



# Infor Landmark Technology Web Services Reference Guide

Release 2023.x

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# Contents

<b>Contacting Infor.....</b>	<b>4</b>
<b>Chapter 1: Overview.....</b>	<b>5</b>
About this guide.....	5
About web services and Landmark applications.....	6
<b>Chapter 2: Configuration.....</b>	<b>7</b>
Configuring a system user for OpenAPI documentation.....	7
Create the Configuration Parameter records in Infor HR Talent.....	7
Create the Configuration Parameter records in Infor CloudSuite Financials & Supply Management.....	8
Configure the OpenAPI documentation feed.....	9
Configure the page size limit for inbound web services.....	10
<b>Chapter 3: Using Landmark web services.....</b>	<b>11</b>
Construct web service calls.....	11
Security.....	11
Error handling.....	12
Dynamic web services syntax.....	12
Defined web services syntax.....	13
Using Configuration Console to create a defined web service.....	13
Using Configuration Console to create a new web service interface.....	16
Raw data web services.....	16
Incremental replication with raw data web services.....	17
Other considerations.....	18
Link Landmark Reports as a service.....	18

## Contacting Infor

If you have questions about Infor products, go to Infor Concierge at <https://conciierge.infor.com/> and create a support incident.

The latest documentation is available from [docs.infor.com](https://docs.infor.com) or from the Infor Support Portal. To access documentation on the Infor Support Portal, select **Search > Browse Documentation**. We recommend that you check this portal periodically for updated documentation.

If you have comments about Infor documentation, contact [documentation@infor.com](mailto:documentation@infor.com).

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# Chapter 1: Overview

## About this guide

This guide provides an overview of web services for Landmark applications.

### Intended audience

The intended audience for this document are IT and development staff who are familiar with:

- Web services concepts
- Landmark application functionality and business classes as appropriate for the services being created

### Detailed API documentation

- *Landmark Web Service API Documentation* public API document. This application runs on your Landmark server. Go to:

*LandmarkURL/dataarea/soap/doco/html/api*

Example *dataarea* values: hcm, fsm, gen

Example (Cloud): <https://acme.aws.infor.com/fsm/soap/doco/html/api>

Example (On-premises): <https://acmecorp.com:1443/prodltm/soap/doco/html/api>

- Release Documents for Infor Financials & Supply Management: A full listing of table definitions for Infor Financials & Supply Management is available on Infor Support Portal.
- Release Documents for Infor HR Talent: Select the appropriate version for your environment. For Infor HR Talent, the table definitions are split into several documents and stored as a .zip file on Infor Support Portal.

### Related documentation

- *Infor ION Technical Reference Guide*
- *Infor Process Designer User Help*
- *Infor Landmark Technology Server Setup and Maintenance*
- *Configuration Console User Guide*
- *Configuration Console LPL Reference Guide*

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## About web services and Landmark applications

You can use pre-defined or define a web service that enables you to programmatically access Landmark business class data and actions based on standard SOAP/WSDL and REST/JSON formats to retrieve or update data. These actions are passed by the Infor ION API Gateway.

Provided as part of Infor OS, the ION API Gateway is integrated within Infor OS and Infor applications. It gives you the ability to use one domain, one authentication method, and a unified client code.

Every Landmark web service is accessible through the ION API Gateway. This means that every field of every screen of every Infor Landmark-based application is accessible through the ION API Gateway. This includes user-defined fields and user-defined business classes configured with Configuration Console.

The ION API Gateway is a server that acts as an API front-end to Infor products. It receives API requests and enforces throttling and security policies. The ION API Gateway passes requests to the back-end service, and then passes the response back to the requester. It includes a transformation engine to orchestrate and modify the requests and responses on the fly, and provides functionality such as the collection of analytics data and caching. You can use the ION API Gateway to support authentication, authorization, security, audit, and regulatory compliance.

### Note:

Previously provisioned Infor multi-tenant cloud instance customers not already using the Infor ION API Gateway must work with Infor Cloud Operations to provision the Infor ION API Gateway to their Infor multi-tenant cloud instances.

Landmark contains a full public web services API, including public API documentation (<https://<deployment>/hcm/soap/doco/html/api>) and full swagger list (<http://<deployment>/hcm/soap/doco/swagger>). You must have Ming.le installed to view the Swagger API documentation.

Inbound web services can be defined or dynamic:

- **Defined web service:** define a web service using the web service builder application, which is part of the Configuration Console. Once a web service has been defined in Configuration Console, you can invoke it via standard protocols.
- **Dynamic web service:** do not require a web services builder definition in the Configuration Console. The service works by URL convention, using the Infor ION API Gateway. The response will include the fields that are in the request.

Outbound web services:

- **Infor Process Automation (IPA) web service activity node:** the IPA Web Service node has a built-in wizard to aid in the construction of the SOAP XML that is sent to the web service, and a built-in output wizard to let you know what XML elements are expected as output. That information is retrieved from the web service's WSDL document. For more information, see *Infor Process Designer User Help*.
- **Web Services Interface (WSI):** use LPL to create a .wsi file to call the service. This requires knowledge of Landmark Pattern Language (LPL).
- **FTP client:** abstraction/communication layer for ftp.

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## Chapter 2: Configuration

### Configuring a system user for OpenAPI documentation

Infor ION API contains OpenAPI documentation that collects its feeds in the background, which means that the Identity2 HTTP header is not available to the Landmark back-end for authentication. Infor Landmark is sensitive to data context due to its configurable nature. Because Infor ION API collects its OpenAPI feeds without a concept of a user, you must define an ION API Documentation system user by creating configuration parameters for the configuration feed and the individual feed.

### Create the Configuration Parameter records in Infor HR Talent

Create the identity and authorization service name records.

If these records have not been created automatically as part of the provisioning process in CloudSuite Service Portal, use these instructions to create the records manually.

- 1** In Infor HR Talent, login as an administrator.
- 2** In the search field in the top right corner, enter `ConfigurationParameter`. The Configuration Parameter dialog box appears.
- 3** From the Actions drop-down menu, choose Create.
- 4** Specify this information:
  - **Component:** Enter `httpheader`.
  - **Key:** `hcm.soap.doco.swagger.docs.collection.Identity2`
  - **Type:** Select `Alpha` from the drop-down menu.
  - **Length:** Enter `300`.
  - **Value:** Enter `HCM.OAUTH-IONAPI`.
- 5** Click the Save and New icon.
- 6** From the Actions drop-down menu, choose Create.
- 7** Specify this information:
  - **Component:** Enter `httpheader`.
  - **Key:** `hcm.soap.doco.swagger.docs.collection.xoauth_service_name`

- Type: Select `Alpha` from the drop-down menu.
  - Length: Enter `300`.
  - Value: Enter `HCM.OAUTH-IONAPI`.
- 8** Click the Save and New icon.
- 9** From the Actions drop-down menu, choose Create.
- 10** Specify this information:
- Component: Enter `httpheader`.
  - Key: `hcm.soap.doco.swagger.docs.consolidated.Identity2`
  - Type: Select `Alpha` from the drop-down menu.
  - Length: Enter `300`.
  - Value: Enter `HCM.OAUTH-IONAPI`.
- 11** Click the Save and New icon.
- 12** From the Actions drop-down menu, choose Create.
- 13** Specify this information:
- Component: Enter `httpheader`.
  - Key: `hcm.soap.doco.swagger.docs.consolidated.xoauth_service_name`
  - Type: Select `Alpha` from the drop-down menu.
  - Length: Enter `300`.
  - Value: Enter `HCM.OAUTH-IONAPI`.
- 14** Click the Save icon.

## Create the Configuration Parameter records in Infor CloudSuite Financials & Supply Management

Create the identity and authorization service name records.

If these records have not been created automatically as part of the provisioning process in CloudSuite Service Portal, use these instructions to create the records manually.

- 1** In Infor CloudSuite Financials, login as an administrator.
- 2** In the search field in the top right corner, enter `ConfigurationParameter`. The Configuration Parameter dialog box appears.
- 3** From the Actions drop-down menu, choose Create.
- 4** Specify this information:
  - Component: Enter `httpheader`.
  - Key: `fsm.soap.doco.swagger.docs.collection.Identity2`
  - Type: Select `Alpha` from the drop-down menu.

- Length: Enter 300.
  - Value: Enter `FSM.OAUTH-IONAPI`.
- 5** Click the Save and New icon.
- 6** From the Actions drop-down menu, choose Create.
- 7** Specify this information:
- Component: Enter `httpheader`.
  - Key: `fsm.soap.doco.swagger.docs.collection.xoauth_service_name`
  - Type: Select `Alpha` from the drop-down menu.
  - Length: Enter 300.
  - Value: Enter `FSM.OAUTH-IONAPI`.
- 8** Click the Save and New icon.
- 9** From the Actions drop-down menu, choose Create.
- 10** Specify this information:
- Component: Enter `httpheader`.
  - Key: `fsm.soap.doco.swagger.docs.consolidated.Identity2`
  - Type: Select `Alpha` from the drop-down menu.
  - Length: Enter 300.
  - Value: Enter `FSM.OAUTH-IONAPI`.
- 11** Click the Save and New icon.
- 12** From the Actions drop-down menu, choose Create.
- 13** Specify this information:
- Component: Enter `httpheader`.
  - Key: `fsm.soap.doco.swagger.docs.consolidated.xoauth_service_name`
  - Type: Select `Alpha` from the drop-down menu.
  - Length: Enter 300.
  - Value: Enter `FSM.OAUTH-IONAPI`.
- 14** Click the Save icon.

## Configure the OpenAPI documentation feed

ION API collects the OpenAPI feed in the background, which means that the Identity2 HTTP Header is not available to the Landmark back-end for authentication. As a result of the context-sensitive nature of Landmark, ION API collects its OpenAPI feeds without a concept of a user. This process defines a system user for ION API documentation.

You must create two parameters for your authorization header. This process must be performed for each data area.

- 1 Sign into Infor Ming.le as an administrator.
- 2 In the Search box in the upper right corner, enter *ConfigurationParameter*.
- 3 Specify this information:
  - Component: *httpheader*
  - Key: *<product>.soap.doco.swagger.docs.collection.Identity2*, for example *fsm.soap.doco.swagger.docs.collection.Identity2*
  - Value: *<actor>*, for example *FSM.OAUTH-IONAPI*
- 4 Click the Save and New icon.
- 5 Specify this information:
  - Component: *httpheader*
  - Key: *<product>.soap.doco.swagger.docs.collection.xoauth\_service\_name*, for example *fsm.soap.doco.swagger.docs.collection.xoauth\_service\_name*
  - Value: *<actor>*, for example *FSM.OAUTH-IONAPI*
- 6 Click the Save icon.

## Configure the page size limit for inbound web services

To avoid long-running processes that affect users, a page size limit is enforced for all web service list calls. The default value is 200.

To change this limit, follow these instructions.

- 1 Log in to Infor Rich Client or Process Server Administrator.
- 2 Select **Process Server Administrator > Configuration > Configuration Parameters**.
- 3 From the **Actions** drop-down menu, choose **Create**.
- 4 Specify this information:
  - Category: Enter *webservs*.
  - Key: *ws.paging.enforced*
  - Value: Enter *true*.
- 5 Click the Save and New icon.
- 6 From the Actions drop-down menu, choose **Create**.
- 7 Specify this information:
  - Category: Enter *webservs*.
  - Key: *ws.page.size*
  - Type: Select **Numeric** from the drop-down menu.
  - Value: Enter *<page size>*. The default value is 200.

## Chapter 3: Using Landmark web services

### Construct web service calls

In order to construct web service calls for Landmark applications, you must be familiar with the business classes within the application. The operations and possible parameters (fields) vary for each business class.

You can navigate to WSDL, which paints all operations for a business class and parameters and get the information from there:

*LandmarkURL/dataarea/soap/ldwsdl/module/businessclass*

Example: <https://acmecorp.com:1443/prodltm/soap/ldwsdl/Recruiting/Candidate>

If you are familiar enough with a business class, you could be able to construct correct calls, which are generally *formname\_actionname\_formoperation*.

The easiest way to identify operations and parameters is to use the Landmark Web Service API Documentation application, which runs on your Landmark server. The API documentation includes pages that document the API for all the SOAP and REST methods in your Landmark application.

The SOAP documentation includes the corresponding WSDL and XML schemas (XSDs).

The REST documentation uses the OpenAPI User Interface.

Because the pages run from your Landmark server, it automatically reflects all existing business classes and any user-defined business classes.

You launch the API document from your Landmark server. Go to: *LandmarkURL/dataarea/soap/doco/html/api*

Example *dataarea* values: hcm, fsm, gen

Example (Cloud): <https://acme.aws.infor.com/fsm/soap/doco/html/api>

Example (On-premises): <https://acmecorp.com:1443/prodltm/soap/doco/html/api>

### Security

The web service is secured and authentication is required. The web services uses OAuth 2.0 token management. OAuth 2.0 is an industry standard that provides specific authorization flows for web applications, desktop applications, and mobile applications.

For more information on incorporating OAuth 2.0, see the *Infor ION API Administration Guide*.

There is a security service included in the application definition. The service name includes .LAWSON-SOAP. You may have to edit or setup the security service depending on your application and environment. For more information, see Security System Management in *Infor Landmark Technology Server Setup and Maintenance*.

## Error handling

If the HTTP call doesn't have the correct credentials, you will get a fault back requesting a login or you will be redirected to a login.

If a call requests an action using data that does not exist, the message will be whatever the application error message is.

## Dynamic web services syntax

The dynamic web service works by URL convention. The response will include the fields that are in the request. All dynamic web services are available for all applications and application objects running on Landmark.

### Classes

Syntax: *LandmarkURL/dataarea/soap/classes/module/businessclass*

Example: <https://acmecorp.com:1443/prodltm/soap/classes/Recruiting/Candidate>

Response: XML, CSV, JSON

### SOAP/WSDL

Syntax: *LandmarkURL/dataarea/soap/ldwsdl/module/businessclass*

Example: <https://acmecorp.com:1443/prodltm/soap/ldwsdl/Recruiting/Candidate>

Response: WSDL

### REST

Your web service can also be accessed through the REST interface. The default output is JSON but you can also request a SOAP response.

Syntax (JSON): *LandmarkURL/dataarea/soap/ldrest/businessclass/operation?field=value*

Example: [http://lr87417e.infor.com:8080/ghr/soap/ldrest/Item/Create\\_ItemForm\\_FormOperation?Item=jerry368&Description=+&ItemText=COM%2BSERVICES](http://lr87417e.infor.com:8080/ghr/soap/ldrest/Item/Create_ItemForm_FormOperation?Item=jerry368&Description=+&ItemText=COM%2BSERVICES)

Response: JSON (default response)

Syntax (REST/XML): *LandmarkURL/dataarea/soap/ldrest/businessclass/operation?field=value\_&out=SOAP*

**Example:** `http://lr87417e.infor.com:8080/fin/soap/ldrest/Item/Delete_ItemForm_FormOperation?Item=jer  
ry368&Description=+&ItemText=COM%2BSERVICES&_out=SOAP`

**Response:** XML

## Defined web services syntax

Configuration Console includes a web services builder that allows you to define a web service which can contain form-based operations and list-based operations. Within each operation, you can design the web service interface by selecting fields for the input message and output message.

Once a web service has been defined in Configuration Console, you can invoke it via standard protocols:

### SOAP/WSDL

**Syntax:** `LandmarkURL/dataarea/soap/wsdL/webserviceName`

**Example:** `https://acmecorp.com:1443/prodltm/soap/wsdL/ltmwebserv`

**Response:** WDSL

### REST

Your defined web service can also be accessed through the REST interface. The default output is JSON but you can also request a XML/SOAP response.

**Syntax (JSON):** `LandmarkURL/dataarea/soap/lrest/webserviceName/operation`

**Example:** `https://acmecorp.com:1443/prodltm/soap/lrest/ltmwebserv/candidatelist`

**Response:** JSON (default response)

**Syntax (REST/XML):** `LandmarkURL/dataarea/soap/lrest/webserviceName/operation?_out=SOAP`

**Example:** `https://acmecorp.com:1443/prodltm/soap/lrest/ltmwebserv/candidatelist?_out=SOAP`

**Response:** XML

## Using Configuration Console to create a defined web service

Use this procedure to define a web service configuration in the Configuration Console. To access the web services builder in Configuration Console, you must have a security role that includes one of several security classes or their equivalent. For more information, see the *Configuration Console User Guide*.

To create a web service configuration

- 1 Access the Configuration Console for Web Services. **Start > Configure > Web Services.**
- 2 Click the **New** button at the top of the left pane.
- 3 Provide the basic definition for the web service. Consider the following fields:

**Web Service**

Type a name for the web service. You will use this name in URL calls, so consider keeping the name short and meaningful.

**Active**

Select the Active check box to make the web service available.

**Production**

Select the Production check box to indicate that the web service is ready for a production environment. If this check box is selected, then the servlet container will cache the web service definition. Then, each time a system accesses the web service, the servlet container will not check for an updated definition. If you are testing a web service, you should leave this check box unselected.

- 4 From the Actions menu, select **Save**.
- 5 You can select **Action > Fetch Runtime WSDL** to see the URL you need to access the web service you are defining. When Fetch Runtime WSDL Completes, the Runtime WSDL field populates with your server name and URL for the defined service WSDL. [Defined web services syntax](#) on page 13

The URL uses the sytanx: *LandmarkURL/dataarea/soap/\wSDL/web servicename*

**Note:**

The WSDL button on this form was meant to open browser window in the UI to see the WSDL XML, but depending on your canvas and browser control, this may not work.

- 6 Decide whether the web service will involve form-based operations, list-based, or both and define them.  
To define form-based operations
  - a On the web service definition form, click the **Form Based Operations** tab.
  - b From the Actions menu on the tab, select **Create**.
  - c On the Form Based Operation window, define the operation

**Form Operation**

Type a name for the form operation. You will be using this name in URL calls, so consider keeping it short and meaningful.

**Module**

Select the module that the business class for the form belongs to. This will help narrow the list of business classes to select from.

**Busclass**

Select the business class that the form belongs to. If you know the exact name of the business class, you can also type it here.

**Action**

Required. Select the action on the business class you want to use. Note that you must have a business class in the Busclass field before you select an action.

**Status Message**

Select this check box if you want a status message included. This is the message the application returns, such as "change complete."

**Active**

Select this check box to indicate that this operation is active.

- d Click **Save**. The Input Fields and Output Fields tabs display.
- e Define the input fields for the form-based operation.
  - On the Form Input Fields tab, click the Helper List icon.
  - Select the fields you want.
  - Click **Attach Input Fields To Form Operation**. This adds the fields to the tab and saves the record.
- f When you are done adding input fields, close the Helper List.
- g Define the output fields for the form-based operation.
  - On the Form Output Fields tab, click the Helper List icon.
  - Select the fields you want.
  - Click **Attach Output Fields To Form Operation**. This adds the fields to the tab and saves the record.
- h When you are done adding output fields, close the Helper List.
- i When you are done adding operations, close the Form Based Operation window and return to the Web Service Record.

To define list-based operations

- a On the web service definition form, click the **List Based Operations** tab.
- b From the Actions menu on the tab, select **Create**.
- c On the List Based Operation window, define the operation

**List Operation**

Type a name for the list operation. You will be using this name in URL calls, so consider keeping it short and meaningful.

**Module**

Select the module that the business class for the list belongs to. This will help narrow the list of business classes to select from.

**Busclass**

Select the business class that the list belongs to. If you know the exact name of the business class, you can also type it here.

**List**

Select the list that you want to use for the operation.

**Active**

Select this check box to indicate that this operation is active.

- d Click **Save**. The Input Fields and Output Fields tabs display.
  - e Define the input fields for the list-based operation.
    - On the Input Fields tab, click the Helper List icon.
    - Select the fields you want.
    - Click **Attach Input Fields To List Operation**. This adds the fields to the tab and saves the record.
  - f When you are done adding input fields, close the Helper List.
  - g Define the output fields for the list-based operation.
    - On the Output Fields tab, click the Helper List icon.
    - Select the fields you want.
    - Click **Attach Output Fields To List Operation**. This adds the fields to the tab and saves the record.
  - h When you are done adding output fields, close the Helper List.
  - i When you are done adding operations, close the List Based Operation window and return to the Web Service Record.
- 7** Once the web service operations are defined and the record is saved and active, you can invoke the web service via standard SOAP/WSDL or REST protocols. [Defined web services syntax](#) on page 13

## Using Configuration Console to create a new web service interface

Use this procedure to create a new web service configuration in the Configuration Console. To access the web services builder in Configuration Console, you must have a security role that includes one of several security classes or their equivalent. For more information, see the *Configuration Console User Guide*.

To create a web service interface

- 1** Access the Configuration Console for Web Services. **Start > Configure > Application > User Web Service Interfaces**.
- 2** From the Actions drop-down menu, click **Create**.
- 3** You must use Landmark Pattern Language (LPL) to define the new web service interface. For guidelines and examples, see the *Configuration Console Reference Guide: Landmark Pattern Language (LPL)*.

## Raw data web services

Raw data web services can retrieve data from any Landmark business class.

Raw data web services allows you to build URLs to retrieve data from any Landmark business class. The data can be returned in XML, JSON or CSV format.

**Note:** Use a web browser that supports a JSON viewer extension, such as Chrome. The viewer allows you to click through the hrefs as you build URLs.

#### Call syntax:

- All classes: `https://server:port/dataarea/soap/classes?_links=true`
- All actions containing "Item": `https://server:port/dataarea/soap/classes/Item?_links=true`
- All sets contained in "Item": `https://server:port/dataarea/soap/classes/Item/sets?_links=true`
- All fields and links associated with this set in "Item": `https://server:port/dataarea/soap/classes/Item/sets/SymbolicKey?_links=true`
- A list query containing all fields associated with this set in "Item": `https://server:port/dataarea/soap/classes/Item/lists/_generic?_setName=SymbolicKey&_fields=_all&_limit=20&_links=true`
- A list query returning three fields associated with this set in "Item": `https://server:port/dataarea/soap/classes/Item/lists/_generic?_setName=SymbolicKey&_fields=Item,ItemGroup,Description&_limit=20&_links=true`  
**Note:** You can query related fields with a "."
- A list query returning three fields associated with this set in "Item", with a "replicate" from time stamp: `https://server:port/dataarea/soap/classes/Item/lists/_generic?_setName=SymbolicKey&_fields=Item,ItemGroup,Description&_limit=20&_fts=2000022605584551&_links=true`  
**Note:** To return only the replicated record count, add `_recordCountOnly=true` to the call.
- A "Find" action with keys: `https://server:port/dataarea/soap/classes/Item/actions/Find?Item=13&Description=Tape%2C+Transpore%2C+Surg+1x20+yds&ItemGroup=1000&_links=true`

#### Filter syntax:

- `_filter="[parameter1]::[value1]|[parameter2]::[value2]"`

The batch syntax is a simple extension of an action URL. You can append this request to any action listed per business class.

#### Batch syntax:

- Batch find: `https://server:port/dataarea/soap/classes/Item/actions/Find/batch`

## Incremental replication with raw data web services

Specify a time range on your raw data request.

The primary raw data URL parameters are:

- Business class name
- List of field names
- Optional filter

An incremental replication extract can be run by specifying the `FromTimeStamp` (`_fts`) and `ToTimeStamp` (`_tts`) parameters. If the `FromTimeStamp` parameter is specified, the extract will only retrieve records that have changed after the time stamp provided and up to the optional to time stamp parameter.

When replicating related sets of records, it is important to specify the same `ToTimeStamp` value for all the extract calls.

A replication extract returns a standard field at the beginning of the returned fields list. This field indicates whether the record was added, changed, or deleted since the FromTimeStamp. To load a table initially, use a value of “0” for FromTimeStamp.

## Other considerations

The use of web services is most practical for relatively small amounts of data.

If your web service has a list, be aware that paging does not function.

## Link Landmark Reports as a service

Using the Landmark public API to access Landmark Reports.

- 1** Select **Start > Other > Application and System Links**.  
The Landmark Reveal page opens in a separate tab.
- 2** On the **Web Services** tile, click **Public Web Services API**.
- 3** Click **Link Reports As A Service**.
- 4** From the returned list of reports, click the report you need to explore.