



Cisco Remanufactured Inventory Visibility API

Implementation Guidelines
Message Type: XML

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Table of Contents

PREFACE	4
SUMMARY OF CHANGES	5
1 INTRODUCTION	6
1.1 Overview	6
1.2 Audience	6
1.3 Scope	6
1.4 Pre-Requisites	6
2 PROCESS FOR REMANUFACTURED INVENTORY WEB SERVICES	7
2.1 CheckAvailability	7
3 TECHNICAL SPECIFICATIONS	8
3.1 Communication Protocol	8
3.2 Authentication	8
3.3 Partner Application Registration with Cisco over APIx	8
3.4 Endpoint URL	10
4 MESSAGE GUIDELINE	11
4.1 Sample Error Message	12
4.2 CheckAvailability	12
5 ERROR MESSAGES	13
6 MESSAGE LOAD AND BEHAVIOR	14
APPENDIX A: LINKS & REFERENCES	15
REVISION HISTORY	16
GLOSSARY OF TERMS AND ABBREVIATIONS	17

TABLES

Table 1: Change Log5

Table 2: Production Endpoint URLs for Manage Config Web Services10

Table 3: Mapping of Cisco’s Quoting Web Services to OAGi Standard BOD12

Table 4: Error Messages13

Table 5: Glossary of Terms and Abbreviations17

FIGURES

Figure 1: Web Services Flow: Communication Protocol8

Figure 2: Authentication Process9

Preface

Cisco Refresh, a dedicated business unit within Cisco Capital, is responsible for the remanufacturing and sales of Cisco certified remanufactured products (designated with an "-RF" suffix at the end of the Cisco SKU).

Inventory is acquired through Cisco's reverse logistics process, which includes distributor stock rotations, manufacturing overruns, demo depot equipment, lease returns, trade-ins, RMAs, and spot purchases on the open market. The Cisco Refresh group then runs all of these assets through a stringent remanufacturing process that ensures all parts are examined for counterfeiting, are updated to the latest shippable revision (i.e. ECO applied), meet Cisco cosmetic specifications, and are tested to the same standards as new Cisco product.

The Cisco Refresh team then works with Cisco's global sales force and Cisco's authorized channel partners to sell -RF equipment to customers who have a need for Cisco technology at secondary market price points.

When customers need product at a competitive price and at an aggressive lead time, Cisco Refresh is their alternative to sourcing Cisco product from the secondary market. Simply put, Cisco Refresh is a price-competitive and trusted alternative in those cases when buying new equipment is not an option. Remanufactured and certified by Cisco, Cisco Refresh products are backed by the same Cisco warranty and service support options as the equivalent new product. Cisco Refresh equipment are sold only through Cisco authorized Channel Partners and Distributors.

In the Q1 FY25 release, we have enhanced the functionality of the Cisco Remanufactured Inventory Visibility API by maximizing the visibility of available -RF product, available to order now. We highly encourage partners to leverage Cisco's API feeds for -RF product, as Partners leveraging this capability can maximize their Cisco Refresh blend, which can positively impact their margins.

Summary of Changes

Given below is a summary of the change history of the Reserve Inventory Service from Cisco Commerce Workspace (CCW) platform

Table 1: Change Log

Note: September 2022 onwards, any recent change/update in the IG will be highlighted in **Blue**.

Revision	Date	Description	Location	Revised By
5.0	16Aug2024	Updated web service request to support maximum 500 remanufactured SKU that originally was 10.	Section 2.1	Gaurav Gharu
4.0	12Apr2023	Updated the Endpoint URLs as per the PingIdentity to Okta change. URLs that used to start with https://api.cisco.com , will start with https://apix.cisco.com	Endpoint URLs	Gaurav Gharu
3.0	06Aug2020	Updated the Impementation Guide to just support maximum 10 remanufactured skus in the request	Section 2.1 (Note)	Sarang Pol

Known Limitations during the initial Release

1. Remanufactured Lines Only:

The remanufactured inventory service is intended to only cater to availability check of remanufactured equipment. It may not be used for checking availability of regular Cisco SKUs.

2. Major Lines Only:

Remanufactured SKUs sent by partners for checking availability can only be major lines.

1 Introduction

Cisco has prepared this document for implementing configuration solutions specific to Remanufactured Inventory web service. The Remanufactured Inventory Implementation Guide describes the functionalities and the data exchange mechanism to interact and integrate with Cisco to check availability of Remanufactured SKUs for a given ship-to country.

This document discusses various technical and functional aspects of web services, such as connectivity, message specifications, and test client programs.

1.1 Overview

The interactions between the partner systems and Cisco are done by a request and response XML interchange mechanism. The Remanufactured Inventory Web Service is an on-demand service wherein a partner can choose to check availability of a remanufactured SKU for a ship-to country at any time in the life cycle of order creation like creation of Config set, creation on Purchase Order, submission of the order, etc.

1.2 Audience

The intended audience for this document is Business Analysts, IT Engineers, and Technical Architects who are involved in the integration project. Other stakeholders who wish to understand business and/or technical aspects of integration may also use the document as a reference.

1.3 Scope

The scope of this document is limited to Cisco's Remanufactured Inventory Web Service. It can be used to check availability in terms of 3, 7 and 30 day lead times for a given part and ship-to country.

1.4 Pre-Requisites

- It is assumed that the reader has some familiarity with Cisco's CCW platform through either formal or informal training and/or demonstration.
- The credentials to access CCW and Cisco's Remanufactured Inventory infrastructure must have been previously established. Please contact your Partner Solutions representative for assistance if they are yet to be established.

2 Process for Remanufactured Inventory Web Services

2.1 CheckAvailability


1. The CheckAvailability Web Service lets partners:
 - Check inventory information for a given remanufactured SKU and ship-to country combination.
2. In the response for service, the user will get:
 - Availability information for the remanufactured SKUs in terms of 3,7, or 30 day lead time

If the request processing is not successful, an error response is sent. The partner can then correct and resubmit the request.

The process for Remanufactured Inventory Web Services is as follows:

- The partner creates a BOM having Remanufactured SKUs and sends the major lines for inventory check using the CheckAvailability service.
- Based on the request, availability information is sent back that includes quantity of remanufactured SKU available within 3 day lead time window, 7 day lead time window, 30 day lead time window and the total availability (3 Day + 7 Day + 30 Day).

Note: The web service request supports maximum **500** remanufactured SKU to check the availability. If number exceeds in the request, web service throw an error.

 This is a light weight service only meant for checking availability of remanufactured SKUs, it does not create/validate configurations.

3 Technical Specifications

This section contains the technical specifications for the Remanufactured Inventory (Check Availability) suite of Web Services.

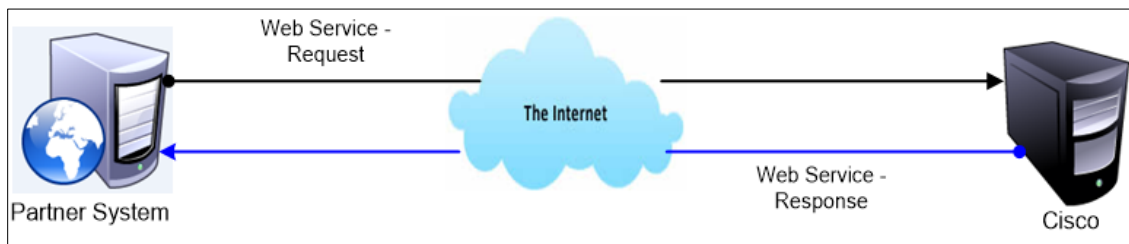
3.1 Communication Protocol

Cisco supports the NextGen web services through a Web Services application programming interface (API). The document is sent over an https SOAP call. This is a stateless document-literal service that supports SOAP 1.2 specifications and is implemented using SDF 2.0. The communication method is a synchronous request and response where the request will originate from the partner system.

By using HTTP and XML as the means for information exchange, SOAP allows a program running in one kind of operating system to communicate with a program in the same or another kind of an operating system.

A high level view of the WS Flow is as follows:

Figure 1: Web Services Flow: Communication Protocol



The request and response is based on the Open Applications Group (OAGI) standard. The appropriate Business Object Documents (BOD) Version 9.5.1 is used for generating the request and response.

3.2 Authentication

To access and interface with Cisco, partners need:

- A valid Cisco user ID (CCO ID)
- Registered application with Cisco's APIx console

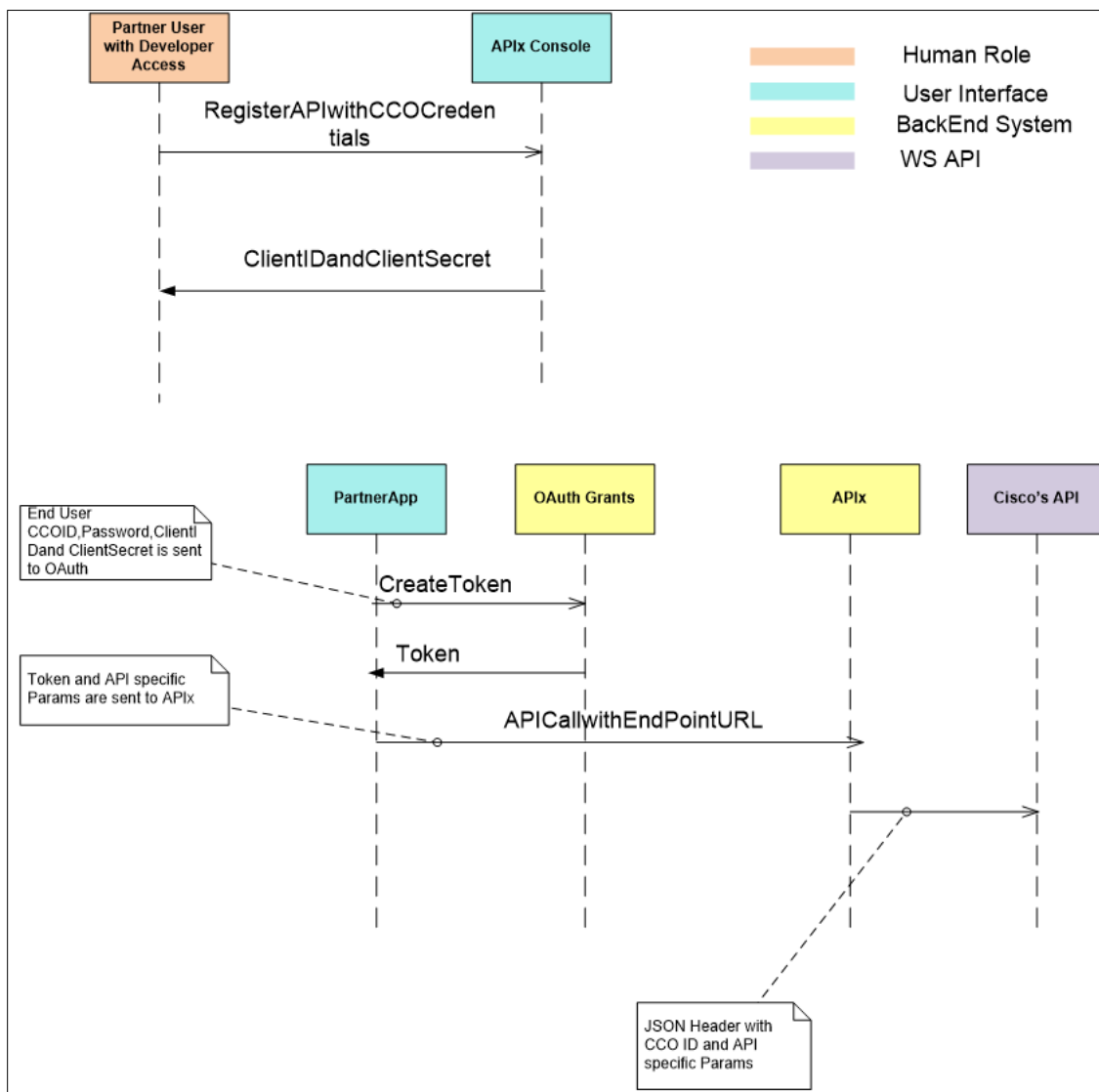
The sections that follow describe the registration and authentication process.

3.3 Partner Application Registration with Cisco over APIx

1. To interface with Cisco, the partner needs to register their applications with Cisco's APIx console at <https://apiconsole.cisco.com>.
2. The user needs to sign in to the APIx console using that individual's CCO ID credential.
3. After successfully logging in to the APIx console, the user should fill in the application to register the application.
4. A detailed registration process document is available once the user successfully logs in to the APIx console.
5. After the application registration is completed the console window displays an "Application Registered" message.
6. The partner application needs to obtain an Access Token via OAuth v2.0 Grants, and make requests to the destination API(s) by using the access-token on an API request call.

A graphical view of the WS flow for authentication follows:

Figure 2: Authentication Process



Note:

- The technical specification document for registering the application and obtaining the access token are available once the user signs on to the Cisco APIx console at <https://apiconsole.cisco.com>.
- The technical specification document also discusses a sample “Hello API” to test out the integration with Cisco.

3.4 Endpoint URL

The partners are provided a test environment to test their integration with Cisco before on-boarding to the production environment.

Endpoint URLs are the origin or destination of a session.

The production endpoint URLs for CheckAvailability web services are as follows:

Table 2: Production Endpoint URLs for Manage Config Web Services

SERVICES	PRODUCTION
CheckAvailability	https://apix.cisco.com/commerce/ORDER/v2/sync/checkAvailability

Note:

- For Testing environment details, please contact Cisco representatives.
- The host URLs can be accessed directly. No special connectivity such as VPN is required.

4 Message Guideline

OAGi BOD – Version 9.5.1

The request and response messages that partners send to and receive from Cisco describe all of the data elements and the overall XML document structure of a process. A partner uses the information in the messages to:

- Configure their system to meet the requirements of the B2B sales ordering process
- Validate that their configurations align with Cisco's systems
- Resolve issues that may impede the partner's ability to fully participate in the sales ordering process
- Improve the quality of the message exchange service between the partner and Cisco

The partner sends a request message to Cisco to request a service.

Services that are available under the Remanufactured Inventory Web Services solution are presented in [Table 3: Mapping of Cisco's Quoting Web Services to OAGi Standard BOD](#).

The partner receives a response message from Cisco for each message that was sent. A response may be:

- Validated with no warning messages
- Validated with warning messages

Note: If a response passes, the response will include the requisition ID of the created request, and other attributes of the request.

- **Not validated:** The configuration includes at least one error that needs to be resolved before the configuration can be validated

If the request fails, an error message is returned. Error messages must be resolved before the configuration can be validated. Possible errors are shown in the Error Messages section.

The error message is always in the format of an SOAP fault. The SOAP fault element is returned inside the body element from a web service in case an error occurs while processing the received SOAP message.

4.1 Sample Error Message

In the sample Error Message that follows, the partner is advised of various triggers for the error. The error message is returned inside the body element of the Response message:

```
<eb:Error origin="ebMS" category="Communication" errorCode="MESHA:PMODE_NULL" severity="failure"
refToMessageInError="urn:uuid:8664efa7-c3f8-4a50-a495-feaf97302155@NGCCClient.partner.com">
```

```
<eb:Description xml:lang="en">No PMode Details found in database or the partner is inactive OR Check if
message id submitted in request is valid and conforms to required format (urn:uuid:unique-message-id@your-
partner-identifier).</eb:Description>
</eb:Error>
```

Cisco maps its web services to the Open Applications Group Integration (OAGi) standards for Business Object Documents (BODs).

The OAGi creates and maintains the Open Application Group Integration Specification (OAGIS) which consists of this architecture, standardized messages, and example scenarios that are used as a basis for most integrations. By selecting a scenario that most closely matches an integration's needs, the messages or Business Object Documents (BODs) are identified that will accomplish the desired business integration or processes.

Table 3: Mapping of Cisco's Quoting Web Services to OAGi Standard BOD

QUOTING WEB SERVICE	REQUEST BOD	RESPONSE BOD
CheckAvailability	GetInventoryBalance	AcknowledgeInventoryBalance

4.2 CheckAvailability

Partner can leverage the CheckAvailability service to check the availability of remanufactured SKUs for a given ship-to country. The response is sent back in the form of an xml.

Note: A complete XML sample file is in [Appendix A: Links & References](#).

5 Error Messages

Error severity management, which is the success or failure to meet a business rule validation, is handled in one of the following three ways:

- An “Error” is the failure to meet a business rule that prevents the submission of a configuration. The configuration is rejected. The partner must correct the problem and submit a new message.
- A “Warning” is the failure to meet a business rule that does not prevent the submission of a configuration, but requires a task to be raised for further investigation by the partner. The configuration is accepted.
- An “Informational Message” is triggered by the success or failure to meet a business rule. This does not prevent the creation or management of the configuration. No action is required of the partner.

The error message information is featured in the table that follows.

Table 4: Error Messages

Error Summary (Reason)	Cause of Error/Error Message	Recommended Action
EWS101	Invalid Part Number	Change the part number on request.
EWS102	Invalid Ship-to country	Change the ship-to country on request.
EWS103	The remanufactured product(s) you requested are not available in your country.	Enter a valid ship-to country
EWS106	Part Number &Part_Number is not remanufactured. Inventory information available only for remanufactured equipment.	Update the request to only have remanufactured parts.
EWS107	A Technical error has occurred. Please contact Cisco support for assistance.	
EWS109	Invalid format. Please correct the request format as per OAGI BOD Schema and try again.	Update the format to conform to OAGI BOD schema and try again.

6 Message Load and Behavior

The APIx (Gateway) time out is 5 minutes.






The configuration target limit within a Quote should support 800 lines or 2.5 MB.

Max Request and Response Payload size for Web Service is 5KB and 1 MB respectively.

The partner should be able get a response within 5 seconds (maximum) after successfully submitting the request with proper input parameters.

The partner can provide number of records expected in results (for example, 20) as one of the optional parameters.

Appendix A: Links & References

Remanufactured Inventory Samples	
 Request/Response - CheckAvailability Format: JSON	
 Request - CheckAvailability Format: XML	 Response - CheckAvailability Format: XML
Other	
 Generate Token - IG Format: PDF	 Cisco Hello API - IG Format: PDF
Cisco API Console:	https://apiconsole.cisco.com/
OAGIs:	www.oagi.org
ISO Country code (2 digit):	http://www.iso.org/iso/country_codes/iso_3166_code_lists/country_names_and_code_elements.htm
ISO8601 Duration Format:	http://en.wikipedia.org/wiki/ISO_8601#Durations

Revision History

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5	16Aug2024	5.0	Updated web service request to support maximum 500 remanufactured SKU that originally was 10.	Section 2.1	Gaurav Gharu
4	12Apr2023	4.0	Updated the Endpoint URLs as per the PingIdentity to Okta change. URLs that used to start with https://api.cisco.com , will start with https://apix.cisco.com	Endpoint URLs	Gaurav Gharu
3	06Aug2020	3.0	Updated the Impementation Guide to just support maximum 10 remanufactured skus in the request	Section 2.1 (Note)	Sarang Pol
2	13Jul2020	2.0	Formatted the entire document and re-aligned	Entire IG	Prashanth P
1	24Jul2014	1.0	Initial draft of Implementation Guide for Reserve Inventory Web Services	IG	Komal Khatija

Glossary of Terms and Abbreviations

Table 5: Glossary of Terms and Abbreviations

TERM/ACRONYM	DEFINITION
ACK	Cisco abbreviation used for Acknowledgement
AS	Advanced Services
AS4	Applicability Statement 4 - Conformance Profile of the ebMS 3.0 specification which represents an open standard for the secure and payload-agnostic exchange of B2B documents using web services
AS-F	Advanced Services Fixed
ATO	Assemble to Order
BE GEO ID	Business Entity Geography ID
BE ID	Business Entity ID
BID	Billing Address Identifier
Blanket PO	Blanket PO is a purchasing term that describes when a buyer uses the same Purchase Order Number for ordering product from one vendor. New lines are added to the same PO when new products are needed.
BOD	Business Object Document: Standard message formats used by the OAGI messaging standard
BOM	Bill of Materials
CCO User ID	Cisco Connection Online User ID (Cisco.com)
CCW	Cisco Commerce Workspace
ConfigSet	A reference for ConfigurationSet created in Cisco with one or more Configurations
CSPP	Cisco Services Partner Program
CSR	Customer Service Representative
CTMP	Cisco Trade-In Migration Program
cXML	Commerce XML
Deal ID	Deal ID is used to tie an acquired discount (above and beyond a contractual discount) to a Sales Deal. Invalid Deal ID or missing Deal ID does not reject an order.
DPAS	Defense Priorities and allocation system: The DPAS system was created by a federal law so that the President of the United States has authorization to: Require that contracts or orders relating to certain approved defense or energy programs be accepted and performed on a preferential basis over all other contracts and orders Allocate materials and facilities in a manner that will promote approved programs
DPDM	Direct Partner Discount Model - (New term substituting the earlier GTM - go to Market)
DTD	Document Type Definition
DUNS	Dunn & Bradstreet Universal Numbering System
DVAR	Direct Value Added Reseller
eBMS	eBusiness XML Messaging Service
EPIC	External Partner Integration Cloud
GTIN	Global Trading Item Name

TERM/ACRONYM	DEFINITION
ICT	Integrated Configuration Tool
MLC	Multi Line Configuration tool
MOVE	MOVE was an internal Cisco project intended to simplify Logistics shipping preferences. Because they require specific simplified carrier and service level data, Cisco must accept those values instead of what they normally provide. The program is designed as an opt-in or opt-out program, where the customer can have Cisco select the carrier and service level or self-select those values.
Non-SS	Non Shared Support
OAGI	Open Applications Group Integration at http://www.oagi.org
OCI	Open Catalog Interface
OEM	Original Equipment Manufacturer
PAK	Product Activation Key
PIP	Partner Interface Process: Standard message formats used by the RosettaNet messaging standard
PO	Purchase Order
PriceListID	Identifier of Cisco's price list
ProductId	Identifier of hardware or software products and service items offered by Cisco
QuickQuote	Quote created with user's contractual discount. These quotes usually get approved automatically after submission.
QuoteID	Identifier of the quote created in Cisco
RN	RosettaNet at http://www.rosettanet.org
ROW	Rest of the world
SelectionFlag	Identifier of the selection of a product line item in a configuration. For items selected by the user the value is "User". Items automatically added by the configuration engine to complete the configuration are marked as "System" selected.
SKU	Stock Keeping Unit
SNH	Serial Number Hierarchy
SO	Sales Order
SRCT	Shipment Routing Configuration Tool: This tool allows partners to specify shipping and delivery options such as preferred carriers, freight terms, and service levels. It replaces the MOVE program.
SWIFT	Software Infrastructure and Fulfillment Technology
TAA	Trade Agreement Act
TAB	Try and Buy
T&C	Term and Content
TEP	Trade Exception Process
Theatre	APAC, EMEA, and the US are termed as Business Theatres.
UDDI	Universal Description, Discovery, and Integration
UNSPSC	United Nations Standard Products and Services Code
UCS	Unified Computing Service
UCSS	Unified Communications Software Subscription
WS	Web Service
Zulu time format	yyyyMMdd'T'hhmmss.SSS'Z' time format suffixed by a 'Z'