members, and SAP and Maximo consultants. It discusses factors that you must be aware of when integrating Maximo Asset Management and SAP reservations and work orders. It assumes that you are familiar with standard work order processing in Maximo Asset Management and internal order processing in SAP.

Work orders and reservations overview

The SAP adapter can send work orders and reservations, separately or together, from Maximo Asset Management to SAP. It sends work orders to the SAP Controlling (CO) module, and reservations to the Inventory Management (IM) module.

You can send a work order to SAP with or without a reservation. If a reservation references a work order, that work order must exist in SAP. The SAP adapter provides three integration points that generate work order or reservation interfaces; interface control values determine which integration point is used.

Work order and reservations interface control values

Interface control values	Object structure	Generated interfaces
SAPRSVOUT = Y SAPWOOUT = Y	MXWODETAILOUT MXINVRESOUT	Work order and reservation
SAPRSVOUT = N SAPWOOUT = Y	MXWODETAILOUT	Work order
SAPRSVOUT = Y SAPWOOUT = N	MXINVRESOUT	Reservation

Configuration of accounting data

For both work orders and reservations, the integration determines the internal order type from the SAPIOTYPEPREF interface control and it prefixes the work order number with that value. It uses the values in the CONCATGL and SAPCONFIG interface controls to determine the SAP account assignment category (AAC), cost object, and business area. For details, see Chapter 10, Financial integration, on page 119.

Work order integration

The integration can send work orders, work order status changes, and work order deletions to SAP. The status of the work order controls the type of data that is sent to SAP.

The first time that the status of a work order changes to a value in the WOSTART control, the integration sends the full work order to SAP. Depending on the value in the SAPRSVOUT control, it may also send a reservation.

Depending on the values in the WOSTART control, subsequent changes to the status of the work order may result in the SAP adapter sending a status change or a deletion to SAP. If new items are added to the work order, the integration generates additional reservations, if the value of the SAPRSVOUT control is 1 (true).

The integration creates the internal order at the company code level in SAP.

Structure of work order numbers for outbound WOs

In Maximo Asset Management, the work order number (WONUM) is unique per site, but more than one Maximo site can use the same WONUM. If you implement autonumber functionality in the Maximo Organizations application for work orders to differentiate WONUMs from multiple Maximo sites, Maximo adds the Maximo SITEID prefix to the WONUM to make the WONUM unique per site and the Maximo WONUMs unique in the SAP system. If your integration does not use multiple Maximo sites, you do not need to add the site prefix.

On WONUMs outbound from Maximo to an SAP system, the WONUM is a concatenation of SAP Internal Order (IO) Document Number prefix, the Maximo SITEID prefix, and the Maximo WONUM. The SAP IO Document Number prefix determines the number range assigned to the WO in SAP.

If your outbound WONUM prefix is numeric, consisting of numbers rather than alphabetic characters, the SAP system adds leading zeros to the WONUM to pad the number if it has fewer than ten alphanumeric characters. The integration removes the leading zeros when the transaction returns to Maximo from SAP. If your outbound WONUM does not begin with a number, then SAP does not add leading zeros to the WONUM.

For more information about configuring autonumbering for outbound work orders, see Outbound Maximo WO number prefixes, on page 93.

Field added to WORKORDER table

When the SAP adapter is installed, it adds a column to the Maximo WORKORDER table.

If this column uses only one value, then you can set the default value for the column in the database during the implementation and do not need to display it on the WORKORDER screen.

If this column uses more than one value, set the value list for the Domain for this column during implementation.

The following table describes the column that the adapter adds to WORKORDER.

Column added to WORKORDER table

Column added to WORKORDER table	Description	Type	Len	Domain	Usage
SAP_UPG	Value of 1 indicates that you originally created the work order in release 5.x. Maximo enterprise adapter for SAP R/3 4.7.	YORN	1		Outbound work orders only

Related interface controls

The work order integrations use the following publish channel interface controls:

Work order interface controls

Control	Description
SAPAAC	SAP account assignment category setting
SAPGLCOMP	SAP general ledger component settings
SAPGLCONCAT	SAP general ledger concatenation settings
SAPIOSTATUS	Cross Reference Maximo work order status and SAP internal order status
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID
SAPRSVOUT	Indicates if Maximo sends reservation transactions to SAP
SAPSITEID	Cross Reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross Reference Maximo storeroom and SAP storage location
SAPWOOUT	Indicates if Maximo sends work order transactions to SAP
WOSTART	Statuses at which the integration sends work orders from Maximo to SAP
SAPMAXBSNAME	Maximo Business System Name in SAP NetWeaver Process Integration 7.4
SAPQOS	SAP Quality of Service
SAPRSVPRIORITY	Cross Reference Maximo Hard/Soft reservation to SAP Reservation Requirement Urgency code

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo publish channel

The SAP adapter uses the following publish channel for the work order integration:

MXWODETAIL_TOSAP05

Related Maximo object structures

The SAP adapter uses the following object structures for the work order integration:

- MXWODETAIL
- MXWO

Related SAP tables

The MEA for SAP Applications uses the tables listed in this section only for outbound transactions from Maximo Asset Management to SAP.

SAP tables related to work orders

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_WORKORDER_BDC.
ZBC_INBPROGRAMS	BDC	Uses Z_BC_UPDATE_WORKORDER_BDC.
ZBC_INBPROGRAMS	BAPI	Uses Z_BC_CREATE_WORKORDER_BAPI.

Reservations integration

The SAP adapter can send reservations for stock items and direct issue items from Maximo Asset Management to the SAP Inventory Management (IM) module.

A reservation can reference a Maximo work order or a cost object. If it references a work order, the work order must exist in SAP. If the work order does not already exist, you can configure the interface controls to send the work order to SAP along with the reservation. For more information, see Work orders and reservations overview, on page 236.

Items referenced in reservations transactions must meet the following criteria:

- Is owned by SAP.
- Exists in SAP.
- Is active (EXT_ACTIVE in the ITEM table = 1).
- A booking view for the material exists in SAP.
- The value of the SAPWOOUT control = 1.

The Maximo enterprise adapter assigns a movement type to the reservation as follows:

Movement types

AAC	RESERVEDQTY quantity	Movement type	Description
A	Greater than 0	241	Issue for asset
A	Less than 0	242	Reverse issue for asset
F	Greater than 0	261	Issue for internal order
F	Less than 0	262	Reverse issue for internal order
K	Greater than 0	201	Issue for cost center
K	Less than 0	202	Reverse issue for cost center
P	Greater than 0	221	Issue for project
P	Less than 0	222	Reverse issue for project

Related interface controls

The reservations integrations use the following publish channel interface controls:

Reservations-related interface controls

Control	Description
SAPAAC	SAP account assignment category setting
SAPGLCOMP	SAP general ledger component settings
SAPGLCONCAT	SAP general ledger concatenation settings
SAPIOTYPEPREF	Translate SAP internal order type to SAP internal order number prefix
SAPMX5SITEPREFIX	Value control to hold the Maximo Site ID prefix.
SAPORGID	Cross Reference Maximo organization ID and SAP company code ID
SAPRSVOUT	Indicates if Maximo sends reservation transactions to SAP
SAPSITEID	Cross Reference Maximo site ID and SAP plant ID
SAPSTORERM	Cross Reference Maximo storeroom and SAP storage location
SAPWOOUT	Indicates if Maximo sends work order transactions to SAP
SAPMAXBSNAME	Maximo Business System Name in SAP NetWeaver Process Integration 7.4
SAPQOS	SAP Quality of Service
SAPRSVPRIORITY	Cross Reference Maximo Hard/Soft reservation to SAP Reservation Requirement Urgency code

For more information about interface controls, see Chapter 4, Interface controls, on page 51.

Related Maximo publish channel

The Maximo enterprise SAP adapter uses the following publish for the Reservations integration:

MXINVRES_TOSAP05

Related Maximo object structures

The SAP adapter uses the following object structures for the Reservations integration:

MXINVRES

Related SAP tables

The SAP adaptor uses the tables listed in this section only for outbound transactions from Maximo to SAP.

SAP tables related to reservations

Table	Processing mode	Description
ZBC_INBPROGRAMS	BDC	Uses Z_BC_CREATE_RESERVATION_BDC.
ZBC_INBPROGRAMS	BDC	Uses Z_BC_UPDATE_RESERVATION_BDC.
ZBC_INBPROGRAMS	BDC	Uses Z_BC_DELETE_RESERVATION_BDC
ZBC_INBPROGRAMS	BAPI	Z_BC_CREATE_RESERVATION_BAPI

SAP to Maximo Asset Management message mapping

A

The tables in this appendix show how fields from SAP source messages map to fields in Maximo target messages.

The mapping tables include the following message types:

- Contract (msg_T_SAP_CONTRACT to SyncMXPC)

- CO Postings (msg_T_SAP_COPOSTINGS to SyncMXINVOICE)

- Craft (msg_T_SAP_ACTIVITY to SyncMXCRAFT)

- Domain (msg_T_SAP_DOMAIN toSyncMXDOMAIN)

- GL Accounts (msg_T_SAP_GLACCOUNTS to msg_T_MX7_GLACCOUNTS)

- Inventory (msg_T_SAP_ITEMS to SyncMXINVENTORY)

- Inventory Balances (msg_T_SAP_ITEMS to SyncMXINVBAL)

- Inventory Vendor (msg_T_SAP_INFORECORD to SyncMXINVVENDOR)

- Invoice (msg_T_SAP_MMINV_S2M to SyncMXINVOICE)

- Issue (msg_T_SAP_GM to SyncMXISSUE)

- Items (msg_T_SAP_ITEMS to SyncMXITEM)

- Labor (msg_T_SAP_LM to SyncMXLABOR)

- Labor Hours (msg_T_SAP_LH_S2M to SyncMXEMPACT)

- Purchase Order (msg_T_SAP_PO_S2M to SyncMXPO)

- Purchase Requisition (msg_T_SAP_PR_S2M to SyncMXPR)

- Receipt (msg_T_SAP_GM to SyncMXRECEIPT)

- Vendors (msg_T_SAP_VENDORS to SyncMXVENDOR)

Contract message mapping

The following table shows how fields in the SAP Contract source message map to the Maximo target message.

Contract message mapping

Field in SAP source message (msg_T_SAP_CONTRACT)	Mapped field in Maximo target message (SyncMXPC)	Additional mappings in external exit
EBELN	CONTRACTNUM	
BSART	CONTRACTTYPE	
LIFNR	VENDOR	
WAERS	CURRENCYCODE	
WKURS	EXCHANGERATE	
KTWRT	MAXVOL	
KDATB	STARTDATE	
KDATE	ENDDATE	
BUKRS	ORGID	
UNIQPL	SAP_UNIQUE_LEVEL	
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
SenderBusinessSystem	SOURCESYSID	External system name
	BUYAHEAD	1
	REVISIONUM	'0'
EBELP	CONTRACTLINE.CONTRACTLINENUM	
ERNAM	CONTRACTLINE.ENTERBY	
MATNR	CONTRACTLINE.ITEMNUM	
MENGE	CONTRACTLINE.ORDERQTY	
MEINS	CONTRACTLINE.ORDERUNIT	
AEDAT_IT	CONTRACTLINE.ENTERDATE	
LOEKZ	CONTRACTLINE.LINESTATUS	WAPPR else APPR
SAKTO	CONTRACTLINE.SAP GLACCOUNT	
NETPR	CONTRACTLINE.UNITCOST	
SenderBusinessSystem	CONTRACTLINE.ITEMSETID	External system name
TXZ01	CONTRACTLINE.DESCRIPTION	
	CONTRACTLINE.LINETYPE	IC: SAPLINETYPE
LIFNR	CONTRACTAUTH.VENDOR	

Field in SAP source message (msg_T_SAP_CONTRACT)	Mapped field in Maximo target message (SyncMXPC)	Additional mappings in external exit
BUKRS	CONTRACTAUTH.AUTHORGID	
WERKS	CONTRACTAUTH.AUTHSITEID	
	CONTRACTPURCH.CHGQTYONUSE	'1' if ContractType=Blanket
	CONTRACTPURCH.CHGPRICEONUSE	'1' if ContractType=Blanket
	CONTRACTPURCH.CREATERREL	'1'

CO postings message mapping

The following table shows how fields in the SAP CO postings source message map to the Maximo target message.

CO postings message mapping

Field in SAP source message (msg_T_SAP_COPOSTINGS)	Mapped field in Maximo target message (syncMXINVOICE)	Additional mappings in external exit
REFBN	INVOICENUM	
BUDAT	ENTERDATE	
BUDAT	INVOICEDATE	
BUKRS	ORGID	
LIFNR	VENDOR	
TWAER	CURRENCYCODE	
KURSF	EXCHANGERATE	
IDENT	SAP_APTYPE	
REFBN+BUKRS_GJAHR+REFBZ	EXTERNALREFID	
SenderBusinesSystem	SOURCESYSID	External system name
SenderBusinesSystem	OWNERSYSID	External system name
SenderBusinesSystem	SENDERSYSID	External system name
AWREF_REV	ORIGININVOICENUM	
BUKRS+AWORG_REV+AWREF_REV	REVREASON	
BUKRS	INVOICELINE.ORGID	
REFBZ	INVOICELINE.INVOICELINENUM	
MENGE	INVOICELINE.INVOICEQTY	
WERKS	INVOICELINE.SAP_SITEID	
REFBN+BUKRS_GJAHR+REFBZ	INVOICELINE_SAP_EXTERNALREFID	
DMBTR	INVOICELINE.PRICEVAR	
EBELN	INVOICELINE.PONUM	
EBELP	INVOICELINE.POLINENUM	
MX5PO	INVOICELINE.SAP_MX5PO	
SGTXT	INVOICELINE.DESCRIPTION	

Craft message mapping

The following table shows how fields in the SAP craft source message map to the Maximo target message.

Craft message mapping

Field in SAP source message (msg_T_SAP_ACTIVITY)	Mapped field in Maximo target message (SyncMXCRAFT)	Additional mappings in external exit
KOSTL	CRAFT	
BUKRS	ORGID	
TXT_KOSTL	DESCRIPTION	
'Y'	EXT_ACTIVE	
SAP_UPDATE	SAP_UPDATE	
BULKLOAD	SAP_BULKLOAD	
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
LSTAR	CRAFTSKILL.SKILLLEVEL	
TXT_LSTAR	CRAFTSKILL.DESCRIPTION	
PRICE_FIX	CRAFTSKILL.STANDARDRATE	
'0'	CRAFTSKILL.RANK	

Domain message mapping

The following table shows how fields in the SAP domain source message map to the Maximo target message.

Domain message mapping

Field in SAP source message (msg_T_SAP_DOMAIN)	Mapped field in Maximo target message (SyncMXDOMAIN)	Additional mappings in external exit
IDENT	DOMAINID	
IDENT	DESCRIPTION	
IDENT	LENGTH	
'ALN'	DOMAINTYPE	
'ALN'	MAXTYPE	
VALUE	ALNDOMAIN.VALUE	
KTEXT	ALNDOMAIN.DESCRIPTION	
BUKRS	ALNDOMAIN.ORGID	
WERKS	ALNDOMAIN.SITEID	

GL accounts message mapping

The following table shows how fields in the SAP GL accounts source message map to the Maximo target message.

GL accounts message mapping

Field in SAP source message (msg_T_SAP_GLACCOUNTS)	Mapped field in Maximo target message (msg_T_MX7_GLACCOUNTS)	Additional mappings in external exit
COACOMBINE	COACOMBINE	
BUKRS	BUKRS	
KOKRS	KOKRS	
WORKTYPE	WORKTYPE	
ACCFLAG	ACCFLAG	
COSTCENTER	COSTCENTER	
ASSET	ASSET	
WBSELEMENT	WBSELEMENT	
INTERNALORDER	INTERNALORDER	
GLACCOUNT	GLACCOUNT	
ACTTYPE	ACTYPE	
BUSAREA	BUSAREA	
PROFITCENTER	PROFITCENTER	
TXT_BUKRS	TXT_BUKRS	
TXT_KOKRS	TXT_KOKRS	
TXT_WORKTYPE	TXT_WORKTYPE	
TXT_ACCFLAG	TXT_ACCFLAG	
TXT_COSTCENTER	TXT_COSTCENTER	
TXT_ASSET	TXT_ASSET	
TXT_WBSELEMENT	TXT_WBSELEMENT	
TXT_INTERNALORDER	TXT_INTERNALORDER	
TXT_GLACCOUNT	TXT_GLACCOUNT	
TXT_ACTTYPE	TXT_ACTTYPE	
TXT_BUSAREA	TXT_BUSAREA	
TXT_PROFITCENTER	TXT_PROFITCENTER	
ACTIVE	ACTIVE	
ACT_BUKRS	ACT_BUKRS	
ACT_KOKRS	ACT_KOKRS	

Field in SAP source message (msg_T_SAP_GLACCOUNTS)	Mapped field in Maximo target message (msg_T_MX7_GLACCOUNTS)	Additional mappings in external exit
ACT_WORKTYPE	ACT_WORKTYPE	
ACT_ACCFLAG	ACT_ACCFLAG	
ACT_COSTCENTER	ACT_COSTCENTER	
ACT_ASSET	ACT_ASSET	
ACT_WBSELEMENT	ACT_WBSELEMENT	
ACT_GLACCOUNT	ACT_GLACCOUNT	
ACT_ACTYPE	ACT_ACTYPE	
ACT_BUSAREA	ACT_BUSAREA	
ACT_PROFITCENTER	ACT_PROFITCENTER	
BULKLOAD	BULKLOAD	
SAP_UPDATE	SAP_UPDATE	

Inventory message mapping

The following table shows how fields in the SAP inventory source message map to the Maximo target message.
Inventory message mapping

Field in SAP source message (msg_T_SAP_ITEMS)	Mapped field in Maximo target message (SyncMXINVENTORY)	Additional mappings in external exit
MATNR	ITEMNUM	
BUKRS	ORGID	
WERKS	SITEID	
LGORT	LOCATION	
MTART	SAP_MATERIAL_TYPE	
BSTME	ORDERUNIT	
MEINS	ISSUEUNIT	
PLIFZ	DELIVERYTIME	
MINBE	MINLEVEL	
EISBE	SSTOCK	
BSTMI	ORDERQTY	
MABST	MAXLEVEL	
PSTAT	SAP_MATLVIEWS	
EKGRP	SAP_PURCH_GRP	
MAABC	ABCTYPE	
LGBST	REORDER[a]	
VPRSV	COSTTYPE	
UEBTO	RECEIPTTOLERANCE	
UEBTK	RECEIPTOLORANCE[b]	
SenderBusinessSystem	SOURCESYSID	
SenderBusinessSystem	OWNERSYSID	
SenderBusinessSystem	SENDERSYSID	
SenderBusinessSystem	ITEMSETID	External system name
	STATUS	'ACTIVE'
VERPR	INVCOST.AVGCOST	
STPRS	INVCOST.STDCOST	
STPRV	INVCOST.LASTCOST	
BUKRS	INVCOST.ORGID	

a. When the SAP_MATERIALTYPE is associated with a storeroom in SAP, the INVENTORY.REORDER flag is set to true; when the SAP_MATERIALTYPE is not associated with a storeroom in SAP, the INVENTORY.REORDER flag is set to false.
b. If the SAP delivery tolerance is unlimited, RECEIPTTOLERANCE is set to null.

Inventory balances message mapping

The following table shows how fields in the SAP inventory balances source message map to the Maximo target message.

Inventory balances message mapping

Field in SAP source message (msg_T_SAP_ITEMS)	Mapped field in Maximo target message (SyncMXINVBAL)	Additional mappings in external exit
MATNR	ITEMNUM	
BUKRS	ORGID	
WERKS	SITEID	
LGORT	LOCATION	
LGPBE	BINNUM	
LABST	PHYSCNT	
LABST	CURBAL	
	PHYSCNTDATE	Current date
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
SenderBusinessSystem	ITEMSETID	External system name

Inventory vendor message mapping

The following table shows how fields in the SAP inventory vendor source message map to the Maximo target message.

Inventory vendor message mapping

Field in SAP source message (msg_T_SAP_INFORECORD)	Mapped field in Maximo target message (SyncMXINVVENDOR)	Additional mappings in external exit
MATNR	ITEMNUM	
BUKRS	ORGID	
WERKS	SITEID	
LIFNR	VENDOR	
MFRNR	MANUFACTURER	
IDNLF	CATALOGCODE	
MWSKZ	TAXICODE	
'0'	BIDPRICE	
NETPR	LASTCOST	
DATLB	LASTDATE	
APLFZ	PROMDELIVERYTIME	
ACTIVE	ACTIVE	
WAERS	CURRENCYCODE	
INFNR+EKORG+WERKS	EXTERNALREFID	
RELIF	ISDEFAULT	
MEINS	ORDERUNIT	
ACTIVE	EXT_ACTIVE	
SAP_UPDATE	SAP_UPDATE	
BULKLOAD	SAP_BULKLOAD	
UEBTO	RECEIPTTOLERANCE	
UEBTK	RECEIPTTOLERANCE[a]	
SenderBusinessSystem	ITEMSETID	External system name
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name

a. If the SAP delivery tolerance is unlimited, RECEIPTTOLERANCE is set to null.

Invoice message mapping

The following table shows how fields in the SAP invoice source message map to the Maximo target message.

Invoice message mapping

Field in SAP source message (msg_T_SAP_MMINV_S2M)	Mapped field in Maximo target message (SyncMXINVOICE)	Additional mappings in external exit
BELNR	INVOICENUM	
BUDAT	GLPOSTDATE	
BLDAT	INVOICEDATE	
LIFNR	VENDOR	
WAERS	CURRENCYCODE	
KURSF	EXCHANGERATE	
BUKRS	ORGID	
MM′	SAP_APTYPE	
VGART	DOCUMENTTYPE	
STBLG	ORIGININVOICENUM	
BUKRS+STJAH+STBLG	REVREASON	
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
	STATUSDATE	System date and time
	ENTERDATE	System date and time
	STATUS	ENTERID
	SITEID	POLINESITEID
	PONUM	INVOICELINE.PONUM
BUKRS	INVOICELINE.ORGID	
BUZEI+ZEKKN	INVOICELINE.INVOICELINENUM	
EBELN	INVOICELINE.PONUM	
EBELP+ZEKKN	INVOICELINE.POLINENUM	
ERFMG	INVOICELINE.INVOICEQTY	
ERFME	INVOICELINE.INVOICEUNIT	
TXBHW	INVOICELINE.LINECOST	
WERKS	INVOICELINE.SAP_SITEID	
MATNR	INVOICELINE.ITEMNUM	

Field in SAP source message (msg_T_SAP_MMINV_S2M)	Mapped field in Maximo target message (SyncMXINVOICE)	Additional mappings in external exit
BUKRS+GJAHR+BELNR+BUZEI+ ZEKKN	INVOICELINE.SAP_EXTERNALREFID	
MX5PO	INVOICELINE.SAP_MX5PO	
GRCOST	INVOICELINE.EXT_RCV_COST	

Issue message mapping

The following table shows how fields in the SAP issue source message map to the Maximo target message.

Issue message mapping

Field in SAP source message (msg_T_SAP_GM)	Mapped field in Maximo target message (SyncMXINISSUE)	Additional mappings in external exit
BUKRS-MJAHR-MBLINR-ZEILE	EXTERNALREFID	
BUDAT	TRANSDATE	
USNAM	ENTERBY	
MATNR	ITEMNUM	
ERFMG	QUANTITY	
DMBTR	LINECOST	
WAERS	CURRENCYCODE	
KURSF	EXCHANGERATE	
WERKS	SITEID	
LGORT	STORELOC	
AUFNR	WONUM	
SGTXT	REQUESTNUM	
WEMPF	ISSUETO	
SenderBusinessSystem	ITEMSETID	External system name
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
ITYPE	ISSUETYPE	
BUKRS	ORGID	
	UNITCOST	LINECOST/ QUANTITY

Item message mapping

The following table shows how fields in the SAP item source message map to the Maximo target message.

Item message mapping

Field in SAP source message (msg_T_SAP_ITEMS)	Mapped field in Maximo target message (SyncMXITEM)	Additional mappings in external exit
MATNR	ITEMNUM	
LVORM	EXT_ACTIVE	
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
SenderBusinessSystem	ITEMSETID	External system name
BSTME	ORDERUNIT	CONVERSION.FROMMEASUREUNIT
MEINS	ISSUEUNIT	CONVERSION.TOMEASUREUNIT
UMREZ/UMREN	CONVERSION	CONVERSION.CONVERSION
MAKTX	DESCRIPTION	
SPRAS	TRANS_LANGCODE	
LOVRM	EXT_ACTIVE	
	STATUS	ACTIVE
TEXT_L.item.SPRAS	L.DESC.ITEM.TRANS_LANGCODE	
TEXT_L.item.KTEXT	L.DESC.ITEM.DESCRIPTION	
TEXT_L.item.LTEXT	L.DESC.ITEM.DESCRIPTION_LONGDESCRIPTION	
UEBTO	RECEIPTTOLERANCE	
UEBTK	RECEIPTTOLERANCE[a]	
'STK'	ITEMORGINFO.CATEGORY	
UEBTO	ITEMORGINFO.RECEIPTTOLERANCE	

a. If the SAP delivery tolerance is unlimited, RECEIPTTOLERANCE is set to null.

Labor message mapping

The following table shows how fields in the SAP labor source message map to the Maximo target message.

Labor message mapping

Field in SAP source message (msg_T_SAP_LM)	Mapped field in Maximo target message (SyncMXLABOR)	Additional mappings in external exit
PERNR	LABORCODE	
BUKRS	ORGID	
STATUS	STATUS	
SenderBusinessSystem	SOURCESYSID	
SenderBusinessSystem	OWNERSYSID	
SenderBusinessSystem	SENDERSYSID	
KOSTL	LABORCRAFTRATE.CRAFT	
LSTAR	LABORCRAFTRATE.SKILLLEVEL	
	LABORCRAFTRATE.INHERIT	'1'
	LABORCRAFTRATE.DEFAULTCRAFT	'0'
LIFNR	LABORCRAFTRATE.VENDOR	
CNAME	PERSON.DISPLAYNAME	
VORNA	PERSON.FIRSTNAME	
NACHN	PERSON.LASTNAME	
TITEL	PERSON.TITLE	
GBDAT	PERSON.BIRTHDATE	
BEGDA	PERSON.HIREDATE	
STRAS	PERSON.ADDRESSLINE1	
ORT01	PERSON.CITY	
STATE	PERSON.STATEPROVINCE	
LANDI	PERSON.COUNTRY	
PSTLZ	PERSON.POSTALCODE	
SenderBusinessSystem	PERSON.SOURCESYSID	External system name
SenderBusinessSystem	PERSON.OWNERSYSID	External system name
SenderBusinessSystem	PERSON.SENDERSYSID	External system name

Labor hours mapping

The following table shows how fields in the SAP labor hours source message map to the Maximo target message.

Labor hours message mapping

Field in SAP source message (msg_T_SAP_LH_S2M)	Mapped field in Maximo target message (SyncMXEMPACT)	Additional mappings in external exit
WORKDATE	TRANSDATE	
WORKDATE	STARTDATE	
WORKDATE	FINISHDATE	
PERNR	LABORCODE	
SKOSTL	CRAFT	
CHOURS_NOR	REGULARHRS	
ERNAM	ENTERBY	
ERSDA	ENTERDATE	
BEGUZ	STARTTIME	
ENDUZ	FINISHTIME	
TRANSTYPE	TRANSTYPE	
BUKRS	ORGID	
WERKS	SITEID	
RAUFNR	REFWO	
LSTAR	SKILLLEVEL	
COUNTER	EXTERNALREFID	
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
	PAYRATE	LABORCRAFTRATE Mbo.RATE
	LINECOST	LABORCRAFTRATE Mbo.RATE * REGULARHRS

Purchase order message mapping

The following table shows how fields in the SAP purchase order source message map to the Maximo target message.

Purchase order message mapping

Field in SAP source message (msg_T_SAP_PO_S2M)	Mapped field in Maximo target message (SynicMXPO)	Additional mappings in external exit
EBELN	PONUM	
LIFNR	VENDOR	
WAERS	CURRENCYCODE	
WKURS	EXCHANGERATE	
EKORKG	SAP_PURCH_ORG	
BUKRS	ORGID	
BEDAT	ORDERDATE	
KONNR	CONTRACTREFNUM	
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
MX5PO	SAP_MX5PO	
	POTYPE	'REL' or 'STD'
EBELP+ZEKKN	POLINE.POLINENUM	
EINDT	POLINE.VENDELIVERYDATE	
MATNR	POLINE.ITEMNUM	
MENGE	POLINE.ORDERQTY	
MEINS	POLINE.ORDERUNIT	
TXZ01	POLINE.DESCRIPTION	
AUFNR	POLINE.REFWO	
BANFN	POLINE.PRNUM	
BNFPO	POLINE.PRLINENUM	
WERKS	POLINE.TOSITEID	
LGORT	POLINE.STORELOC	
NETPR	POLINE.UNITCOST	
LOEKZ	POLINE.SAP_POLINE_ACTIVE	
WEPOS+WEUNB	POLINE.SAP_RECV_REQ	
SAKTO	POLINE.SAP_GLACCT	

Field in SAP source message (msg_T_SAP_PO_S2M)	Mapped field in Maximo target message (SyncMXPO)	Additional mappings in external exit
SenderBusinessSystem	POLINE.ITEMSETID	
ERNAM	POLINE.ENTERBY	
WEPOS	POLINE.RECEIPTREQD	
KTPNR	POLINE.CONTREFLINEID	
UEBTO	POLINE.RECEIPTTOLERANCE	
UEBTK	POLINE.RECEIPTTOLERANCE[a]	
	POLINE.BUYAHEAD	'0'
	POLINE.LINETYPE	*IC:SAPLINETYPE*
	POLINE.CONTRACTREFID	Contract Mbo. CONTRACTID
	POLINE.CONTRACTREFREV	Contract Mbo. CONTRACTREFREV
	POLINE.CONTREFLINEID	Contract Mbo. CONTRACTLINEID

a. If the SAP delivery tolerance is unlimited, RECEIPTTOLERANCE is set to null.

Purchase requisition mapping

The following table shows how fields in the SAP purchase requisition source message map to the Maximo target message.

Purchase requisition message mapping

Field in SAP source message (msg_T_SAP_PR_S2M)	Mapped field in Maximo target message (SyncMXPR)	Additional mappings in external exit
BANFN	PRNUM	
STATUS	STATUS	
SDATE	STATUSDATE	
BUKRS	ORGID	
WERKS	SITEID	
	STATUSIFACE	'1'

Receipt message mapping

The following table shows how fields in the SAP receipt source message map to the Maximo target message.

Receipt message mapping

Field in SAP source message (msg_T_SAP_GM)	Mapped field in Maximo target message (SyncMXRECEIPT)	Additional mappings in external exit
BUKRS+MJAHR+MBLINR+ZEILE	EXTERNALREFID	
BUDAT	TRANSDATE	
EBELN	PONUM	
EBELP+ZEKKN	POLINENUM	
MATNR	ITEMNUM	
ERFMG	QUANTITY	
ERFME	RECEIVEDUNIT	
ERFMG	RECEIPTQUANTITY	
ERFMG	ACCEPTEDQUANTITY	
ERFMG	QTYTORECEIVE	
WAERS	CURRENCYCODE	
KURSF	EXCHANGERATE	
WERKS	SITEID	
LGORT	TOSTORELOC	
SenderBusinessSystem	ITEMSETID	External system name
SenderBusinessSystem	SOURCESYSID	External system name
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
AUFNR	REFWO	
ITYPE	ISSUETYPE	
BUKRS	ORGID	
	REJECTQUANTITY	
	SAP_CREATEREC	
MX5PO	SAP_MX5PO	
GRCOST	EXT_RCV_COST	
BUKRS+SJAHR+SMBLN+SMBLP	ORGRCVEXTERNALREFID	

Vendor mapping

The following table shows how fields in the SAP vendor source message map to the Maximo target message.

Vendor message mapping

Field in SAP source message (msg_T_SAP_VENDORS)	Mapped field in Maximo target message (SyncMXVENDOR)	Additional mappings in external exit
BULKLOAD	SAP_BULKLOAD	
LIFNR	COMPANY	
'V'	TYPE	
NAME1	NAME	
STRAS	ADRESS1	
ORT01	ADRESS2	
REGIO	ADRESS3	
PSTLZ	ADRESS4	
TELF1	PHONE	
INCO2	FOB	
INCO1	FREIGHTTERMS	
ZTERM	PAYMENTTERMS	
TELFX	FAX	
WAERS	CURRENCYCODE	
LFURL	HOMEPAGE	
BANKL + BANKN	BANKNUM	
BUKRS	ORGID	
SenderBusinessSystem	OWNERSYSID	External system name
SenderBusinessSystem	SENDERSYSID	External system name
SenderBusinessSystem	COMPANYSETID	External system name
SenderBusinessSystem	SOURCESYSID	External system name
ACTIVE	EXT_ACTIVE	
CONTACT.CNAME	COMPCONTACT.CONTACT	
CONTACT.POSIT	COMPYCONTACT.POSITION	
CONTACT.PHONE	COMPCONTACT.VOICEPHONE	
CONTACT.TELFX	COMPCONTACT.FAXPHONE	
CONTACT.EMAIL	COMPCONTACT.EMAIL	
	COMPCONTACT.ORGID	

Field in SAP source message (msg_T_SAP_VENDORS)	Mapped field in Maximo target message (SyncMXVENDOR)	Additional mappings in external exit
	COMPCONTACT. SOURCESYSID	External system name
	COMPCONTACT.OWNERSYSID	External system name
	COMPCONTACT.SENDERSYSID	External system name
SAP_UPDATE	SAP_UPDATE	

Maximo Asset Management to SAP message mapping

B

The tables in this appendix show how fields from Maximo source messages map to fields in SAP target messages.

The mapping tables include the following message types:

- GL posting (PublishMXGLTXN to msg_T_SAP_GLINVOICE)

- FI invoice (PublishMXINVOICE to msg_T_SAP_GLINVOICE)

- MM invoice (PublishMXINVOICE to msg_T_SAP_MMINV_M2S)

- Issue (PublishMXINISSUE to msg_T_SAP_ISSUE)

- Labor hours (PublishMXEMPACT to msg_T_SAP_LH_M2S)

- Purchase order (PublishMXPO to msg_T_SAP_PO_M2S)

- Purchase requisition (PublishMXPR to msg_T_SAP_PR_M2S)

- Receipts (PublishMXRECEIPT to msg_T_SAP_RECEIPTS)

- Reservation (PublishMXINVRES to msg_T_SAP_RESERVATION)

- Work order (PublishMXWODETAIL to msg_T_SAP_WO)

GL posting message mapping

The following table shows how fields in the GL source message map to the SAP target message.

Field in Maximo source message (PublishMXGLTXN)	Mapped field in sap target message (msg_T_SAP_GLINVOICE)
'MICGL'	MIDENT
ACTUALDATE	MBUDAT
TRANSDATE	MBLDAT
ORGID	MBUKRS
CURRENCYCODE	MWAERS
SAP_GLACCOUNT_DB	MNEWKO
SAP_GLACCOUNT_CR	MNEWKO1
LINECOST	MWRBTR
LINECOST	MWRBTR1
SAP_COSTOBJ_DB	MKOSTL
SAP_COSTOBJ_DB	MAUFNR
SAP_COSTOBJ_DB	MPSPNR
SAP_COSTOBJ_CR	MKOSTL1
SAP_COSTOBJ_CR	MAUFNR1
SAP_COSTOBJ_CR	MPSPNR1
SAP_AAC_DB	MKNTTP
SAP_AAC_CR	MKNTTP1
SOURCEMBO	MGLVOR
SOURCEMBO	MBLART

FI invoice message mapping

The following table shows how fields in the FI source message map to the SAP target message.

Field in Maximo source message (PublishMXINVOICE)	Mapped field in SAP target message (msg_T_SAP_GLINVOICE)
'MICFI'	MIDENT
INVOICENUM	MINVNR
INVOICEDATE	MBLDAT
ORGID	MBUKRS
CURRENCYCODE	MWAERS
EXCHANGERATE	MKURSF
DOCUMENTTYPE	MRECHN
TOTALTAX1	MWMWST
VENDOR	MLIFNR
TOTALCOST	MWRBTR1
TOTALCOST(+/-)	MBLART
GLPOSTDATE	MBUDAT
'RFBU'	MGLVOR
DESCRIPTION	MBKTXT
INVOICELINE.INVOICELINENUM	MINVPO
INVOICELINE.TAX1CODE	MMWSKZ
INVOICELINE.DESCRIPTION	MSGTXT
INVOICELINE.INVOICECOST.SAP_AAC	MKNTTP
INVOICELINE.INVOICECOST.SAP_COSTOBJ	MKOSTL
INVOICELINE.REFWO	MAUFNR
INVOICELINE.INVOICECOST.SAP_COSTOBJ	MPSPNR
INVOICELINE.INVOICECOST.SAP_GLACCT	MNEWKO
INVOICELINE.INVOICECOST.LINECOST	MWRBTR

MM invoice message mapping

The following table shows how fields in the MM message map to the SAP target message.

Field in Maximo source message (PublishMXINVOICE)	Mapped field in SAP Target Message (msg_T_SAP_MMINV_M2S)
'MICMM'	MIDENT
INVOICENUM	MXBLNR
INVOICEDATE	MBLDAT
ORGID	MBUKRS
GLPOSTDATE	MBUDAT
CURRENCYCODE	MWAERS
EXCHANGERATE	MKURSF
INVOICENUM	MXBLNR
VENDOR	MKONTO
DOCUMENTTYPE	MRECHN
TOTALTAX1, INCLUSIVE1	MWMWST1
TOTALCOST	MWRBTR
INVOICELINE.PONUM	MEBELN
INVOICELINE.POLINENUM	MEBELP
INVOICELINE.TAX1CODE	MMWSKZ1
INVOICELINE.DESCRIPTION	MSGTXT
INVOICELINE.LINECOST	MWRBTX
INVOICELINE.INVOICEQTY	MMENGE
INVOICELINE.INVOICEUNIT	MBSTME

Issue message mapping

The following table shows how fields in the issue source message map to the SAP target message.

Field in Maximo source message (PublishMXINVISSUE)	Mapped field in SAP target message (msg_T_SAP_ISSUE)
'MISU'	MIDENT
ACTUALDATE	MBLDAT
TRANSDATE	MBUDAT
SITEID	MWERKS
STORELOC	MLGORT
SAP_COSTOBJ	MKOSTL
SAP_COSTOBJ	MPS_PSP_PNR
SAP_COSTOBJ	MANLN1
ISSUETO	MWEMPF
ITEMNUM	MMATNR
QUANTITY	MERFMG
REQUESTNUM	MSGTXT
WONUM	MAUFNR
SAP_AAC	MFLAG

Labor hours message mapping

The following table shows how fields in the labor hours source message map to the SAP target message.

Field in Maximo source message (PublishMXEMPACT)	Mapped field in SAP target message (msg_T_SAP_LH_M2S)
'MLPY1'	MIDENT
ORGID	MBUKRS
ENTERDATE	MBLDAT
TRANSDATE	MBUDAT
CRAFT	MSKOST
SKILLLEVEL	MLSTAR
REGULARHRS	MLVBSU
REFWO	MEAUFN

Purchase order message mapping

The following table shows how fields in the purchase order source message map to the SAP target message.

Field in Maximo source message (PublishMXPO)	Mapped field in SAP target message (msg_T_SAP_PO_M2S)
ACTION	MIDENT
SAP_POTYPE	MBSART
SAP_PURCH_ORG	MEKORG
PONUM	MBSTNR
VENDOR	MLIFNR
CHANGEBY	MAFNAM
SITEID	MEKORG
CURRENCYCODE	MWAERS
STATUS	MSTATUS
ORDERDATE	MBEDAT
POLINE.ITEMNUM	MEMATN
POLINE.DESCRIPTION	MTXZ01
POLINE.SAP_PURCH_GRP	MEKGRP
POLINE.SAP_AAC	MKNTTP
POLINE.ORDERUNIT	MMEINS
POLINE.SAP_MATL_GRP	MMATKL
POLINE.TOSITEID	MWERKS
POLINE.STORELOC	MLGORT
POLINE.ORDERQTY	MMENGE
POLINE.REQDELIVERYDATE	MEEIND
POLINE.UNITCOST	MNETPR
POLINE.UNITCOST	MPREIS
POLINE.SAP_COST_OBJ	MKOSTL
POLINE.SAP_COST_OBJ	MANLN1
POLINE.SAP_COST_OBJ	MPSPNR
POLINE.SAP_GLACCT	MSAKTO
POLINE.SHIPTO	MABLAD

Field in Maximo source message (PublishMXPO)	Mapped field in SAP target message (msg_T_SAP_PO_M2S)
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT1
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT2
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT3
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT4
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT5
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT6
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT7
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT8
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT9
POLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT10
POLINE.CATALOGCODE	MIDNLF
POLINE.REFWO	MAUFNR
POLINE.POLINENUM	MBSTPO
POLINE.RECEIPTRQD	MWEPOS
POLINE.RECEIPTTOLERANCE[a]	MUEBTK
POLINE.RECEIPTTOLERANCE	MUEBTO

a.If POLINE.RECEIPTTOLEANCE is null, the SAP PO line is marked 'Unlimited %' (UEBTK); otherwise it is marked 'Over %' (UEBTO).

Purchase requisition message mapping

The following table shows how fields in the purchase requisition source message map to the SAP target message.

Field in Maximo source message (PublishMXPR)	Mapped field in SAP target message (msg_T_SAP_PR_M2S)
"MPRI"	MIDENT
SAP_PRTYPE	MBSART
PRNUM	MBANFN
SITEID	MWERKS
VENDOR	MLIFNR
REQUESTEDBY	MAFNAM
CURRENCYCODE	MWAERS
DESCRIPTION_LONGDESCRIPTION	MHTEXT1
DESCRIPTION_LONGDESCRIPTION	MHTEXT2
DESCRIPTION_LONGDESCRIPTION	MHTEXT3
DESCRIPTION_LONGDESCRIPTION	MHTEXT4
DESCRIPTION_LONGDESCRIPTION	MHTEXT5
DESCRIPTION_LONGDESCRIPTION	MHTEXT6
DESCRIPTION_LONGDESCRIPTION	MHTEXT7
DESCRIPTION_LONGDESCRIPTION	MHTEXT8
DESCRIPTION_LONGDESCRIPTION	MHTEXT9
DESCRIPTION_LONGDESCRIPTION	MHTEXT10
PRLINE.PRLINENUM	MBNFPO
PRLINE.PRLINENUM	MBNFPO
PRLINE.ITEMNUM	MMATNR
PRLINE.DESCRIPTION	MTXZ01
PRLINE.SAP_PURCH_GRP	MEKGRP
PRLINE.SAP_AAC	MKNTTP
PRLINE.ORDERUNIT	MMEINS
PRLINE.SAP_MATL_GRP	MMATKL
PRLINE.STORELOC	MLGORT
PRLINE.ORDERQTY	MMENGE
PRLINE.REQDELIVERYDATE	MEEIND
PRLINE.REFWO	MAUFNR

Field in Maximo source message (PublishMXPR)	Mapped field in SAP target message (msg_T_SAP_PR_M2S)
PRLINE.UNITCOST	MPREIS
PRLINE.SAP_COSTOBJ	MKOSTL
PRLINE.SAP_COSTOBJ	MANLN1
PRLINE.SAP_COSTOBJ	MPSPNR
PRLINE.SAP_GLACCT	MSAKTO
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT1
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT2
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT3
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT4
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT5
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT6
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT7
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT8
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT9
PRLINE.DESCRIPTION_LONGDESCRIPTION	MTEXT10
PRLINE.RECEIPTREQD	MWEPOS

Receipts message mapping

The following table shows how fields in the receipts source message map to the SAP target message.

Field in Maximo source message (PublishMXRECEIPT)	Mapped field in SAP target message (msg_T_SAP_RECEIPTS)
'MRCVI'	MIDENT
TRANSDATE	MBLDAT
TRANSDATE	MBUDAT
PONUM	MEBELN
POLINENUM	MEBELP
SITEID	MWERKS
TOSORELOC	MLGORT
RECEIPTQUANTITY	MERFMG
RECEIVDUNIT	MERFME
SAP_CREATEREC	MAUTOREV
ITEMNUM	MMATNR
MATRECTRANSID	MXTRANSID
SERVRECTRANSID	MXTRANSID
RECEIPTREF	MXTRANSREFID

Reservation message mapping

The following table shows how fields in the reservation source message map to the SAP target message.

Field in Maximo source message (PublishMXINVRES)	Mapped field in SAP target message (msg_T_SAP_RERVATION)
Action	MIDENT
WONUM	MAUFNR
REQUIREDDATE	MRSDAT
STORELOCSITEID	MWERKS
ISSUETO	MWEMPF
ITEMNUM	MMATNR
LOCATION	MLGORT
RESERVEDQTY	MERFMG
REQUESTNUM	MSGTXT
SAP_AAC	MFLAG
SAP_COSTOBJ	MKOSTL
SAP_COSTOBJ	MANLN1
SAP_COSTOBJ	MPSPNR
"X"	MXWAOK
RESTYPE converted by SAPRSVPRIORITY cross reference control	MPRIO_URG

Work order message mapping

The following table shows how fields in the work order source message map to the SAP target message.

Field in Maximo source message (PublishMXWODETAIL)	Mapped field in SAP target message (msg_T_SAP_WO)
Action	MIDENT
WONUM	MAUFNR
STATUS	MASTNR
DESCRIPTION	MKTEXT
ORGID	MBUKRS
SITEID	MWERKS
SCHEDSTART	MPDAT1
SCHEDFINISH	MPDAT2
DESCRIPTION_LONGDESCRIPTION	MTEXT1
DESCRIPTION_LONGDESCRIPTION	MTEXT2
DESCRIPTION_LONGDESCRIPTION	MTEXT3
DESCRIPTION_LONGDESCRIPTION	MTEXT4
DESCRIPTION_LONGDESCRIPTION	MTEXT5
DESCRIPTION_LONGDESCRIPTION	MTEXT6
DESCRIPTION_LONGDESCRIPTION	MTEXT7
DESCRIPTION_LONGDESCRIPTION	MTEXT8
DESCRIPTION_LONGDESCRIPTION	MTEXT9
DESCRIPTION_LONGDESCRIPTION	MTEXT10
SAP_IOTYPE	MAUART
SAP_AAC	MFLAG
SAP_COSTOBJ	MKOSTL
SAP_COSTOBJ	MANLN1
SAP_COSTOBJ	MPS_PSP_PN
SAP_COSTOBJ	MAUFNR2
'PER'	MPERBZ
PARENT	MANFAUFNR

SAP ABAP Programs

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This appendix lists SAP ABAP programs and function modules.

SAP ABAP reports

The following table lists SAP ABAP reports and their descriptions.

ABAP report name	Description
ZBC_BAPIADMIN	Maximo to SAP BAPICall Administration
ZBC_INVSENT_REORG	Reorganize table ZBC_INVSENT
ZBCXIREPR001	Download Cost Centers to Maximo
ZBCXIREPR002	Download Assets to Maximo
ZBCXIREPR003	Download WBS-Elements to Maximo
ZBCXIREPR005	Download PR Status Update to Maximo
ZBCXIREPR006	Download FI-G/L Accounts to Maximo GL Account
ZBCXIREPR007	Download Vendor Master to Maximo
ZBCXIREPR008	Download Material Groups to Maximo
ZBCXIREPR009	Download Purchasing Groups to Maximo
ZBCXIREPR011	Download FI-G/L Accounts to Maximo to Maximo Domain
ZBCXIREPR012	Download Internal Order to Maximo
ZBCXIREPR013	Download Purchasing Info Records to Maximo
ZBCXIREPR014	Download of CO Posting against Maximo Work Orders (Invoice Variance)
ZBCXIREPR100	Download Material Master data to Maximo
ZBCXIREPR150	Download Time Sheets to Maximo
ZBCXIREPR160	Download Labor Time Sheets to Maximo
ZBCXIREPR170	Download Cost Centers, Activities, and Prices to Maximo Craft

SAP function modules

The following tables show SAP Applications function modules that the Maximo Enterprise Adapter for SAP Applications uses.

Function modules for the direction SAP to Maximo

The following table lists SAP function modules that SAP uses to filter data with the table ZBC_FILTERS, when sending transactions to Maximo.

Interface	Function module name	Description
Contracts inbound	Z_BC_BAPI_CONTRACT_GET_DETAIL	Gets Contract details data
MM Invoices inbound	Z_BC_BAPI_INVOICE_GET_DETAIL	Gets MM Invoice details data
Labor inbound	Z_BC_BAPI_LABOR_GET_DETAIL	Gets Labor details data from SAP HR
Items inbound	Z_BC_BAPI_MATERIAL_GET_DESC	Gets all descriptions for Material information
Items, Inventories, Inventory Balances inbound	Z_BC_BAPI_MATERIAL_GET_DETAIL	Gets Material details data
Issues, Receipts inbound	Z_BC_BAPI_MATMOVE_GET_DETAIL	Gets Goods Receipts details data
Purchase Orders inbound	Z_BC_BAPI_PO_GET_DETAIL	Gets PO details data
	Z_BC_BAPI_MESSAGEFILTER	Filters the data to be sent out from SAP
Vendors Inbound	Z_BC_BAPI_VENDOR_GET_DETAIL	Get Vendor Detail data
Purchase info Records	Z_BC_BAPI_INFOREC_GET_DETAIL	Get Info record details

Function modules for the direction Maximo Asset Management to SAP

The following table lists SAP function modules that SAP uses to filter data with the table ZBC_FILTERS, when receiving transactions from Maximo Asset Management.

Interface	BDC function module	BAPI function module
Journal Entries outbound	Z_BC_CREATE_GLPOSTING_BDC	Z_BC_CREATE_GLPOSTING_BAPI
Issues outbound	Z_BC_CREATE_GOODISSUE_BDC	Z_BC_CREATE_GOODISSUE_BAPI
FI Invoices outbound	Z_BC_CREATE_APINVOICE_BDC	Z_BC_CREATE_APINVOICE_BAPI
MM Invoices outbound		Z_BC_CREATE_MMINVOICE_BAPI
Labor Time Reporting outbound to SAP CO	Z_BC_CREATE_LABORHOURS_BDC	Z_BC_CREATE_LABORHOURS_BAPI
Purchase Orders outbound	Z_BC_CREATE_PURCHORDER_BDC	Z_BC_CREATE_PURCHORDER_BAPI
Purchase Order Updates outbound	Z_BC_UPDATE_PURCHORDER_BDC	Z_BC_UPDATE_PURCHORDER_BAPI
Purchase Requisitions outbound	Z_BC_CREATE_PURCHASEREQ_BDC	Z_BC_CREATE_PURCHASEREQ_BAPI Z_BC_CREATE_PURCHASEREQ_N_BAPI
Receipts outbound	Z_BC_CREATE_GRECEIPTS_BDC	Z_BC_CREATE_GRECEIPTS_BAPI
Reservations outbound	Z_BC_CREATE_RESERVATION_BDC Z_BC_DELETE_RESERVATION_BDC Z_BC_UPDATE_RESERVATION_BDC	Z_BC_CREATE_RESERVATION_BAPI
Work Orders/ Reservations outbound	Z_BC_CREATE_WORKORDER_BDC Z_BC_UPDATE_WORKORDER_BDC	Z_BC_CREATE_WORKORDER_BAPI

SAP ABAP structures for IDOC transaction filtering

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This appendix includes the SAP ABAP structures used for the filtering table, ZBC_FILTERS. This appendix does not include all SAP ABAP structures.

ZBC_S2M_PurchaseOrder

The following table lists the fields that can be used to filter purchase order data.

Field	Comptype	Datatype	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link: transaction identifier
BANFN	BANFN	CHAR	10	0	Purchase requisition number
BNFPO	BNFPO	NUMC	5	0	Item number of purchase requisition
EBELN	EBELN	CHAR	10	0	Purchasing document number
EINDT	EINDT	DATS	8	0	Item delivery date
LIFNR	LIFNR	CHAR	10	0	Account number of vendor or creditor
EKORG	EKORG	CHAR	4	0	Purchasing organization
MENGE	BSTMG	QUAN	13	3	Purchase order quantity
MEINS	BSTME	UNIT	3	0	Order unit
EBELP	EBELP	NUMC	5	0	Item number of purchasing document
MATNR	MATNR	CHAR	18	0	Material number
WERKS	WERKS_D	CHAR	4	0	Plant
LGORT	LGORT_D	CHAR	4	0	Storage location
NETPR	NETPR	CURR	11	2	Net price
BEDAT	BEDAT	DATS	8	0	Purchase order date
TXZ01	TXZ01	CHAR	40	0	Short text
ZEKKN	BEKKN	NUMC	2	0	Number of PO account assignment
AUFNR	AUFNR	CHAR	12	0	Order number
WEPOS	WEPOS	CHAR	1	0	Goods receipt indicator
WEUNB	WEUNB	CHAR	1	0	"Goods receipt, non-valuated"

Field	Comptype	Datatype	Length	Dec	Description
EXNUM	EXNUM	CHAR	10	0	Number of foreign trade data in MM and SD documents
WAERS	WAERS	CUKY	5	0	Currency
WKURS	EDI5402_A	CHAR	12	0	Exchange rate
LOEKZ	LOEKZ	CHAR	1	0	Asset class marked for deletion
SAKTO	SAKTO	CHAR	10	0	Cost element
BEDNR	BEDNR	CHAR	10	0	Requirement tracking number
KNTTP	KNTTP	CHAR	1	0	Account assignment category
MATKL	MATKL	CHAR	9	0	Material group
EKGRP	EKGRP	CHAR	3	0	Purchasing group
KOSTL	KOSTL	CHAR	10	0	Cost center
POSID	POSID	CHAR	2	0	Relative day in period
ABLAD	ABLAD	CHAR	25	0	Unloading point
WEMPF	WEMPF	CHAR	12	0	Goods recipient/ship-to party
AEDAT_IT	AEDAT	DATS	8	0	Date of last change
ERNAM	ERNAM	CHAR	12	0	Name of person who created the object
INCO1	INCO1	CHAR	3	0	Incoterms (part 1)
ZTERM	DZTERM	CHAR	4	0	Terms of payment key
AEDAT_HD	AEDAT	DATS	8	0	Date of last change
LABNR	LABNR	CHAR	20	0	Order acknowledgment number
WEBRE	WEBRE	CHAR	1	0	Indicator: GR-based invoice verification
KONNR	KONNR	CHAR	10	0	Number of principal purchase agreement
KDATB	KDATB	DATS	8	0	Start of validity period
KDATE	KDATE	DATS	8	0	End of validity period
BUKRS	BUKRS	CHAR	4	0	Company code
BSART	BSART	CHAR	4	0	Order type (purchasing)
KTPNR	KTPNR	NUMC	5	0	Item number of principal purchase agreement
KT_BSART	BSART	CHAR	4	0	Order type (purchasing)
UNIQPL	CHAR1	CHAR	1	0	Single-character flag
KTWRT	KTWRT	CURR	15	2	Cumulative planned value
KT_BSART	BSART	CHAR	4	0	Order type (purchasing)

Field	Comptype	Datatype	Length	Dec	Description
UNIQPL	CHAR1	CHAR	1	0	Single-character indicator
KTWRT	KTWRT1	CURR	15	2	Cumulative planned value
MAXIMOPO	CHAR1	CHAR	1	0	Single-character indicator
MX5PO	CHAR1	CHAR	1	0	Single-character indicator
MWSKZ	MWSKZ	CHAR	2	0	Sales tax code
UNTTO	UNTTO	DEC	3	1	Underdelivery Tolerance Limit
UEBTO	UEBTO	DEC	3	1	Overdelivery Tolerance Limit
UEBTK	UEBTK	CHAR	1	0	Unlimited Overdelivery Allowed

ZBC_S2M_MMINVOICE

The following table lists the fields that can be used to filter invoice data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link : transaction identifier
AUFNR	AUFNR	CHAR	12	0	Order number
WRBTR	WRBTR	CURR	13	2	Amount in document currency
BUDAT	BUDAT	DATS	8	0	Posting date in the document
WAERS	WAERS	CUKY	5	0	Currency
BELNR	BELNR_D	CHAR	10	0	Accounting document number
BUZEI	BUZEI	NUMC	3	0	Number of line item within accounting document
EBELN	EBELN	CHAR	10	0	Purchasing document number
EBELP	EBELP	NUMC	5	0	Item number of purchasing document
TXBHW	EDI5004_G	CHAR	18	0	Net invoice value
ERFMG	ERFMG	QUAN	13	3	Quantity in unit of entry
ERFME	ERFME	UNIT	3	0	Unit of entry
ZEKKN	DZEKKN	NUMC	2	0	Sequential number of account assignment
SHKZG	SHKZG	CHAR	1	0	Debit/credit indicator
MATNR	MATNR	CHAR	18	0	Material number
WERKS	WERKS_D	CHAR	4	0	Plant
BANFN	BANFN	CHAR	10	0	Purchase requisition number
LIFNR	LIFNR	CHAR	10	0	Account number of vendor or creditor
SAKTO	SAKTO	CHAR	10	0	Cost element
BUZID	BUZID	CHAR	1	0	Identification of the line item
COBL_NR	COBL_NR	NUMC	4	0	Four character sequential number for coding block
BUKRS	BUKRS	CHAR	4	0	Company code
KURSF	EDI5402_A	CHAR	12	0	Exchange rate
GJAHR	GJAHR	NUMC	4	0	Fiscal year
MAXIMOPO	CHAR1	CHAR	1	0	Single-character indicator
MX5PO	CHAR1	CHAR	1	0	Single-character indicator

Field	CompType	DataType	Length	Dec	Description
MWSKZ1	MWSKZ	CHAR	2	0	Sale tax code
WMWST1	WMWST	CURR	13	2	Tax amount in document currency
RMWWR	RMWWR	CURR	13	2	Gross invoice amount in document currency
GRCOST	CHAR1	CHAR	1	0	Single-character indicator
BLDAT	BLDAT	DATS	8	0	Document Date in Document
VORGANG	MRM_VORGANG	CHAR	1	0	List field: transaction/event
ZLSPR	DZLSPR	CHAR	1	0	Payment Block Key
VGART	VGART	CHAR	2	0	Transaction/Event Type
STBLG	RE_STBLG	CHAR	10	0	Reversal document number
STJAH	RE_STJAH	NUMC	4	0	Fiscal year of reversal document

ZBC_S2M_MATERIALMASTER

The following table lists the fields that can be used to filter material master data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link : transaction identifier
MATNR	MATNR	CHAR	18	0	Material number
ERSDA	ERSDA	DATS	8	0	Creation date
ERNAM	ERNAM	CHAR	12	0	Name of person who created the object
LAEDA	LAEDA	DATS	8	0	Date of last change
AENAM	AENAM	CHAR	12	0	Name of person who changed object
LVORM	LVORM	CHAR	1	0	Deletion indicator
MTART	MTART	CHAR	4	0	Material type
MBRSH	MBRSH	CHAR	1	0	Industry sector
MATKL	MATKL	CHAR	9	0	Material group
BISMT	BISMT	CHAR	18	0	Old material number
MEINS	MEINS	UNIT	3	0	Base unit of measure
BSTME	BSTME	UNIT	3	0	Order unit
ZEINR	DZEINR	CHAR	22	0	Document number (without document management system)
ZEIAR	DZEIAR	CHAR	3	0	Document type (without document management system)
ZEIVR	DZEIVR	CHAR	2	0	Document version (without document management system)
ZEIFO	DZEIFO	CHAR	4	0	Page format of document (without document management system)
AESZN	AESZN	CHAR	6	0	Document change number (without document management system)
BLATT	BLATT	CHAR	3	0	Page number of document (without document management system)
BLANZ	BLANZ	NUMC	3	0	Number of sheets (without document management system)
GROES	GROES	CHAR	32	0	Size/dimensions
WRKST	WRKST	CHAR	48	0	Basic material
NORMT	NORMT	CHAR	18	0	Industry standard description (such as ANSI or ISO)
BRGEW	BRGEW	QUAN	13	3	Gross weight

Field	CompType	DataType	Length	Dec	Description
NTGEW	NTGEW	QUAN	13	3	Net weight
GEWEI	GEWEI	UNIT	3	0	Weight unit
VOLUM	VOLUM	QUAN	13	3	Volume
VOLEH	VOLEH	UNIT	3	0	Volume unit
STOFF	STOFF	CHAR	18	0	Hazardous material number
SPART	SPART	CHAR	2	0	Division
EAN11	EAN11	CHAR	18	0	International article number (EAN/UPC)
LAENG	LAENG	QUAN	13	3	Length
BREIT	BREIT	QUAN	13	3	Width
HOEHE	HOEHE	QUAN	13	3	Height
MEABM	MEABM	UNIT	3	0	Unit of dimension for length/width/height
CADKZ	CADKZ	CHAR	1	0	CAD indicator
DATAB	DATAB	DATS	8	0	Valid-From date
LIQDT	LIQDT	DATS	8	0	Deletion date
ATTYP	ATTYP	CHAR	2	0	Material category
MHDHB	MHDHB	DEC	4	0	Total shelf life
SPRAS	SPRAS	LANG	1	0	Language key
MAKTX	MAKTX	CHAR	40	0	Material description
WERKS	WERKS_D	CHAR	4	0	Plant
LVORM_WERKS	LVORM	CHAR	1	0	Deletion indicator
MAABC	MAABC	CHAR	1	0	ABC indicator
AUSME	AUSME	UNIT	3	0	Unit of issue
PLIFZ	PLIFZ	DEC	3	0	Planned delivery time in days
WEBAZ	WEBAZ	DEC	3	0	Goods receipt processing time in days
BESKZ	BESKZ	CHAR	1	0	Procurement type
SOBSL	SOBSL	CHAR	2	0	Special procurement type
MINBE	MINBE	QUAN	13	3	Reorder point
EISBE	EISBE	QUAN	13	3	Safety stock
BSTMI	BSTMI	QUAN	13	3	Minimum lot size
BSTMA	LAENG	QUAN	13	3	Length
BSTFE	BSTFE	QUAN	13	3	Fixed lot size

Field	CompType	DataType	Length	Dec	Description
BSTRF	BSTRF	QUAN	13	3	Rounding value for purchase order quantity
MABST	MABST	QUAN	13	3	Maximum stock level
KZAUS	KZAUS	CHAR	1	0	Discontinuation indicator
AUSDT	AUSDT	DATS	8	0	Effective-out date
NFMAT	NFMAT	CHAR	18	0	Follow-up material
MAXLZ	MAXLZ	DEC	5	0	Maximum storage period
LZEIH	LZEIH	UNIT	3	0	Unit for maximum storage period
WZEIT	WZEIT	DEC	3	0	Total replenishment lead time (in workdays)
LIZYK	LIZYK	CHAR	4	0	Delivery cycle
BWSCL	BWSCL	CHAR	1	0	Source of supply
HERKL	HERKL	CHAR	3	0	Country of origin of the material
HERKR	HERKR	CHAR	3	0	Region of origin of material (non-preferential origin)
MTVER	MTVER	CHAR	4	0	Export/import material group
PRCTR	PRCTR	CHAR	10	0	Profit center
XMCNG	XMCNG	CHAR	1	0	Negative stocks allowed in plant
EKGRP	EKGRP	CHAR	3	0	Purchasing group
QSSYS	QSSYS	CHAR	4	0	Target QM system for vendor
LGORT	LGORT_D	CHAR	4	0	Storage location
LVORM_LGORT	LVORM	CHAR	1	0	Deletion indicator
LFGJA	LFGJA	NUMC	4	0	Fiscal year of current period
LFMON	LFMON	NUMC	2	0	Current period (posting period)
SPERR	SPERR	CHAR	1	0	Physical inventory blocking indicator
LABST	LABST	QUAN	13	3	Valuated stock with unrestricted use
UMLME	UMLME	QUAN	13	3	Stock in transfer (plant to plant)
INSME	INSME	QUAN	13	3	Stock in quality inspection
EINME	EINME	QUAN	13	3	Total stock of all restricted batches
SPEME	SPEME	QUAN	13	3	Blocked stock
VMLAB	VMLAB	QUAN	13	3	Valuated unrestricted-use stock in previous period
VMUML	VMUML	QUAN	13	3	Stock in transfer in previous period
LSOBS	LSOBS	CHAR	2	0	Special procurement type at storage location level

Field	CompType	DataType	Length	Dec	Description
LMINB	LMINB	QUAN	13	3	Reorder point for storage location MRP
LGPBE	LGPBE	CHAR	10	0	Storage bin
DLINL	DLINL	DATS	8	0	Date of last posted count for unrestricted-use stock
PRCTL	PRCTR	CHAR	10	0	Profit center
BWTAR	BWTAR_D	CHAR	10	0	Valuation type
LBKUM	LBKUM	QUAN	13	3	Total valuated stock
SALK3	SALK3	CURR	13	2	Value of total valuated stock
VPRSV	VPRSV	CHAR	1	0	Price control indicator
VERPR	VERPR	CURR	11	2	Moving average price or periodic unit price
STPRS	STPRS	CURR	11	2	Standard price
PEINH	PEINH	DEC	5	0	Price unit
BKLAS	BKLAS	CHAR	4	0	Valuation class
SALKV	SALKV	CURR	13	2	Value based on moving average price (only with price ctrl S)
LFGJA_MBEW	LFGJA	NUMC	4	0	Fiscal year of current period
LFMON_MBEW	LFMON	NUMC	2	0	Current period (posting period)
STPRV	STPRV	CURR	11	2	Previous price
LAEPR	LAEPR	DATS	8	0	Date of the last price change
ZKPRS	CHAR1	CHAR	1	0	Single-character flag
ZKDAT	CHAR1	CHAR	1	0	Single-character flag
ZPLPR	CHAR1	CHAR	1	0	Single-character flag
UMREZ	UMREZ	DEC	5	0	Numerator for conversion to base units of measure
UMREN	UMREN	DEC	5	0	Denominator for conversion to base units of measure
UMREN1	UMREN	DEC	5	0	Denominator for conversion to base units of measure
UMREZ1	UMREZ	DEC	5	0	Numerator for conversion to base units of measure
PSTAT	PSTAT_D	CHAR	15	0	Maintenance status
KLABS	KLABS	QUAN	13	3	Unrestricted-use consignment stock
LABOR	LABOR	CHAR	3	0	Laboratory/design office
EKWSL	EKWSL	CHAR	4	0	Purchasing value key

Field	CompType	DataType	Length	Dec	Description
KZKRI	KZKRI	CHAR	1	0	Indicator: critical part
MMSTA	MMSTA	CHAR	2	0	Plant-specific material status
DISMM	DISMM	CHAR	2	0	MRP type
LIFNR	LIFNR	CHAR	10	0	Account number of vendor or creditor
IDNLF	IDNLF	CHAR	35	0	Material number used by vendor
LGOBE	LGOBE	CHAR	16	0	Description of storage location
BUKRS	BUKRS	CHAR	4	0	Company code
MXPLNT	BOOLEAN	CHAR	1	0	"boolean variable (X=true, -=false, space=unknown)"
BULKLOAD	CHAR1	CHAR	1	0	Single-character flag
MSTAE	MSTAE	CHAR	2	0	Cross-plant material status
LGBST	LGBST	CHAR	1	0	Storage location./batch stock
UNTTO	UNTTO	DEC	3	1	Underdelivery Tolerance Limit
UEBTO	UEBTO	DEC	3	1	Overdelivery Tolerance Limit
UEBTK	UEBTK	CHAR	1	0	Unlimited Overdelivery Allowed

ZBC_S2M_LABORMASTER

The following table lists the fields that can be used to filter labor master data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link : transaction identifier
PERNR	PERSNO	NUMC	8	0	Personnel number
INITS	INITS	CHAR	10	0	Initials
NACHN	PAD_NACHN	CHAR	40	0	Last name
NAME2	PAD_NAME2	CHAR	40	0	Name at birth
NACH2	PAD_NACH2	CHAR	40	0	Second name
VORNA	PAD_VORNA	CHAR	40	0	First name
CNAME	PAD_CNAME	CHAR	80	0	Complete name
TITEL	TITEL	CHAR	15	0	Title
TITL2	TITL2	CHAR	15	0	Second title
NAMZU	NAMZU	CHAR	15	0	Other title
VORSW	VORSW	CHAR	15	0	Name prefix
VORS2	VORS2	CHAR	15	0	Second name prefix
RUFNM	PAD_RUFNM	CHAR	40	0	Known as
MIDNM	PAD_MIDNM	CHAR	40	0	Middle name
GESCH	GESCH	CHAR	1	0	Gender key
GBDAT	GBDAT	DATS	8	0	Date of birth
GBLND	GBLND	CHAR	3	0	Country of birth
GBDEP	GBDEP	CHAR	3	0	State
GBORT	PAD_GBORT	CHAR	40	0	Birthplace
NATIO	NATIO	CHAR	15	0	Nationality
BEGDA	BEGDA	DATS	8	0	Start date
BUKRS	BUKRS	CHAR	4	0	Company code
WERKS	WERKS_D	CHAR	4	0	Plant
PERSG	PERSG	CHAR	1	0	Employee group
PERSK	PERSK	CHAR	2	0	Employee subgroup
VDSK1	VDSK1	CHAR	14	0	Organizational key
GSBER	GSBER	CHAR	4	0	Business area
BTRTL	BTRTL	CHAR	4	0	Personnel subarea

Field	CompType	DataType	Length	Dec	Description
JUPER	JUPER	CHAR	4	0	Legal Person
ABKRS	ABKRS	CHAR	2	0	Payroll area
ANSVH	ANSVH	CHAR	2	0	Work contract
KOSTL	KOSTL	CHAR	10	0	Cost center
ORGEH	ORGEH	NUMC	8	0	Organizational unit
PLANS	PLANS	NUMC	8	0	Position
STELL	STELL	NUMC	8	0	Job
MSTBR	MSTBR	CHAR	8	0	Supervisor area
STRAS	PAD_STRAS	CHAR	60	0	Street and house number
ORT01	PAD_ORT01	CHAR	40	0	City
ORT02	PAD_ORT02	CHAR	40	0	District
PSTLZ	PSTLZ_HR	CHAR	10	0	Postal code
LAND1	LAND1	CHAR	3	0	Country key
TELNR	TELNR	CHAR	14	0	Telephone number
STATE	REGIO	CHAR	3	0	"Region (State, Province, County)"
SCHKZ	SCHKN	CHAR	8	0	Work schedule rule
ZTERF	PT_ZTERF	NUMC	1	0	Employee time management status
EMPCT	EMPCT	DEC	5	2	Employment percentage
MOSTD	MOSTD	DEC	5	2	Monthly hours
WOSTD	WOSTD	DEC	5	2	Hours per week
ARBST	ARBST	CHAR	4	0	Daily work hours
WKWDY	WKWDY	DEC	5	2	Weekly workdays
JRSTD	JRSTD	DEC	7	2	Annual working hours
TEILK	TEILK	CHAR	1	0	Checkbox for part-time employee
TRFAR	TRFAR	CHAR	2	0	Pay scale type
TRFGB	TRFGB	CHAR	2	0	Pay scale area
TRFGR	TRFGR	CHAR	8	0	Pay scale group
TRFST	TRFST	CHAR	2	0	Pay scale level
BSGRD	BSGRD	DEC	5	2	Capacity utilization level
DIVGV	DIVGV	DEC	5	2	Hours worked per payroll period
LGA01	LGART	CHAR	4	0	Wage type
BET01	PAD_AMT7S	CURR	13	2	Wage type amount for payments
LGA02	LGART	CHAR	4	0	Wage type

Field	CompType	DataType	Length	Dec	Description
BET02	PAD_AMT7S	CURR	13	2	Wage type amount for payments
QCODE	QUALI_D	NUMC	8	0	Qualification key
QTEXT	CHAR40	CHAR	40	0	Character field of length 40
USRID_PHON	CHAR50	CHAR	50	0	Comment
USRID_MAIL	CHAR50	CHAR	50	0	Comment
USRID_PAGR	CHAR50	CHAR	50	0	Comment
LSTAR	LSTAR	CHAR	6	0	Activity type
LIFNR	LIFNR	CHAR	10	0	Account number of vendor or creditor
STATUS	CHAR1	CHAR	1	0	Single-character flag

ZBC_S2M_GOODSMOVEMENT

The following table lists the fields that can be used to filter goods movement data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link : transaction identifier
MBLNR	MBLNR	CHAR	10	0	Number of material document
BUDAT	BUDAT	DATS	8	0	Posting date in the document
BWART	BWART	CHAR	3	0	Movement type (inventory management)
MATNR	MATNR	CHAR	18	0	Material number
WERKS	WERKS_D	CHAR	4	0	Plant
LGORT	LGORT_D	CHAR	4	0	Storage location
ERFMG	ERFMG	QUAN	13	3	Quantity in unit of entry
ERFME	ERFME	UNIT	3	0	Unit of entry
MENGE	MENGE_D	QUAN	13	3	Quantity
MEINS	MEINS	UNIT	3	0	Base unit of measure
DMBTR	DMBTR	CURR	13	2	Amount in local currency
WAERS	WAERS	CUKY	5	0	Currency
SOBKZ	SOBKZ	CHAR	1	0	Special stock indicator
EBELN	EBELN	CHAR	10	0	Purchasing document number
EBELP	EBELP	NUMC	5	0	Item number of purchasing document
ZEKKN	BEKKN	NUMC	2	0	Number of PO account assignment
WEUNB	WEUNB	CHAR	1	0	"Goods receipt, non-valuated"
WEMPF	WEMPF	CHAR	12	0	Goods recipient/ship-to party
KOSTL	KOSTL	CHAR	10	0	Cost center
SAKTO	SAKTO	CHAR	10	0	Cost element
ABLAD	ABLAD	CHAR	25	0	Unloading point
SGTXT	SGTXT	CHAR	50	0	Item text
USNAM	USNAM	CHAR	12	0	User name
BLDAT	BLDAT	DATS	8	0	Document date in document
FRBNR	FRBNR	CHAR	16	0	Number of bill of lading at time of goods receipt
AUFNR	AUFNR	CHAR	12	0	Order number
ZEILE	MBLPO	NUMC	4	0	Item in material document

Field	CompType	DataType	Length	Dec	Description
BANFN	BANFN	CHAR	10	0	Purchase requisition number
UMWRK	UMWRK	CHAR	4	0	Receiving plant/issuing plant
UMLGO	UMLGO	CHAR	4	0	Receiving/issuing storage location
MJAHR	MJAHR	NUMC	4	0	Material document year
BUKRS	BUKRS	CHAR	4	0	Company code
KURSF	EDI5402_A	CHAR	12	0	Exchange rate
ITYPE	CHAR8	CHAR	8	0	Maximo issue type value
MAXIMOPO	CHAR1	CHAR	1	0	Single-character indicator
MX5PO	CHAR1	CHAR	1	0	Single-character indicator
GRCOST	CHAR1	CHAR	1	0	Single-character indicator
SJAHR	MJAHR	NUMC	4	0	Material Document Year
SMBLN	MBLNR	CHAR	10	0	Number of Material Document
SMBLP	MBLPO	NUMC	4	0	Item in Material Document
LIFNR	LIFNR	CHAR	10	0	Account Number of Vendor

ZBC_S2M_CONTRACTAUTH

The following table lists the fields that can be used to filter contracts data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - link : transaction identifier
BUKRS	BUKRS	CHAR	4	0	Company code
WERKS	WERKS	CHAR	4	0	Plant

ZBC_S2M_VENDORS

The following table lists the fields that can be used to filter vendor data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - Link : Transaction Identifier
WAERS	CURR_5	CHAR	5	0	Currency Key
MANDT	SF_MANDT	CHAR	3	0	Internal client
LIFNR	LIFNR	CHAR	10	0	Account Number of Vendor or Creditor
LAND1	LAND1_GP	CHAR	3	0	Country Key
NAME1	NAME1_GP	CHAR	35	0	Name 1
NAME2	NAME2_GP	CHAR	35	0	Name 2
NAME3	NAME3_GP	CHAR	35	0	Name 3
NAME4	NAME4_GP	CHAR	35	0	Name 4
ORT01	ORT01_GP	CHAR	35	0	City
ORT02	ORT02_GP	CHAR	35	0	District
PFACH	PFACH	CHAR	10	0	PO Box
PSTL2	PSTL2	CHAR	10	0	P.O. Box Postal Code
PSTLZ	PSTLZ	CHAR	10	0	Postal Code
REGIO	REGIO	CHAR	3	0	"Region (State
SORTL	SORTL	CHAR	10	0	Sort field
STRAS	STRAS_GP	CHAR	35	0	House number and street
ADRNR	ADRNR	CHAR	10	0	Address
MCOD1	MCDK1	CHAR	25	0	Search term for matchcode search
MCOD2	MCDK2	CHAR	25	0	Search term for matchcode search
MCOD3	MCDK3	CHAR	25	0	Search term for matchcode search
ANRED	ANRED	CHAR	15	0	Title
BAHNS	BAHNS	CHAR	25	0	Train station
BBBNR	BBBNR	NUMC	7	0	International location number (part 1)
BBSNR	BBSNR	NUMC	5	0	International location number (Part 2)
BEGRU	BEGRU	CHAR	4	0	Authorization Group
BRSCH	BRSCH	CHAR	4	0	Industry key
BUBKZ	BUBKZ	NUMC	1	0	Check digit for the international location number
DATLT	DATLT	CHAR	14	0	Data communication line no.
DTAMS	DTAMS	CHAR	1	0	Report key for data medium exchange
DTAWS	DTAWS	CHAR	2	0	Instruction key for data medium exchange

Field	CompType	DataType	Length	Dec	Description
ERDAT	ERDAT_RF	DATS	8	0	Date on which the Record Was Created
ERNAM	ERNAM_RF	CHAR	12	0	Name of Person who Created the Object
ESRNR	ESRNR	CHAR	11	0	POR subscriber number
KONZS	KONZS	CHAR	10	0	Group key
KTOKK	KTOKK	CHAR	4	0	Vendor account group
KUNNR	KUNNR	CHAR	10	0	Customer Number 1
LNRZA	LNRZA	CHAR	10	0	Account Number of the Alternative Payee
LOEVM	LOEVM_X	CHAR	1	0	Central Deletion Flag for Master Record
SPERR	SPERB_X	CHAR	1	0	Central posting block
SPERM	SPERM_X	CHAR	1	0	Centrally imposed purchasing block
SPRAS	LAISO	CHAR	2	0	Language according to ISO 639
STCD1	STCD1	CHAR	16	0	Tax Number 1
STCD2	STCD2	CHAR	11	0	Tax Number 2
STKZA	STKZA	CHAR	1	0	Indicator: Business Partner Subject to Equalization Tax?
STKZU	STKZU	CHAR	1	0	Liable for VAT
TELBX	TELBX	CHAR	15	0	Telebox number
TELF1	TELF1	CHAR	16	0	First telephone number
TELF2	TELF2	CHAR	16	0	Second telephone number
TELFX	TELFX	CHAR	31	0	Fax Number
TELTX	TELTX	CHAR	30	0	Teletex number
TELX1	TELX1	CHAR	30	0	Telex number
XCPDK	XCPDK	CHAR	1	0	Indicator: Is the account a one-time account?
XZEMP	XZEMP	CHAR	1	0	Indicator: Alternative payee in document allowed ?
VBUND	RASSC	CHAR	6	0	Company ID of Trading Partner
FISKN	FISKN_K	CHAR	10	0	Account number of the master record with fiscal address
STCEG	STCEG	CHAR	20	0	VAT registration number
STKZN	STKZN	CHAR	1	0	Natural Person
SPERQ	QSPERRFKT	CHAR	2	0	Function That Will Be Blocked
GBORT	GBORT_Q	CHAR	25	0	Place of birth of the person subject to withholding tax
GBDAT	GBDAT_Q	DATS	8	0	Date of birth of the person subject to withholding tax
SEXKZ	SEXKZ	CHAR	1	0	Key for the Sex of the Person Subject to Withholding Tax
KRAUS	KRAUS_CM	CHAR	11	0	Credit information number

Field	CompType	DataType	Length	Dec	Description
REVDB	REVDB_CM	DATS	8	0	Last review (external)
QSSYS	QSSYS_IST	CHAR	4	0	Vendor's QM system
KTOCK	KTOCK	CHAR	4	0	Reference Account Group for One-Time Account (Vendor)
PFORT	PFORT_GP	CHAR	35	0	PO Box city
WERKS	WERKS_D	CHAR	4	0	Plant
LTSNA	LTSNA	CHAR	1	0	Indicator: vendor sub-range relevant
WERKR	WERKR	CHAR	1	0	Indicator: plant level relevant
PLKAL	FABKL	CHAR	2	0	Factory calendar key
DUEFL	DUEFL_BKPF	CHAR	1	0	Status of Data Transfer into Subsequent Release
TXJCD	TXJCD	CHAR	15	0	Jurisdiction for Tax Calculation - Tax Jurisdiction Code
SPERZ	SPERZ	CHAR	1	0	Payment Block
SCACD	SCACD	CHAR	4	0	Standard carrier access code
SFRGR	SFRGR	CHAR	4	0	Forwarding agent freight group
LZONE	LZONE	CHAR	10	0	Transportation zone to or from which the goods are delivered
XLFZA	XLFZA	CHAR	1	0	Indicator: Alternative payee using account number
DLGRP	DLGRP	CHAR	4	0	Service agent procedure group
FITYP	J_1AFITP_D	CHAR	2	0	Tax type
STCDT	J_1ATOID	CHAR	2	0	Tax Number Type
REGSS	J_1AREGSS	CHAR	1	0	Registered for Social Insurance
ACTSS	J_1AACTSS	CHAR	3	0	Activity Code for Social Insurance
STCD3	STCD3	CHAR	18	0	Tax Number 3
STCD4	STCD4	CHAR	18	0	Tax Number 4
IPISP	J_1BINDEQU	CHAR	1	0	Tax Split
TAXBS	TAXBS	NUMC	1	0	Tax Base in Percentage
PROFS	PROFS	CHAR	30	0	Profession
STGDL	STGDL	CHAR	2	0	"Shipment: statistics group
EMNFR	EMNFR	CHAR	10	0	External manufacturer code name or number
LFURL	URL	CHAR	132	0	Uniform resource locator
J_1KFREPRE	REPRES	CHAR	10	0	Name of Representative
J_1KFTBUS	GESTYP	CHAR	30	0	Type of Business
J_1KFTIND	INDTYP	CHAR	30	0	Type of Industry
CONFS	CONFS_X	CHAR	1	0	Status of Change Authorization (Central)
UPDAT	UPDAT_RF	DATS	8	0	Date on Which the Changes Were Confirmed

Field	CompType	DataType	Length	Dec	Description
UPTIM	UPTIM_RF	TIMS	6	0	Time of Last Change Confirmation
NODEL	NODEL_X	CHAR	1	0	Central deletion block for master record
QSSYSDAT	QQSSYSDAT	DATS	8	0	Validity date of certification
PODKZB	PODKZB	CHAR	1	0	Vendor indicator relevant for proof of delivery
BUKRS	CHAR4	CHAR	4	0	"Not More Closely Defined Area
SPERR_B	SPERB_B	CHAR	1	0	Posting block for company code
LOEVM_B	LOEVM_B	CHAR	1	0	Deletion Flag for Master Record (Company Code Level)
ZUAWA	DZUAWA	CHAR	3	0	Key for sorting according to assignment numbers
AKONT	AKONT	CHAR	10	0	Reconciliation Account in General Ledger
VZSKZ	VZSKZ	CHAR	2	0	Interest calculation indicator
ZWELS	DZWELS	CHAR	10	0	List of the Payment Methods to be Considered
XVERR	XVERR_LFB1	CHAR	1	0	Indicator: Clearing between customer and vendor?
ZAHLS	DZAHLS	CHAR	1	0	Block key for payment
ZTERM	DZTERM	CHAR	4	0	Terms of payment key
EIKTO	EIKTO_K	CHAR	12	0	Our account number with the vendor
ZSABE	DZSABE_K	CHAR	15	0	Clerk at vendor
KVERM	KVERM	CHAR	30	0	Memo
FDGRV	FDGRV	CHAR	10	0	Planning group
BUSAB	BUSAB	CHAR	2	0	Accounting clerk
LNRZE	LNRZE	CHAR	10	0	Head office account number
LNRZB	LNRZB	CHAR	10	0	Account number of the alternative payee
ZINDT	DZINDT	DATS	8	0	Key date of the last interest calculation
ZINRT	DZINRT	NUMC	2	0	Interest calculation frequency in months
DATLZ	DATLZ	DATS	8	0	Date of the last interest calculation run
XDEZV	XDEZV	CHAR	1	0	Indicator: Local processing?
WEBTR	CHAR16	CHAR	16	0	Field of length 16
KULTG	CHAR3	CHAR	3	0	3-Byte field
REPRF	REPRF	CHAR	1	0	Check Flag for Double Invoices or Credit Memos
TOGRU	TOGRU	CHAR	4	0	Tolerance group for the business partner/G/L account
HBKID	HBKID	CHAR	5	0	Short key for a house bank
XPORE	XPORE	CHAR	1	0	Indicator: Pay all items separately ?
QSZNR	QSZNR	CHAR	10	0	Certificate Number of the Withholding Tax Exemption

Field	CompType	DataType	Length	Dec	Description
QSZDT	QSZDT	DATS	8	0	Validity Date for Withholding Tax Exemption Certificate
QSSKZ	QSSKZ	CHAR	2	0	Withholding Tax Code
BLNKZ	BLNKZ	CHAR	2	0	Subsidy indicator for determining the reduction rates
MINDK	MINDK	CHAR	3	0	Minority Indicators
ALTKN	ALTKN	CHAR	10	0	Previous Master Record Number
ZGRUP	DZGRUP	CHAR	2	0	Key for Payment Grouping
MGRUP	MGRUP	CHAR	2	0	Key for dunning notice grouping
UZAWE	UZAWE	CHAR	2	0	Payment method supplement
QSREC	QSREC	CHAR	2	0	Vendor Recipient Type
QSBGR	QSBGR	CHAR	1	0	Authority for Exemption from Withholding Tax
QLAND	QLAND	CHAR	3	0	Withholding Tax Country Key
XEDIP	XEDIP	CHAR	1	0	Indicator: Send Payment Advices by EDI
FRGRP	FRGRP	CHAR	4	0	Release Approval Group
TOGRR	TOGRR	CHAR	4	0	Tolerance group; Invoice Verification
TLFXS	TLFXS	CHAR	31	0	Accounting clerk's fax number at the customer/vendor
INTAD	INTAD	CHAR	130	0	Internet address of partner company clerk
XLFZB	XLFZB	CHAR	1	0	Indicator: Alternative payee using account number
GUZTE	GUZTE	CHAR	4	0	Payment Terms Key for Credit Memos
GRICD	J_1AGICD_D	CHAR	2	0	Activity Code for Gross Income Tax
GRIDT	J_1ADTYP_D	CHAR	2	0	Distribution Type for Employment Tax
XAUSZ	XAUSZ	CHAR	1	0	Indicator for periodic account statements
CERDT	CERDT	DATS	8	0	Certification date
GMVKZK	GMVKZK	CHAR	1	0	Indicator means that the vendor is in execution
LFABC	LFABC	CHAR	1	0	ABC indicator
VERKF	EVERK	CHAR	30	0	Responsible salesperson at vendor's office
TELF1_M	TELFE	CHAR	16	0	Vendor's telephone number
MINBW	CHAR16	CHAR	16	0	Field of length 16
ZTERM_M	DZTERM	CHAR	4	0	Terms of payment key
INCO1	INCO1	CHAR	3	0	Incoterms (part 1)
INCO2	INCO2	CHAR	28	0	Incoterms (part 2)
WEBRE	WEBRE	CHAR	1	0	Indicator: GR-based invoice verification
KZABS	KZABS	CHAR	1	0	Order acknowledgment requirement
KALSK	KALSK	CHAR	2	0	Group for calculation schema (vendor)

Field	CompType	DataType	Length	Dec	Description
KZAUT	KZAUT	CHAR	1	0	Automatic generation of purchase order allowed
EXPVZ	EXPVZ	CHAR	1	0	Mode of Transport for Foreign Trade
ZOLLA	DZOLLS	CHAR	6	0	Customs office: Office of exit for foreign trade
MEPRF	MEPRF	CHAR	1	0	Pricing date category (controls date of price determination)
EKGRP	EKGRP	CHAR	3	0	Purchasing Group
XERSY	XERSY	CHAR	1	0	Evaluated Receipt Settlement (ERS)
PLIFZ	CHAR3	CHAR	3	0	3-Byte field
MRPPP	MRPPP_W	CHAR	3	0	Planning calendar
LFRHY	LFRHY	CHAR	3	0	Planning cycle
LIBES	LIBES	CHAR	1	0	Order entry by vendor
LIPRE	LIPRE	CHAR	2	0	"Price marking
LISER	LISER	CHAR	1	0	Rack-jobbing: vendor
PRFRE	PRFRE_LH	CHAR	1	0	"Indicator: ""relev. to price determination (vend. hierarchy)"
NRGEW	NRGEW	CHAR	1	0	Indicator whether discount in kind granted
BOIND	BOIND	CHAR	1	0	Indicator: index compilation for subseq. settlement active
BLIND	BLIND	CHAR	1	0	Indicator: Doc. index compilation active for purchase orders
KZRET	KZRET	CHAR	1	0	Indicates whether vendor is returns vendor
SKRIT	SKRIT	CHAR	1	0	Vendor sort criterion for materials
BSTAE	BSTAE	CHAR	4	0	Confirmation control key
RDPRF	RDPRF	CHAR	4	0	Rounding profile
MEGRU	MEGRU	CHAR	4	0	Unit of measure group
VENSL	CHAR4	CHAR	4	0	"Not More Closely Defined Area
BOPNR	BOPNR	CHAR	4	0	Restriction Profile for PO-Based Load Building
XERSR	XERSR	CHAR	1	0	Automatic evaluated receipt settlement for return items
EIKTO_M	EIKTO_M	CHAR	12	0	Our account number with the vendor
ABUEB	ABUEB	CHAR	4	0	Release creation profile
PAPRF	WVMI_PAPRF	CHAR	4	0	Profile for transferring material data via IDoc PROACT
AGREL	AGREL	CHAR	1	0	Indicator: Relevant for agency business
XNBWY	XNBWY	CHAR	1	0	Revaluation allowed
VSBED	VSBED	CHAR	2	0	Shipping conditions
LEBRE	LEBRE	CHAR	1	0	Indicator for service-based invoice verification

Field	CompType	DataType	Length	Dec	Description
BOLRE	BOLRE	CHAR	1	0	Indicator: vendor subject to subseq. settlement accounting
UMSAE	UMSAE	CHAR	1	0	Comparison/agreement of business volumes necessary
BANKS	BANKS	CHAR	3	0	Bank country key
BANKL	BANKK	CHAR	15	0	Bank Key
BANKN	BANKN	CHAR	18	0	Bank Account Number
BKONT	BKONT	CHAR	2	0	Bank Control Key
BVTYP	BVTYP	CHAR	4	0	Partner bank type
KOINH	KOINH_FI	CHAR	60	0	Account Holder Name
MABER	MABER	CHAR	2	0	Dunning Area
MAHNA	MAHNA	CHAR	4	0	Dunning procedure
MANSP	MANSP	CHAR	1	0	Dunning block
MADAT	MADAT	DATS	8	0	Last dunned on
MAHNS	MAHNS_D	NUMC	1	0	Dunning level
LFRMA	LFRMA	CHAR	10	0	Account number of the dunning recipient
GMVDT	GMVDT	DATS	8	0	Date of the legal dunning proceedings
HLIFNR	HLIFNR_LH	CHAR	10	0	Vendor number of higher-level vendor hierarchy
TLFNS	TLFNS	CHAR	30	0	Accounting clerk's telephone number at business partner
BULKLOAD	CHAR1	CHAR	1	0	Single-character flag
SAP_UPDATE	CHAR1	CHAR	1	0	Single-character flag
ACTIVE	CHAR1	CHAR	1	0	Single-character flag

ZBC_S2M_INFORECORD

The following table lists the fields that can be used to filter info record data.

Field	CompType	DataType	Length	Dec	Description
IDENT	ZIDENT	CHAR	5	0	MAXIMO - Link : Transaction Identifier
INFNR	INFNR	CHAR	10	0	Number of purchasing info record
MATNR	MATNR	CHAR	18	0	Material Number
MATKL	MATKL	CHAR	9	0	Material Group
LIFNR	ELIFN	CHAR	10	0	Account Number of the Vendor
TXZ01	EINATX	CHAR	40	0	Short text for purchasing info record
SORTL	SORTI	CHAR	10	0	Sort string for non-stock info records
MEINS	BSTME	UNIT	3	0	Order unit
UMREZ	UMBSZ	DEC	5	0	Numerator for Conversion of Order Unit to Base Unit
UMREN	UMBSN	DEC	5	0	Denominator for Conversion of Order Unit to Base Unit
IDNLF	IDNLF	CHAR	35	0	Material Number used by Vendor
VERKF	VERKF	CHAR	30	0	Salesperson responsible in the event of queries
TELF1	TELF0	CHAR	16	0	Vendor's telephone number
MAHN1	MAHN1	DEC	3	0	Number of days for first reminder/urging letter (expediter)
MAHN2	MAHN2	DEC	3	0	Number of days for second reminder/urging letter (expediter)
MAHN3	MAHN3	DEC	3	0	Number of days for third reminder/urging letter (expediter)
URZNR	URZNR	CHAR	10	0	Certificate number
URZDT	URZDT	DATS	8	0	Certificate of origin valid until
URZLA	ULAND	CHAR	3	0	Certificate of origin: Country of issue
URZTP	URZTP	CHAR	1	0	Certificate category
URZZT	URZZT	CHAR	16	0	Number
LMEIN	MEINS	UNIT	3	0	Base Unit of Measure
REGIO	REGIO	CHAR	3	0	"Region (State
VABME	VABME	CHAR	1	0	Variable order unit active
LTSNR	LTSNR	CHAR	6	0	Vendor Sub-Range
LTSSF	LTSSF	NUMC	5	0	Sort sequence number
WGLIF	WGLIF	CHAR	18	0	Vendor material group
RUECK	W_RUECKNV	CHAR	2	0	Return agreement
LIFAB	LIFAB	DATS	8	0	Available (deliverable) from

Field	CompType	DataType	Length	Dec	Description
LIFBI	LIFBI	DATS	8	0	Available (deliverable) until
KOLIF	KOLIF	CHAR	10	0	Prior vendor
ANZPU	ANZPU	QUAN	13	3	Number of points
PUNEI	PUNEI	UNIT	3	0	Points unit
RELIF	RELIF	CHAR	1	0	Regular vendor
MFRNR	MFRNR1	CHAR	10	0	Manufacturer
EKORG	EKORG	CHAR	4	0	Purchasing Organization
ESOKZ	ESOKZ	CHAR	1	0	Purchasing info record category
WERKS	EWERK	CHAR	4	0	Plant
EKGRP	BKGRP	CHAR	3	0	Purchasing group
WAERS	WAERS	CUKY	5	0	Currency Key
BONUS	WRBON	CHAR	1	0	Indicator: Volume-based rebate
MGBON	MGBON	CHAR	1	0	Indicator: Quantity-based volume rebate
MINBM	MINBM	QUAN	13	3	Minimum purchase order quantity
NORBM	NORBM	QUAN	13	3	Standard purchase order quantity
APLFZ	PLIFZ	DEC	3	0	Planned delivery time in days
UEBTO	UEBTO	DEC	3	1	Overdelivery tolerance limit
UEBTK	UEBTK	CHAR	1	0	Indicator: Unlimited overdelivery allowed
UNTTO	UNTTO	DEC	3	1	Underdelivery tolerance limit
ANGNR	ANGNR	CHAR	10	0	Quotation number
ANGDT	ANGDT	DATS	8	0	Quotation validity date
ANFNR	ANFNR	CHAR	10	0	RFQ number
ANFPS	ANFPS	NUMC	5	0	Item number of RFQ
ABSKZ	ABSKZ	CHAR	1	0	Rejection indicator
AMODV	AMODV	DATS	8	0	Amortization period from
AMODB	AMODB	DATS	8	0	Amortization period to
AMOBM	AMOBM	QUAN	15	3	Amortized planned quantity
AMOBW	AMOBW	CURR	15	2	Amortized planned value
AMOAM	AMOAM	QUAN	15	3	Amortized actual quantity
AMOAW	AMOAW	CURR	15	2	Amortized actual value
AMORS	AMORS	CHAR	1	0	Indicator: Amortization reset
BSTYP	BSTYP	CHAR	1	0	Purchasing document category
EBELN	EBELN	CHAR	10	0	Purchasing Document Number
EBELP	EBELP	NUMC	5	0	Item Number of Purchasing Document
DATLB	DATLB	DATS	8	0	Date of last PO or sched. agreement document in info record

Field	CompType	DataType	Length	Dec	Description
NETPR	IPREI	CURR	11	2	Net price in purchasing info record
PEINH	PEINH	DEC	5	0	Price Unit
BPRME	BBPRM	UNIT	3	0	Order Price Unit (Purchasing)
PRDAT	PRGBI	DATS	8	0	Price valid until
BPUMZ	BPUMZ	DEC	5	0	Numerator for conversion of order price unit into order unit
BPUMN	BPUMN	DEC	5	0	Denominator for conv. of order price unit into order unit
MTXNO	MTXNO	CHAR	1	0	Material master record PO text not relevant
WEBRE	WEBRE	CHAR	1	0	Indicator: GR-based invoice verification
EFFPR	EFFPR	CURR	11	2	Effective price in purchasing info record
EKKOL	EKKOG	CHAR	4	0	Condition group with vendor
SKTOF	ESKTOF	CHAR	1	0	No cash discount granted on this item
KZABS	KZABS	CHAR	1	0	Order acknowledgment requirement
MWSKZ	MWSKZ	CHAR	2	0	Tax on sales/purchases code
BWTAR	BWTAR_D	CHAR	10	0	Valuation Type
EBONU	EBONU	CHAR	2	0	Settlement group 1 (Purchasing)
EVERS	EVERS	CHAR	2	0	Shipping instructions
EXPRF	EXPRF	CHAR	8	0	Export/Import Procedure for Foreign Trade
BSTAE	BSTAE	CHAR	4	0	Confirmation control key
MEPRF	MEPRF	CHAR	1	0	Pricing date category (controls date of price determination)
INCO1	INCO1	CHAR	3	0	Incoterms (part 1)
INCO2	INCO2	CHAR	28	0	Incoterms (part 2)
XERSN	XERSN	CHAR	1	0	No evaluated receipt settlement (ERS)
EBON2	EBON2	CHAR	2	0	"Settlement group 2 (rebate settlement
EBON3	EBON3	CHAR	2	0	"Settlement group 3 (rebate settlement
EBONF	EBONF	CHAR	1	0	Item not relevant to subseq. (period-end rebate) settlement
MHDRZ	MHDRZ	DEC	4	0	Minimum remaining shelf life
VERID	VERID	CHAR	4	0	Production Version
BSTMA	MAXBM	QUAN	13	3	Maximum order quantity
RDPRF	RDPRF	CHAR	4	0	Rounding profile
MEGRU	MEGRU	CHAR	4	0	Unit of measure group
J_1BNBM	J_1BNBMCO1	CHAR	16	0	Brazilian NCM Code
IPRKZ	DATTP	CHAR	1	0	Period indicator for shelf life expiration date
BULKLOAD	CHAR1	CHAR	1	0	Single-character flag

Field	CompType	DataType	Length	Dec	Description
BUKRS	BUKRS	CHAR	4	0	Company Code
ACTIVE	CHAR1	CHAR	1	0	Single-character flag
SAP_UPDATE	CHAR1	CHAR	1	0	Single-character flag

BDC transaction codes and BAPI programs

E

This appendix lists SAP Applications transaction codes and BAPI programs the integration uses per Maximo interface when sending transactions from Maximo to SAP.

This integration supports BDC process modes (that use transaction codes), and also supports BAPI calls. You select BDC or BAPI process modes in the ZBC_INBPROGRAMS table.

The integration calls the transaction codes and the BAPI programs shown in the following table.

Transaction codes and BAPI programs

Maximo interface	SAP transaction code	BAPI program
Create workorder	KO01	BAPI_INTERNALORDER_CREATE
Update workorder	KO02	
Create reservation	MB21	BAPI_RESERVATION_CREATE1
Update reservation	MB22	
Delete reservation	MB22	
Create purchase request	ME51	BAPI_REQUISITION_CREATE
Create purchase order	ME21	BAPI_PO_CREATE1
Update purchase order	ME22	BAPI_PO_CHANGE
Create goods receipt	MB01	BAPI_GOODSMVT_CREATE
Create goods issue	MB1A	BAPI_GOODSMVT_CREATE
Create FI invoice	F-43	BAPI_ACC_INVOICE_RECEIPT_POST
Create MM invoice	*	BAPI_INCOMINGINVOICE_CREATE
Create GL posting	FB01	BAPI_ACC_DOCUMENT_POST
Create labor hours CO	KB21	BAPI_ACC_ACTIVITY_ALLOC_POST
Create purchase request	ME51N	BAPI_PR_CREATE

* There is no transaction code for this interface.

Collaboration switches

F
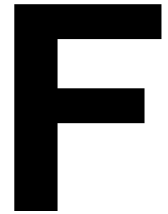
Collaboration switches have been designed from an inbound integration point of view to provide users with a way to better manage data-synchronization between Maximo and external systems using the concept of ownership. These switches provide the ability to control subprocesses within specific Maximo application functionality based on ownership of different data objects within a transaction.

Most master data and document integration objects in Maximo have an OWNERSYSID attribute present in the primary MBO of the integration object. By default, Maximo's inbound integration processing does not specify any value in this field, and processing of inbound interfaces proceeds as per standard Maximo functionality.

This appendix contains details on the available collaboration switches and their effect on standard Maximo processing.

Format of collaboration switches

Collaboration switches provide a flexible, user-defined way to control the processing of some inbound transactions, by letting Maximo bypass the default processing for certain types of transactions.

The collaboration switches reside in the Maximo MXCOLLAB table. Each collaboration switch contains four elements, three of which combine to create a unique key. The following table lists these elements. An asterisk (*) indicates the elements that comprise the key.

Element	Corresponding MXCOLLAB field
Process control identification*	PCidentification
System ID 1*	OWNER1SYSID
System ID 2*	OWNER2SYSID
Process control value	PCVALUE

Process control identification

The process control identification identifies a business process in a Maximo application, such as the validation of an invoice match, the creation of a blanket PO release, or the update of a physical inventory count. The prefix of the process control identification indicates the application to which it applies:

Prefix of process control identification	Corresponding application
INV	Invoice
ITM	Item
IV	Inventory
LT	Labor
PO	Purchase order
PR	Purchase requisition
WO	Work order

For example, the IVRC, IVRCY, and IVWO collaboration switches are all related to inventory processing. For a complete listing of the collaboration switches by application, see the tables at the end of this appendix.

System ID 1 and system ID 2

System ID 1 and system ID 2 identify your Maximo system and/or an external system.

The values in these fields vary, depending on the transaction and the objects in the transaction. In general, system ID 1 identifies the system (Maximo or external) that created the object, and system ID 2 identifies the system that created the record being referenced or updated.

Process control value

The process control value specifies whether the Maximo business components should bypass default processing for the type of transaction indicated by the process control identification, system ID 1, and the system ID 2. The process control value can be 0 (false) or 1 (true). These values have the following meanings:

Process control value	Meaning
0	Perform default processing
1	Bypass default Maximo processing

Default collaboration switches

Maximo creates three default collaboration switches, with different combinations of system identification values, for each process control identification. Authorized users can create additional switches as needed.

The default switches use various combinations of the following values in the System ID 1 and System ID 2 fields.

System identification value	Meaning
THISMX	The Maximo system identified in MAXVARS.MXSYSID*
EXT	Any system other than the one identified in MAXVARS.MXSYSID

* The collaboration switches do not use the actual value in MXSYSID.

Authorized users can update only the process control value in the default collaboration switches.

CAUTION Deleting a default collaboration switch or modifying any field other than the process control value can result in system failure.

Retrieving a collaboration switch

Each process control identification has at least three related collaboration switches (the defaults and any that the user adds). Maximo uses the following logic to determine which system identification values to set when retrieving a collaboration switch from the MXCOLLAB table:

1 Maximo uses the rules for deriving the system ID 1 and system ID 2 values for the process control identification in question.

Example: For process control identification PRDEL, system ID 1 is the literal THISMX and system ID 2 is the system that owns the PR.

2 If the value in system ID 1 is now blank, null, or equal to the value in the MXSYSID row of the Maximo MAXVARS table, Maximo uses THISMX for system ID 1.

3 If the value in system ID 2 is now blank, null, or is equal to the value in the MXSYSID row of the Maximo MAXVARS table, and the process control identification is not PRPAB, Maximo uses THISMX for system ID 2.

4 If the process control identification is PRPAB, the value in system ID 2 will be null after step 1, and Maximo uses the literal EXT for System ID 2 (if the blanket PO does not exist).

5   If both System ID 1 and System ID 2 now equal THISMX, Maximo performs the default Maximo processing (that is, it acts as if it retrieved an MXCOLLAB record with a process control value of 0).

If both System ID 1 and System ID 2 equal THISMX, ignore the remaining steps.

6   Maximo tries to find a record with the modified key in the MXCOLLAB table.

If the record exists, Maximo uses the record's process control value to determine whether or not to bypass Maximo processing.

If the record exists, ignore the remaining steps.

7   If the record does not exist, Maximo modifies the key as follows:

If System ID 1 now equals THISMX and System ID 2 does not equal THISMX, Maximo uses EXT as the System ID 2 value.

If System ID 1 value does not equal THISMX and System ID 2 equals THISMX, Maximo uses EXT as the System ID 1 value.

8   Maximo tries to find a record with the modified key in the MXCOLLAB table.

If the record exists, Maximo uses the record's process control value to determine whether or not to bypass Maximo processing.

If the record exists, ignore the remaining step.

9   Maximo uses EXT for both System ID 1 and System ID 2.

10   Maximo finds the record with the modified key in the MXCOLLAB table.

This record always exists, because every process control value has a default collaboration switch with both system IDs equal to EXT.

11   Maximo uses the record's process control value to determine whether or not to bypass Maximo processing.

Viewing collaboration switches

You can use any database tool to display the values in the MXCOLLAB table. You can also create a report with the report writing tools available in Maximo.

To display the collaboration switches for a single process control identification, use the following SQL query:

```
select    pcid, owner1sysid, owner2sysid, pcvalue
from      mxcollab
where     pcid = 'PCID'
order by pcid, owner1sysid, owner2sysid;
```

To display all collaboration switches, use the following SQL query:

```
select    pcid, owner1sysid, owner2sysid, pcvalue
from      mxcollab
order by pcid, owner1sysid, owner2sysid;
```

To display a short description of the process control IDs, use the following SQL query:

```
select * from mxcollabref order by pcid;
```

Modifying a collaboration switch

Authorized users can use any database tool to modify the process control value of a collaboration switch.

CAUTION Do not change the value of PCID, OWNER1SYSID, or OWNER2SYSID on existing collaboration switches.

To change the process control value in a collaboration switch in Maximo Asset Management, use the following SQL statement:

```
update mxcollab
set pcvalue      =  PCVALUE
where pcid       = 'PCID'
and owner1sysid = 'OWNER1SYSID'
and owner2sysid = 'OWNER2SYSID';
```

Note: For Maximo Asset Management Multitenancy Users

To change the process control value in a collaboration switch in Maximo Asset Management Multitenancy, update the global administrator database with the following SQL statement:

```
update maximo.mxcollab
set pcvalue      = '0'
where pcid       = 'WORES'
```

NOTE The values in the MXCOLLAB table are case-sensitive.

Adding a collaboration switch

Authorized users can add new collaboration switches to the MXCOLLAB table. New switches must use an existing process control identification, but they can use new system identifications.

NOTE Only the default collaboration switches can use the values THISMX and EXT in the system identification fields.

To add a collaboration switch, use the following SQL statement:

```
insert into mxcollab
(pcid, owner1sysid, owner2sysid, pcvalue)
values ('PCID', 'OWNER1SYSID', 'OWNER2SYSID', PCVALUE);
```

Example

You use the Maximo integration integrate Maximo with SAP and other systems. When SAP issues Maximo-owned inventory, you want Maximo to accept the issue and update inventory balances and costs. However, when other systems issue Maximo-owned inventory, you want to accept the issue, but you do not want to update inventory balances or costs.

Before you modify the MXCOLLAB table to reflect these conditions, the INV collaboration switches have the following values:

Process control identification	System ID 1	System ID 2	Process control value
INV	THISMX	EXT	1
INV	EXT	THISMX	0
INV	EXT	EXT	1

To accomplish the task, complete the following steps:

1 Change the value of the INV/ EXT/ THISMX collaboration switch to 1 to bypass normal update processing.

To update the collaboration switch, use the following SQL statement:

```
update mxcollab
set pcvalue    =  1
where pcid     = 'INV'
and owner1sysid = 'EXT'
and owner2sysid = 'THISMX';
```

2 Select a system identification to represent SAP.

This example uses SAP as the system identification.

3 Add a new collaboration switch–INV/SAP/THISMX–to the MXCOLLAB table.

The single SQL statement following step 5 performs the processing for steps 3, 4, and 5.

4 Set the new collaboration switch's process control value to 0.

This value directs Maximo to perform the normal balance and cost updates when it receives issues from SAP.

5 Set the OWNERSYSidentification attribute on the inbound transaction to the system identification you chose in step 2–in this case, SAP.

If OWNERSYSID is blank, the value in the DEFEXTSYS interface control is used.

To perform the processing described in steps 3, 4 and 5, use the following SQL statement:

```
insert into mxcollab
(pcid, owner1sysid, owner2sysid, pcvalue)
values ('INV', 'SAP', 'THISMX', 0);
```

After you perform this procedure, the INV collaboration switches will have the following values:

Process control identification	System ID 1	System ID 2	Process control value
INV	THISMX	EXT	1
INV	EXT	THISMX	1
INV	EXT	EXT	1
INV	SAP	THISMX	0

Example

By setting the value of the ISUIN interface control to 1, you tell Maximo to accept issue transactions from an external system. The INV collaboration switch controls the update of inventory balance and cost related to issues. You can adjust the setting of this switch, if necessary, so that Maximo bypasses that update process.

The INV/EXT/THISMX collaboration switch controls the processing of inventory (Process Control ID = INV) that is issued in the external system (System ID 1 = EXT) and owned by Maximo (System ID 2 = THISMX).

If the value of the INV/EXT/THISMX collaboration switch were 0, Maximo would update the inventory balance and cost. This is the default processing.

If the value of the INV/EXT/THISMX collaboration switch were 1, Maximo would bypass the default processing and not update the inventory balance and cost.

In this example, ISUIN accepts any issues into Maximo. The INV/EXT/THISMX collaboration switch then tells the inventory business component how to process a specific type of issue.

Inventory collaboration switches

Process Control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
INV	Update inventory Used when creating issues, returns, or miscellaneous receipts or adjustments. Inventory must exist in this system.	0 = Update inventory 1 = Do not update inventory	INVTRANS or MATUSETRANS	INVENTORY
INVDEL	Delete inventory Used when deleting externally owned inventory Caution: If value is 1, the item-storeroom will still exist on related open PRs, POs, RFQs, work orders, and so on. This might result in problems receiving/approving these lines.	0 = Delete item if it passes normal Maximo validations. 1 = Delete inventory without any validations and delete INVBALANCES record for the item	"THISMX"	INVENTORY
INVISS	Enter item issues Used when issuing material	0 = Allow material issues for the inventory 1 = Do not allow material issues for the inventory	MATUSETRANS	INVENTORY
INVISSR	Enter item issue returns Used when returning material	0 = Allow material returns 1 = Do not allow issue returns for the material	MATUSETRANS	INVENTORY
INVISSWO	Update work order actual cost, equipment INVCOSTs Used when processing issues or returns. Meant to handle Maximo to Maximo cases where these updates will be done separately.	0 = Update work order actual material cost, equipment INVCOST 1 = Do not update work order actual material cost, equipment INVCOST	MATUSETRANS	WORKORDER

Process Control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
INVPHY	Enter external physical counts Used when creating physical counts	0 = Allow physical count for the inventory 1 = Do not allow physical count for the inventory	INVTRANS	INVENTORY
INVTR	Update the From storeroom on a transfer or the receipt of internal PO Used when creating transfers or creating a receipt for an internal POs	0 = Update INVBALANCES in the From storeroom 1 = Do not update INVBALANCES in the From storeroom	MATRECTRANS	LOCATIONS (storeroom for transfer; vendor for internal PO)
ITMDEL	Delete items Used when deleting items that this system does not own Caution: If value is 1, the item will still exist on related open PRs, POs, RFQs, work orders, and so on. This might result in problems receiving/approving these lines.	0 = Delete item if it passes normal Maximo validations 1 = Delete item without any validation. Also delete INVENTORY, INVBALANCES, and INVVENDOR records for the item	"THISMX"	ITEM

Invoice collaboration switches

Process Control identification	Description	Value and Action	Derivation of System ID 1	Derivation of System ID 2
IVILC	Update inventory last cost Used when approving invoices	0 = Update inventory last cost 1 = Do not update inventory last cost	INVOICE	INVENTORY
IVINV	Update inventory average cost Used when approving invoices	0 = Update inventory average cost 1 = Do not update inventory average cost	INVOICE	INVENTORY
IVMATCH	Use and validate invoice match Used when approving invoices If set to 1, also set IVPO to 1	0 = Validate match 1 = Do not validate any match provided	"THISMX"	INVOICE
IVPO	Update POs and receipts Used when approving invoices	0 = Update PO status and receipts 1 = Do not update PO status or receipts	INVOICE	PO
IVPRO	Check and prorate differences between invoice headers and lines Used when approving invoices	0 = Prorate the difference between the header and the line total 1 = Do not prorate the difference between the header and line total	"THISMX"	INVOICE
IVRC	Create service receipts for invoice lines without a PO reference Used when approving invoices that contain a line without a PO reference	0 = Generate a service receipts for the invoice lines that do not have a PO reference 1 = Do not generate a service receipt for the invoice lines that do not have a PO reference	"THISMX"	INVOICE

Process Control identification	Description	Value and Action	Derivation of System ID 1	Derivation of System ID 2
IVRCY	Create service receipts for invoice lines with a PO reference and RECEIPTREQD = N

Used when approving invoices containing a line with a PO reference, when the corresponding POLINE is a service and RECEIPTREQD = N | 0 = Generate a service receipt for the invoice line

1 = Do not generate a service receipt for the invoice line | INVOICE | PO |
| IVTOL | Perform invoice tolerance checking validation

Used when approving invoices | 0 = Perform all tolerance checks on invoice

1 = Do not perform tolerance checks on invoice | "THISMX" | INVOICE |
| IVVLC | Update vendor last cost

Used when approving invoices | 0 = Update vendor last cost

1 = Do not update vendor last cost | INVOICE | INVVENDOR |
| IVWO | Update work orders

Used when approving invoice | 0 = Update work order

1 = Do not update work order | INVOICE | WORKORDER |

Labor transaction collaboration switches

Process Control identification	Description	Value and Action	Derivation of System ID 1	Derivation of System ID 2
LTSRC	Generate service receipts for POs Used when creating labor transactions or changing status. PO must exist in this system	0 = Allow setting value of LABTRANS.GENAPPRSERVRECEIPT to Y; configurable in Maximo Setup application 1 = Leave value of LABTRANS.GENAPPRSERVRECEIPT as N	LABTRANS	PO

Purchase order collaboration switches

Process control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
PODEL	Delete POs Used when deleting POs. Use only when deleting then subsequently re-adding a PO due to changes in the PO. If any PRLINES contain a reference to the PO, clear them. If necessary, reopen the PR. When the PO is re-added, the PRLINEs will be established again.	0 = Do not delete PO 1 = Delete PO and PRLINEs; do not delete POSTATUS	"THISMX"	PO
POINV	Do not allow unreferenced external inventory for internal POs Used when adding or updating PO lines and changing the status of internal POs	0 = If the item-vendor combination not in INVENTORY table, error 1 = If item-vendor combination not found in INVENTORY table (where PO.VENDOR = LOCATIONS.LOCATION), ignore error	PO	LOCATIONS, where vendor is the storeroom

Process control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
POIVM	Create inventory vendor information for inventory Used when approving POs	0 = Update or create INVVENDOR record 1 = Do not create INVVENDOR record	PO	ITEM of POLINE
POPR	Update status of PRs Used when copying PR lines to POs, creating POs from PRs, reopening PRs	0 = Change status of PR (auto close based on MAXVAR setting) or reopen when POLINE containing PR reference is deleted, or other instances of reopen 1 = Do not change PR status	PO	PR
POREL	Create releases for blanket POs Used when approving PR and the PR lines contain a blanket references, and when a release is created directly from a PO without a PR	0 = Generate PO release. (If PRLINE.AGREEMENTPONUM not in PO, do not generate PO release) 1 = Do not regenerate PO releases	PR	PO of the blanket
PORES	Process material reservations Used when changing the status of internal POs	0 = Generate inventory reservations. If item-vendor combination (where vendor is internal storeroom) not in INVENTORY table, do not generate PO reservations. This might happen if POINV is 0 1 = Do not generate inventory reservations	PO	INVENTORY

Purchase requisition collaboration switches

Process control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
PRDEL	Delete PRs Used when deleting PRs. Use only when deleting then subsequently re-adding a PR due to changes in the PR. If WPMATERIAL or MRLINE contain references to the PR, clear them. They will be reestablished when you read PR.	0 = Do not delete PR 1 = Delete the PR and PRLINES; do not delete PRSTATUS	"THISMX"	PR
PRINV	Do not allow unreferenced external inventory on internal PRs. Used when storerooms are maintained in an external system. Items are in ITEM master in Maximo; storeroom is defined as a LOCATION; INEVENTORY is not defined for item-storeroom combination because it is not owned by Maximo. The owner of the PR is the MXSYSID of the system that creates the PR. Validation occurs when an item-storeroom (INVENTORY) is validated on the PRLINE. The OWNERSYSID of the storeroom is compared with the OWNERSYSID of the PR, and the flag determines if the combination is allowed.	0 = If the item-vendor combination is not in INVENTORY table, error 1 = If the item-vendor combination (vendor is the internal storeroom) is not in INVENTORY table, where PR.VENDOR = LOCATIONS.LOCATION, ignore error. LOCATIONS must exist; that is, pass standard validation for the location	PR	LOCATIONS, where vendor is the internal storeroom

Process control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
PRPAB	Do not allow unreferenced external purchase agreements / blankets Used when adding or updating PR lines and changing the status of PRs	0 = If PRLINE.AGREEMENTPONUM is not in PO, error 1 = If PRLINE.AGREEMENTPONUM is not in PO, ignore error	PR	"EXT" Normally this would be from PO of the blanket, but in this case the blanket PO does not exist

Receipt collaboration switches

Process control identification	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
RC	Enter PO receipts Used when creating receipts	0 = Allow receiving against the PO 1 = Do not allow receiving against the PO	MATRECTRANS or SERVRECTRANS	PO
RCILC	Update inventory last cost Used when approving receipts	0 = Update inventory last cost 1 = Do not update inventory last cost	MATRECTRANS	INVENTORY
RCINV	Update inventory Used when receiving, or approving receipts	0 = Update inventory if it exists 1 = Do not update inventory	MATRECTRANS	INVENTORY
RCIV	Generate invoices for PO receipts Used when approving receipts	0 = Generate invoice if value of PayOnReceipt is set 1 = Do not generate invoice, even if value of PayOnReceipt is set	MATRECTRANS or SERVRECTRANS	PO
RCPO	Update external PO Used when approving receipt	0 = Update PO 1 = Do not update PO	MATRECTRANS or SERVRECTRANS	PO
RCR	Enter PO receipt return Used when creating receipt return	0 = Allow receipt returns for the PO 1 = Do not allow receipt returns for the PO	MATRECTRANS or SERVRECTRANS	PO
RCVLC	Update vendor last cost Used when approving receipt or receiving PO line	0 = Update vendor last cost 1 =Do not update vendor last cost	MATRECTRANS	INVVENDOR
RCWO	Update work orders Used when approving receipts	0 = Update work order 1 = Do not update work order	MATRECTRANS or SERVRECTRANS	WORKORDER

System Administrator Guide

Work order collaboration switches

Process control identificaion	Description	Value and action	Derivation of System ID 1	Derivation of System ID 2
WORES	Process material reservations Used when changing the status of a work order. Inventory must exist in this system.	0 = Generate inventory reservation 1 = Do not generate inventory reservation	WORKORDER	INVENTORY

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