

Best Practice: Connecting to SYSPRO

An introductory guide to connecting to SYSPRO,
posting data and obtaining SYSPRO data.

SYSPRO 8 Technical Article

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SYSPRO Help and Reference

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Introduction

AUDIENCE

This article is aimed at Independent Software Vendors & Systems Integrators to assist with knowledge regarding the different ways of connecting to SYSPRO.

PURPOSE

This document details the methods available for getting data in and out of a SYSPRO instance and is aimed at providing an initial integration overview, where further education and reading is required. [Links](#) have been supplied to the relevant online resources at the end of the document.

ANNOTATION

This document is for publication and distribution.

SYSPRO makes no warranties, express or implied, in this document. The information contained in this document is an overview of the intended connectivity capabilities of SYSPRO and should be interpreted as a 'point in time' guide as to the connectivity options for SYSPRO.

SYSPRO's Connectivity Options

SYSPRO provides the following abilities to connect to the SYSPRO Application:

- **Web Services endpoint (HTTP/SOAP)** < *On Premise Deployments Only* >
- **Windows based communication service (WCF)**

These two mechanisms provide the following functions:

- Connect to SYSPRO
- Authenticate with SYSPRO
- Post data to SYSPRO
- Retrieve data from SYSPRO

- **OData Service (ODATA)**

This mechanism provides a method to gain read-only access to the SYSPRO SQL databases.

OData is an industry standard REST based protocol, which can be used to provide secure read-only access to the underlying system database data. Subject to database user permission configuration.

SYSPRO'S CONNECTIVITY RECOMMENDATION

Where possible, SYSPRO recommends the use of the **SYSPRO e.net Communications Load Balancer** service when making calls to SYSPRO, and that SYSPRO's Business Objects are used to query and post data to SYSPRO.

If OData is used to retrieve data, then the **SYSPRO OData** service should be deployed using secure socket layer technology and secured with an SSL certificate to grant access over HTTPS.

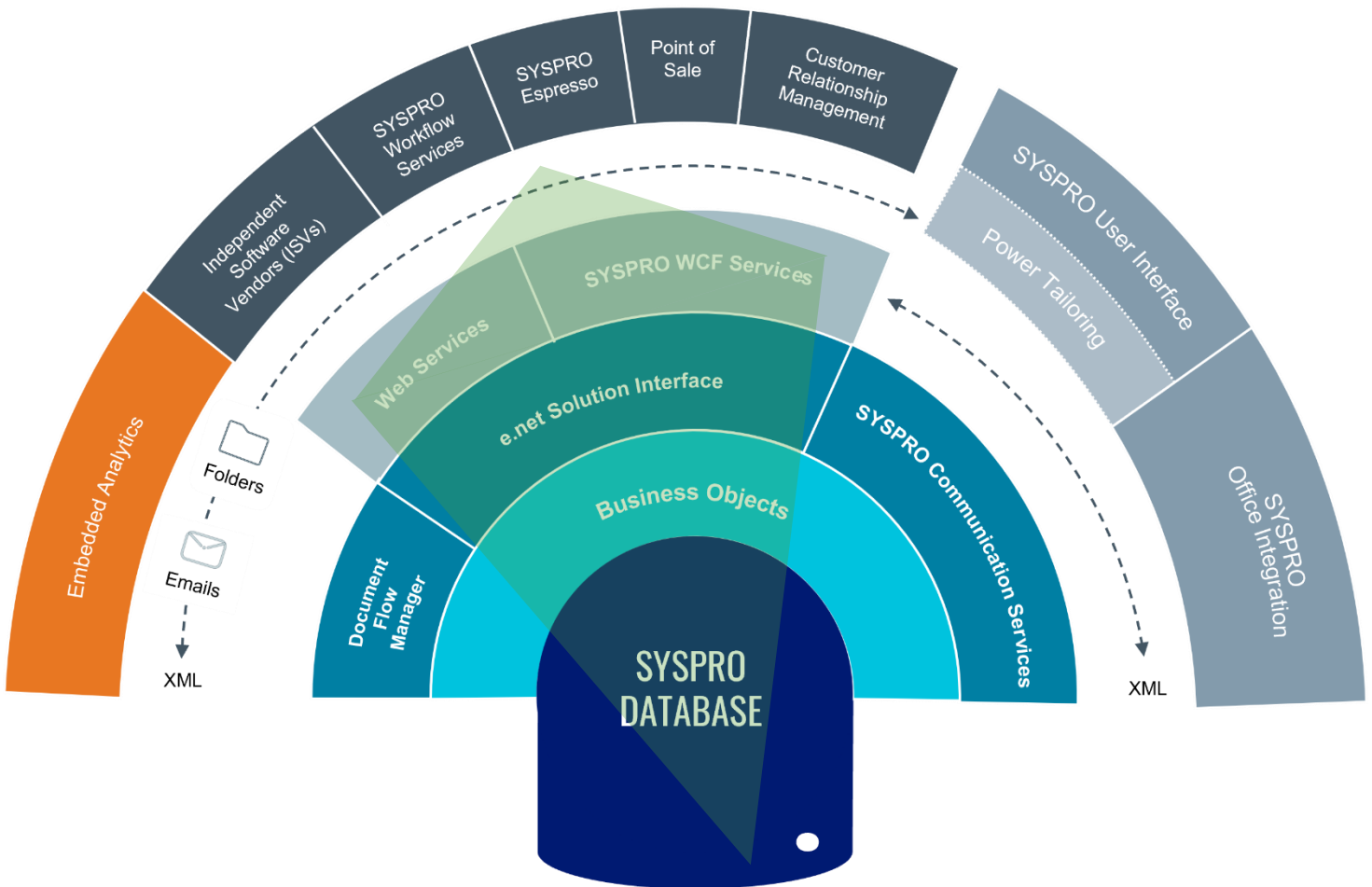
Vendors should be mindful of having to perform their own aggregations and conversions.

Using these methods for integration will futureproof a solution and prevent version locks for the vendor and the customers.

SYSPRO's Integration Architecture

SYSPRO is built up of the following integration components:

- An underlying database with a logic layer called Business Objects that act as the XML based query and posting methods.
- An e.net solutions manager solution that provides the ability to secure accessibility to the business logic layer.



Regardless of whether one uses the Web Services or WCF Services, the gateway and methods currently utilize the e.net solutions interface, unless OData is being used to access the database directly.



SYSPRO Access Licensing

When an integrated solution needs to access SYSPRO, the calling application must authenticate itself against SYSPRO and the level of underlying business logic access it requires.

For software providers that are **not ISV certified for SYSPRO**:

Authentication is performed by SYSPRO Operator, and the operator security access to the business object functional area will then be checked during authentication.

It is therefore the responsibility of a SYSPRO Customer to ensure they have enough SYSPRO users licensed to perform integrations, and that the correct business object functional areas are licensed for the desired band of integration users.

For **certified ISV partners of SYSPRO**:

These partners are provided with a 'runtime' token license (i.e. a license code that can be passed during the SYSPRO authentication).

This allows specific access to the declared business object functional areas and runtime access without requiring **eNet System Manager** to be a licensed module, and to OData without the customer having to purchase the **SYSPRO OData** module separately.

SYSPRO Data

GETTING DATA INTO SYSPRO

The correct method of adding data to SYSPRO is via the e.net solutions layer, accessed via the **SYSPRO WCF Service** or the **SYSPRO Webservice**.

SYSPRO provides Business Objects which represent business processes that can be performed in SYSPRO.

These 'Business Objects' are subject to the same checks and balances on posting to SYSPRO as if you were manually entering data into the browser program UI, receiving similar validation messages and benefiting from the same settings (or what SYSPRO calls 'parameters'). Albeit without checks 'as you go along'.

The Business Objects allow for query filters and posting options to be specified for the underlying data query response or posting to SYSPRO.

MANUAL DATA UPLOAD UTILITY (IMPIMP – IMPORT MASTER DATA)

Within SYSPRO, there is a static data upload program called **Import Master Data (IMPIMP)** otherwise referred to as the data import utility.

This program lets you use SYSPRO's Setup business objects to capture new master data in SYSPRO or update and delete existing data (i.e. manual bulk data entry using spreadsheet templates). These templates can also be generated by the data import program to help ensure the structural integrity of the column data.

Note: This option should not be looked over as a potential ISV option for manually uploading data to SYSPRO – which is also validated by the underlying business objects, which it uses to post the updates to the static master data tables.

GETTING DATA OUT OF SYSPRO

There are various options for obtaining data from SYSPRO:

USING THE SYSPRO E.NET BUSINESS OBJECTS TO QUERY DATA

This method returns data for either a single key or a range of items, depending on the specific business object.

In all cases the same business rules, aggregation and other calculations are performed as per the rest of SYSPRO. This includes values such as tax, ageing, currency conversions, discounting, commission calculations, etc.

Note: Business objects are always forward compatible, even when there are changes to the underlying database tables.

OBTAINING RAW DATA FROM THE SYSPRO DATABASE

This is provided via the **SYSPRO OData** service and allows for an ISV or integration partner to access any SYSPRO database table, either against a company or the system itself.

USING SYSPRO BUSINESS ACTIVITY QUERIES TO CREATE CUSTOM DATA SETS IN SYSPRO

This provides a low-code dataset creation tool based on business logic that solves custom dataset requirements across several areas of enterprise reporting in SYSPRO. These can also be surfaced in OData as required for integration solutions.

WARNINGS

Connecting to the SYSPRO databases directly using SQL drivers is not advised, as this will invariably affect performance, solution availability, service levels and licensing.

It also often affects the ability of a SYSPRO customer to upgrade to later SYSPRO versions, as version specific tables and columns may tie in the specific solution to a specific SYSPRO release.

SYSPRO Integration Tools

The following indicates a summary of the integration tools available in SYSPRO 8:

APPLICATION DESIGNER

The **Application Designer** enables developers to extend the enterprise by creating newly imagined solutions in both the SYSPRO Desktop and SYSPRO Web UI (Avanti) versions, saving cost and time in building out new SYSPRO platform solutions, as well as improving productivity and storyboarding.

SYSPRO's Application Designer is used internally by SYSPRO development to create and publish standard SYSPRO applications. This tool is also used by partners and customers to create new applications for the SYSPRO platform. These applications can in turn be customized by end-users (e.g. add custom form fields, customized panes, etc.).

The Application Designer is designed to reduce the complexity of coding by providing a simple interface to the SYSPRO core functionality. It inherits and harnesses all SYSPRO's underlying security, enrichment and flexibility, and leverages the comprehensive library of SYSPRO business logic, UI controls and event handlers.

The Application Designer embraces the Low Code/No Code approach to application development with an integrated development environment accessed within the SYSPRO application, using the visual interface to select each of the UI Controls and design the layout of the application. The application, form and applied UI Controls all have pre-defined parameters which can be set during the development without the need for writing code including binding data via business objects or direct database connections. For more complex tasks the developer can use the VBScript editor for specific UI events, as well as connecting to third party APIs and DLLs.

For more information, view the following link:

<https://infozone.syspro.com/Support/SYSPRO8/Pages/ApplicationDesigner.aspx>

APPLICATION BUILDER

The **Application Builder** lets you create your own SYSPRO applications using just customized panes. And as these applications are launched from within SYSPRO, they can access e.net Solutions business objects without requiring additional licenses.

There are currently 20 application programs available. Each behaves exactly like a typical SYSPRO program, except that there is no embedded functionality (i.e. these builder programs are, in effect, blank windows that contain no controls so that you can add whatever customized panes you require to create a complete application).

SYSPRO's standard **Customized Pane Editor** program is invoked which lets you embed a range of objects (e.g. graphs, dashboards, list views, forms, etc.). Although each of these applications is sand-boxed, if one contains multiple customized panes, these panes can communicate with each other within the same application.

For more information, view the following link:

https://help.syspro.com/syspro-8-2023/g_programs/imp/impdh1/impdh1.htm



Future planned changes

SYSPRO REST API

SYSPRO is currently investigating options for adding a web-based REST endpoint for SYSPRO's ISV's and Systems integrators to utilize as a SYSPRO connectivity option.

SYSPRO APPLICATION CONNECTORS

SYSPRO will continue to add application connectors to commonly used business solutions that require an off-the-shelf integration solution with configuration options.

Links for further reading

Reference	Description
<u>SYSPRO Business Object Reference Library</u>	SYSPRO InfoZone Business Object Reference Library. (Access is limited to registered users only)
<u>SYSPRO Instance</u>	SYSPRO Web-UI Instance (Community Preview)
<u>ODATA References</u>	The OData Online Reference Guide
<u>SYSPRO Help</u>	SYSPRO's Global Help References
<u>SYSPRO Technical & Developer Help</u>	SYSPRO's Global Help Site for Developers
<u>SYSPRO InfoZone</u>	SYSPRO's information microsite
<u>SYSPRO LearnIt Online</u>	Structured courses and certifications for developers (Access is limited to subscription users only)
<u>SYSPRO e.net solutions guide</u>	A develop guidebook for creating connections to SYSPRO and interacting with SYSPRO's e.net solutions layer
<u>SYSPRO Power Tailoring Guide</u>	A developer handbook for creating tailored solutions in SYSPRO
<u>developer.syspro.com</u>	To be available during 2024



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