SYSPRO Harmony

SYSPRO 8

Reference Guide

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This program lets you configure and manage the ERP information you want to track within the product.

Understand and Explore

Harmony is a social ERP platform embedded in the SYSPRO product, and combines the following multitude of technologies into one application:

- Social Media
- Collaboration
- Machine Learning
- Cognitive Services
- Data Analytics

Where does it fit in?

The Harmony platform allows users to collaborate and communicate inside the context of the SYSPRO ecosystem.

Then, using a combination of the data generated from these interactions, along with the vast company data generated by the SYSPRO product, it provides a single view and a more personalized working platform for the user, no matter where in SYSPRO they may be.

The benefits of using SYSPRO Harmony include:

- Requires no license - Harmony is a free module
- Drives user collaboration with social ERP conversations
- Follows information and surfaces to the user
- Provides 24/7 view of your company's operating status
- Simplifies complex technologies and business processes
- Enables faster decision making
- Data sentiment integration
- Alerts users on trending information
- Enables integration of SYSPRO data onto a messaging platform
- Enables trend analysis in conversations

⊙ Getting Started

Prerequisites

Prerequisites	Installation notes and considerations
e.net Communications Load Balancer	This must be installed on the application server with **SYSPRO 8** as only an active connection to this service is required.
Microsoft SQL Server 2012 or higher	
Microsoft .NET Framework 4.6	
Microsoft .NET Core 1.1.0 (Windows Server Hosting)	
IIS 7.0	Ensure that the **CoreWebEngine** and **W3SVC** features are installed.
SYSPRO Service Upgrade Manager	This service updates all the SYSPRO services automatically.
SYSPRO Rules Data Service	This service monitors SQL transactions on the SYSPRO databases, as required by the Rules Engine. ▣ Ensure that the SOAP and REST port numbers match those configured in SYSPRO (*System Setup > E.Net Service Details*). ▣ You must restart this service manually once you have completed the SYSPRO configuration. ▣ We recommend that you install the service on the same server as SQL Server.

Prerequisites	Installation notes and considerations
SYSPRO Rules Engine Service	This service queries all SQL transactions on the SYSPRO databases - Ensure that the SOAP and REST port numbers match those configured in SYSPRO (*System Setup > E.Net Service Details*). - You must restart this service manually once you have completed the SYSPRO configuration. - We recommend that you install the service on the same server as SQL Server.
SYSPRO Harmony Service	This service processes all Harmony transactions.
SYSPRO Harmony API Service	This service provides an interface for Harmony integration and must be installed on a machine with Internet Information Services (IIS 7.0).

Configuring

Once you have concluded the installation process for all required components, you need to configure Harmony within SYSPRO itself:

1. Open the **System Setup** program and select the **Rules Engine / Harmony** tab.

2. Enter the relevant information as follows:

Field	Description
Rules engine options	

Active company list	Indicate the companies for which you want to enable the Rules Engine.
	
	After configuring this setting and restarting SYSPRO, the following processes occur in the background:
	
	  ▪ The applicable SQL tables are created within the SYSPRO database (their names prefixed by the word `Rules`).
	
	  ▪ A new SYSPRO operator is created: `__RUL`. This operator is required in order for the services to run.
	
	After configuring this setting and restarting SYSPRO, the following processes occur in the background:

Harmony options	
Active company list	Indicate the companies that you want to enable for Harmony.
Harmony API service address	Indicate the url of the ***SYSPRO Harmony API Service*** . This is the Harmony service installed within IIS. For example: `http://localhost/SYSPROHarmonyAPI/` (where localhost is replaced by your server IP address).

Field	Description
Harmony service address	Indicate the address to the **SYSPRO Harmony API Service** which is used to process Harmony transactions. **For example:** `net.tcp://localhost:33334/HarmonyService` (where `localhost` is replaced by your server IP address). 📄 The port number must match your entry made when installing the **SYSPRO Harmony Service**.
Harmony database connection	
Authentication	Select an authentication mode to use when processing transactions on the Harmony database.
SQL Server name	Indicate the name of the SQL server that will be used for the Harmony database.
Login	Indicate a valid SQL login name for the Harmony database.
Password	Indicate the corresponding password for the SQL login.
Test SQL connection	Test the SQL connection to the Harmony database with the parameters indicated.
Harmony purge options	📄 The Harmony purge options allow you to indicate how much beat information (beat records and beat record information) is retained in the `_Hrm` database.
Automatically purge	Enable this option for purging to take effect. By default this option is disabled. 📄 When this option is enabled, records are permanently deleted from the database.
Months to retain	Specify how long beat records and beat information must be retained in the database. **For example:** If you enter 4 months, then subsequently no beat information will be older than 4 months. By default this value is 3 months.

Field	Description
Purge after (years)	Reflects the period after which purging will take place.
Harmony data visibility	The data visibility options allow you to indicate the preferred time span when surfacing data inside Harmony.
Detailed data visibility (months)	Indicates how old data can be when surfaced to the Harmony client. **For example:** If you enter 3 months, then subsequently only beats 3 months old and younger will be surfaced to the Harmony client. By default this value is 3 months.
Summary data visibility (months)	This option is related to how data is surfaced to the Harmony client. It is used for calculating various aspects across beats within the system, such as: - Minimums - Maximums - Averages - Standard deviations - Importance of beats based on historical data in the system In other words, all of these counters are used to determine how important a certain beat is. By default this value is 3 months.

3. Save and exit.

4. Restart SYSPRO.

5. Once you have completed the installation process, as well as the SYSPRO configuration, ensure that all of the newly-installed services are running, using the **Windows Services** program.

6. Load the **SYSPRO Harmony** program in SYSPRO.

   A blank window is displayed as you need to enable web views for this program.

7. Select the **Design Web View** option from the ⚙ icon.

   The **Design New View** message box is displayed.

Accept the default template and select **Save**.

You can also optionally configure your own template design.

◉ Troubleshooting

System Messages

Error Messages

Connection error during installation of Rules Data Service - TCP Error code 10061:

Ensure that the **e.net Communications Load Balancer** is installed and that the SOAP port number used during the install matches that of the **Load Balancer EndPoint** in the **Rules Data Service** install wizard.

Deploy & Use

The **SYSPRO Harmony** program enables all the features of Harmony, including the following:

Data Mining Service

In order for Harmony to access all the information and transactions happening in SYSPRO, a data mining service was created.

This mining service monitors the SYSPRO database and its transaction log. It cleanses the data and then stores it in a relational database ready to be processed by Harmony and the Rules Based Engine.

> This service can reside anywhere in the SYSPRO infrastructure, however we recommend that it is installed on the same server as the SQL Server.

In addition, data sentiment enables a complete spectrum picture of customer opinion about your services or products for informed and strategic decision making. Visual cues (the equivalent of emoticons), help alert users by attaching sentiment to specific items

Emoji	Sentiment
😄	Very happy
🙂	Happy
😐	Neutral
🙁	Unhappy
😫	Very unhappy

News Feed

Harmony provides the equivalent of a news feed that's auto-populated by conversations with relevant information, based on key ERP components that you choose to follow.

Instead of needing to go into the system to retrieve pertinent information, the system intelligently pushes it to you.

Similarly, you can opt into following any other key information in SYSPRO (e.g. stock codes, suppliers, sales orders, etc.).

For example: If you choose to follow the customer Bayside Bikes, your newsfeed will update every time there is an activity for that customer (e.g. when the customer's information has changed, or when a sales order has been created, or even when the customer has returned something).

In addition, some intelligent algorithms monitor the content that your peers follow (as well as what is trending in the database) and these insights are surfaced in your news feed.

Collaboration

The collaboration aspect of Harmony brings SYSPRO users together via a chat method, similar to that of **WhatsApp** or **Skype**. However, unlike traditional chats, Harmony allows users to bring the context of their ERP data into the conversation using social media techniques (e.g. # hashtags).

Harmony lets you post *beats* (i.e. conversation posts within the Harmony portal) like you would on **Facebook** or **Twitter**. However, you have the added benefit of those beats being able to contain data context with the use of @ signs and # tags. *For example:* If you enter `#Customer abc.Balance`, Harmony returns that customer's balance immediately and enables you to beat about it.

Therefore, when collaborating, users have full and secure access to the data in their SYSPRO databases. This enables them to query information directly in the chat, such as stock information, sales order statuses, customer information, etc.

Users can *reply* and *like* messages that have been posted, thus elevating their importance or relevance.

Additionally, Harmony makes use of cloud-based cognitive services that detect conversation sentiment. It will detect if the conversation's sentiment is positive, negative or neutral, and indicate accordingly.

Trend Surfacing

Most social media applications (like **Twitter** or **LinkedIn**) use intelligent machine learning algorithms to detect trends from the messages that are being posted, and then surface that information to the user according to their relevance. In a similar fashion, Harmony uses predictive analytics to reveal trends that provide actionable insight. The difference is that not only does Harmony process machine learning and trend detection on conversations, it also processes these on the core SYSPRO database.

Harmony will identify transactions happening on the SYSPRO database, identify the key fields on which the transactions are happening, and then perform trend detection and aggregation on this data. It will then present this information to the user in the form of a chart and reflect what is currently trending in the SYSPRO database.

For example: A stock code could be used in a large number of sales orders, as well as some purchase orders and RMAs. In this case, that stock code would be trending.

This simple piece of functionality brings critical information to the forefront without you having to ask for it or consolidate reports across the different modules.

Rules Engine

The rules based engine works together with the data mining service and allows you to create complex triggers and perform actions without using SQL triggers.

Harmony also uses the rules based engine. If a user follows a particular item, a rule is automatically added to the engine and when the rule executes, a beat is posted to the Harmony database.

A basic set of rules are supplied by default with the SYSPRO Rules Engine. Therefore, as soon as you have installed the components, Harmony can start tracking and conveying information based on these default rules.

> Although currently you cannot add, maintain or delete rules, SYSPRO is developing a new interface to enable this functionality.

Rule Description	Trigger Description
Stock code selling price change	Update on `InvPrice`
Limited promotion within 5% from expiring	Update on `TpmPromotionLimit`, below 5% of Promotion limit (`TpmPromotion`)
After Inventory movement	Insert on `InvMovements`
Customer set to on hold	Update on `ArCustomer`, `CustomerOnHold` flag changed to `Y`
Supplier set to on hold	Update on `ApSupplier`, `OnHold` flag changed to `Y`
New sales order created	Insert on `SorMaster`
New line added to sales order	Insert in `SorDetail`
Stock code added to warehouse	Insert in `InvWarehouse`
New RMA created	Insert in `RmaMaster`
New line added to RMA	Insert in `RmaDetail`
New job created for customer	Insert in `WipMaster`, where Customer not = " "
AP payment cycle completed	Change to `ApPayRunHdr`, `PaymentRunStatus` = "C"
New asset added	Insert in `AssetMaster`
An asset changed	Update to `AssetMaster`
An asset deleted	Delete on `AssetMaster`
After Cashbook deposit	Insert in `CshJnl`, `EntryType` = "D"
After Cashbook withdrawal	Any SYSPRO table change
Customer within 10% of credit limit	Update to `ArCustomerBal`, sum on balances within 10% of Credit limit (`ArCustomer`)

Rule Description	Trigger Description
Job deleted without customer	Delete on `WipMaster`, Customer = " "
GL period change	Update to `GenControl`, `GlPeriod` changed
AP Invoice verification difference greater than 10%	Insert on `GrnPriceVariance`, calculation on difference is greater than 10%
New supplier added	Insert on `ApSupplier`
Supplier delivery received late	Insert on `PorHistReceipt`, `DateReceived` greater than `LineDueDate`
Supplier delivery received short	Update on `PorMasterDetail`, `MReceivedQty` less than `MOrderQuantity`
New job created without a customer	Insert in `WipMaster`, Customer = " "
PO delivery rejected at receiving	Insert in `PorScrapRejectIns`, `ScrapRejectFlag` = "`R`"
Over issue to a job	Update to `WipJobAllMat`, `QtyIssued` greater than calculated required quantity
Stock issued to job	Update to `WipJobAllMat`, `QtyIssued` increased
Stock rejected at inspection	Update to `WipInspect`, `QtyScrapped` increased
Stock rejected at receiving	Insert in `PorScrapRejectIns`, `ScrapRejectFlag` = "`S`"
RMA line received	Update to `RmaDetail`, `LineStatus` = 9
Stock code added	Insert in `InvMaster`
Bin added for stock code	Insert in `InvMultBin`
Stock take posting complete	Update to `InvWhControl`, `StockTakeFlag` = "N" and `StockTakeUpdate` = " "
BOM added	Insert in `BomParentInfo`
Job deleted	Delete on `WipMaster`, Customer not = " "
Job received late	Update to `WipMaster`, Complete = "Y" and `JobDeliveryDate` greater than `ActCompleteDate`
Job received short with a customer	Update to `WipMaster`, Complete = "Y" and `QtyToMake` greater than `QtyManufactured`
Delivery note printed	Update to `SorMaster`, `DeliveryNote` changed

Rule Description	Trigger Description
Dispatch note released for invoicing	Update to `MdnMaster`, `DispatchNoteStatus` = "7"
POD confirmed for SO delivery	Update to `ArInvoice`, `ProofOfDelivery` = "Y"
Price override at invoicing	Insert in `SorChanges`, Price not = `NewPrice`
Contact details changed	Update to `CrmContact`
Delivery is short	Insert in `MdnDetail`, `OrigBoSoUom` not = "0"
Lost sales order line	Insert in `SorLostSales`
New promotion added	Insert in `TpmPromotion`
Job received late without a customer	Update to `WipMaster`, Complete = "Y" and `JobDeliveryDate` > `ActCompleteDate`
Job received short	Update to `WipMaster`, Complete = "Y" and `QtyToMake` > `QtyManufactured`
Track History on `ArCustomer.OutstOrdVal`	Update to `ArCustomer`, `OutstOrdVal` changed
Track History, Rough order value estimate	Update to `SorMaster`, End order completed
Track History on `ArCustomerBal.CurrentBalance1`	Update to `ArCustomerBal`, `CurrentBalance1` changed

◉ User Interface

You launch the **SYSPRO Harmony** program from the **Program List** SYSPRO Desktop function. You can also customize the Harmony Widgets you want to view, using the **Visual Designer** (available from the ⚙ icon).

Profile

This displays information related to the current user:

- Summary of user beats, categorized by their sentiment.
- Summary of how many *objects* are being followed (see the **Follow items** pane for more detail).
- Listing of followers.

In and around

> 📄 This widget is not enabled by default. This must be done using the **Design Web View** functionality.

This highlights all recent database activities (e.g. beats being added) such as items that have been mentioned, users that have posted numerous beats, etc.

For example: `#StockCode.A100` *has been mentioned a number of times*.

You can also select to *follow* or *unfollow* items from this list.

Missed events

This displays beats added since the last login, allowing you to catch up on things you may have missed.

Filter beats

This lets you filter beats according to a number of criteria, based on the type of information you want to surface (e.g. to only view beats with a positive or negative sentiment).

Add beat

This lets add a new beat. Available functions include:

- Tag items using the # tag
- Tag other users using the # tag
- Add attachments
- Make use of suggestive text

Beats

This displays beats which you have selected to follow, or may be interested in.

Beats are displayed using a weighting, based on their popularity and what you follow, and contain the following information:

- Location and basic information regarding the user that posted a beat
- Number of replies to each beat
- Number of times a beat is admired
- Number of shares per beat
- Attachments contained within beats

Trending chart

This provides a visual representation of items currently trending, in the form of a bubble chart.

How much a particular item is trending is indicated by the size of the bubble (i.e the bigger the bubble, the more that item is trending).

The color of the bubble portrays the general sentiment around that item's activity:

- Red reflects a negative sentiment
- Green reflects a positive sentiment
- Grey reflects a neutral sentiment

> The darker shades of green or red are an indication of a more positive or negative sentiment, respectively.

These bubbles are also interactive and allow you to drill down to more detail, reflected in the **Trending detail** pane.

Currently trending

This displays a list of items currently trending, along with the number of beats per item.

You can also select to *follow* or *unfollow* items from this list.

Following list

This displays a list of all items that you have selected to follow.

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