Infor10 ERP Discrete iEnterprise (XA)

Infor10 EAM Integration Guide

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Contents

About this guide

This guide provides information and instructions for integrating Infor10 ERP Discrete iEnterprise (XA) with Infor10 EAM (EAM). This integration allows the transmission of Business Object Documents (BODs) between XA and EAM through Infor10 ION. The instructions provide the setup steps in ION, XA, and EAM that are specific to this integration. This guide also contains information on the BODs transmitted between XA and EAM and the user actions that initiate those transmissions.

Intended audience

The intended audience for this guide is system administrators who implement and manage the integration of Infor10 ERP Discrete iEnterprise (XA) with Infor10 EAM (EAM).

Organization

This table shows the chapters of the guide:

Section	Description
Overview	Explains the business process and flow of information between XA and EAM.
Requirements	Lists software required for the integration.
Known limitations	Restrictions affecting information shared between XA and EAM.
Setting up XA Setting up EAM Connecting XA and EAM through ION	Describes tasks and information required to allow information to be transmitted between XA and EAM.
Testing the integration	Lists steps to verify that information is flowing between XA and EAM.

Section	Description
Business events that generate BODs	Lists user actions or events that cause BODs to be transmitted between XA and EAM.
Troubleshooting and maintenance	Explains errors that could occur and recommends steps for resolution.

Related documents

You can find the documents in the product documentation section of the Infor Xtreme Support portal, as described in "Contacting Infor" on page 8.

Infor10 ION Connect 10.1 Administration Guide

Infor Federation Services Administration Guide 10.1

Infor Federation Services v10.1 Installation Guide

Infor10 ERP Discrete iEnterprise (XA) Infor10 ION Integration Guide

Infor10 EAM 10.1 Installation Guide

Contacting Infor

If you have questions about Infor products, go to the Infor Xtreme Support portal at http://www.inforxtreme.com/.

If we update this document after the product release, we will post the new version on this Web site. We recommend that you check this Web site periodically for updated documentation.

If you have comments about Infor documentation, contact documentation@infor.com.

Overview

This guide provides information and instructions for integrating Infor10 ERP Discrete iEnterprise (XA) with Infor10 EAM (EAM) through Infor10 ION. The integration allows XA and EAM to exchange information related to MRO (maintenance, repair and operating supplies) items and services. The information exchange occurs through the transmission of Business Object Documents (BODs) to and from Infor10 ION. The instructions provide the setup steps in Infor ION, XA, and EAM that are specific to this integration. This guide also contains information on the BODs transmitted to or received by XA and EAM and the user actions that initiate those transmissions.

For specific information on how to use XA or EAM, see the online Help in the XA and EAM applications or the supporting product documentation available on the Infor Xtreme Support portal at http://www.inforxtreme.com/.

Scope of integration

This integration allows XA and EAM to share information and transactions related to MRO (maintenance, repair, and operating supplies) items and services. In this integration, XA and EAM divide responsibility for these business processes.

- XA is the system of record for inventory and communicates the status of MRO inventory to EAM.
- EAM maintains the status of MRO inventory and sends inventory changes to XA.
- EAM creates purchase requests for MRO items and sends the requests to XA.
- XA creates and maintains purchase orders for MRO items based on purchase requests received from EAM. XA communicates these purchase orders to EAM.
- Both XA and EAM handle receipt of purchased MRO items.
- XA communicates purchase receipt and return transactions for MRO items to EAM.
- EAM sends purchase receipt transactions for MRO items and services to XA.
- EAM issues and returns MRO items to MRO work orders and communicates these transactions to XA.
- EAM handles purchased tasks (services) performed for MRO work orders and communicates these transactions to XA.
- XA processes vendor invoices and communicates this information to EAM.
- XA handles financial functions related to the purchase of MRO items.

This integration assumes that ISO standards apply to units of measure and currencies.

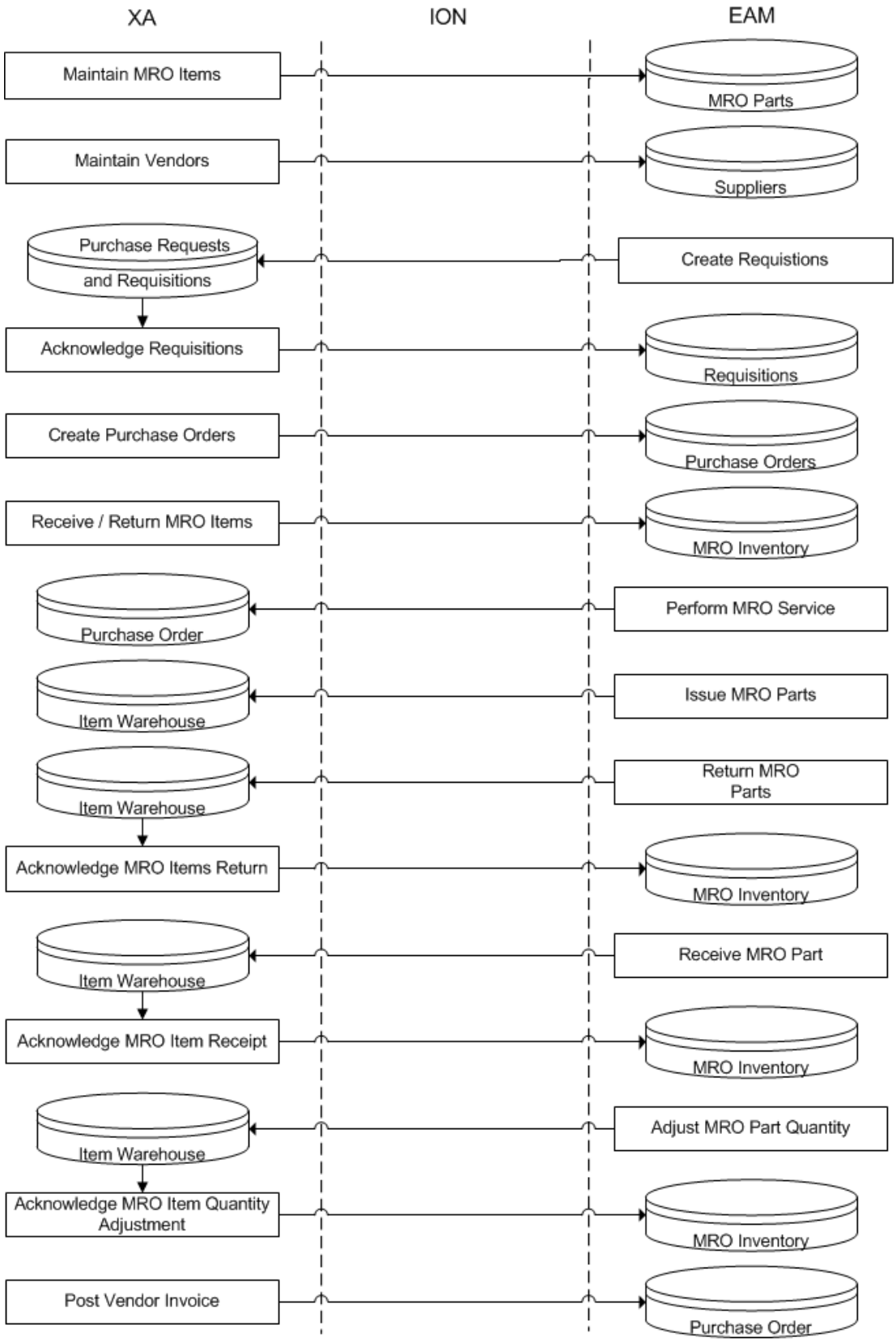
Business process flow

XA provides the purchasing and receiving functions, where requisitions from EAM are processed, purchase orders issued, and receiving transactions managed. In addition, all of the related financial functions, such as accounts payable and general ledger entries, are handled in XA.

EAM provides the functions for MRO inventory management and is responsible for initiating requisitions for MRO material replenishment. EAM is also used for creating requisitions for direct MRO material purchases (materials used directly on maintenance jobs instead of MRO inventory replenishment) as well as purchasing of external services for performing maintenance jobs.

The basis for communication between XA and EAM is Infor10 ION, an enterprise messaging system for integrating Infor applications with each other and with outside applications. It supports exchanging documents or messages among multiple applications.

This chart illustrates the flow of information between XA and EAM.


XA
ION
EAM
Maintain MRO Items
MRO Parts
Maintain Vendors
Suppliers
Purchase Requests and Requisitions
Create Requistions
Acknowledge Requisitions
Requisitions
Create Purchase Orders
Purchase Orders
Receive / Return MRO Items
MRO Inventory
Purchase Order
Perform MRO Service
Item Warehouse
Issue MRO Parts
Item Warehouse
Return MRO Parts
Acknowledge MRO Items Return
MRO Inventory
Item Warehouse
Receive MRO Part
Acknowledge MRO Item Receipt
MRO Inventory
Item Warehouse
Adjust MRO Part Quantity
Acknowledge MRO Item Quantity Adjustment
MRO Inventory
Post Vendor Invoice
Purchase Order

Terminology

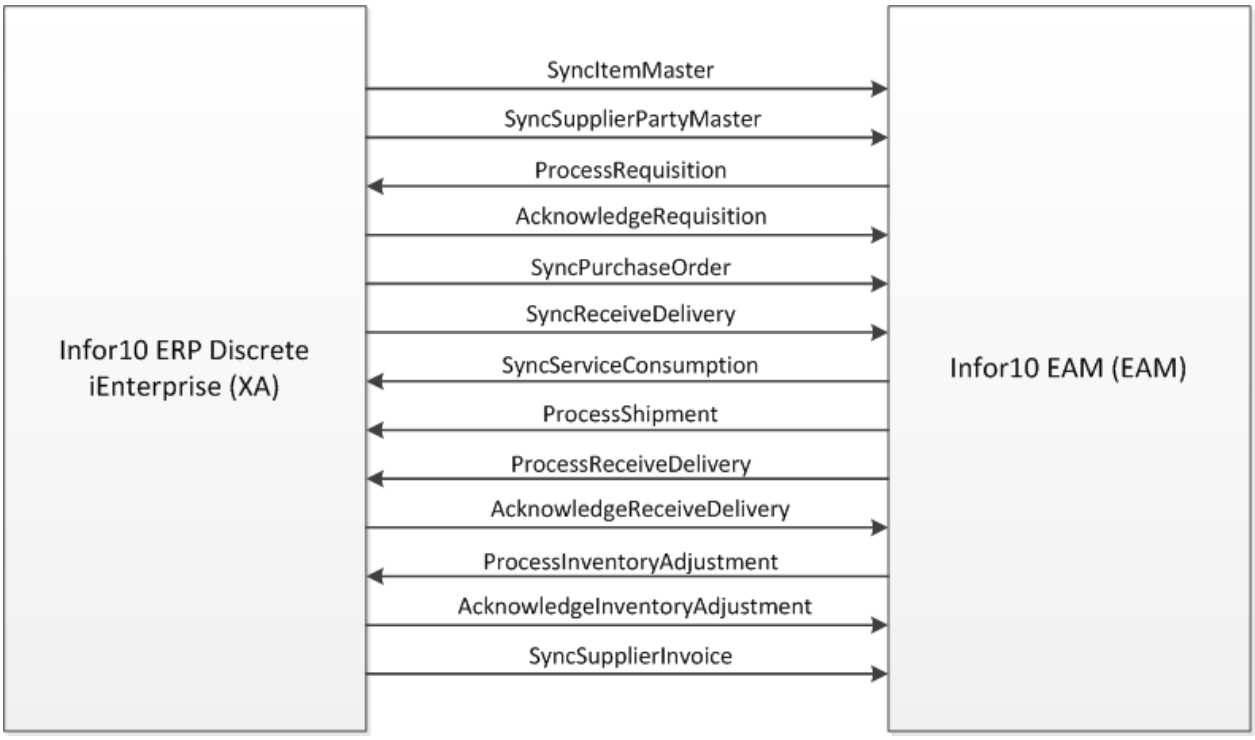
In some cases, XA and EAM use different terms for the same business function. This table shows the equivalent terms for those business functions.

XA Term	EAM term
Item	Part or Trade
Vendor	Supplier
Warehouse	Store

Communications flow through BODs

Communication between XA and EAM occurs by transmitting messages through Infor10 ION Connect. ION Connect is an enterprise messaging system that provides secure connections between Infor products and other Infor products or non-Infor products. The connections in ION Connect allow messages to flow between products through business object documents, or BODs.

This diagram shows the flow of BODs between XA and EAM. The steps below describe the actions that initiate the BODs in the flow.



The synchronization process

1. For the initial synchronization of items, a user in XA runs a Publish host job from the Item Warehouses object for the items designated as MRO items that are to be used in this integration. The host job generates a **SyncItemMaster** BOD for all selected MRO items and sends it to ION. Similarly, for the initial synchronization of vendors and suppliers, the XA user runs a Publish host job from the Vendors object for the vendors to be used in this integration. This host job generates a **SyncSupplierPartyMaster** BOD and sends it to ION.
2. ION receives the **SyncItemMaster** and **SyncSupplierPartyMaster** BODs and sends them to the replication destination used for communication with EAM.
3. EAM receives the **SyncItemMaster** BOD and creates or updates information for the parts that are synchronized to MRO items in XA. EAM receives the **SyncSupplierPartyMaster** BOD and creates or updates information for the suppliers that are synchronized to vendors in XA. Infor EAM users can specify preferred suppliers for their purchase requests, although Infor ERP XA buyers determine the final supplier for a purchase order.
4. An XA user creates or changes an item warehouse record for an MRO item. The user then publishes the item warehouse to the replication destination specified for communication with EAM.
5. In XA, System-Link converts the published item warehouse document to a **SyncItemMaster** BOD and sends it to ION.
6. ION receives the **SyncItemMaster** BOD and sends it to the replication destination specified when the item warehouse was published.
7. EAM receives the **SyncItemMaster** BOD and creates or updates the information for the equivalent part.
8. An XA user creates or changes a vendor from which MRO items or services are purchased. The user then publishes the vendor to the replication destination specified for communication with EAM.
9. In XA, System-Link converts the published vendor document to a **SyncSupplierPartyMaster** BOD and sends it to ION.
10. ION receives the **SyncSupplierPartyMaster** BOD and sends it to the replication destination specified when the vendor was published.
11. EAM receives the **SyncSupplierPartyMaster** BOD and creates or updates the information for the equivalent supplier.

The purchasing process

1. In EAM, a user creates or changes a requisition for MRO items for inventory, MRO items directly for a work order, or external services needed for a work order. This action generates a **ProcessRequisition** BOD and sends it to ION.
2. ION receives the **ProcessRequisition** BOD and routes it to XA.
3. In XA, System-Link converts the **ProcessRequisition** BOD to an XML document.

4 XA creates or updates the purchase request and requisition for the requisition received from EAM.

5 XA sends an **AcknowledgeRequisition** BOD to ION after creating or updating the purchase request and requisition. If XA could not process the requisition received from EAM, XA sends a **ConfirmBOD** BOD to ION to indicate that errors occurred.

6 ION receives the **AcknowledgeRequisition** BOD and sends it to the replication destination used for communication with EAM. Alternatively, ION receives the **ConfirmBOD** and sends it to the destination replication used for EAM.

7 EAM receives the **AcknowledgeRequisition** BOD and creates a reference to the XA requisition in the original EAM requisition. If EAM receives a **ConfirmBOD**, the errors must be resolved before XA can process the requisition.

8 A user in XA creates a purchase order for the purchase request and requisition for the MRO item. The XA user publishes the purchase order to the replication destination specified for communication with EAM.

9 In XA, System-Link converts the published purchase order document to a **SyncPurchaseOrder** BOD and sends it to ION.

10 ION receives the **SyncPurchaseOrder** BOD and sends it to the replication destination specified when the purchase order was published.

11 EAM receives the **SyncPurchaseOrder** BOD and creates or updates the information for the equivalent purchase order. For any purchase order line items or releases that XA created from a requisition received from EAM, EAM creates a reference to the original EAM requisition and requisition line items.

The receiving process for an MRO item

A user can receive MRO items in either XA or EAM. When the user performs a receiving action in either product for an MRO item, BOD messages keep the information for the MRO item synchronized between the two products.

For any receiving transactions in EAM that send a **Process** BOD to XA, XA sends EAM an **Acknowledge** BOD when XA processes the receiving transaction successfully. If XA cannot process the transaction, XA sends **ConfirmBOD** message to EAM. When EAM receives a **ConfirmBOD**, the errors must be resolved and the **Process** BOD sent again before XA can process the transaction.

Receiving MRO items in XA

1 Shipments arrive and are received against purchase orders in XA using Receive to Stock (RP) or Vendor Return (VR) inventory transactions. The receipt of an MRO item into inventory creates an RP transaction in Inventory Transaction History. The return of an MRO item to the vendor creates a VR transaction in Inventory Transaction History.

2 In XA, System-Link converts the inventory history transactions for the received or returned MRO items to a **SyncReceiveDelivery** BOD and sends the BOD to the replication destination specified for communication with EAM.

3 ION receives the **SyncReceiveDelivery** BOD and routes it to the destination specified for EAM.

4 EAM receives the **SyncReceiveDelivery** BOD and updates the inventory information for the MRO item.

Performing an MRO service in EAM

1 In EAM, the user reports that an MRO service has been performed and sends a **SyncServiceConsumption** BOD to ION.

2 ION receives the **SyncServiceConsumption** BOD and routes it to XA.

3 In XA, System-Link converts the **SyncServiceConsumption** BOD to RP and IS transactions for the MRO service item, creates Inventory Transaction History records, and updates the item warehouse and the purchase order item or purchase order item blanket release records for this service item.

Issuing an MRO item to a work order in EAM

1 In EAM, the user issues an MRO item to a work order and sends a **ProcessShipment** BOD to ION.

2 ION receives the **ProcessShipment** BOD and routes it to XA.

3 In XA, System-Link converts the **ProcessShipment** BOD to a Miscellaneous Issue (IS) transaction for the MRO service item, creates Inventory Transaction History records, and updates the item warehouse record for this service item. In XA, System-Link generates an **AcknowledgeInventoryIssue** BOD and sends it to ION.

4 ION receives the **AcknowledgeInventoryIssue** BOD and routes it to the replication destination used for communication with EAM.

5 EAM receives the **AcknowledgeInventoryIssue** BOD for the MRO item issued to the work order.

Returning an MRO item from a work order in EAM

1 In EAM, the user returns an MRO item from a work order and sends a **ProcessReceiveDelivery** BOD to ION.

2 ION receives the **ProcessReceiveDelivery** BOD and routes it to XA.

3 In XA, System-Link converts the **ProcessReceiveDelivery** BOD to a Miscellaneous Receipt (RC) transaction for the MRO item returned to inventory, creates Inventory Transaction History records, and updates the item warehouse record for this MRO item. XA generates an **AcknowledgeReceiveDelivery** BOD and sends it to ION.

4 ION receives the **AcknowledgeReceiveDelivery** BOD and routes it to the replication destination used for communication with EAM.

5 EAM receives the **AcknowledgeReceiveDelivery** BOD for the MRO item returned from the work order.

Receiving an MRO item in EAM

1 In EAM, the user receives an MRO item for a purchase order and sends a **ProcessReceiveDelivery** BOD to ION.

2 ION receives the **ProcessReceiveDelivery** BOD and routes it to XA.

3 In XA, System-Link converts the **ProcessReceiveDelivery** BOD to an RP transaction for the MRO item received in EAM, creates Inventory Transaction History records, and updates the purchase order and item warehouse records for this MRO item. XA generates an **AcknowledgeReceiveDelivery** BOD and sends it to ION.

4 ION receives the **AcknowledgeReceiveDelivery** BOD and sends it to the replication destination used for communication with EAM.

5 EAM receives the **AcknowledgeReceiveDelivery** BOD for the MRO item that was received.

Adjusting quantity for an MRO item in EAM

1 In EAM, the user adjusts the on-hand quantity for an MRO item and sends a **ProcessInventoryAdjustment** BOD to ION.

2 ION receives the **ProcessInventoryAdjustment** BOD and routes it to XA.

3 In XA, System-Link converts the **ProcessInventoryAdjustment** BOD to an Inventory Adjustment (IA) transaction for the MRO item, creates Inventory Transaction History records, and updates the item warehouse record for the MRO item. XA generates an **AcknowledgeInventoryAdjustment** BOD and sends it to ION.

4 ION receives the **AcknowledgeInventoryAdjustment** BOD and sends it to the replication destination used for communication with EAM.

5 EAM receives the **AcknowledgeInventoryAdjustment** BOD for the MRO item that was changed.

Posting a vendor invoice for an MRO item in XA

1 In XA, the user posts a vendor invoice for a purchase order. This action generates a **SyncSupplierInvoice** BOD and sends it to ION.

2 ION receives the **SyncSupplierInvoice** BOD and sends it to the replication destination used for communication with EAM.

3 EAM receives the **SyncSupplierInvoice** BOD and creates an Invoice Voucher.

Integration details

XA generates BODs through replication. Replication settings specify the system outside of the XA environment with which XA shares the application object information. XA objects involved in the integration with EAM have replication attributes which can be set up for communication with EAM. See “Setting up XA” on page 20 and the XA online help for additional information.

The basis for communication between XA and EAM is Infor10 ION, an enterprise messaging system for integrating Infor applications with each other and with outside applications. ION exchanges documents or messages, such as Items, Vendors, Requisitions, Purchase Orders (POs), Receipts, and Inventory Transactions using the standard OAGIS BOD (Business Object Document) message format, as defined in the Open Applications Group Integration Specification (OAGIS).

XA uses System-Link to convert XML documents generated in application objects into BODs. System-Link loads BODs into the XA outbox, where ION retrieves them. ION then forwards the BODs to the inbox for EAM. If ION communications are stopped, BODs are queued and sent when ION is started again.

An integration involves one XA environment and one EAM instance.

XA XML document exchange

The XA System-Link application provides the interface technology required for sending and receiving XML documents. In XA, users define System-Link destinations to specify where to send the outgoing XML documents that System-Link transforms into BODs. A special type of destination, Infor On-Ramp, transforms the outgoing XML documents into BODs that are sent to Infor ION.

EAM XML document exchange

The Infor EAM Databridge application provides the interface technology required for sending and receiving XML documents in Infor EAM.

Infor EAM, through the Databridge services, publishes to and subscribes from Infor ION a set of Infor BOD messages that support the required .business process integration (message flow) with XA.

Information needed for the integration

To set up the integration between XA and EAM, you need the following information.

- The logical IDs for the XA environment and the EAM instance.
- The System-Link Destination to be used by System-Link to send BODs to ION for routing to EAM.

Requirements

Make sure the following software requirements are installed and configured for standard operation.

- Infor10 ION Federation Services 10.1 or higher
- Infor10 ION Connect 10.1 or higher
- Infor10 ERP Discrete iEnterprise (XA) Release 9.1 server PTF SH47026 or higher, client PTF 3.04 or higher
- Infor10 EAM (EAM) Version 10.1. EAM Databridge must be installed with EAM.

Known limitations

When integrating XA and EAM, be aware of these differences in processing information, purchase orders, and receipts for MRO items.

- An uncontrolled warehouse for MRO items in XA is required for the XA-EAM integration. A controlled warehouse is not supported.

Setting up XA

This section describes the steps to set up XA for integration with EAM.

Communications setup for System-Link

The following setup steps for inbound communication and one step for outbound communication are required.

The integration with EAM requires:

- A System i user profile that is authorized to the XA tasks that update purchase requests, requisitions, and inventory transactions for service item consumption received from EAM.
- A System-Link destination that allows System-Link to communicate with EAM through ION.

System-Link user profile for inbound processing

The MXAEAM user profile is the required XA user profile for the integration with EAM. The MXAEAM user profile has all authorization necessary to access the XA environment and to update the business objects affected by the inbound documents received from EAM via ION. Any other user profile must be set up with the necessary authorization. See the *Cross Application Support User's Guide* for information about Cross Application Support menu AMZM38, option 6, Work with Client Data Connection User Profiles, if you need to set up a different user profile.

System-Link destination for communication with EAM

System-Link destinations allow a System-Link response to be sent to third-party destinations as well as to the original requestor of the response. The System-Link Destinations object is located on the Settings tab of the Environments application card on the main Infor ERP XA Power-Link browser.

Infor ERP XA uses a destination of type Infor On-Ramp to send messages outbound from XA. This destination is called a replication destination and is used to publish information to EAM through ION. See the System-Link online help for more information about System-Link destinations.

A System-Link destination of type Infor On-Ramp must be created for the EAM instance with which the XA environment will be integrated.

To create the System-Link destination for communication with the EAM instance:

1 In the System-Link Destinations object, select the Create option on the Maintain menu.

2 On the Create System-Link Destination dialog, specify this information.

Destination ID: Specify the identifier you want to use for the EAM destination.

Destination Type: Select Infor On-Ramp.

Description: Specify text that identifies the recipient or explains the purpose of the destination.

Preview before create: Select this option.

3 On the Create System-Link Destination dialog, enter the remaining information for the destination.

ESB Process logical ID: Specify lid://default , which is the logical ID used when setting up the XA connection point in ION.

Tenant: Specify the tenant value you want to use with this destination. The value you specify here must match the tenant specified for the XA application connection point in ION.

4 Click **Create** when you finish entering values for the System-Link destination for use with EAM.

5 To verify the connection, select the new destination and select **Maintain > Test Destination**.

Communications setup in XA

Infor ERP XA is responsible for maintaining item and vendor information, purchase orders, and inventory receipts. Infor ERP XA is also responsible for financial transactions related to the purchasing and receiving of items. The XA objects that contain business information related to these functions are.

- Warehouse
- Currencies and Units of Measure
- Financial Division
- Accounts Payable financial transactions for the Financial Division
- Company
- MRO items and services (Item Warehouses)
- Vendors
- Purchase Requests
- Requisitions
- Purchase Orders
- Purchase Receipts.

The following sections describe additional specific requirements for object information that XA shares with EAM.

Warehouse

The integration of XA and EAM requires an uncontrolled warehouse for the MRO items shared between these products.

Currencies

Any currencies used in the integration between XA and EAM must be associated with an ISO currency. See the *Infor10 ION Integration Guide* for XA for information.

Units of Measure

Any unit of measure used in any information shared between XA and EAM must be associated with an ISO unit of measure. See the *Infor10 ION Integration Guide* for XA for information.

Financial Division

In the Replication Settings attributes for the XA financial division used in the integration with EAM, the Maintenance control attribute must be set to Local.

Accounts Payable Financial Transaction Type for Financial Division

For the XA financial division used in the integration with EAM, the accounts payable transactions must have a replication destination in order to send vendor invoice information to EAM.

To set up the replication destination for the accounts payable financial transactions:

1 In XA, go to the Financial Divisions object.

1 Select **Customize > Cards**.

2 On the Financial Division Cards dialog box, click the **New** button.

3 On the **Select card type to create** dialog, select **Attribute**.

4 On the Edit Financial Division Card dialog box, specify the following information.

Name: Specify the name you want to use to identify this card.

Domain: Select Public if you want other users to access this card. Select Private if you are the only user who will use this card.

Available attributes: Select the **Accounts payable transaction replication destination** attribute and click the **Add** button.

5 On the Card attribute definition dialog box, click **Continue**. This action adds the Accounts payable transaction replication destination to your new card.

6 On the Edit Financial Division card, click **Save**.

7 On the Financial Division Cards dialog box, click **Continue**.

8 Select **Customize > Card Files**.

9 On the Financial Division Card Files dialog box, select **Default** and click the **New** button.

10 On the Edit Financial Division Card File dialog box, specify the following information.

Name: Specify the name you want to use to identify this card file.

Domain: Select Public if you want other users to access this card file. Select Private if you are the only user who will use this card file.

Available cards: Select the card you just created and click the **Add card** button.

1 Click Save.

2 Select the financial division for which you need to specify the replication destination for accounts payable transactions, then select **Maintain > Change**.

3 On the Change Financial Division card file, change the card file selection to the card file that you just created. In most cases, the existing card file selection will be Default.

4 In the card file you created, select the card you created, then change the following information.

Accounts payable transaction replication destination: Specify the replication destination you use for communication with EAM.

5 Click **Update**.

Company

If the XA environment has the AM Plus application installed, the XA company used in the integration with EAM must have the following values in these Replication Settings attributes to allow communication of vendor invoice information.

- Set the Replication destination attribute to the replication destination used for communication with EAM.
- Set the Maintenance control attribute to Local.

MRO items and services

The MRO item attribute in the Item Revisions object can be used to identify maintenance items and services that are replicated in the EAM item information. Items that have the MRO item attribute set to Yes can be used for manufacturing and customer orders.

XA can support these types of items as MRO items and services:

- Inventory items with records in the Item Warehouses object for an uncontrolled warehouse.
- Miscellaneous items without records in the Item Warehouses object or with Item Warehouses records for an uncontrolled warehouse.
- Service items without records in the Item Warehouses object or with Item Warehouses records for an uncontrolled warehouse.

To set up MRO items for integration between Infor ERP XA and Infor EAM, make sure these definitions are made in XA and in the corresponding files in EAM.

- Define an uncontrolled warehouse in XA for use with MRO items and services. The warehouse should be defined as an Enterprise Location in EAM.
- Define MRO items for maintenance items and services in XA. These items and services also should be defined as MRO parts and services in EAM. In XA, set the MRO item attribute to Yes only for those maintenance and service items that have inventory processed by EAM transactions. Assign these MRO items to the uncontrolled warehouse in XA.
- Define vendors/suppliers for the MRO items. The vendors should be defined in XA; the suppliers should be defined in EAM.

MRO item replication

An MRO item can be assigned a replication destination in the Item Warehouses object to indicate that the item information can be shared with an EAM instance. You can assign the Replication destination to item warehouse records individually or you can use the Update Replication Settings option in Object Settings to assign the replication destination you use to communicate with EAM to multiple item warehouses.

To specify the EAM replication destination for the item warehouses associated with MRO items:

1 In the Item Warehouses object, create a subset with the attribute **MRO item = Yes**.

2 In the Object Settings object, select Item Warehouses, then select **Maintain > Update Replication Settings**.

3 On the Edit Item Warehouse Mass Change dialog, make these selections.

Subset: Select the MRO item subset you created.

Available attributes: Select the **Replication destination** attribute and click the **Add** button.

4 On the Mass Change Definition dialog, select **Replace** value, then specify the new Replication destination in the **New content** attribute. Click **Continue**.

5 On the Edit Item Warehouse Mass Change dialog, click **Update**.

This setup assigns the replication destination to all MRO items. Only items identified as MRO items and assigned the replication destination can be processed with inventory transactions received from EAM.

Inventory status

While XA provides an Inventory Status record of EAM CTL, this inventory status has no specific use in the integration between XA and EAM. In an XA environment with both MRO items handled by EAM and MRO items handled only by XA, the EAM CTL inventory status can be used to categorize those MRO items that are handled by EAM.

Purchase requests and requisitions

EAM initiates the request for MRO items and services by sending a requisition to XA. XA receives the EAM requisition and creates an XA purchase request and requisition to handle the requested MRO items and quantities.

When XA creates a purchase request in response to a requisition received from EAM, XA automatically sets these attributes in the purchase request.

- Replication destination attribute is set to the destination used for communication with EAM.
- Source document reference attribute is set to the ID of the requisition received from EAM.
- Source system reference attribute is set to key data received from EAM.
- Maintenance control attribute is set to Both so that both XA and EAM can maintain the purchase request.

Because an EAM requisition can contain requests for multiple items and an XA requisition can contain a request for only one item, XA creates a separate requisition for each item contained in the original requisition received from EAM. The XA requisition contains the Purchase request ID attribute, which links the XA requisition to the XA purchase request. Through the XA purchase request, the XA requisition has an association with the original requisition received from EAM.

The warehouse for the XA purchase request must be an uncontrolled warehouse. Additionally, the warehouse for the XA requisitions also must be uncontrolled.

When XA creates a purchase request and one or more requisitions for a requisition received from EAM, XA sends an acknowledgement to EAM. The acknowledgement provides EAM with a cross reference to the XA purchase request and requisitions.

Purchase orders

XA creates a purchase order to supply the MRO items requested on the EAM requisition. All items on the purchase order must be from a single uncontrolled warehouse. The purchase order assigns the requisition IDs to the purchase order items and purchase order item releases on the order. These IDs connect the items and item releases to the original requisition received from EAM.

A recommended approach for creating a purchase order in XA for MRO items is to select the requisition received from EAM and use the Create Purchase Order option.

XA sends the purchase order to EAM using the replication destination specified when the purchase order is published using the Publish host job. XA can also send the purchase order to EAM when the purchase order is printed if the replication destination for use with EAM is specified:

- In the Replication Settings attributes for the vendor in the purchase order.
- In the Replication Settings attributes for the purchase order.
- In the Purchase Order record in the Object Settings object.

Be aware that printing a purchase order automatically sends the purchase order to any replication destination specified in any of the locations listed above. To print a purchase order and automatically send it to EAM, one of the replication destinations must be set to the destination used to communicate with EAM.

Purchase receipts

In XA, purchase receipts are the action of receiving a purchase order item, purchase order item release, scheduled receipt, or container item into a warehouse.

Receipt of purchase order items or item releases for inventory or miscellaneous items

When receiving a purchase order item or item release for an MRO item in XA, the following considerations apply.

- The warehouse used for receiving must be uncontrolled.
- XA receives items to stock (RP) or returns to vendor (VR). These receipts must be entered through the Scheduled Receipts, Shipment Notices, Purchase Orders, Purchase Order Items, or Purchase Order Item Releases objects in XA.
- In the Purchase Order Items and Purchase Order Item Releases objects, the Complete Receiving and Reopen Receiving options are available for MRO items.
- XA receives items to stock (RP). XA notifies EAM of the purchase receipt to update the inventory quantity for the item in EAM.

Receipt of purchase order items or item releases for service items

When receiving a purchase order item or item release for an MRO service item, the following considerations apply.

- The service item from the purchase order is received by EAM. EAM reports the services performed to XA.
- XA receives the notice of services performed from EAM and automatically processes the receipt of the purchase order item or item release for the service item. If EAM received any quantity associated with the service item, XA generates a receipt to stock (RP) transaction.

Consumption of MRO inventory and service items

In the integration of XA and EAM, EAM tracks the usage of the MRO items and services. For example, EAM might transfer parts within the same EAM warehouse or create work orders for maintenance activities. In both of these examples, XA does not require notification.

XA does receive notification for some consumption activities in EAM.

- EAM reports performance of services to XA. XA generates receipt to stock (RP) or miscellaneous Issue (IS) transactions against the purchase order items or item releases.
- EAM reports issues and returns of maintenance items to XA. XA generates the appropriate transactions for issues, receipts, and returns to update inventory in XA.
- EAM transfers maintenance items between different warehouses and reports the transfers to XA. XA generates the appropriate interwarehouse transfer transaction and updates inventory in XA.

Purchase order invoice

With the integration of XA and EAM, XA handles invoices for MRO items through the XA AMPlus and Finance/International Financial Management (IFM) applications. XA posts vendor invoices for MRO items in AMPlus or IFM. XA notifies EAM when an invoice is processed for a purchase order.

Issues, receipts, and adjustments received from EAM generate issue, receipt, and adjustment transactions to the XA General Ledger Interface function as required. XA also receives adjustments to inventory balances from EAM and generates adjustment transactions to update inventory in XA.

XA maintains the unit costs for MRO items. This information is not transmitted to EAM.

Replication destinations

To transmit information from one of these objects to EAM, you specify the replication destination that you set up for communication with EAM. ION uses the replication destination to route the communication BODs to EAM.

This chart identifies where you can specify the replication destination for information transmitted from XA to EAM. Note that a replication destination specified in Object Settings by default applies to all records in the object. You can use the Update Replication Settings option in Object Settings to specify a replication destination for a subset of records; see “MRO item replication” on page 24 for an example.

XA provides the OBJECTRPL security task in Cross Application Support for controlling access to maintenance of the Replication Settings attributes. This security task authorizes access to all XA objects that are enabled for Replication Settings attributes.

XA Object	Action requiring information transmission	Replication destination	BOD
Item Warehouse	Create or change	Specify in Publish host job Specify in Object Settings for Item Warehouses object	SyncItemMaster
Vendor	Create or change	Specify in Publish host job Specify in Object Settings for Vendors object	SyncSupplierPartyMaster
Purchase Order	Create or change Reprint	Specify in Publish host job Specify in Replication Settings for	SyncPurchaseOrder

		purchase order Specify in Object Settings for Purchase Orders object	
Inventory Transaction History	Receive or return purchased MRO items	Specify in the Publish host job	SyncReceiveDelivery
Financial Division	Post an invoice	Specify for the financial division, accounts payable type	SyncSupplierInvoice

Setting up EAM

The integration of XA with EAM requires some data to be set up the same way in both products. This section describes requirements for the EAM data that is shared with XA. For general information about setting up data in EAM, see the EAM installation and user guides or the EAM online Help.

Add an Organization to use with XA

Add an Organization with these values.

Field	Value
Accounting Entity	Set to the XA system.XA environment ID. For example, to integrate to XA environment AB on system USALIL02, the value is USALIL02.AB.
Currency	The default currency in the XA environment.
Enterprise Location	The uncontrolled warehouse defined in the XA environment for MRO items.

Add a User for the Organization

Create a User that represents the XA environment and associate that user with the Organization and Group you are using for the integration with XA.

Grant the Store Transaction Permissions to the User Groups with which you associated the User that represents XA.

Map a store

Set up an EAM Store with these values.

Field	Value
Organization	The organization you created for use with XA.
Enterprise Location	The uncontrolled warehouse defined in the XA environment for MRO items.

Define Bins for the store.

Map units of measure

Set up units of measure in EAM to match the ISO units of measure defined in XA. You can define ISO units of measure in EAM or link EAM units of measure to ISO values.

Map currency

Set up currencies in EAM to match the currencies defined in XA. If an MRO part in EAM uses a currency other than the currency specified for the organization, that currency must have a valid exchange rate defined in EAM between that currency and the organization's currency.

Add MRO parts

For MRO parts that EAM received from XA, assign these values.

Field	Value
Store	The uncontrolled warehouse defined in XA that is linked to the Organization you created for use with XA.
Bin	The default bin defined for use with MRO items used in this integration. The bin is required for receiving.
Price	Select the price type, core value.

Verify the tenant ID

For EAM, the Tenant ID must match the tenant in the ION connection point set up for EAM in the integration with XA.

Configure Databridge

To configure the EAM Databridge for integration with XA:

1 On the EAM Databridge Partner page, locate the partner record with partner code ***** (asterisk). Select **Active** to enable the partner.

2 Locate the partner record with partner code **INFOR-ONRAMP**. Select **Active** to enable the partner. In the Partner ID field, specify the last part of the Logical ID assigned to this EAM instance; for example, ***instance01*** of *lid://infor.eam.instance01*. Save the record.

3 For the INFOR-ONRAMP partner, click the Subscription tab. For these events, select the **Enable** checkbox and click **Submit**.

Event/Document Type	Enable
ADDREQUISTN/ProcessRequisition	Enable
CHANGEREQUISTN/ProcessRequisition	Enable
PORECEIVEPARTS/ProcessReceiveDelivery	Enable
PRDREQ/ProcessProductionOrder	Enable
UPDINV/ExportInventoryTransactions	Enable
PORECEIVESERVICE/SyncServiceConsumption	Enable
SYNCITEM/ProcessItemMaster	Enable

NOTE: Leave the checkbox for all other events **clear**.

4 On the Databridge Setup page, Options tab, select these values:

Field	MRO
Enable Add Requisition Outbound	Yes
Enable Change Requisition Outbound	All
Enable PO Receipt Outbound	Yes
Enable Inventory Transactions Outbound	For Infor ION
Enable Production Request Outbound	Yes
Enable Inventory Item Outbound	Yes

NOTE: Set all other values to **No**.

5 On the EAM Organizations page, locate the organization for use with XA, and click the Record View tab. Ensure that these values are set correctly.

Field	Value
Currency	The default currency in the XA environment.
Accounting	The XA system.XA environment ID. For example, to integrate to XA

Entity	environment AB on system USALIL02, the value is USALIL02.AB.

Optionally, specify locations for the organization on the Enterprise Locations tab, which links the locations in the EAM organization. Otherwise, the EAM organization is used as the location in the BODs. Repeat this step for each EAM organization, except for * organizations.

Connecting XA and EAM through ION

Import the sample XA solution

This section describes how to import the sample solution for the integration of XA and EAM through ION and configure the solution values.

1 Log on to ION Desk.

2 Select **Model > Connect > Document Flows**.

3 Click **Import**. Navigate to the location of the XA sample solution file.

4 Select **XA-EAM Solution for ION.xml** to import. This file is stored in the \infor\vlib\ION folder in the client IFS directory.

5 Click **Open**. This action creates two sample connection points, one for **XA** and one for **EAM**, and two document flows, for **XA to EAM** and one for **EAM to XA**.

6 In the Result dialog, click **OK**.

7 Rename the imported document flows to indicate their purpose. For example, you might use the XA environment ID in the document flow name to indicate the XA environment for which the flow is configured.

   a) On the **Document Flows** page, select **XAtoEAM**, which represents the XA to EAM document flows, and click **Details**.

   b) Change the name of the flow to ***XAenvtoEAM***, where XAenv is your XA environment ID and *APP* is the connection point to the EAM instance.

   c) On the **Document Flows** page, select **EAMtoXA**, which represents the EAM to XA document flows, and click **Details**.

   d) Change the name of the flow to ***APPtoXAenv***, where *XAenv* is your XA environment ID and *APP* is the connection point to the EAM instance.

8 Update the connection information for your XA application connection point.

   a) Select **Model > Connect > Connection Points**.

   b) Select ***machine-xy***, which is the connection point for XA, and click **Details**.

   c) Update the following information for the connection:

   Name: Replace ***machine*** with the name of the machine where the XA environment is installed. Replace ***xy*** with the two-character XA environment ID. Use lower-case letters.

For example, for machine USATLXA01 and environment AC, the name should be usatlxa01-ac. This name becomes part of the logical ID.

Description: Specify the text you want to use as a label for this connection point.

Logical ID Type: Keep the default value of **xa**. The logical ID type becomes part of the logical ID for this connection point. For example, for machine USATLXA01 and environment AC, the logical ID is infor.xa.usatlxa01-ac.

In the **Database** section, specify this information:

Host Name: Replace ***machine*** with the name of the machine where XA is installed. Specify the machine name in lower-case letters. From the preceding example, the value would be usatlx01.

Schema Name: Specify the names of the **amelib** and **amflib** libraries for the environment. Specify the names of the **ame** libraries for the XA environment. Use lower-case letters separated by a comma. From the preceding example, the schema name for the libraries in environment AC would be amelibc, amflibc.

In the **Connection** section, specify this information:

User Name: Specify the user ID used for communications between XA and ION. This user ID should be the name of the System-Link user profile you plan to use for this integration. In most cases, this name will be MXABUS.

Password: Specify the password associated with the MXABUS user profile that you will use for communications between XA and ION.

In the **Polling** section, specify this information:

Delete Processed Messages: Select **true** or **false**. Select **true** to delete BODs immediately from the Replication Document Outbox after ION processes them. Select **false** if you want the processed BODs to remain in the Replication Document Outbox for the number of minutes specified in the Outbox Cleaner Expire Time field (under Advanced>Cleanup).

9 Click **Test** to verify the connection. Make corrections to the connection information if an error occurs.

10 Click **Save**.

11 Return to the **Connection Points** page. Select **instanceXX** from the list of connections and click **Details**.

12 Update the connection information for the interfacing application connection point.

Name: Replace instanceXX with the name of the EAM instance with which XA will be interfacing. Use lower-case letters. For example, the name might be “instance01.”

Description: Specify the text you want to use as a label for this connection point.

Logical ID Type: Keep the default value of eam. The logical ID type becomes part of the logical ID for this connection point. For example, for instance name of instance01 and logical ID type of eam, the logical ID is infor.eam.instance01.

Host Name: Replace SQ_SQL_Server_Name with the name of the EAM SQL server for the instance that will interface with XA.

Port Number: Specify the port number for the EAM SQL server.

Schema Name: Replace EAM_Database_Name with the name of the EAM database for this instance of EAM.

User Name: Specify the user ID that ION will use to log on to the EAM SQL server database.

Password: Specify the password for the EAM SQL Server database user.

Polling: Set Delete Processed Messages to true if you want to immediately delete BODs from the Replication Document Outbox after ION processes them. Set it to false if you want the processed BODs to remain in the outbox for the number of minutes specified in the Outbox Cleaner Expire Time field (under Advanced>Cleanup).

13 View and update the list of BODs that are sent in the two document flows.

a) Select **Model > Connect > Document Flows**.

b) On the **Document Flows** page, select the document flow which represents the flow from XA to EAM. For example, document flow name might be XAACtoEAM01. Click **Details**.

c) Select the document icon between the connection points in the flow.

d) The Documents pane displays a list of the BODs that are sent from XA to EAM. Modify this list as required for the integration. Click **Save**.

e) Return to the **Document Flows** page and select the document flow which represents the flow from EAM to XA. For example, the document flow name might be EAM01toXAAC. Click **Details**.

f) Select the document icon between the connection points in the flow.

g) The Documents pane displays a list of the BODs that are sent from EAM to XA. Modify this list as required for the integration. Click **Save**.

Activate the solution

To activate your solution in ION Desk:

1 On the **Document Flows** page, select the flow that represents the flow from XA to the interfacing application, such as XAACtoEAM01, and click **Activate**.

2 If the activation succeeds, you receive a success message. Click **OK**. Your changes are effective immediately.

If you receive an error message, the model cannot be activated. Refer to the *Infor10 ION Connect Administration Guide* for assistance with activation errors.

If you receive a warning message, the model is still activated.

3 On the **Document Flows** page, select the document flow which represents the interfacing application to XA, such as EAM01toXAAC, and click **Activate**.

4 If the activation succeeds, you receive a success message. Click **OK**. Your changes are effective immediately.

If you receive an error message, the model cannot be activated. Refer to the *Infor10 ION Connect Administration Guide* for assistance with activation errors.

If you receive a warning message, the model is still activated.

Note: If you encounter problems during this setup, stop and restart the ION service.

Testing the integration

To verify the XA and EAM integration has been set up successfully, follow these steps.

Note: Before starting the verification, ensure that these applications and service are running:

- Infor10 ERP Discrete iEnterprise (XA)
- Infor10 EAM (EAM)
- Infor10 ION Connect
- Infor Federation Services

Create a requisition for an MRO part in EAM

To create a requisition for an MRO part (item):

1. Log on to EAM.
2. Create a requisition for an MRO part.
3. Approve the requisition to Publish to XA.
4. XA creates a purchase request and requisition.
5. XA sends an acknowledgement to EAM.

Create a requisition for an MRO service in EAM

To create a requisition for an MRO service:

1. Log on to EAM.
2. Create a requisition for a Services item.
3. On the Service tab, select Create workorder and Create service.
4. Approve the requisition to Publish to XA.
5. XA creates a purchase request and requisition.
6. XA sends an acknowledgement to EAM.

Create a purchase order from the requisition in XA

To create a purchase order:

1. Log on to XA.
2. Create a purchase order for the requisition received from EAM.
3. On the Create Purchase Order dialog box, specify these values:
   - A vendor that exists as a supplier in EAM.
   - A warehouse that exists as a store in EAM.

   The vendor is required. Make sure that Preview before create is selected. Click **Create**.
4. In the Create Purchase Order card file, verify that the purchase order contains a purchase order item for the MRO item in the requisition received from EAM. The warehouse for the item must be defined as a store in EAM.
5. Run the Publish host job for the purchase order. In the **Replication destination** attribute, specify the System-Link destination you use to communicate with EAM.
6. Verify that EAM received the published purchase order for the MRO item requested in the requisition.

Verify receipt of the purchase order in EAM

To verify that EAM received the purchase order created in XA:

1. Log on to EAM.
2. Select Purchasing > Purchase Orders.
3. Find the purchase order created in EAM. Verify that the purchase order numbers are the same in EAM and XA.
4. Verify that the MRO item number in the XA purchase order matches the MRO part number in the EAM purchase order.

Receive an MRO item in XA

To receive an MRO item in XA:

1. Log on to XA.
2. Receive the MRO item requested in the requisition from EAM. You can receive the MRO item from the scheduled receipt, the shipment notice, or the purchase order. The receipt of the MRO item should create an RP transaction, which transmits the receipt information to EAM.
3. Log on to EAM.
4. Verify that the PO receipt is listed with correct purchase order item and quantity and that the purchase order line quantity received is correct.

Report performance of an MRO service

To report performance of an MRO service in EAM:

1. Log on to EAM.
2. From work order created on service requisition, select vendor hours and enter hours completed and save.
3. EAM publishes a SyncServiceConsumption BOD.
4. Log on to XA.
5. Verify that the performance of the MRO service item was communicated to XA. The purchase order item should be updated with the quantity received. Records for the RP and IS transactions should exist in the Inventory Transaction History object.

Issue an MRO item to a work order

To issue a quantity of an MRO item to a work order:

1. Log on to EAM.
2. Issue a quantity of an MRO item to a work order and save.
3. EAM sends an update to XA for the issued quantity of the MRO item.
4. XA sends an acknowledgement of the issued quantity to EAM.
5. Log on to XA
6. Verify that the quantity of the MRO item in the Item Warehouse object in XA has been reduced by the quantity of the MRO part issued in EAM. A record for the IS transaction should exist in the Inventory Transaction History object.

Return an MRO item from a work order in EAM

To return an MRO item that was issued to a work order:

1. Log on to EAM.
2. For the MRO item issued to a work order, enter a return for some quantity of the item.
3. EAM sends an update to XA for the returned quantity of the MRO item.
4. XA sends EAM an acknowledgement of the returned quantity.
5. Verify that the MRO item quantity in the Item Warehouse object in XA has been increased by the quantity of the MRO part returned in EAM. A record for the RC transaction should exist in the Inventory Transaction History object.

Receive an MRO item in EAM

To receive an MRO item in EAM:

1. Log on to EAM.
2. Receive an MRO item from a purchase order.
3. EAM sends an update to XA for the received quantity of the MRO item.
4. XA sends EAM an acknowledgement of the received quantity.
5. Verify that the updated quantity for the purchase order item and the MRO item in XA matches the updated quantity for the MRO part received in EAM. A record should exist in the Inventory Transaction History object for the RP transaction that updated the quantity for the purchase order item and the MRO item record in the Item Warehouse object.

Post a vendor invoice in XA

To post a vendor invoice for an MRO item:

1. Log on to XA.
2. Create and post an invoice for an XA-EAM purchase order receipt.
3. When the invoice posts, XA sends an update to EAM for the invoiced quantity of the MRO item.
4. EAM creates an invoice voucher for the vendor/supplier. Verify that the invoiced quantity and costs for the MRO part in EAM matches the invoiced quantity and cost for the MRO item in XA.

Business events that generate BODs

XA events

Verb	Noun	User action to generate the BOD
Sync	ItemMaster	Create an item warehouse Change an item warehouse
Sync	SupplierPartyMaster	Create a vendor Change a vendor
Acknowledge	Requisition	Receive a requisition for an MRO item
Sync	PurchaseOrder	Create a purchase order Change a purchase order
Sync	ReceiveDelivery	Receive shipped items for a purchase order
Acknowledge	InventoryIssue	Receive notification of MRO item issue to a work order in EAM
Acknowledge	ReceiveDelivery	Receive notification of an MRO item receipt in EAM Receive notification of an MRO item returned from a work order in EAM
Acknowledge	InventoryAdjustment	Receive notification of a change to MRO item on-hand quantity in EAM
Sync	SupplierInvoice	Post an invoice for an MRO item received from a vendor

EAM events

Verb	Noun	User action to generate the BOD
Process	Requisition	Create a requisition Change a requisition
Sync	ServiceConsumption	Report performance of an MRO service

Verb	Noun	User action to generate the BOD
Process	ReceiveDelivery	Receive an MRO item for a purchase order Return an MRO item from a work order
Process	InventoryAdjustment	Change the on-hand quantity for an MRO item
Process	Shipment	Issue an MRO item to a work order

Troubleshooting and maintenance

This section contains XA and EAM troubleshooting information within the integration context. Use this section to help resolve problems and errors.

Error logging in XA

Because ION uses the OAGIS communication standard, errors sent between XA and EAM are in the form of XML ConfirmBODs. XA sends a ConfirmBOD when a BOD is received but cannot be processed. The ConfirmBOD itself contains detailed information about the error that caused the received BOD to fail.

XA logs information about ConfirmBODs in these System-Link processes. You can view these processes through Link Manager by selecting the process, then selecting the Log tab in the right pane of Link Manager.

- The SLS (System-Link Server) process logs the error condition that caused the ConfirmBOD to be sent.
- The SLA (System-Link Adapter) process receives inbound BODs and logs any ConfirmBODs that could not be processed.
- The SLO (System-Link Outbox) process logs outbound BODs that were sent from the XA environment but could not be delivered to their destination.

In addition to the ConfirmBOD information in XA, ION provides utilities for viewing errors. See the *Infor10 ION Connect 10.1 Administration Guide* for more information.

XA documents are not sent to or received from ION

If BODs are not being sent between XA and ION, perform these checks in the XA environment.

Verify that the XA UJOB is active

On the System i where the XA environment is located, check the Unattached Job Status for the Publish Request Processor (PSVTUS) job. This job should have a status of Active.

Verify that the System-Link destination is correct

In the System-Link destination that you use for communication with EAM, the ESB Process logical ID must match the logical ID specified for the XA connection point in ION.

To check that the System-Link destination is functioning correctly:

1. In the System-Link Destinations object, select the destination you use for communication with EAM and select **Display > System-Link Destination** details.
2. In the detailed information for the destination, verify that the **ESB Process logical ID** is set to lid://default, which is the logical ID used to set up the XA connection point in ION.
3. To verify the connection, select **Maintain > Test Destination**.

Verify that the System-Link transformation is active

The System-Link transformation used to process the System-Link request associated with a BOD must be active in order for XA to process the BOD.

To verify that the transformation is active:

1. In the System-Link Requests object, select the System-Link request for the BOD that cannot be processed and select **Maintain > Change**.
2. In the Change System-Link Request card file, select the **Transformations** card. This card shows a list of transformations for the request and the status of each transformation.
3. Select the transformation for the System-Link destination you use to communicate with EAM.
4. If the selected transformation does not have a status of Active, select the transformation, right-click the selection, and select **Maintain > Activate**. When you activate the transformation, the Type value for the transformation changes from Standard to Override.