BPA
Platform

Technical Overview

SYSPRO Connector v1.0

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Introduction

Use the **SYSPRO Connector** to send and retrieve data between BPA Platform and your SYSPRO installation. This allows for data to be synchronised between SYSPRO and third-party systems that it does not normally connect with, such as ERP systems.

All communication uses XML; BPA Platform recordsets cannot be used as data inputs unless converted to XML first (using the **Convert Recordset to XML** or **Transform Data** tools, for example). You use the **Connector** to map BPA Platform data to SYSPRO modules and functions — see *Supported Objects*.

XML responses received back from the SYSPRO API can be saved and used by other BPA Platform tools for further processing.

The SYSPRO Connector Tool Pack

The tool pack consists of:

▶ **SYSPRO Connector Agent** — The **Agent** communicates directly with the SYSPRO API. It can be installed on any computer that has access to both the BPA Platform server and the SYSPRO company database, or even local to the BPA Platform server.

▶ **SYSPRO Connector** — The **Connector** communicates with the **SYSPRO Connector Agent** instead of interacting directly with the SYSPRO company database. It must be installed on the BPA Platform server and any remote BPA Platform client machines which run **SYSPRO Connector** tasks.

System Requirements

The following prerequisite software must be in place before installing the SYSPRO Connector.

Minimum BPA Platform Version

The **SYSPRO Connector** requires BPA Platform 2020 Update 1 or above.

Minimum SYSPRO Version

The **SYSPRO Connector** supports the following versions:

▶ SYSPRO version 7

▶ SYSPRO version 7.1

▶ SYSPRO version 8

Architecture

The following diagram provides an example architectural layout of the **Connector** and **Agent** with SYSPRO. You can choose to locate the **SYSPRO Connector Agent** on any machine accessible by the BPA Platform server or on the server itself.
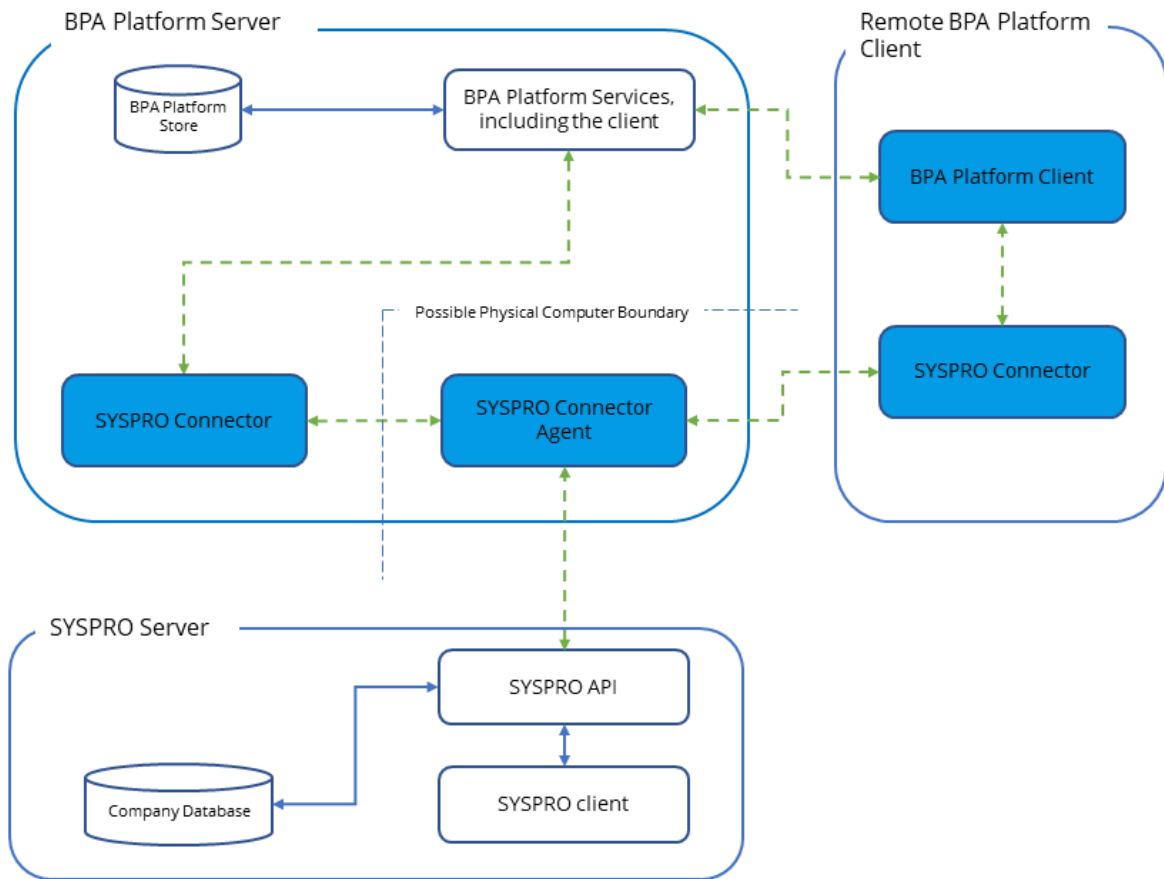
Working with Other Tools

The **SYSPRO Connector** can directly interact with the following tools:

Consuming from Other Tools

The **SYSPRO Connector** can consume output from the following tools:

Icon	Tool Name	Tool Category
xml	**Import XML Document**	Input

Icon	Tool Name	Tool Category
	Retrieve Text Message	Input
	Convert Recordset to XML	Format
	Transform Data	Format
	Call Task	Execute
	Applications Platform Connector	Data Connectors
	SYSPRO Connector	Data Connectors

In addition, the **SYSPRO Connector** can consume the output from other Data Connector tools that provide connectivity to an external application, such as an ERP or CRM system.

Objects Consumed

The **SYSPRO Connector** consumes the following objects exposed by other steps:

▶   **XML** — XML data from any BPA Platform tool capable of exposing such data (see above)

Exposing to Other Tools

The following tools can directly consume output form the **SYSPRO Connector**:

Icon	Tool Name	Tool Category
	Retrieve Text Message	Input
	Convert XML to Recordset	Format
	Run Microsoft Reporting Services	Format
	Transform Data	Format

Icon	Tool Name	Tool Category
	Save File	Output
	Call Task	Execute
	Applications Platform Connector	Data Connectors
	Web Service Connector	Data Connectors
	SYSPRO Connector	Data Connectors

In addition, other Data Connector tools that provide connectivity to an external application, such as an ERP or CRM system, can also consume the output from the **SYSPRO Connector**.

Objects Exposed

The **SYSPRO Connector** tool outputs the following objects which can be consumed by other tools:
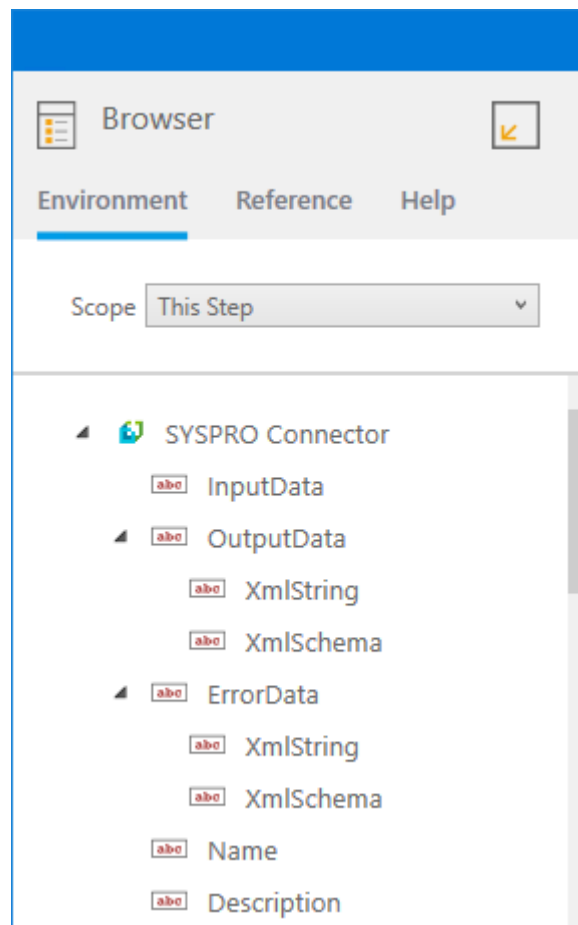
▶ **InputData**

This document contains the input XML received by the **SYSPRO Connector** tool. It is only available if a task step has been selected as the **Data Source** (see *About the General Tab*).

▶ **OutputData**

The **OutputData** object contains two sub-objects:

☐ **XmlString** — This is the XML document produced by the tool, containing data returned from SYSPRO for all operations. Also included are the key fields for the mapped elements affected by the used operation and a `SupplementaryReference` field for task auditing purposes.

The mapped fields in the **Mapping** tab (see *About the Mapping Tab*) define the structure of this XML document.

☐ **XmlSchema** — This contains the output schema in XSD format.

▶ **ErrorData**

The **ErrorData** object also contains two sub-objects:

☐ **XmlString** — This contains any error data reported by SYSPRO

`<Error>` — All errors are created as an `<Error>` node, with the following sub-nodes:

  `<Object />` — The name of the requested object

  `<CODE />` — The error code returned by SYSPRO

  `<MESSAGE />` — The corresponding error message

  `<EXTENDEDINFO />` — A string containing additional information about the error

  `<INPUTDATA />` — The header input data (excluding child nodes) mapped for the object, plus all data contained in `SupplementaryReference`

`</Error>`

For more information about the errors received, see *Error Handling*.

☐ **XmlSchema** — This contains the output schema in XSD format.

▶ **Step Properties**

Standard step properties are also available allowing you to use statistical data of the **SYSPRO Connector** step.

Where Can the XML Output be Used?

The incoming XML is translated into the XML format for the object and operation selected in the configuration. The data for the linked fields is brought across into the output XML — only those fields that are linked are brought across. The XML is passed to the **Connector**, which then:

▶ Processes the data

- Performs the operation requested

- Receives an XML document containing the response

Both the `OutputData` and `ErrorData` documents can be directly used by succeeding task steps that can consume XML data, as part of an application integration or synchronisation process. To use the documents in a non-XML consuming tool, use a **Convert XML to Recordset** step first to create a recordset copy of the XML data.

The XML documents are also available as consumable objects from the Task Browser (`XmlString`). When used in a task step, such as **Format as Text** or **Save File**, this exposes the actual XML string.

Error Handling

Errors are written to the BPA Platform Event Log (***Tasks*** toolbar **> *Event Log***). You define how errors are handled in the **Options** tab of the tool (see *About the Options Tab*).

Reasons for the errors could include:

- Web service connection errors

- User privilege errors

- Errors, messages, and warnings from the SYSPRO API

- Any reported task runtime errors, including **Agent** errors, such as, loss of connection

Global Configuration

The global configuration for the **SYSPRO Connector** is used to create connections to the **SYSPRO Connector Agent** and from the **Agent** to SYSPRO itself.

You open this interface from the resources tree — expand **System > Tools > Data Connectors** and double-click **SYSPRO Connector** in the items list.
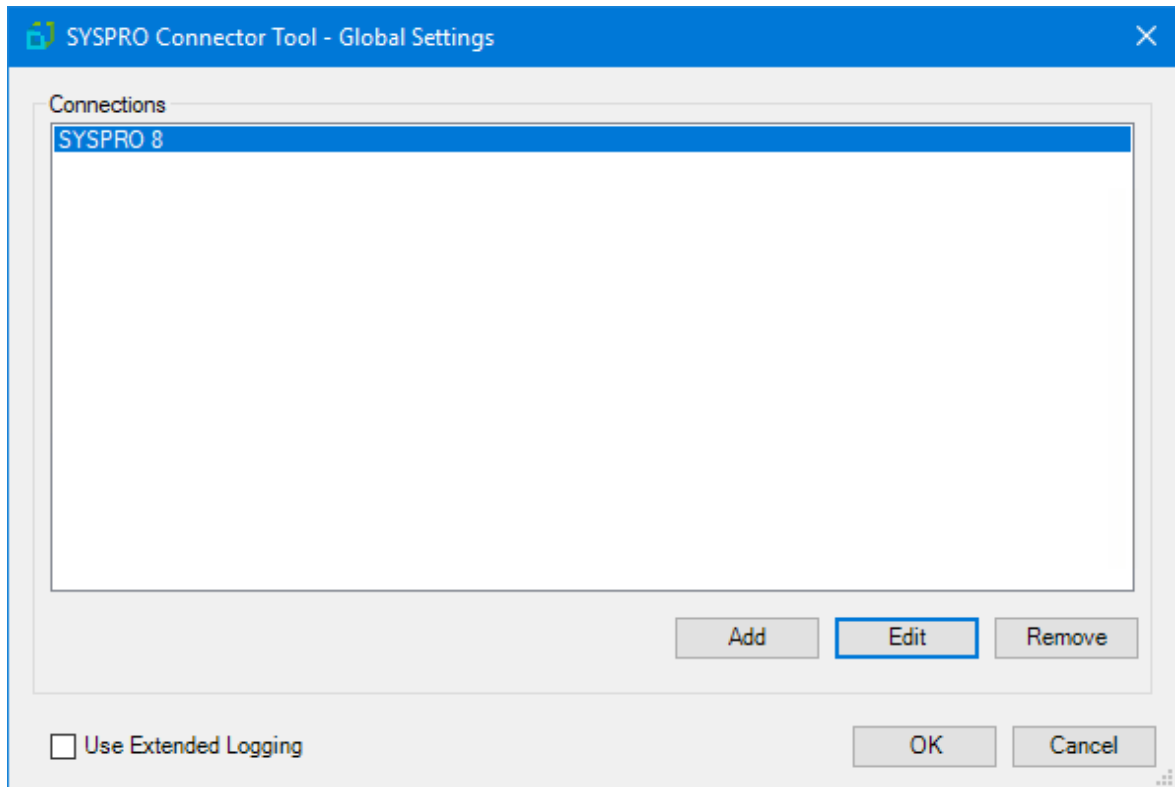
When a connection is created, the available objects and fields of your SYSPRO installation are retrieved.

Click **Add** to create a connection to SYSPRO.

> **NOTE:** You may be restricted as to the number of SYSPRO company database connections you can create. For more information, refer to the BPA Platform product help or consult your Codeless Platforms account manager or partner.

Using Extended Logging

Selecting this option exposes the full XML parsed between the **SYSPRO Connector** and SYSPRO.
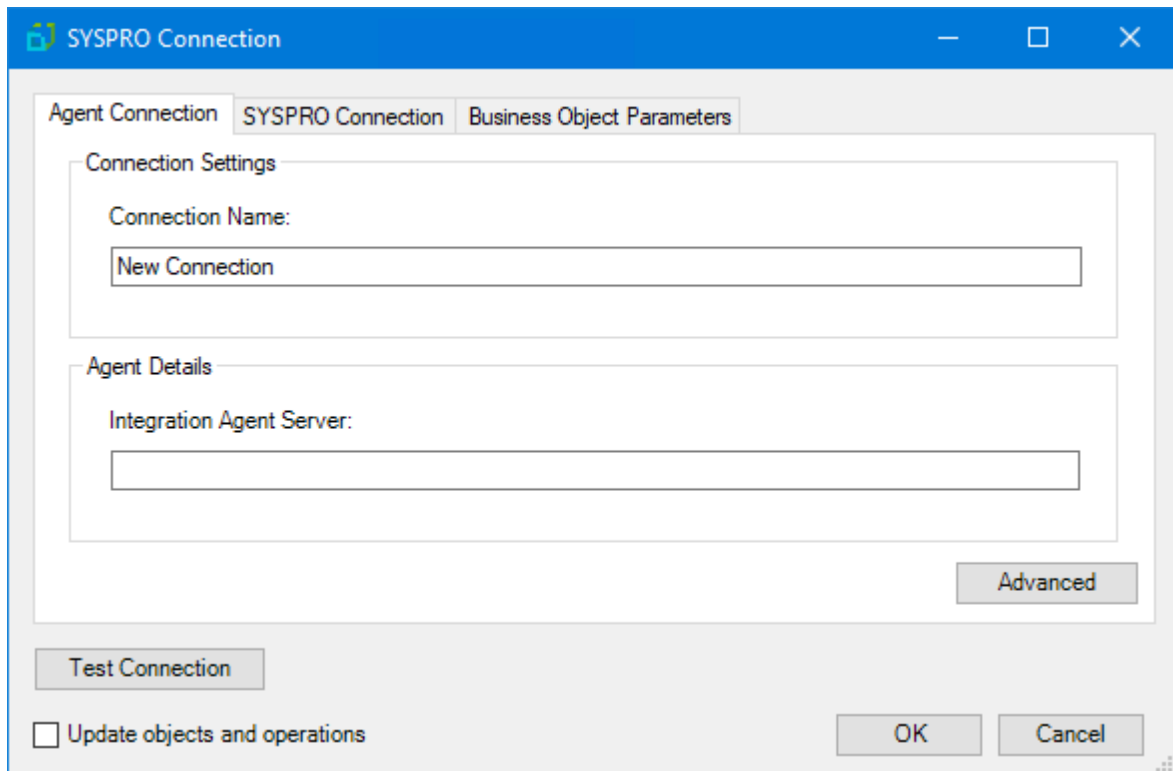
Without extended logging, the Event Log only contains start and end of transaction messages, plus any error messages encountered at runtime.

You can view the extended log in the BPA Platform Event Log (**Tasks** toolbar **> Event Log**).

> **TIP:** The Event Log database table may grow substantially large as extended logging adds additional rows for each call made to and from the **Connector**. To manage this, adjust the maintenance routine for the Event Log — refer to the BPA Platform product help.

About the Agent Connection Tab

You configure the connection to the **SYSPRO Connector Agent** here.

Configure a meaningful **Connection Name** for this **Agent** connection; this is the **Connection** name used when creating SYSPRO Connector task steps.

Specify the **Integration Agent Server** name of the computer hosting the **SYSPRO Connector Agent**. You can use either the hostname or IP address.

By default, the connection to the server is over HTTP, on TCP port 4211. Use the **Advanced** button to either **Set a Custom Port Number** if 4211 is already in use by the server, or to **Use HTTPS** to communicate to the server.
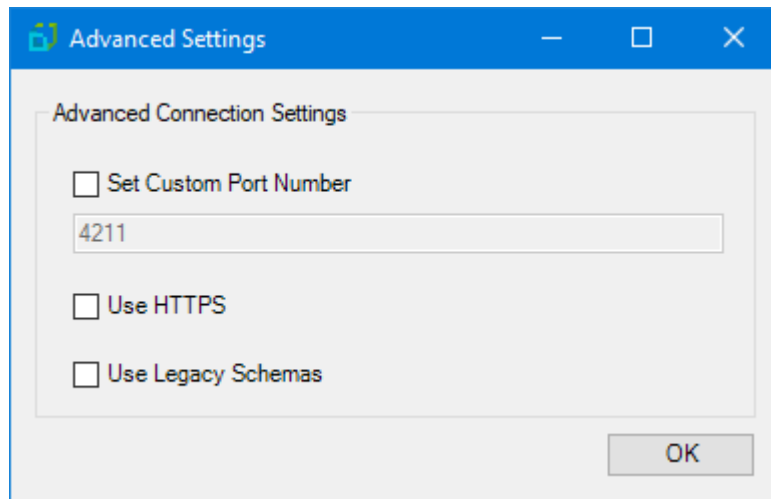
If you are upgrading from a beta release of the **SYSPRO Connector**, select **Use Legacy Schemas** after completing the upgrade to ensure existing tasks continue to run successfully.

Update Objects and Operations

Enabling **Update Objects and Operations** allows the SYSPRO schema in BPA Platform to be refreshed every time an update is made in SYSPRO itself.

Should you also upgrade SYSPRO to a newer, compatible version, all related schemas within BPA Platform must be refreshed. To do this, select this option and save the changes. You must repeat this for each existing connection you have defined.

> **NOTE:** After enabling **Update Objects and Operations**, you must refresh the schema in each **SYSPRO Connector** task step. You do this in the **Mapping** tab (**Schema Refresh**) — see *About the Mapping Tab*.

About the SYSPRO Connection Tab

Use the **SYSPRO Connection** tab to configure how the **SYSPRO Connector Agent** connects to the SYSPRO company database.

Enter the hostname or IP address of the computer hosting the **SYSPROWCFService** service into **Server**.

Enter the credentials required to access SYSPRO (**Username** and **Password**). Enter the **Company** database name and the **Password** required by the **Agent** to access the database.

Use **Test Connection** to ensure the **Agent** can communicate with SYSPRO successfully.

About the Business Object Parameters Tab

Use the **Business Objects Parameters** tab to set global values for the parameters sent to SYSPRO during transactions.
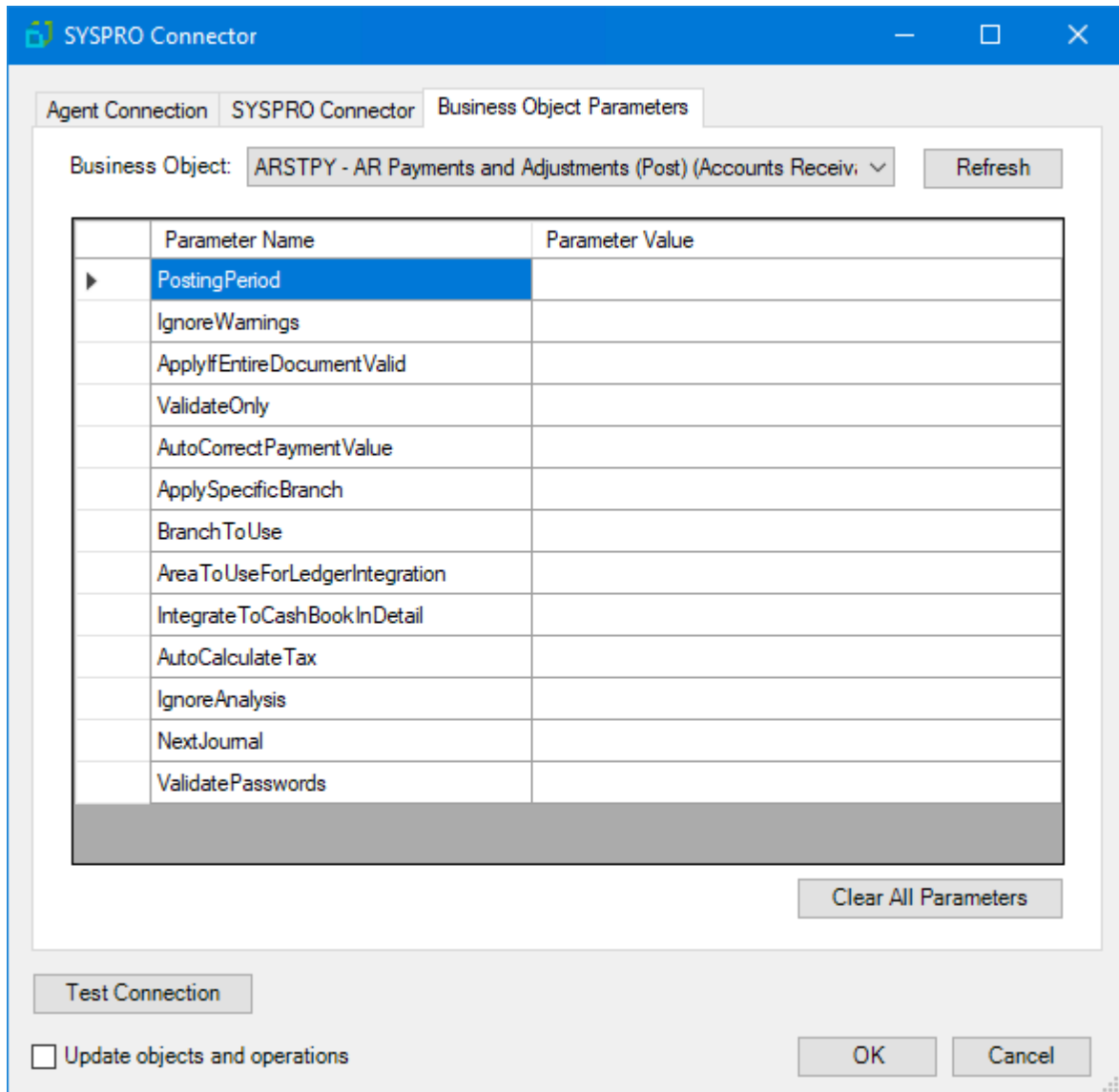
As part of the XML sent from the **Connector** to SYSPRO, you can also include parameter values that determine how the XML is treated. Each parameter has a default value set by SYSPRO but you can override this value on a connection or task run basis. The application of the values is prioritised as:

3. Default value used

2. Global connection value, if configured, is used over the default value — Note that where a **Parameter Value** has been left blank in the global configuration, this does not indicate a *NULL* value as a new value for that parameter

1. New value passed at task run time as mapped in the **Mapping** tab — for more information, see *About the Mapping Tab*

If any changes occur to your SYSPRO schema which affect the parameters, use **Refresh** to pull the latest list.

The formats required by each parameter is outside the scope of this document. For a detailed description of the formats, refer to the *SYSPRO Connector Data Dictionary*.

Step Configuration

When creating new tasks, the **SYSPRO Connector** is located under **Data Connectors** of the Task Browser.

> **NOTE:** It is not possible to add the **Connector** to the task until at least one connection to a SYSPRO database has been defined in the global configuration.

To add a new **SYSPRO Connector** step to an existing task, do the following:

From the relevant task, either:

▶   Click and drag the **SYSPRO Connector** icon from the **Task Browser** to the task **Design** area.

▶   From the task's **Design** tab, right-click on empty space and select ***New > Data Connectors > SYSPRO Connector***.

For a detailed description of how to create new tasks, refer to the product help.

About the General Tab

Use the **General** tab to choose the BPA Platform data source to be mapped to the SYSPRO objects. The data source must be in XML form. To map BPA Platform recordsets, configure a **Convert Recordset to XML** or **Transform Data** step in the task before the **SYSPRO Connector** step, then select this as **Task step** (see below).
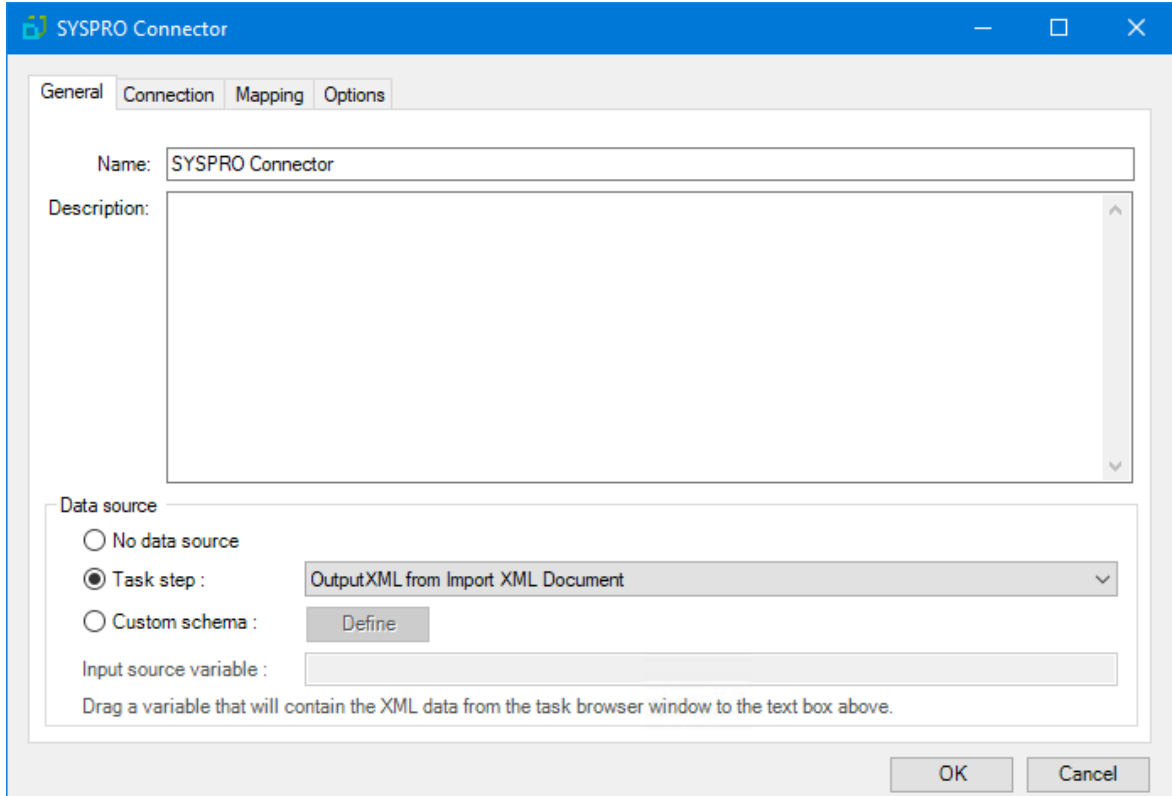
Provide a meaningful **Name** and **Description** for this step.

> **TIP:** If this task instance makes use of two or more **SYSPRO Connector** steps, ensure the **Name** used is unique for each individual step.

Data source can either be:

▶ **No data source** — If you don't make use of a dedicated XML input source, select this option to use BPA Platform variables in place of the XML or recordset objects' fields.

For example, you can extract various bits of information from an email and store them in BPA Platform variables. The variables are mapped to SYSPRO operational objects and fields to store in the database for later use.

▶ **Task step** — The data source can be set to an available BPA Platform XML data source.

Only those steps that are capable of natively exposing an XML document at runtime are listed. This may be another **SYSPRO Connector** step, or a tool such as **Convert Recordset to XML** or **Transform Data**.

▶ **Custom schema** — An XML schema defines the structure of the parsed XML: what tags are present, and the nesting of the tags. You **Define** the schema of the XML that is used as the input data source for this step. The **SYSPRO Connector** tool uses the industry standard XSD format. Any XML processed by this step must conform to this schema else an error will be reported.

If the XSD schema is available, either import it into the **Custom Schema Configuration** (use the **Import XSD/XML File** button), or copy and paste it into the configuration box.
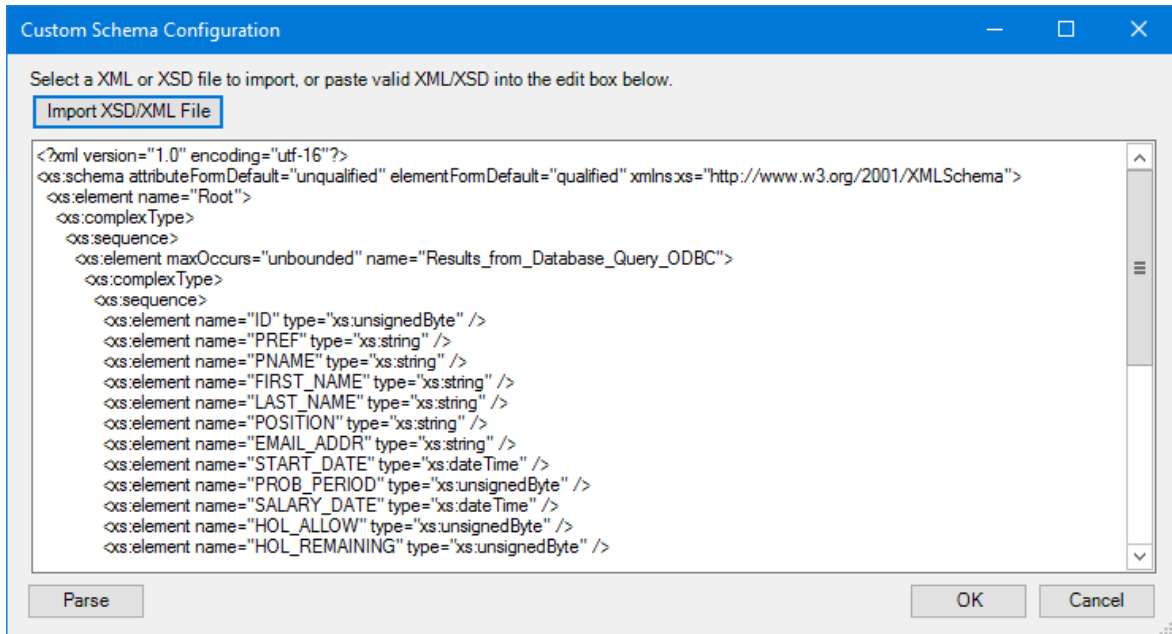
If the XSD schema is not available, you can import an example of the runtime XML (**Import XSD/XML File**), or copy and paste it into the configuration box. Use the **Parse** button to create the schema.

☐ **Input source variable** — As well as defining the schema, specify the BPA Platform variable that contains the XML data at runtime.

About the Connection Tab

You must specify the SYSPRO **Connection** this step must use.
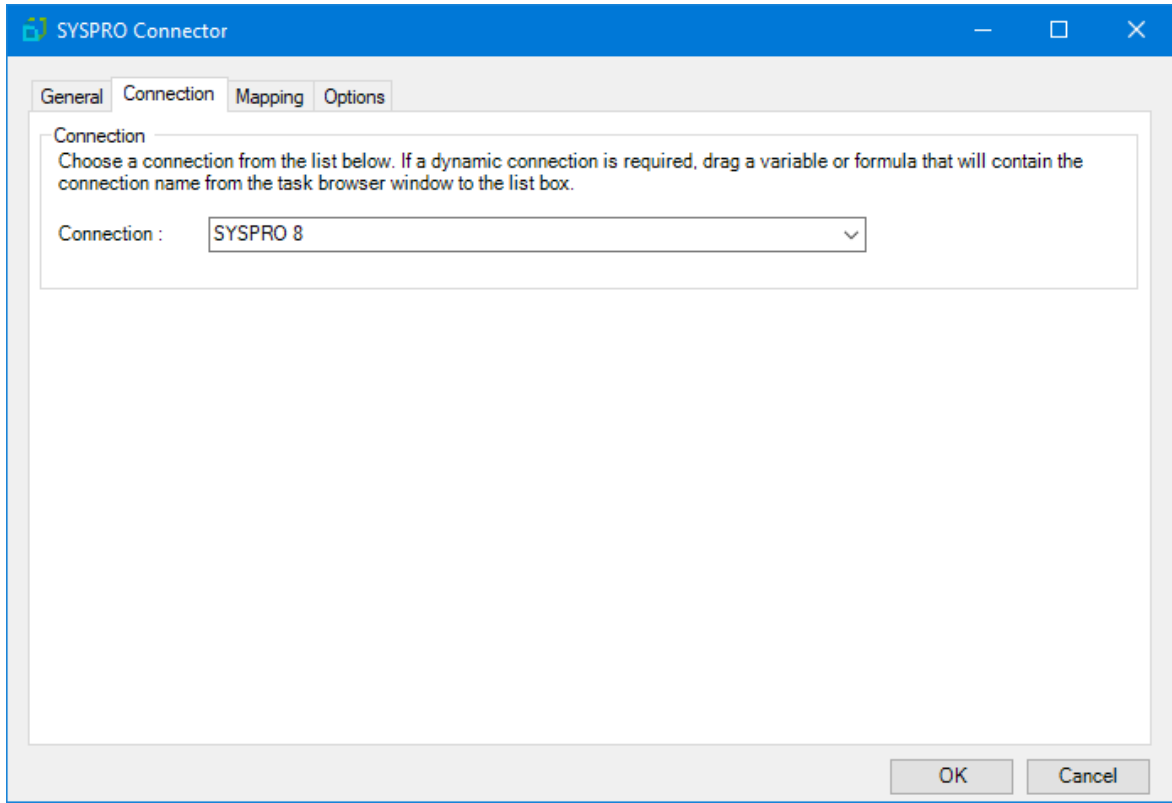
All connections created in *global configuration* are presented here.

Alternatively, you can use a BPA Platform variable or formula to create a dynamic connection, where the connection used is determined by runtime circumstances. At runtime, the contents of the variable must match the name of one of the global connections — this is case-sensitive. To do this, you must install a **SYSPRO Connector Agent** for each individual company database you want to monitor (even though access is through the same API). All **Agents** must be registered with the BPA Platform server and a separate global connection created for each **Agent**.

About the Mapping Tab

Use the **Mapping** tab to define links between the data source XML (see *About the General Tab*) and those required by SYSPRO. This defines how, at runtime, the incoming XML is to be translated into the XML required for the relevant object and operation.
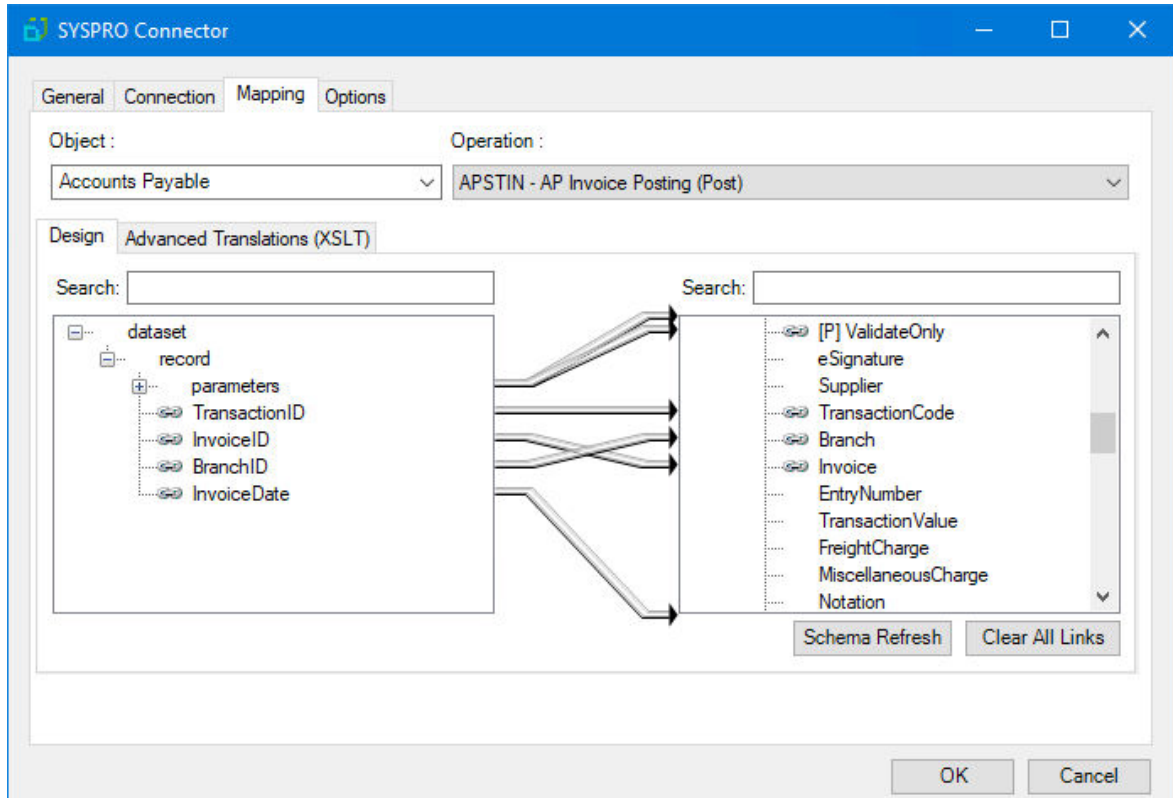
The **Object** drop-down shows the available SYSPRO modules. The **Operations** drop-down shows the business objects and functions available for the selected **Object**

Further down, the left-hand XML tree structure shows those data source fields available for mapping . The right-hand XML tree structure displays those input fields for the selected **Object** and **Operation**.

> **TIP:** If you have selected **No data source** in the **General** tab, you must add BPA Platform formulas and variables to the left-hand data source XML tree structure before mapping.

Creating Mappings

Create links by dragging and dropping a data source field (left) onto its corresponding **SYSPRO Connector** input field (right). Only linked fields are used in the output XML.

BPA Platform formulas and variables can be included in the source data even when using a **Task step** or **Custom schema** — drag them from the Task Browser to the data source's XML; these can then be linked to the relevant input fields. BPA Platform recordsets must first be converted to XML using either the **Convert Recordset to XML** or **Transform Data** tool before they can be used here.

Each operation has an additional field, `SupplementaryReference`, which allows for traceability when transferring data from one place to another. When mapped, the data resides locally at runtime. It is added to the output, and creates a record for reference purposes only — you can choose to map any field to `SupplementaryReference` to assist with checking where the data originated from or at what time the data transfer occurred, for example.

The **SYSPRO Connector** tool uses eXtensible Stylesheet Language Transformations (XSLT) to translate the received XML. The **Advanced Translations (XSLT)** tab shows the XSLT generated for the links created for the object and operation. Use **Enable Free Type Mode** to directly edit the XSLT — this is particularly useful when translating a non-standard requirement.

Refreshing the SYSPRO Schema

If new fields, objects, and operations have been added to your SYSPRO instance after this task step was originally created, use **Schema Refresh** to make the latest API metadata available for use (ensure **Update Objects and Operations** is selected first in the relevant global connection).

Supported Objects

The following SYSPRO modules, business objects, and methods are supported. Note that "modules" are displayed in the **Objects** drop-down, with "business objects" and "methods" combined into a single display (**Operation**).

> **NOTE:** This information references SYSPRO version 8. If using a different version, refer to your SYSPRO documentation.

Module (Object): Accounts Payable

The following SYSPRO business objects and methods are available as operations for the **Accounts Payable** object.

Business Object	Business Object (Long Hand)	Method
APSQ51	AP EC Tax Distribution	QUERY
APSQ52	AP Tax Distribution Report	QUERY
APSQQS	AP Second Tier Tax Report	QUERY
APSQRY	AP Supplier Query	QUERY
APSTIN	AP Invoice Posting	POST
APSTPY	AP Payment Cycle Maintenance	POST

Module (Object): Accounts Receivable

The following SYSPRO business objects and methods are available as operations for the **Accounts Receivable** object.

Business Object	Business Object (Long Hand)	Method
ARSQ70	AR Payments Distribution Query	QUERY
ARSQ85	AR Customer Movement Report	QUERY
ARSQMA	List of Multiple Ship to Addresses	QUERY
ARSQPR	AR Payment Run Report	QUERY
ARSQRY	AR Customer Query	QUERY
ARSTIN	AR Invoice Posting	POST
ARSTPY	AR Payments and Adjustments	POST

Module (Object): Cash Book

The following SYSPRO business objects and methods are available as operations for the **Cash Book** object.

Business Object	Business Object (Long Hand)	Method
CSHQ70	Cash Book Tax Report	QUERY
CSHTWD	Cash Book Deposits and Withdrawls	POST

Module (Object): Contact Management System

The following SYSPRO business objects and methods are available as operations for the **Contact Management System** object.

Business Object	Business Object (Long Hand)	Method
CMSQRY	Contact Query	QUERY

Module (Object): General Ledger

The following SYSPRO business objects and methods are available as operations for the **General Ledger** object.

Business Object	Business Object (Long Hand)	Method
GENQBG	GL Balance GRN's Query	QUERY
GENQRY	GL General Ledger Query	QUERY
GENTJL	GL Journal Posting	POST

Module (Object): Inventory

The following SYSPRO business objects and methods are available as operations for the **Inventory** object.

Business Object	Business Object (Long Hand)	Method
CFGTPC	Product Configurator	POST
INVQPH	Inventory Price History Query	QUERY
INVQPL	Inventory Price List Query	QUERY
INVQRY	Inventory Query	QUERY

Module (Object): Purchase Orders

The following SYSPRO business objects and methods are available as operations for the **Purchase Orders** object.

Business Object	Business Object (Long Hand)	Method
PORQ84	GRN Journal Report Business Object	QUERY
PORQRY	PO Purchase Order Query	QUERY
PORTGN	GRN Post GRN Adjustments	POST
PORTGR	GRN Post GRN details	POST
PORTOI	PO Purchase Order Import	POST
PORTOR	PO Purchase Order Receipts	POST
PORTRA	PO Requisition Approve Clear	POST
PORTRQ	PO Requisition Entry	POST

Module (Object): Return Merchandise Authorization

The following SYSPRO business objects and methods are available as operations for the **Return Merchandise Authorization** object.

Business Object	Business Object (Long Hand)	Method
RMATRH	Create / Update RMA Header	POST
RMATRL	Create / Update RMA Detail	POST

Module (Object): Sales Orders

The following SYSPRO business objects and methods are available as operations for the **Sales Orders** object.

Business Object	Business Object (Long Hand)	Method
SORQDD	SO Dispatch Note Documents Query	QUERY
SORQDN	SO Dispatch Note Query	QUERY
SORQID	SO Sales Order Invoice Document Query	QUERY
SORQND	SO Dispatch Invoice Document Query	QUERY
SORQRY	SO Sales Order Query	QUERY
SORQSO	SO List of Sales Orders	QUERY
SORTDA	Dispatch Note Add Lines from Sales Order	POST
SORTDN	Dispatch Note Creation From Sales Order	POST
SORTOI	SO Sales Order Import	POST
SORTOS	SO Change Order Status	POST
SORTOX	SO Order or Order Line Cancel	POST

Module (Object): System Manager

The following SYSPRO business objects and methods are available as operations for the **System Manager** object.

Business Object	Business Object (Long Hand)	Method
APSSSP	AR Supplier Maintenance	ADD
APSSSP	AR Supplier Maintenance	DELETE
APSSSP	AR Supplier Maintenance	UPDATE
ARSSCS	AR Customer Maintenance	ADD
ARSSCS	AR Customer Maintenance	DELETE
ARSSCS	AR Customer Maintenance	UPDATE
BOMSRO	BOM Routing Maintenance	ADD
BOMSRO	BOM Routing Maintenance	DELETE
BOMSRO	BOM Routing Maintenance	UPDATE
BOMSST	BOM Structure Maintenance	ADD
BOMSST	BOM Structure Maintenance	DELETE
BOMSST	BOM Structure Maintenance	UPDATE
CMSSCO	Contact Maintenance	UPDATE
CMSSCO	Contact Maintenance	DELETE
CMSSCO	Contact Maintenance	ADD
COMFCH	COM Generic Fetch	FETCH
COMFND	COM Generic Find	QUERY
COMSFM	COM Custom Form Setup	UPDATE
COMSFM	COM Custom Form Setup	ADD
COMSFM	COM Custom Form Setup	DELETE
COMSMM	Multimedia Setup Business Object	UPDATE
COMSMM	Multimedia Setup Business Object	DELETE
COMSMM	Multimedia Setup Business Object	ADD
COMTFM	COM Custom Form Post	POST
IMPQTS	Tax Submission Query	QUERY

| Business Object	Business Object (Long Hand)	Method
IMPSCU	Currency Exchange Rate Maintenance	UPDATE
IMPSCU	Currency Exchange Rate Maintenance	DELETE
IMPSCU	Currency Exchange Rate Maintenance	ADD
INTQ08	Interface List of States	QUERY
INVSPR	Inventory Price Maintenance	ADD
INVSPR	Inventory Price Maintenance	UPDATE
INVSPR	Inventory Price Maintenance	DELETE
INVSST	Inventory Stock Code Maintenance	ADD
INVSST	Inventory Stock Code Maintenance	DELETE
INVSST	Inventory Stock Code Maintenance	UPDATE
INVSWS	Inventory Stock/Warehouse Maintenance	ADD
INVSWS	Inventory Stock/Warehouse Maintenance	DELETE
INVSWS	Inventory Stock/Warehouse Maintenance	UPDATE

Module (Object): Work in Progress

The following SYSPRO business objects and methods are available as operations for the **Work in Progress** object.

Business Object	Business Object (Long Hand)	Method
WIPQRY	WIP Query	QUERY
WIPTJB	WIP Job Creation and Maintenance	POST
WIPTJC	WIP Job Closure	POST
WIPTMI	WIP Job Specific Issues	POST

About the Options Tab

The **Options** tab allows you to define how errors in this step are handled at task runtime.
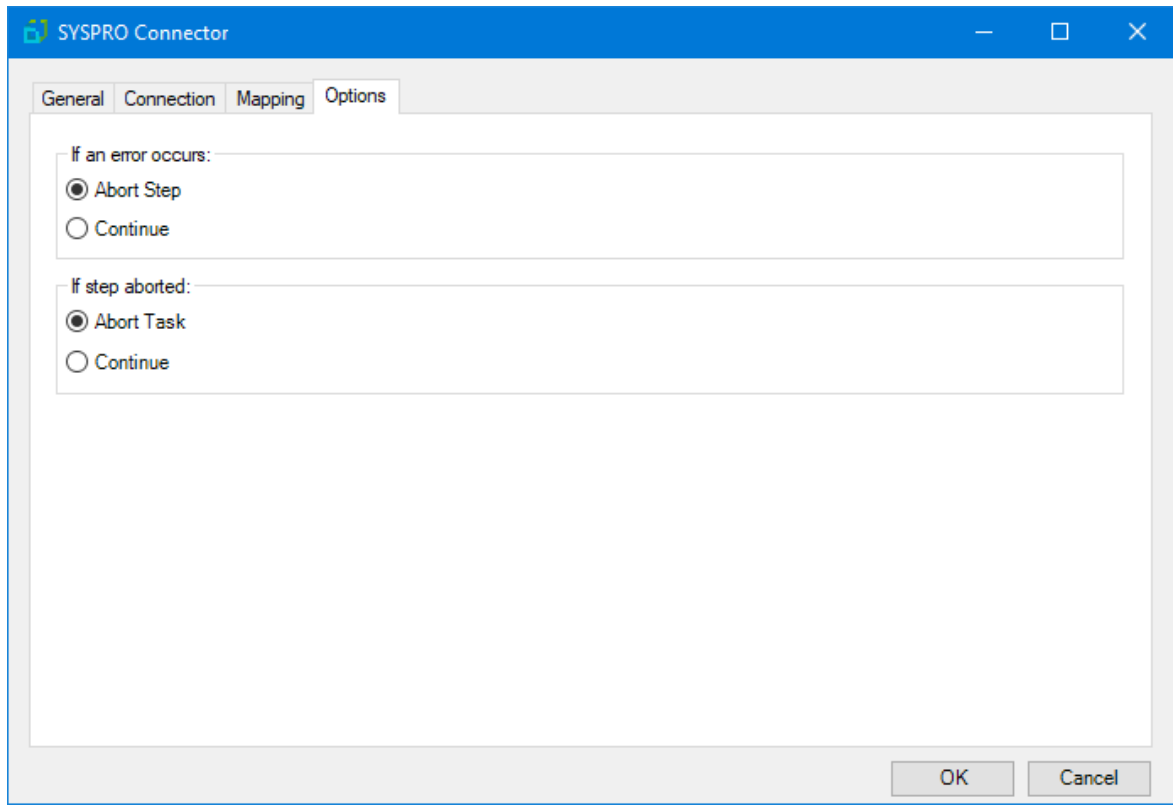
If an error occurs, you can decide whether the step should **Continue** processing, or terminate the step immediately (**Abort Step**).

If the step is aborted, you can choose to **Continue** processing onto the next step in the task, or terminate the whole task immediately (**Abort Task**). By allowing the task to **Continue**, you can use the error XML received back in a **Save File** step for investigation purposes, for example.

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