

Integration between finance and operations apps and third-party services

Article • 09/29/2022

This article is intended to help architects and developers make sound design decisions when they implement integration scenarios.

The article describes integration patterns, integration scenarios, and integration solutions and best practices. However, it doesn't include technical details about how to use or set up every integration pattern. It also doesn't include sample integration code.

ⓘ Note

When providing guidance and discussing scenarios for choosing a pattern, data volume numbers are mentioned. These numbers must be used only to gauge the pattern and must not be considered as hard system limits. The absolute numbers will vary in real production environments due to various factors, configurations are only one aspect of this scenario.

The following table lists the integration patterns that are available.

[+] Expand table

Pattern	Documentation
Power Platform integration	Microsoft Power Platform integration with finance and operations apps
OData	Open Data Protocol (OData)
Batch data API	Recurring integrations Data management package REST API
Custom service	Custom service development
Consume external web services	Consume external web services
Excel integration	Office integration overview

ⓘ Note

Data management package REST API

Article • 08/22/2024

This article describes the Data management framework's package representational state transfer (REST) application programming interface (API). The package API lets you integrate by using data packages. The REST API can be used with both cloud deployments and on-premises deployments.

Although on-premises support has been added, API names haven't been changed. Therefore, Microsoft can keep a single API set for both cloud deployments and on-premises deployments.

Choosing an integration API

Two APIs support file-based integration scenarios: the Data management framework's package API and the recurring integrations API. Both APIs support both data import scenarios and data export scenarios. The following table describes the main decision points that you should consider when you're trying to decide which API to use.

 Expand table

Decision point	Recurring integrations API	Data management framework's package API
Scheduling	Scheduling in finance and operations apps	Scheduling outside finance and operations apps
Format	Files and data packages	Only data packages
Transformation	Support for Extensible Stylesheet Language Transformations (XSLT) if the data file is in XML format	Transformations that are external to the system
Supported protocols	SOAP and REST	REST
Service type	Custom service	Open Data Protocol (OData) action

If you decide that the recurring integrations API meets your requirement better than the Data management framework's package API, see [Recurring integrations](#). The rest of this article discusses the Data management framework's package API.

Service endpoints overview

Article • 03/08/2024

This article describes the service endpoints that are available in Microsoft Dynamics 365 Finance. It also provides a comparison to the endpoints that are available in Microsoft Dynamics AX 2012.

List of services

The following table lists all the service endpoints, and compares the endpoints available for the application, and AX 2012.

[Expand table](#)

Service endpoint	AX 2012	Finance and operations
Document services (AXDs)	Yes	No – Replaced by data entities
SOAP-based metadata service	Yes	No – Replaced by REST metadata
SOAP-based query service	Yes	No – Replaced by OData
OData query service	Yes	No – Replaced by OData
SOAP-based custom service	Yes	Yes
JSON-based custom service	No	Yes
OData Service	No	Yes
REST Metadata Service	No	Yes

This article describes authentication for services, and the REST Metadata service. The following links provide detailed documentation for:

- [Custom service development](#)
- [Open Data Protocol \(OData\)](#)

Authentication

OData services, JSON-based custom services, and the REST metadata service support standard OAuth 2.0 authentication.

Troubleshoot service authentication issues

Article • 12/21/2024

This article provides some tips for troubleshooting issues that involve service authentication.

When you troubleshoot service authentication issues, there are a few basic and common procedures that can help resolve the issues that are most often encountered. These procedures also provide a hands-on demonstration of how the authentication mechanism works. This article includes instructions and also lists a few common issues that users have encountered so far.

Inspect the JWT

Capture the JWT from an HTTP request

1. Download Fiddler from <https://www.telerik.com/fiddler>.
2. Set up HTTPS capture to watch the HTTPS traffic from the client.
3. Find the Open Authorization (OAuth) JSON Web Token (JWT). It's the value of the HTTP "Authorization" header without the "bearer" segment.

Use a deserializer tool to look at the token contents

1. Go to <https://jwt.io>, and paste the JWT into the input panel.
2. View the contents in the form of name-value pairs. See the example that follows.
3. Verify that the following information is correct:
 - "aud" – The value corresponds to the Microsoft Microsoft Entra resource concept. Here are some typical issues that involve "aud":
 - The "aud" segment of the JWT contains a URI that has a trailing slash.
 - The "aud" segment of the JWT contains a URI that uses an incorrect capitalization style. The URI must be all lowercase.
 - "appid" – The value corresponds to the Microsoft Entra Native Client App ID (or Service App ID).

Open Data Protocol (OData)

Article • 11/01/2024

This article provides information about Open Data Protocol (OData) and explains how you can use OData V4 to expose updatable views.

What is OData?

OData is a standard protocol for creating and consuming data. The purpose of OData is to provide a protocol that is based on Representational State Transfer (REST) for create, read, update, and delete (CRUD) operations. OData applies web technologies such as HTTP and JavaScript Object Notation (JSON) to provide access to information from various programs. OData provides the following benefits:

- It lets developers interact with data by using RESTful web services.
- It provides a simple and uniform way to share data in a discoverable manner.
- It enables broad integration across products.
- It enables integration by using the HTTP protocol stack.

For more information about OData, see the following webpages.

[+] Expand table

Topic	Webpage
OData standards	OData Version 4.01 documentation
OData: Data access for the web, the cloud, mobile devices, and more	OData in ASP.NET Web API

The public OData service endpoint enables access to data in a consistent manner across a broad range of clients. To see a list of all the entities that are exposed, open the OData service root URL. The URL for the service root on your system has the following format:
[Your organization's root URL]/data

Note

OData actions added via extensions are currently not supported.

Custom service development

Article • 07/01/2022

You can develop custom services for finance and operations. When a developer writes a custom service under a service group, the service group is always deployed on two endpoints:

- SOAP endpoint
- JSON endpoint

SOAP-based custom service

SOAP-based services remain the same as they were in Dynamics AX 2012.

Code examples for consuming custom services using SOAP are available in the [Microsoft Dynamics AX Integration GitHub repository](#).

Key changes

- All the service groups under the **AOTService group** node are automatically deployed.
- All services that must be deployed must be part of a service group.

Example endpoint for a dev environment

```
https://usnconeboxax1aos.cloud.onebox.dynamics.com/soap/services/UserSessionService  
?wsdl
```

Example endpoint for a non-dev environment

```
https://<baseurl>/soap/services/UserSessionService?wsdl
```

For more information about custom services, see:

- [Using Custom Services \[AX 2012\] \(TechNet\)](#)
- [Walkthrough: Exposing an X++ Class as a Data Contract \(TechNet\)](#)

JSON-based custom service

This feature enables X++ classes to be consumed as JSON services. In other words, the return data set is in JSON format. JSON, which stands for JavaScript Object Notation, is a

Service request tracing

Article • 06/19/2024

As a best practice when you develop data integrations with finance and operations service endpoints, you should include a request identifier in the request header. In this way, you enable the request to be traced through the service. Your client application should generate and log a client request ID (`x-ms-client-request-id`) value and send it in the application programming interface (API) request header. This value is a globally unique identifier (GUID) that uniquely identifies each client request.

The finance and operations service logs the `x-ms-client-request-id` value that is received in the request header. In this way, the value becomes available as an identifier for the request in service telemetry.

Troubleshooting API operations

If a request consistently fails, and you've verified that it's correctly formulated, you might have to open a support ticket so that Microsoft can help troubleshoot the issue. In your support ticket, include the following values:

- The `x-ms-client-request-id` value that your client application generated and sent in the request header.
- The `ms-dyn-aid` value, which is the finance and operations activity ID. The finance and operations service generates this unique identifier for the request and sends it back to the client application in the response header.
- The approximate time when the request was made.

These values enable Microsoft to trace the request through service telemetry and troubleshoot the cause of the request failure. If the service doesn't return a response to the client, so that no `ms-dyn-aid` value is provided, be sure to provide at least the `x-ms-client-request-id` value and the approximate time of the request in your support ticket to enable Microsoft to trace the API request.

Feedback

Was this page helpful?



Yes



No

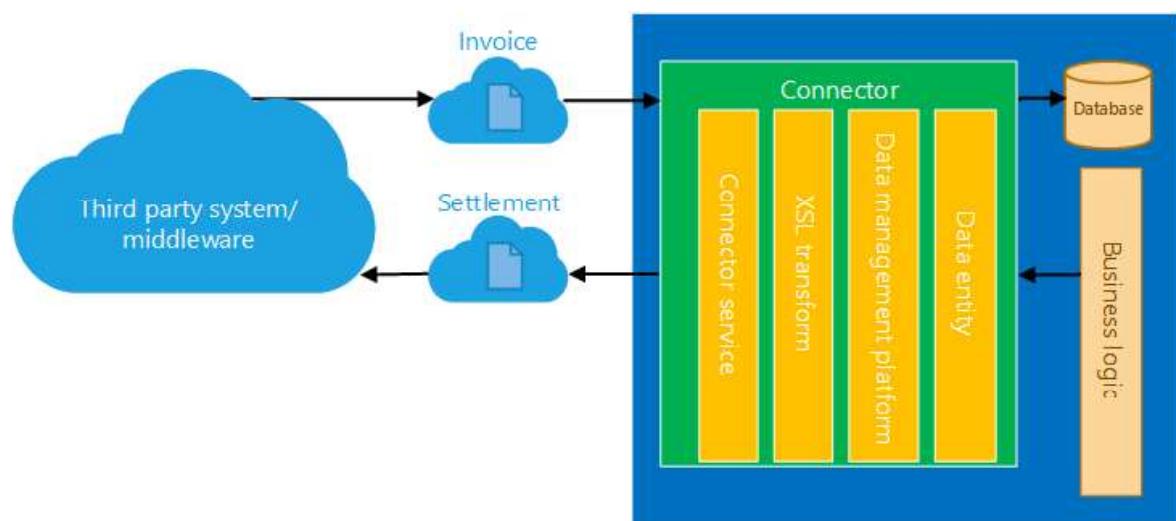
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Recurring integrations

Article • 03/13/2025

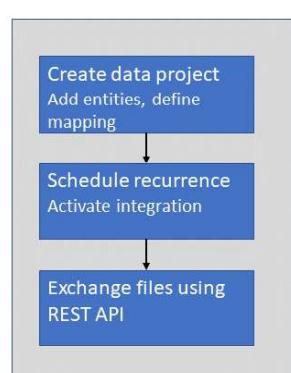
Recurring integration does the following things:

- It builds on data entities and the Data management framework.
- It enables the exchange of documents or files between finance and operations and any third-party application or service.
- It supports several document formats, source mapping, Extensible Stylesheet Language Transformations (XSLT), and filters.

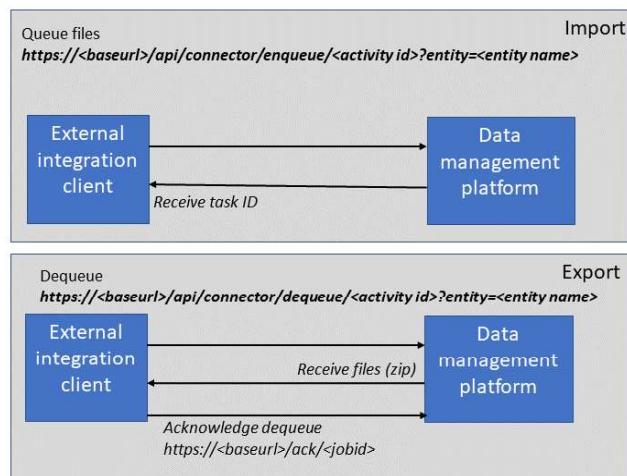


- It uses secure REST application programming interfaces (APIs) and authorization mechanisms to receive data from, and send data back to, integration systems.

1. Set up integration



2. Send and receive files



Service protection API limits

Article • 11/29/2022

This article provides information about limits for service protection application programming interfaces (APIs) for the finance and operations apps service.

Important

Resource-based service protection API limits are enabled in finance and operations apps environments as of version 10.0.19. Resource-based API limits will continue to be the mechanism for protecting the finance and operations service from unexpected spikes in usage that threaten the availability and performance of the service.

We previously announced that user-based service protection API limits, as described in this article, would be mandatory in all finance and operations apps environments in version 10.0.33 as an additional layer of service protection. As of March 31, 2023, **we will no longer be implementing user-based service protection API limits in finance and operations apps environments**. The limits are currently optional, and can be enabled or disabled using the **User-based service protection API limits** feature in **Feature management**. In version 10.0.35 the API limits are disabled by default but may still be optionally enabled for environments. In version 10.0.36 the limits will be disabled on all environments, and the option to enable the limits will be removed.

To ensure consistent availability and performance of the finance and operations apps service, Microsoft applies limits to the way that the service APIs are used. These limits are designed to protect the service when client applications make extraordinary demands on server resources. Sudden bursts of high incoming API traffic or concurrent long-running requests against the server can exhaust server resources, and can cause outages or have other impacts on the availability and performance of the service.

The limits shouldn't affect regular users of interactive clients. They're designed to affect only client applications that perform extraordinary API requests. The limits provide a level of protection from random and unexpected surges in request volume that threaten the availability and performance of the finance and operations platform.

Note

Throttling prioritization

Article • 03/08/2024

This article provides information about priority-based throttling for Open Data Protocol (OData) and custom service-based integrations.

Resource-based limits for service protection application programming interfaces (APIs) work together with the user-based limits for service protection APIs as protective settings that help prevent the over-utilization of resources. In this way, they help preserve the system's responsiveness and ensure consistent availability and performance for environments that run finance and operations apps. The resource-based limits will throttle service requests when the aggregate consumption of web server resources reaches levels that threaten service performance and availability.

ⓘ Note

Throttling priority mapping does not apply to user-based service protection API limits. The priority mapping is specific to resource-based service protection API limits. See [Service protection API limits](#) for more information on the API limit types.

For resource-based service protection API limits, you can set the relative priority for OData and custom service-based integrations, depending on your business-critical need for these integrations. The throttling manager will then honor the priorities that are set for the requests. For OData and custom service-based requests, a "Too many requests" error will be sent if system health and performance are affected.

Determine prioritization

The **Throttling Priority Mapping** page is used to assign priorities for integrations so that priorities can be honored when requests are throttled. Setting appropriate priorities ensures that low-priority integrations will be throttled before high-priority integrations. For more information about how to set up integration, see [Enable connectivity with external services](#).

The following are the authentication types supported in Microsoft Entra ID (Microsoft Entra ID). For more information, see [Authentication](#).

- **User based:** This flow uses a username and password for authentication and authorization.

Retry operations

Article • 06/19/2024

This article describes retry operations that can be implemented if application programming interface (API) requests are throttled because they have reached service protection API limits.

If a service protection API limit error occurs, it provides a value that indicates the amount of time until new requests from the user can be processed. If a 429 error is returned from the web API, the response header includes a [Retry-After](#) interval that indicates the number of seconds that the user must wait before they resubmit the request.

Requests that are resubmitted after the **Retry-After** interval are processed together with other incoming requests and prioritized as if they are new requests to the server. Retry requests don't receive higher priority than new requests.

Retry for interactive applications

If the client is an interactive application, you should show a message that states that the server is busy while you retry the request. You might want to provide an option that lets the user cancel the operation. Don't allow the user to submit more requests until the previous request that you sent has been completed.

Retry for non-interactive applications

If the client isn't an interactive application, a typical practice is to wait until the specified interval has passed before the request is sent again. This behavior is typically implemented by using [Task.Delay](#) or equivalent methods to pause the execution of the current task.

Retry-After intervals

The duration of the **Retry-After** interval depends on the nature of the operations that have been sent in the preceding five-minute period. The more demanding the requests are, the longer the server will take to recover.

If a client application continues to send demanding requests after it receives initial 429 responses, the **Retry-After** interval will be extended to help minimize the impact on

Monitor API throttling

Article • 03/08/2024

This article provides information about the tools that are available to monitor usage of application programming interfaces (APIs). This includes queries that display information on API requests that have been throttled when [service protection limits](#) have been reached, as well as general API usage to help administrators understand when integrations may be nearing the API limits.

To have a successful onboarding experience that includes the throttling capability, you must be able to monitor your Open Data Protocol (OData) and custom service integration patterns. Microsoft Dynamics Lifecycle Services (LCS), which is the administration center for finance and operations apps, contains a collection of monitoring and diagnostics tools that can help ensure that you have an accurate view of the environments that you manage. For more information, see [Monitoring and diagnostics tools in Lifecycle Services \(LCS\)](#).

These queries enable you to get raw logs with data related to administration of the service. You can then export the logs for more advanced analysis.

Requests throttled

You can use the predefined **Requests throttled** to see the list of API requests that have been throttled in a given date/time range due to exceeding service protection API limits.

To view throttling activity in the monitoring and diagnostics portal, follow these steps.

1. In LCS, open the appropriate project.
2. In the **Environments** section, select the environment to view, and then select **Full details**.
3. On the **Environment details** page, select **Environment monitoring** to open the monitoring and diagnostics portal.
4. On the **Environment monitoring** page, select the **Activity** tab to view the **Raw logs** page.
5. Select the query name, and then select **Requests throttled** for all OData and custom service requests that have been throttled.
6. Select **Search**.

Summarized API requests by application and user

Maximize API throughput

Article • 06/19/2024

This article describes strategies that can help you manage throttling responses for service protection application programming interface (API) limits and maximize API throughput.

If you have an application that must prioritize throughput to move the most data in the shortest period, there are some strategies that you can apply.

Let the server tell you when to retry the request

Don't try to calculate the number of requests that you should send at a time. Each environment can differ. Gradually increase the rate that you send requests until you begin to hit limits. Then depend on the **Retry-After** interval value of the service protection API limit to tell you when to send more. That value will help keep your total throughput at the highest possible level.

For more information, see [Retry operations](#).

Use multiple threads

If your individual operations are relatively quick, your application can use the higher limit on the number of concurrent threads to significantly improve performance. Depending on the nature of the data that you're processing, you might have to adjust the number of threads to achieve optimum throughput.

Distribute workloads across multiple service principals

User-based service protection API limits are implemented on a per-user basis. If your integration is using a single service principal to perform large bulk data operations, or if it's an interactive client application that uses a single service principal to send all user requests to the server, the service protection API limits can be reached fairly quickly. You can help prevent this situation by distributing the workload in smaller batches across multiple service principals.

Application Connector

Article • 03/08/2024

The application connector allows Microsoft Power Automate, Power Apps, Data Integrator, and Logic Apps to integrate with finance and operations. An external application can use the available trigger and actions to integrate with them.

ⓘ Important

The Application Connector cannot be used for integrations with Dynamics 365 Finance + Operations (on-premises) instances.

Prerequisites

We recommend that you read the following topics as a prerequisite to familiarize yourself with connectors before proceeding further

- [Connectors](#)
- [Data management package REST API](#)
- [Open Data Protocol \(OData\)](#)
- [Recurring integrations](#)

Triggers

Business events are exposed using the trigger *When a business event occurs*. For detailed information about business events, refer to [Business events in Microsoft Power Automate](#) and [Business events](#).

Actions

This section describes the actions that are available in the connector.

Get a record

This action can be used to fetch a record for a specific data entity from the target instance.

Instance refers to the URL of the target instance of the application to which the connector must connect. The expected value is to enter the URL without the 'https://'

Data management and integration by using data entities overview

Article • 06/03/2022

This article provides a brief overview of the mechanics of synchronous and asynchronous integration.

Synchronous services

Synchronous integrations are relatively straightforward. Any entity that has **Is public** enabled is automatically available as a service application programming interface (API) in the following URL: [https://\[BaseURL\]/Data/<>Data Entity Public Collection Name>>](https://[BaseURL]/Data/<>Data Entity Public Collection Name>>).

Currently, OData protocol is used to expose endpoints where all public-enabled entities can be interacted with.

Supported protocol: OData V4.0

Data format: JSON

Metadata URL: [https://\[BaseURL\]/Data/\\$metadata](https://[BaseURL]/Data/$metadata)

Data import/export and recurring integration scenarios

Integration through the data management platform provides more capabilities and higher throughput for inserting/extracting data through entities. Typically, data goes through three phases in this integration scenario:

- **Source** – These are inbound data files or messages in the queue. Typical data formats include CSV, XML, and tab-delimited.
- **Staging** – These are automatically generated tables that map closely to the data entity. When **Data management enabled** is **true**, staging tables are generated to provide intermediary storage. This enables the framework to do high-volume file parsing, transformation, and some validations.
- **Target** – This is the data entity where data will be imported.

The following diagram shows an inbound flow.

Develop entities for data migration

Article • 04/26/2024

This tutorial shows how to develop data entities in Microsoft Visual Studio and then use them for data migration.

This tutorial is broken out into two sections and four exercises. In the first section, you will build a **Project Category** entity in Visual Studio. You will then use this entity to export data. In the second section, you will use **Customer Groups** and **Customers** entities to import multiple sets of files by using the new Data Import/Export Framework.

ⓘ Note

This tutorial is designed to be slightly more challenging than [Build and consume data entities](#). Instead of providing a step-by-step guide, it has scenario exercises and describes the expected outcomes. The assumption is that you've already familiarized yourself with entities.

Prerequisites

This tutorial requires that you access the environment by using Remote Desktop. You must be provisioned as an administrator on the instance.

Base URL

Throughout this tutorial, "base URL" refers to the base URL of the instance.

- In the cloud environment, you obtain the base URL from Microsoft Dynamics Lifecycle Services (LCS).
- On a local virtual machine (VM), the base URL is
`https://usnconeboxax1aos.cloud.onebox.dynamics.com`.

Developing an entity in Visual Studio and enabling it for data export

Business problem

Develop composite data entities

Article • 08/20/2021

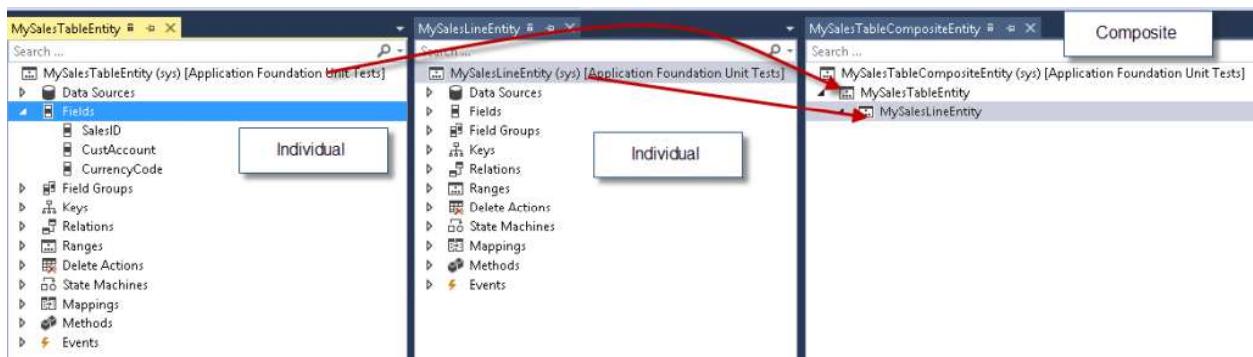
A composite entity is a concept that allows you to build a single entity by leveraging multiple entities that are related to each other.

What is a composite entity?

Composite entity is concept that allows you to build a single entity by leveraging multiple entities that are related to each other. The concept is heavily used in scenarios where an entity can be represented as a single document, like Sales header/line, Invoice header/line and Vendor Catalog. This concept is applicable in asynchronous integration scenarios rather than synchronous OData scenarios, and it will only be supported from a data management platform. There is no programmatic interface for composite entities in X++. It is only supported for a data management platform that is part of XML file-based imports/exports.

Example

Sales Header and Sales Line are two different entities in the system. In case the customer requirement suggests that header and lines are part of a single document, then these two entities can be merged as a composite entity. Sample sales order entity: The composite entity (MySalesTableCompositeEntity) represents a sales orders document which is comprised of Sales Order header entity (MySalesTableEntity) and Sales Order Line entity (MySalesTableLineEntity).



Based on the linked entities, these entities can be exposed as an XML document with embedded element tags for entities. XML is the only way to expose a composite entity in data management.

XML

Configure financial cross-company data sharing

Article • 09/29/2023

This procedure shows how to configure, enable, validate, and resolve conflicts when sharing data between companies. It uses the USMF company and the Financial data sharing template.

This task guide requires Dynamics AX platform 7.1 or later.

1. Go to **Navigation pane > Modules > System administration > Workspaces > Data management**.
2. Click **Import**.
3. In the **Name** field, type a value.
4. In the **Source data format** field, select the 'Package' type. Click **Upload**. Navigate to the location of the Financial data sharing template package file and select that file.
5. Click **Save**.
6. In the list, mark the selected row. Select the data sharing policy that was just created.
7. Click **Import**.
8. Click **Close**.
9. Refresh the page.
10. Close the page.
11. Close the page.
12. Close the page.
13. Go to **Navigation pane > Modules > System administration > Setup > Configure cross-company data sharing**.
14. In the list, find and select **Payment days**.
15. Click **Add**.
16. In the list, mark the selected row.
17. In the **Company** field, type 'USSI'.
18. Click **Add**.
19. In the **Company** field, type 'USMF'.
20. Click **Save**.
21. Click **Enable**.
22. Click **Yes**.
23. Click **Find sharing issues**.
24. Click **Yes**.
25. Click **Update field value**.

Create a record template to facilitate data entry

Article • 09/29/2023

This article demonstrates how to create a record template so that field values that are used often do not have to be entered explicitly for each new record. In this procedure, you'll create a new record for new laptops that should be added to your fixed assets. This procedure uses the USMF sample company.

1. In the navigation pane, go to **Modules > Fixed assets > Fixed assets > Fixed assets**.
2. Select **New**.
3. In the **Fixed asset group** field, enter or select a value.
4. In the **Name** field, type a value. For example, enter **Corporate lead laptop**.
5. In the **Search name** field, type a value. For example, enter **laptop**.
6. Expand the **Technical information** section.
7. In the **Make**, **Model**, and **Model year** fields, type values.
8. On the Action Pane, select **Options**.
9. Select **Record info**.
10. Select **User template**.
11. In the **Name** field, type a value.
12. In the **Description** field, type a value.
13. Select **OK**.
14. Select **Close**.

Use record template to create a new record

Article • 09/29/2023

This procedure shows how to use a previously defined record template to create a new record. To complete this procedure, you must first complete the "Create a record template to facilitate data entry" procedure.

This procedure uses the USMF company.

1. In the **Navigation pane**, go to **Fixed assets > Fixed assets > Fixed assets**.
2. Click **New**. You will be prompted to select a template. Select the one that corresponds to your business need.
3. In the list, find and select the desired record.
4. Click **OK**.

Prospect to cash

Article • 06/10/2024

The Prospect to cash solution provides direct synchronization across Dynamics 365 Supply Chain Management and Dynamics 365 Sales. The Prospect to cash templates that are available with the Data Integration feature enable the flow of data for accounts, contacts, products, sales quotations, sales orders, and sales invoices. While data is flowing, you can perform sales and marketing activities in Sales, and you can handle order fulfillment by using inventory management in Supply Chain Management.

For more information about the Prospect to cash integration, watch the short YouTube video [Prospect to cash integration](#).

In the current version, the Prospect to cash solution provides the following types of direct synchronization:

- Synchronize accounts directly from Sales to customers in Supply Chain Management
- Synchronize products directly from Supply Chain Management to products in Sales
- Synchronize contacts directly from Sales to contacts or customers in Supply Chain Management
- Synchronize sales quotation headers and lines directly from Sales to Supply Chain Management
- Synchronization of sales orders directly between Sales and Supply Chain Management
- Synchronize sales invoice headers and lines directly from Supply Chain Management to Sales

System requirements for Supply Chain Management

Prospect to cash integration is supported on the following versions:

Microsoft Dynamics 365 Finance and Operations, Enterprise edition 7.3 (December 2017)

- Dynamics 365 Finance and Operations, Enterprise edition (December 2017) - Application build 7.3.11971.56116 with Platform Update 12 (7.0.4709.41129)

Synchronize accounts directly from Sales to customers in Supply Chain Management

Article • 06/10/2024

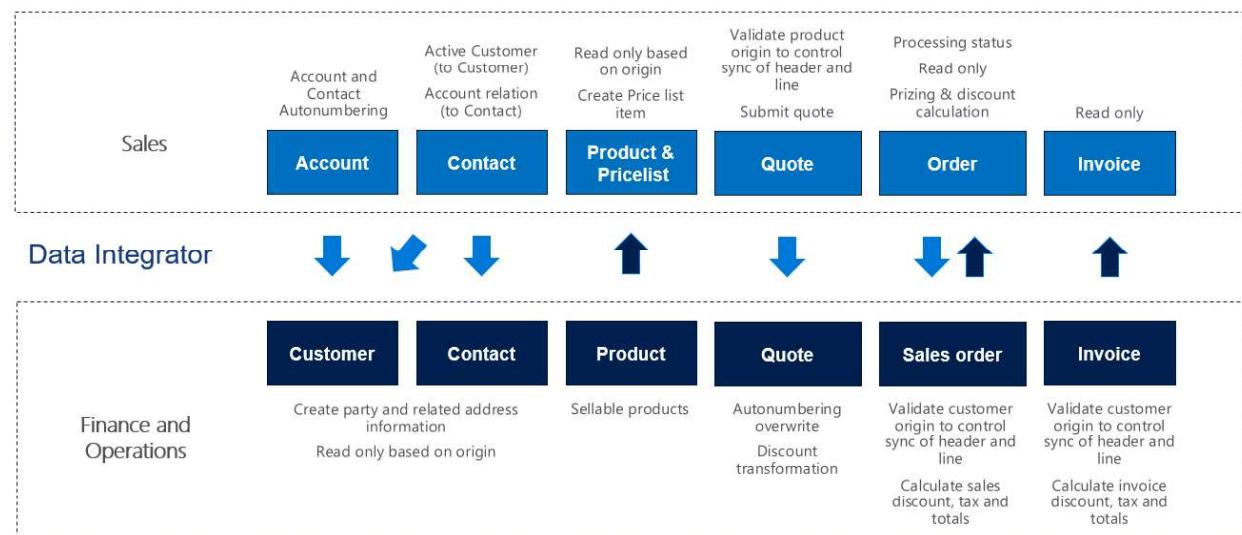
ⓘ Note

Before you can use the Prospect to cash solution, you should be familiar with [Integrate data into Microsoft Dataverse for Apps](#).

This article discusses the templates and underlying tasks that are used to synchronize accounts directly from Dynamics 365 Sales to Dynamics 365 Supply Chain Management.

Data flow in Prospect to cash

The Prospect to cash solution uses the Data integration feature to synchronize data across instances of Supply Chain Management and Sales. The Prospect to cash templates that are available with the Data integration feature enable the flow of data about accounts, contacts, products, sales quotations, sales orders, and sales invoices between Supply Chain Management and Sales. The following illustration shows how the data is synchronized between Supply Chain Management and Sales.



](/media/prospect-to-cash-data-flow.png)

Templates and tasks

Synchronize products directly from Supply Chain Management to products in Sales

Article • 06/10/2024

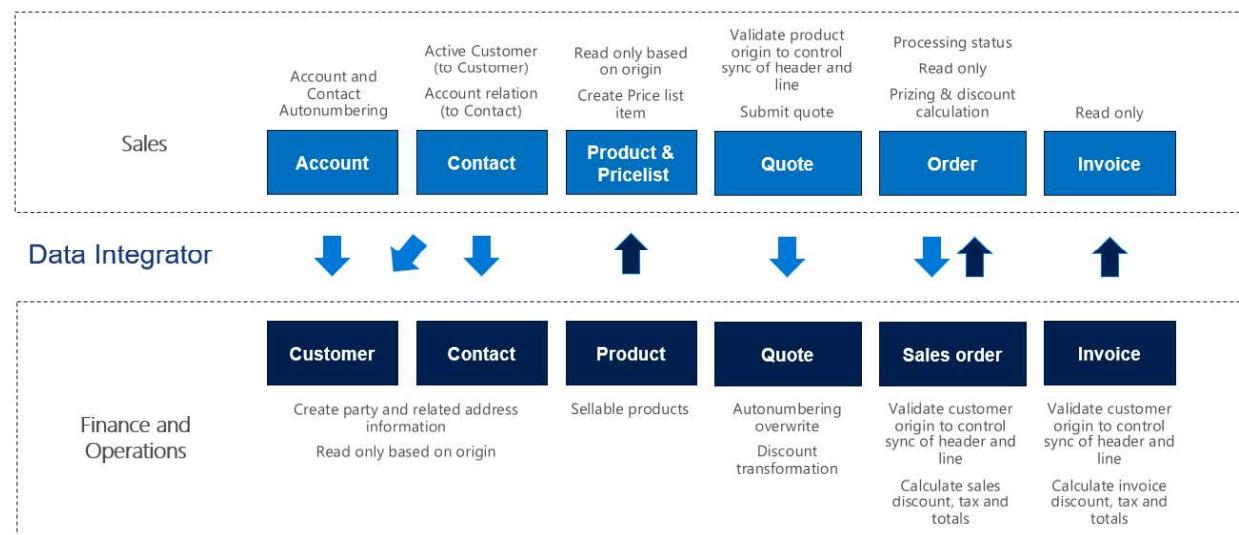
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Templates and tasks

Synchronize contacts directly from Sales to contacts or customers in Supply Chain Management

Article • 06/10/2024

ⓘ Note

Before you can use the Prospect to cash solution, you should be familiar with [Integrate data into Microsoft Dataverse for Apps](#).

This article discusses the templates and underlying tasks that are used to synchronize Contact (Contacts) and Contact (Customers) tables directly from Dynamics 365 Sales to Dynamics 365 Supply Chain Management.

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Templates and tasks

Synchronize sales quotation headers and lines directly from Sales to Supply Chain Management

Article • 06/10/2024

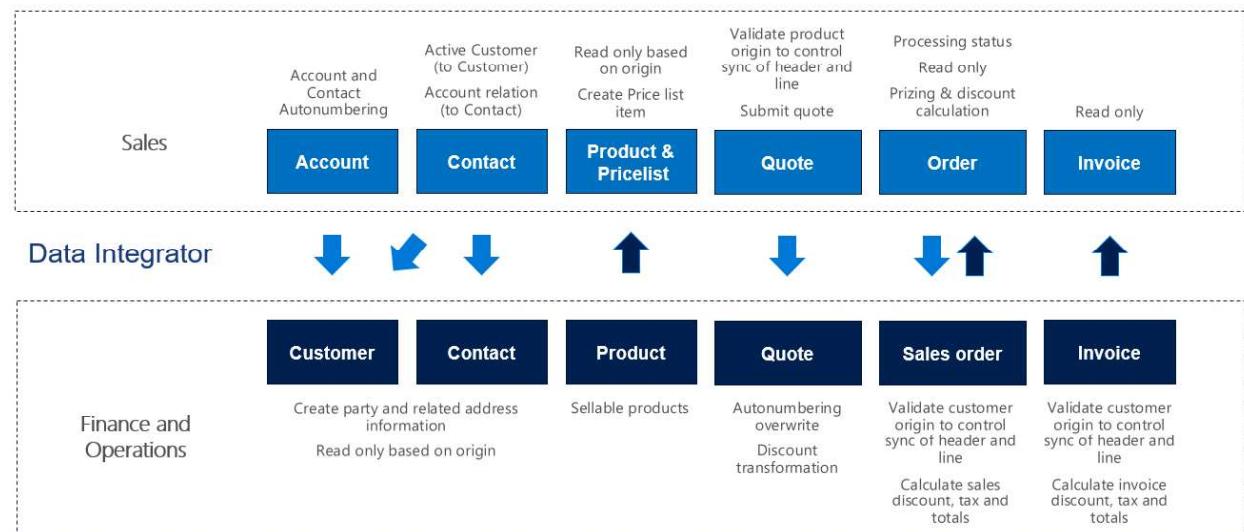
The article discusses the templates and underlying tasks that are used to synchronize sales quotation headers and lines directly from Dynamics 365 Sales to Dynamics 365 Supply Chain Management.

ⓘ Note

Before you can use the Prospect to cash solution, you should be familiar with [Integrate data into Microsoft Dataverse for Apps](#).

Data flow in Prospect to cash

The Prospect to cash solution uses the Data integration feature to synchronize data across instances of Supply Chain Management and Sales. The Prospect to cash templates that are available with the Data integration feature enable the flow of data for accounts, contacts, products, sales quotations, sales orders, and sales invoices between Supply Chain Management and Sales. The following illustration shows how the data is synchronized between Supply Chain Management and Sales.



Template and tasks

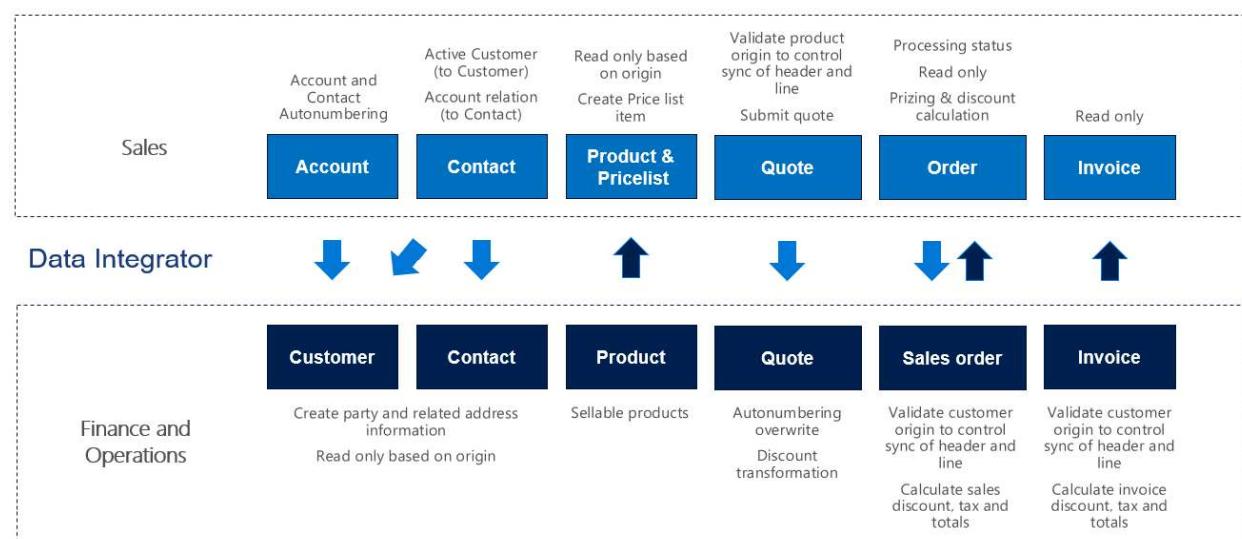
Synchronization of sales orders directly between Sales and Supply Chain Management

Article • 06/10/2024

The article discusses the templates and underlying tasks that are used to run synchronization of sales orders directly between Dynamics 365 Sales and Dynamics 365 Supply Chain Management.

Data flow in Prospect to cash

The Prospect to cash solution uses the Data integration feature to synchronize data across instances of Supply Chain Management and Sales. The Prospect to cash templates that are available with the Data integration feature enable the flow of data for accounts, contacts, products, sales quotations, sales orders, and sales invoices between Supply Chain Management and Sales. The following illustration shows how the data is synchronized between Supply Chain Management and Sales.



Templates and tasks

To access the available templates, open [Power Apps Admin Center](#). Select **Projects**, and then, in the upper-right corner, select **New project** to select public templates.

The following templates and underlying tasks are used to run synchronization of sales orders directly between Sales and Supply Chain Management.

- Names of the templates in Data integration:

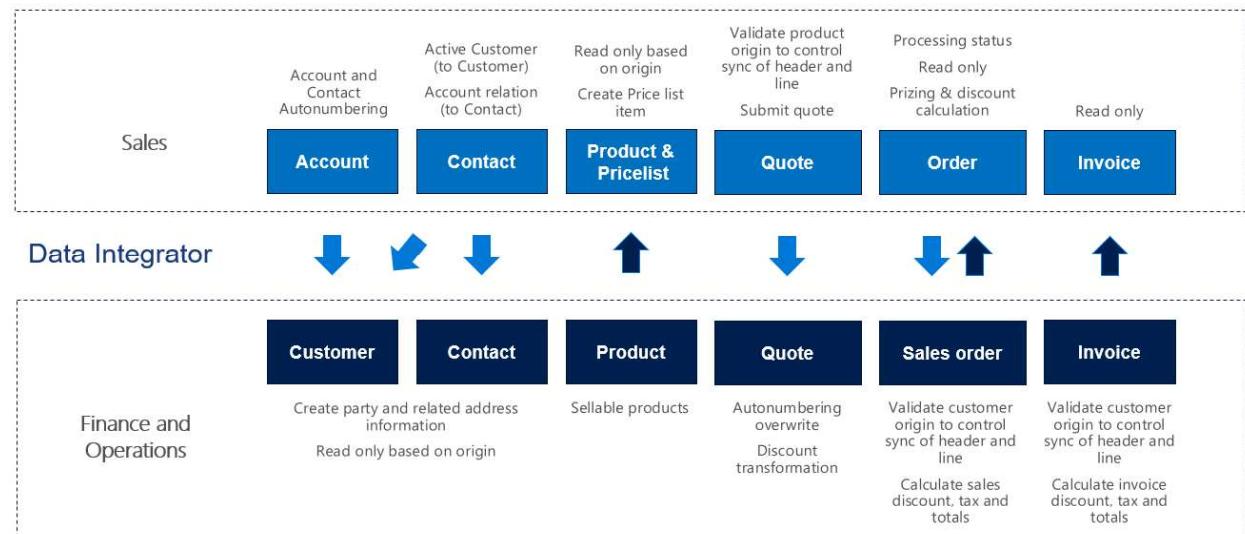
Synchronize sales invoice headers and lines directly from finance and operations to Sales

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize sales invoice headers and lines directly from Dynamics 365 Supply Chain Management to Dynamics 365 Sales.

Data flow in Prospect to cash

The Prospect to cash solution uses the Data integration feature to synchronize data across instances of Supply Chain Management and Sales. The Prospect to cash templates that are available with the Data integration feature enable the flow of data about accounts, contacts, products, sales quotations, sales orders, and sales invoices between Supply Chain Management and Sales. The following illustration shows how the data is synchronized between Supply Chain Management and Sales.



Templates and tasks

To access the available templates, open [Power Apps Admin Center](#). Select **Projects**, and then, in the upper-right corner, select **New project** to select public templates.

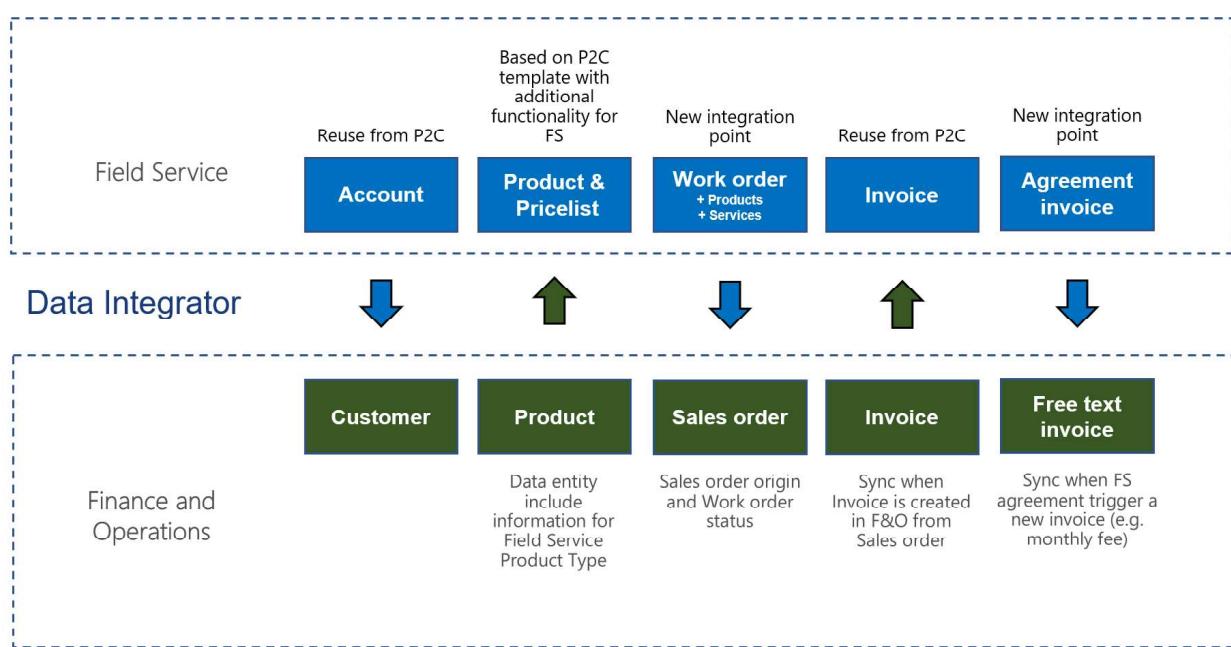
The following template and underlying tasks are used to synchronize sales invoice headers and lines from Supply Chain Management to Sales:

Integration with Microsoft Dynamics 365 Field Service overview

Article • 07/25/2024

Supply Chain Management enables synchronization of business processes between Dynamics 365 Supply Chain Management and Dynamics 365 Field Service. The integration scenarios are configured by using extensible Data integrator templates and Microsoft Dataverse to enable the synchronization of business processes. Standard templates can be used to create custom integration projects, where more standard and custom columns and tables can be mapped to adjust the integration and meet specific business needs.

The field service integration builds on top of the existing prospect-to-cash functionality.



The first phase of the integration between Field Service and Supply Chain Management is focused on enabling work orders and agreements in Field Service to be invoiced in Supply Chain Management. The supported flow starts in Field Service, where information from work orders is synchronized to Supply Chain Management as sales orders. In Supply Chain Management, the sales orders are invoiced to generate invoice documents. In addition, the information from Field Service agreement invoices is synchronized to Supply Chain Management. The Microsoft Dynamics 365 Data integrator synchronizes data by using customizable projects. Standard templates can be used to create custom integration projects where more standard and custom columns, and also tables, can be mapped to adjust the integration and meet specific requirements.

Synchronize products in Supply Chain Management to products in Field Service

Article • 06/10/2024

This article discusses the templates and underlying task that are used to synchronize products from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.

The used **Field Service Products (Supply Chain Management to Field Service)** template is based on the **Products (Supply Chain Management to Sales) – Direct** template from Prospect to Cash. For more information, see [Products \(Supply Chain Management to Sales\) – Direct](#).

This article only describes the differences between the **Field Service Products (Supply Chain Management to Field Service)** and **Products (Supply Chain Management to Sales) – Direct** templates.

Templates and tasks

Name of the template in Data integration

- Field Service Products (Supply Chain Management to Field Service)

Name of the task in the Data integration project

- Products - Products

The **Field Service Products (Supply Chain Management to Field Service)** template includes one mapping that isn't included in the **Products (Supply Chain Management to Sales) – Direct** template. This mapping ensures that the required Field Service-specific field **Service Product Type** is set correctly.

plaintext

FIELDSERVICEPRODUCTTYPE	Fn	msdyn_fieldserviceproducttype
-------------------------	----	-------------------------------

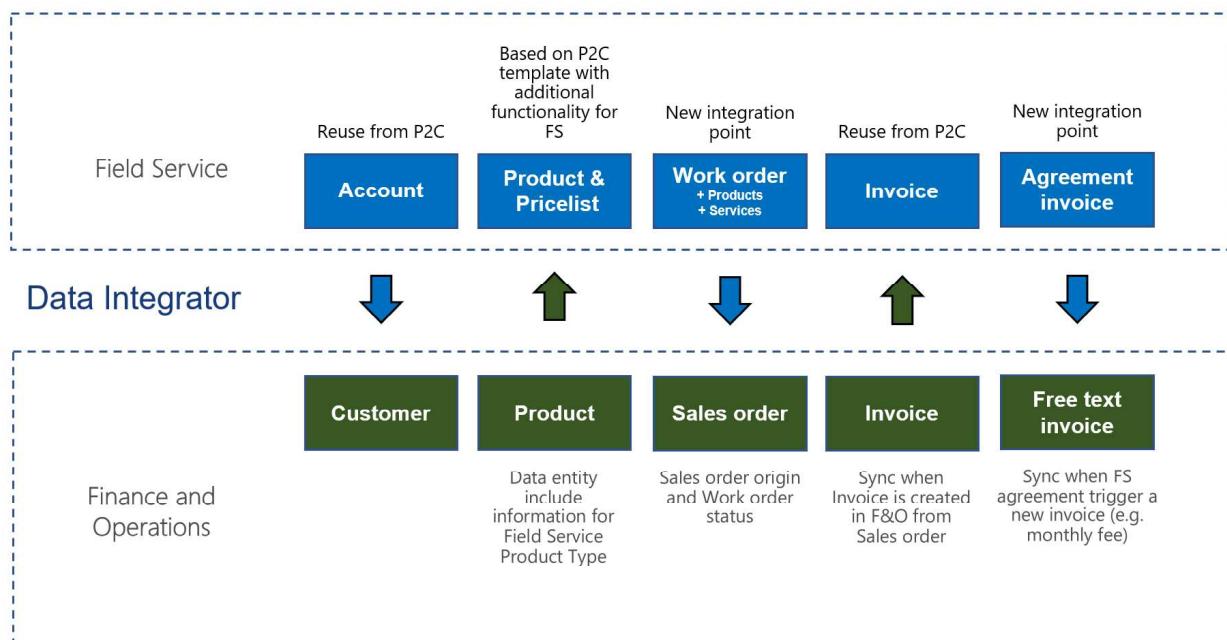
The following value mapping is used.

plaintext

Synchronize work orders in Field Service to sales orders in Supply Chain Management

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize work orders in Dynamics 365 Field Service to sales order in Dynamics 365 Supply Chain Management.



Templates and tasks

The following templates and underlying tasks are used to run the synchronization of work orders in Field Service to sales orders in Supply Chain Management.

Names of the templates in Data integration

The **Work orders to Sales orders (Field Service to Supply Chain Management)** template is used to run synchronization.

Names of the tasks in the Data integration project

- WorkOrderHeader
- WorkOrderServiceLineEstimate
- WorkOrderServiceLineUsed

Synchronize agreement invoices in Field Service to free text invoices in Supply Chain Management

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize agreement invoices in Dynamics 365 Field Service to free text invoices in Dynamics 365 Supply Chain Management.

Templates and tasks

The following template and underlying tasks are used to run synchronization of agreement invoices from Field Service to free text invoices in Supply Chain Management.

Name of the template in Data integration

- Agreement invoices (Field Service to Supply Chain Management)

Names of the tasks in the Data integration project

- Invoice headers
- Invoice lines

The following synchronization is required before synchronization of agreement invoices can occur:

- Accounts (Sales to Supply Chain Management) – Direct

Entity set

 Expand table

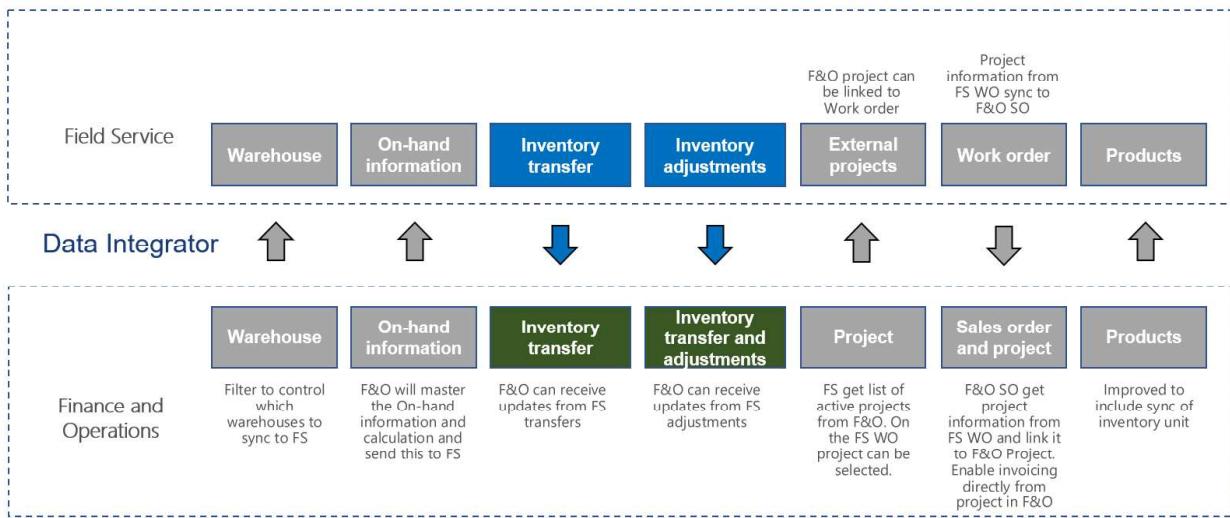
Field Service	Supply Chain Management
invoices	Dataverse customer free text invoice headers
invoicedetails	Dataverse customer free text invoice lines

Entity flow

Synchronize inventory transfers and adjustments from Field Service to Supply Chain Management

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize inventory adjustments and transfers from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.



Templates and tasks

The following template and underlying tasks are used to synchronize inventory adjustments and transfers from Field Service to Supply Chain Management.

Templates in Data integration

- Inventory Adjustment (Field Service to Supply Chain Management)
- Inventory Transfers (Field Service to Supply Chain Management)

Tasks in the Data integration projects

- Inventory Adjustments
- Inventory Transfers

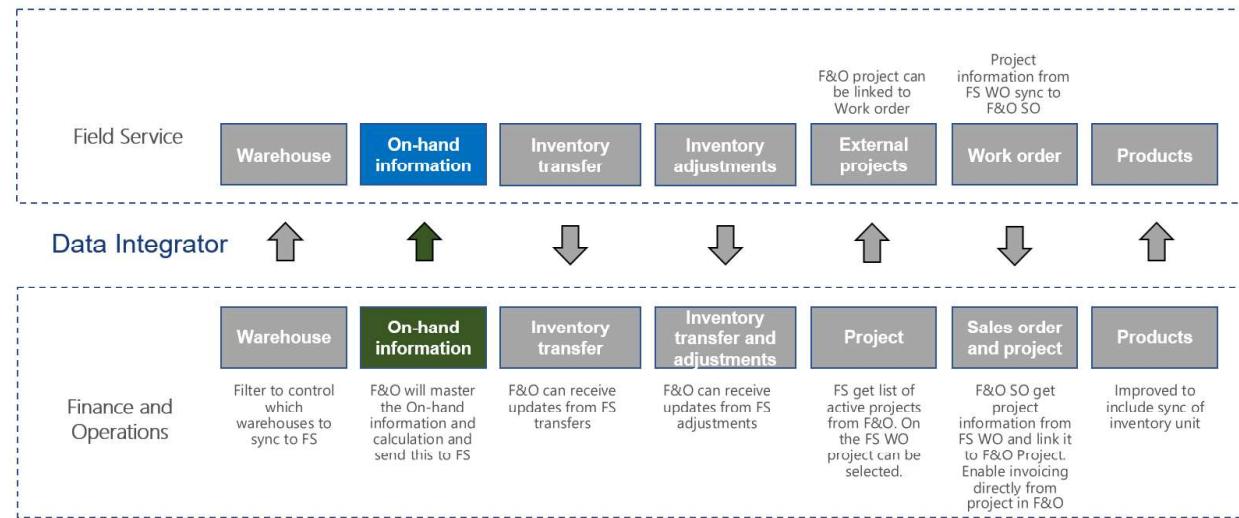
Table set

[] Expand table

Synchronize inventory level information from Supply Chain Management to Field Service

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize inventory-level information from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.



Templates and tasks

The following template and underlying tasks are used to synchronize inventory on-hand levels from Supply Chain Management to Field Service.

Template in Data integration

- Product Inventory (Supply Chain Management to Field Service)

Task in the Data integration project

- Product inventory

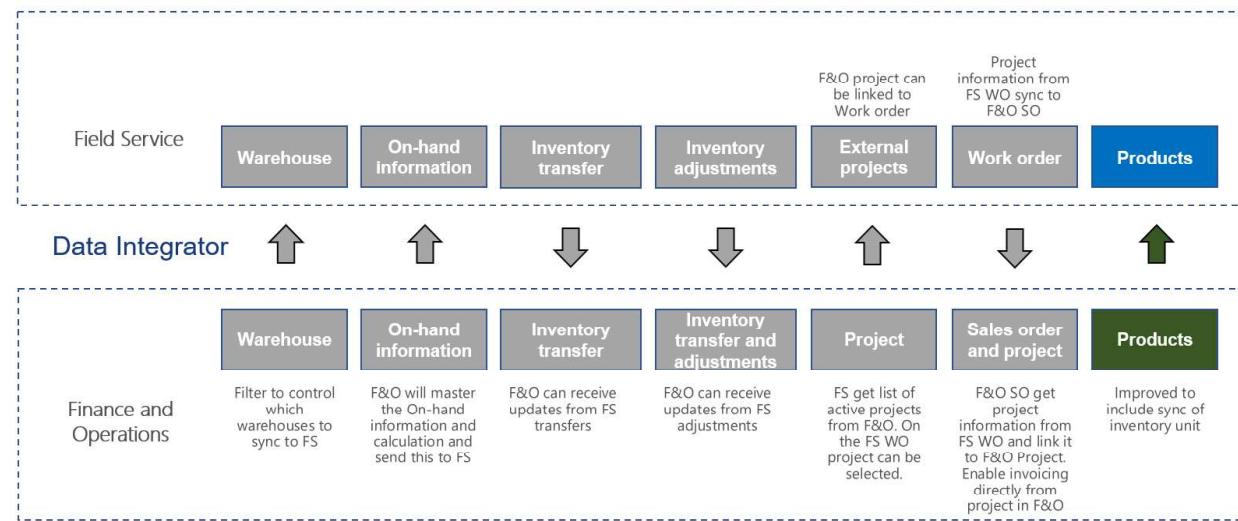
The following synchronization tasks are required before synchronization of inventory levels can occur:

- Warehouses (Supply Chain Management to Field Service)
- Field Service products with Inventory unit (Supply Chain Management to Sales)

Synchronize products with inventory unit from Supply Chain Management to Field Service

Article • 06/10/2024

This article discusses the templates and underlying task that are used to synchronize products with inventory unit from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.



The used **Field Service Products with Inventory unit (Supply Chain Management to Field Service)** template is based on the **Field Service Products (Supply Chain Management to Field Service)** template. For more information, see [Synchronize products in Supply Chain Management to products in Field Service](#).

This article only describes the differences between the two templates:

- **Field Service Products with Inventory unit (Supply Chain Management to Sales)**
- **Field Service Products (Supply Chain Management to Field Service)**

Templates and tasks

Name of the template in Data integration:

- Field Service Products with Inventory unit (Supply Chain Management to Sales)

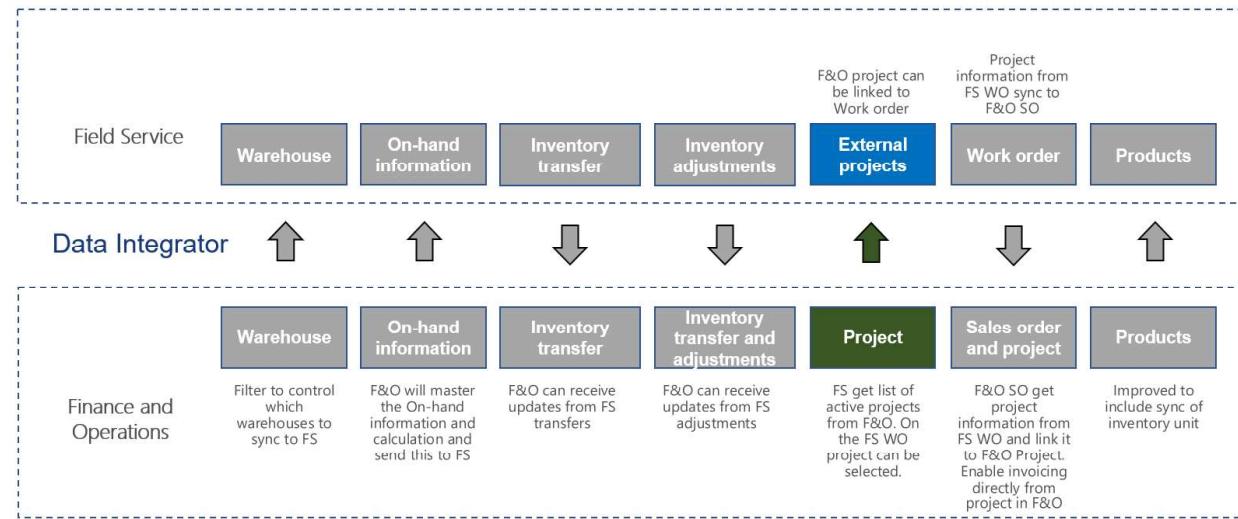
Name of the task in the Data integration project:

- Products

Synchronize project list from Supply Chain Management to Field Service

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize projects from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.



Templates and tasks

The following template and underlying tasks are used to run synchronization of projects from Supply Chain Management to Field Service.

Template in Data integration

- Projects (Supply Chain Management to Field Service)

Task in the Data integration project

- Projects

The following synchronization tasks are required before synchronization of project list can occur:

- Accounts (Sales to Supply Chain Management)

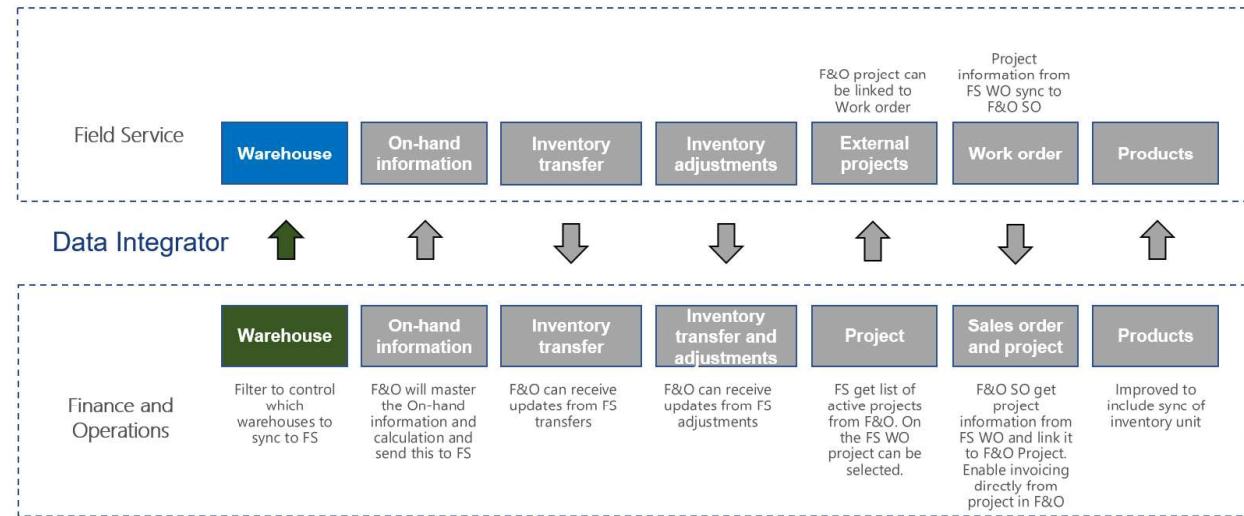
Entity set

 Expand table

Synchronize warehouses from Supply Chain Management to Field Service

Article • 06/10/2024

This article discusses the templates and underlying tasks that are used to synchronize warehouses from Dynamics 365 Supply Chain Management to Dynamics 365 Field Service.



Templates and tasks

The following template and underlying tasks are used to run synchronization of warehouses from Supply Chain Management to Field Service.

Template in Data integration

- Warehouses (Supply Chain Management to Field Service)

Task in the Data integration project

- Warehouse

Table set

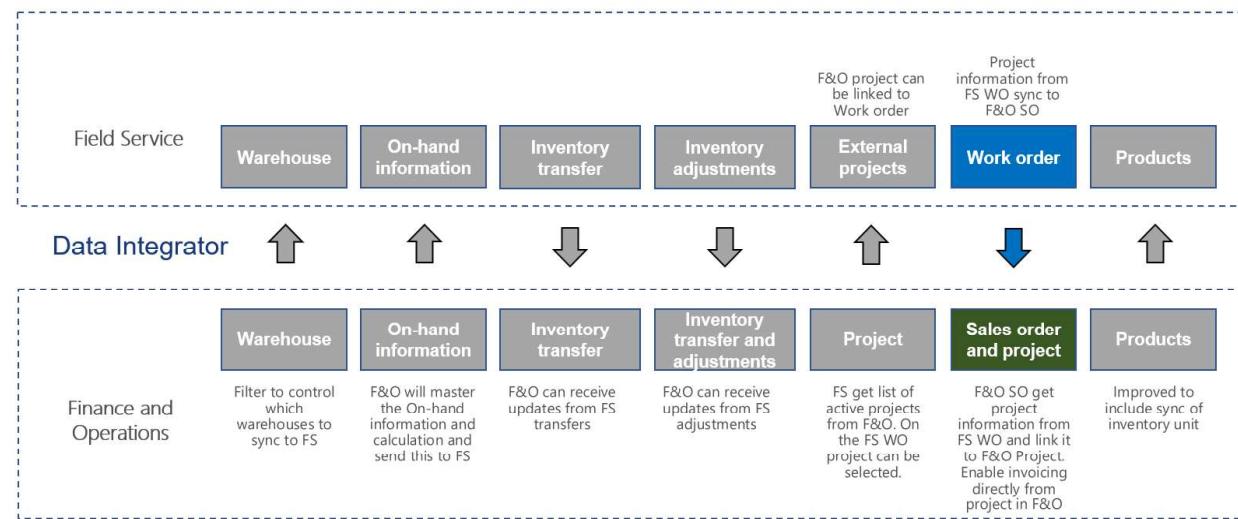
 Expand table

Field Service	Supply Chain Management
msdyn_warehouses	Warehouses

Synchronize work orders with project from Field Service to Supply Chain Management

Article • 06/10/2024

This article discusses the templates and underlying task that are used to synchronize work orders with a project number from Dynamics 365 Field Service to Dynamics 365 Supply Chain Management.



The used **Work Orders with Project (Field Service to Supply Chain Management)** template is based on the **Work Orders (Field Service to Supply Chain Management)** template. For more information, see [Synchronize work orders in Field Service to sales orders in Supply Chain Management](#).

This article only describes the differences between the two templates:

- **Work Orders with Project (Field Service to Supply Chain Management)**
- **Work Orders (Field Service to Supply Chain Management)**

The main difference is that this template includes mapping of the project number assigned to the Work order in Field Service, ensuring that the Sales order created in Supply Chain Management include the project number and that invoicing can happen on the related project. Besides this the template use Advanced Query and Filtering.

Templates and tasks

Name of the template in Data integration:

Project Service Automation overview

Article • 05/21/2024

The Project Service Automation to Finance integration solution uses the Data integration feature to synchronize data across instances of Dynamics 365 Finance and Dynamics 365 Project Service Automation via Common Data Service. The integration templates that are available with the Data integration feature enable the flow of projects, project contracts, project contract lines, project contract line milestones, project tasks, expense transaction categories, hour estimates, and expense estimates from Project Service Automation to Finance.

ⓘ Note

- If you're using version 7.3.0, you must install KB 4074835. You will then be able to integrate fixed price projects.
- If you're using version 7.3.0, and you are bringing fee transactions over from Project Service Automation, you must install KB 4345320 in order to include those fees in the project invoice.
- If you're using version 8.0, you will be able to use project task integration, expense transaction categories, hour estimates, expense estimates, and functionality locking.
- If you're using version 8.0.1 or later, you will be able to synchronize actuals.

Before you can integrate Project Service Automation Finance, you must configure the Project Service Automation integration parameters. For more information, see [Project Service Automation integration parameters](#).

This integration solution enables direct synchronization in the following scenarios:

- Maintain project contracts in Project Service Automation, and synchronize them directly from Project Service Automation to Finance.
- Create projects in Project Service Automation, and synchronize them directly from Project Service Automation to Finance.
- Maintain project contract lines in Project Service Automation, and synchronize them directly from Project Service Automation to Finance.
- Maintain project contract line milestones in Project Service Automation, and synchronize them directly from Project Service Automation to Finance.
- Maintain project tasks in Project Service Automation, and synchronize them directly from Project Service Automation to Finance.

Project Service Automation integration parameters

Article • 05/28/2024

On the **Project Service Automation integration parameters** page, you can configure how default data is entered when you integrate Dynamics 365 Project Service Automation with Dynamics 365 Finance. For projects to be successfully synchronized from Project Service Automation to Finance, you must set up the following fields.

To open the **Project Service Automation integration parameters** page, go to **Project management and accounting > Setup > Dynamics 365 for Project Service Automation integration parameters**.

ⓘ Note

- Project task integration, expense transaction categories, hour estimates, expense estimates, and functionality locking are available in version 8.0.
- Actuals integration is available in version 8.0.1 or later.

[+] Expand table

Tab	Field	Description
General	Default project type	Select the default project type. When projects are synchronized from Project Service Automation, this value is used if you didn't provide a default value in the integration template. During synchronization, the Project type field of new projects is set to this value. However, the value might be updated when the project contract lines are synchronized from Project Service Automation.
	Time category	Select the default time category. This value is used when hour estimates are synchronized from Project Service Automation. When the hour estimates and hour actuals are synchronized from Project Service Automation, the Category field of new project hour forecasts in Finance is set to this value.
	Fee category	Select the default fee category. This value is used when fee actuals are synchronized from Project Service Automation. When the fee actuals are synchronized from Project Service Automation, the Category field of new fee transactions in Finance is set to this value.

Synchronize project contracts and projects directly from Project Service Automation to Finance

Article • 06/07/2024

This article describes the template and underlying tasks that are used to synchronize project contracts and projects directly from Dynamics 365 Project Service Automation to Dynamics 365 Finance.

Note

If you're using Enterprise edition 7.3.0, you must install KB 4074835.

Data flow for Project Service Automation to Finance

Note

Before you can use the Project Service Automation to Finance integration solution, you should be familiar with the Dynamics 365 Data integration feature.

The Project Service Automation to Finance integration solution uses the Data integration feature to synchronize data across instances of Project Service Automation and Finance. The integration template that is available with the Data integration feature enables the flow of data about project contracts, projects, project contract lines, and project contract line milestones from Project Service Automation to Finance.

The following illustration shows how the data is synchronized between Project Service Automation and Finance.

Synchronize project tasks directly from Project Service Automation to finance and operations

Article • 05/21/2024

This article describes the template and underlying task that are used to synchronize project tasks directly from Dynamics 365 Project Service Automation to Dynamics 365 Finance.

Note

- Project task integration, expense transaction categories, hour estimates, expense estimates, and functionality locking are available in version 8.0.
- If you're using Enterprise edition 7.3.0, after you install KB 4132657 and KB 4132660, you will be able to use the templates to integrate project tasks, expense transaction categories, hour estimates, expense estimates, and actuals, and to configure functionality locking. If you must reset the accounting distributions, we recommended that you also install KB 4131710.
- Actuals integration is available in version 8.0.1 or later.

Data flow for Project Service Automation to Finance

The Project Service Automation to Finance integration solution uses the Data integration feature to synchronize data across instances of Project Service Automation and Finance. The integration template that is available with the Data integration feature enables the flow of data about project tasks from Project Service Automation to Finance.

The following illustration shows how the data is synchronized between Project Service Automation and Finance.

Synchronize project expense categories between finance and operations and Project Service Automation

Article • 05/22/2024

This article describes the templates and underlying tasks that are used to synchronize project expense categories between Dynamics 365 Finance and Dynamics 365 Project Service Automation.

Note

- Project task integration, expense transaction categories, hour estimates, expense estimates, and functionality locking are available in version 8.0.
- Actuals integration is available in version 8.0.1 or later.
- If you're using Enterprise edition 7.3.0, after you install KB 4132657 and KB 4132660, you will be able to use the templates to integrate project tasks, expense transaction categories, hour estimates, expense estimates, and actuals, and to configure functionality locking. If you must reset the accounting distributions, we recommend that you also install KB 4131710.

Data flow for Project Service Automation and Finance

The Project Service Automation and Finance integration solution uses the Data integration feature to synchronize data across instances of Project Service Automation and Finance. The integration templates that are available with the Data integration feature enable the flow of data about project expense transaction categories between Finance and Project Service Automation.

If the project expense categories are mastered in Finance, the integration flow is first from Finance to Project Service Automation. The integration IDs of the project expense categories are then updated through synchronization from Project Service Automation to Finance.

If the project expense categories are mastered in Project Service Automation, the integration flow is first from Project Service Automation to Finance. The project

Synchronize project estimates directly from Project Service Automation to finance and operations

Article • 05/21/2024

This article describes the templates and underlying tasks that are used to synchronize project hour estimates and project expense estimates directly from Dynamics 365 Project Service Automation to Dynamics 365 Finance.

Note

- Project task integration, expense transaction categories, hour estimates, expense estimates, and functionality locking is available in version 8.0.
- Actuals integration is available in version 8.0.1 or later.

Data flow for Project Service Automation to Finance

The Project Service Automation to Finance integration solution uses the Data integration feature to synchronize data across instances of Project Service Automation and Finance. The integration templates that are available with the Data integration feature enable the flow of data about project hour estimates and project expense estimates from Project Service Automation to Finance.

The following illustration shows how the data is synchronized between Project Service Automation and Finance.

Synchronize project actuals directly from Project Service Automation to the project integration journal for posting in finance and operations

Article • 06/10/2024

This article describes the templates and underlying tasks that are used to synchronize project actuals directly from Dynamics 365 Project Service Automation to Dynamics 365 Finance.

The template synchronizes transactions from Project Service Automation into a staging table in Finance. After synchronization is completed, you **must** import the data from the staging table into the integration journal.

Note

- Project actuals integration is available starting in version 8.0.1.
- If you're using Enterprise edition 7.3.0 after you install KB 4132657 and KB 4132660, you will be able to use the templates to integrate project tasks, expense transaction categories, hour estimates, expense estimates, and actuals, and to configure functionality locking. If you must reset the accounting distributions, we recommend that you also install KB 4131710.
- If you're using version 7.3.0, and you are bringing fee transactions over from Project Service Automation, you must install KB 4345320 in order to include those fees in the project invoice.
- If you're entering sales tax amounts on time or expense transactions in Project Service Automation, you must install Project Service Automation Update 7. Otherwise, the tax actuals won't be linked to the associated time or expense actuals, and they won't be synchronized to Finance. For more information, contact Support.

Data flow for Project Service Automation to Finance

Consume external web services

Article • 07/01/2022

You can consume web services by adding new class libraries. In Microsoft Dynamics AX 2012, you could consume web services from X++ code by adding Microsoft Visual Studio projects as a reference and by using `Aif::CreateServiceClient`. This scenario is supported, but the steps have changed. Application Integration Framework (AIF) is no longer supported.

The following steps show how to consume an external StockQuote service from X++.

Note that the web service URL in this sample is fictional. There is no known web service at <http://www.contoso.net/stockquote.asmx>. To make this code work you will need to adapt it to your specific web service.

1. Create a new Class Library project in Visual Studio, and name it `ExternalServiceLibrary.csproj`.
2. In the Visual Studio project, add a service reference to the external web service:
`http://www.contoso.net/stockquote.asmx`.
3. Create a new static class, and wrap the StockQuote service operation as shown in the following example.

```
X++  
  
public static string GetQuote(string s)  
{  
    var binding = new System.ServiceModel.BasicHttpBinding();  
    var endpointAddress = new  
EndpointAddress("http://www.contoso.net/stockquote.asmx");  
    ServiceLibrary.QuoteReference.StockQuoteSoapClient client = new  
ServiceLibrary.QuoteReference.StockQuoteSoapClient(binding,  
endpointAddress);  
  
    //GetQuote is the operation on the StockQuote service  
    return client.GetQuote("MSFT");  
}
```

4. Build the project. The binary `ExternalServiceLibrary.dll` is created.
5. Create a new Dynamics project in Visual Studio.
6. Add `ExternalServiceLibrary.dll` as a reference.

Electronic messaging

Article • 08/12/2022

This article provides overview and the setup information for the **Electronic messages (EM)** functionality.

Recently, the governments and legislative authorities of various countries and regions around the world have implemented reporting requirements for companies that are registered in those countries or regions. The purpose of the requirements is to enable data to be obtained from those companies in electronic format, directly from the systems where it was accounted, stored, and processed.

The EM functionality in Microsoft Dynamics 365 Finance supports various processes for electronic interoperation between Finance and the systems that governments and legislative authorities offer for reporting, submitting, and receiving official information.

The EM functionality is integrated with the **Electronic Reporting (ER)** module. You can set up ER formats for electronic messages. For more information, see [Electronic reporting \(ER\)](#).

Basic concepts for EM functionality

The EM functionality is based on the following entities:

- **Electronic message** – A report or declaration that should be reported or transmitted internally, such as a report that is sent to a tax office.
- **Electronic message items** – Records that should be included in the message that is reported.
- **Electronic message processing** – A chain of actions that should be run to collect the required data, generate reports, store data in Azure Blob storage, transmit reports outside the system, receive responses from outside the system, and, based on the information that is received, update the database. The actions in the chain can be linked or unlinked.

The following illustration shows the flow of data for EM.