

# Extension Manager

Workforce Connect



**ZEBRA**

## **API Reference Guide**

**Version 2.5.96**

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# About This Document

## Introduction

This guide provides information about Zebra Workforce Connect (WFC) Extension Manager APIs and importing data into the Extension Manager.



**IMPORTANT:** If you have a problem with your equipment, contact Zebra Global Customer Support for your region. Contact information is available at: <http://zebra.com/support>.

## Chapter Descriptions

Topics covered in this guide are as follows:

- [About This Document](#) explains document conventions and provides service information.
- [Extension Manager REST API](#) explains the Extension Manager APIs.
- [Data File Formats](#) explains file formats to import data into the Extension Manager.
- [Configure Voice Clients](#) explains how to configure WFC Voice clients to communicate with the Extension Manager.

## Notational Conventions

The following conventions are used in this document:

- “tablet” refers to the Zebra XXXX tablet.
- **Bold** text is used to highlight the following:
  - Dialog box, window and screen names
  - Drop-down list and list box names
  - Check box and radio button names
  - Icons on a screen
  - Key names on a keypad
  - Button names on a screen.
- Bullets (•) indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential.

- Sequential lists (such as those that describe step-by-step procedures) appear as numbered lists.

### Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.



**NOTE:** The text here indicates information that is supplemental for the user to know and that is not required to complete a task.



**IMPORTANT:** The text here indicates information that is important for the user to know.



**CAUTION—EYE INJURY:** Wear protective eyewear when performing certain tasks.



**CAUTION—PRODUCT DAMAGE:** If the precaution is not taken, the product could be damaged.



**CAUTION:** If the precaution is not heeded, the user could receive minor or moderate injury.



**CAUTION—HOT SURFACE:** Touching this area could result in burns.



**CAUTION—ESD:** Observe proper electrostatic safety precautions.



**CAUTION—ELECTRIC SHOCK:** Disconnect the printer power before performing certain procedures to avoid the risk of electric shock.



**WARNING:** If danger is not avoided, the user CAN be seriously injured or killed.



**DANGER!** If danger is not avoided, the user WILL be seriously injured or killed.



**NOTE:** This is an icon for wired networking notes.



**NOTE:** This is an icon for wireless networking notes.

### Related Documents

The following documents provide more information about WFC Voice clients.

- Workforce Connect Extension Manager Customer Administrator Guide
- Workforce Connect Voice Client 9.x Administration Guide for Licensing
- Workforce Connect Voice Client 9.x Administration Guide for Cisco CUCM
- Workforce Connect Voice Client 9.x Administration Guide for Cisco CME
- Workforce Connect Voice Client 9.x Administration Guide for Avaya Aura

## About This Document

- Workforce Connect Voice Client 9.x Administration Guide for Avaya IP Office 9
- Workforce Connect Voice Client 9.x Administration Guide for Mitel
- Workforce Connect Voice Client 9.x Administration Guide for Asterisk
- Workforce Connect Voice Client 9.x Administration Guide for Rauland

For the latest version of this guide and all guides, go to <http://zebra.com/support>.

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- Serial number of the unit
- Model number or product name
- Software/firmware type or version number

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If you purchased your Zebra business product from a Zebra business partner, contact that business partner for support.

## Revision History

Revision	Date	Description
MN-003311-01	10/2020	Initial Release
MN-003311-02	11/2020	Updated new controllers API
MN-003311-03	03/2021	Updates to the Extension Manager API Updates to CSV files used to upload data
MN-003311-04	12/2021	Added ext-controller and sync-license controller endpoints

# Extension Manager REST API

The Zebra Workforce Connect (WFC) Extension Manager REST API can be used to dynamically assign voice extensions to employees that use Zebra WFC Voice clients. An administrator can automatically assign departments and extensions or allow employees to select a department or extension from an on-screen list.

Administrators enable dynamic extension management by providing the Zebra WFC Extension Manager with a list of stores, departments, and their associated extensions. Administrators can also provide a list of employee names with their contact information. After importing the data into the Zebra WFC Extension Manager, an administrator configures the voice clients to connect to the Zebra WFC Extension Manager.

The Zebra WFC Extension Manager must run from a system that is reachable by WFC Voice client devices.

## Extension Manager API Controllers

A Swagger page is available for the Extension Manager REST API which contains the details of the API and can be used to try out each procedure. Contact your administrator for the URL of the Swagger page.

The Extension Manager REST API Swagger page includes two API specifications.

- The zclient API is used by WFC Voice client to communicate with Extension Manager. The controllers under this API specification are not intended for customer use.
- The portal API is used to import data into the Extension Manager. This document provides an overview of each controller in the portal API. Refer to the Swagger page for more details and examples of requests and responses.

The portal API provides these controllers:

- auth-controller
- events-controller
- ext-data-controller
- ext-import-controller
- sync-license-controller

These controllers provide endpoints to create an authorization token, manage extension and contact data, and configure WFC Voice clients that use the Extension Manager web service.

### auth-controller

The auth-controller resource provides the `signin` endpoint to create an authorization token. The token expires after 60 minutes.



**Table 1** signin Endpoint Parameters

Parameter	Type	Description
password	String	Super-Admin or Admin password to the Extension Manager.
username	String	Super-Admin or Admin user name to the Extension Manager.

The `signin` endpoint takes the username and password of a Super-Admin or Admin for the Extension Manager to create an authorization token. The authorization token is required to configure the Extension Manager using the API.

## events-controller

The events-controller provides the `external/event` endpoint for third-party applications to post the event status in the Extension Manager event log. To use this API, the application developer must work with Zebra to define valid codes reflecting the events to be posted.

### Post Extension Manager

**Table 2** events Endpoint Parameters

Parameter	Type	Description
external/events	String	Event information to be posted. See Table 3.
X-Auth-Token	String	Authorization token for the Extension Manager.

**Table 3** external/events Endpoint Parameters

Parameter	Type	Description
code	Integer	Number corresponding to the event type. The valid event types must be defined with Zebra in advance.
message	String	Text message to be displayed as information in the Extension Manager Events table.

## ext-data-controller

The ext-data-controller provides endpoints for updating the configuration of WFC Voice clients, managing extensions, exporting department, extension, and site data, and deleting a site. A valid authorization token is required to use these endpoints. See [Configuring the Voice Client on page 17](#) for information about the formatting of the `WFCConnect.xml` file.

### Upload WFCConnect.xml to the Extension Manager

Use the `config` endpoint to upload a `WFCConnect.xml` file to modify the configuration of WFC Voice clients.

**Table 4** config Endpoint Parameters

Parameter	Type	Description
name	String	Name for the imported configuration. This name appears in the Extension Manager user interface.
file	Form Data	Path and name to the WFConnect.xml file.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Retrieve a List of Departments

Use the `departments` endpoint to retrieve a list of departments for a site.

**Table 5** departments Endpoint Parameters

Parameter	Type	Description
site	String	(Required) Name of the site for which the list of departments is retrieved.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Clear Database Cache

The `cache` endpoint is reserved for internal user and not intended for customer use.

## Retrieve Extension Properties

Use the `extensions` endpoint to retrieve the extension properties for a site, department, or extension.

**Table 6** extensions Endpoint Parameters

Parameter	Type	Description
site	String	Name or identifier of the site.
dep	String	Name of the department.
ext	String	Number of the extension.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Release Extension

Use the `release/extension/{site}` endpoint to release an extension from a site.

**Table 7** release/extension Endpoint Parameters

Parameter	Type	Description
site	String	(Required) Name or identifier of the site.
ext	String	(Required) Name of the extension.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Remove Reservation for an Extension

Use the `reserve/extension/{site}` endpoint to remove a reservation for an extension.

**Table 8** `reserve/extension` Endpoint Parameters

Parameter	Type	Description
site	String	(Required) Name or identifier of the site.
ext	String	(Required) Name of the extension.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Remove a Site

Use the `site/{id}` endpoint to remove a site from the Extension Manager.

**Table 9** `site/{id}` Endpoint Parameters

Parameter	Type	Description
id	String	Name or identifier of the site.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Retrieve a List of Sites

Use the `sites` endpoint to retrieve a list of all sites from the Extension Manager.

**Table 10** `sites` Endpoint Parameters

Parameter	Type	Description
X-Auth-Token	String	Authorization token for the Extension Manager.

## ext-import-controller Resource

The `ext-import-controller` provides endpoints for importing contacts, extensions, site IP mappings, subscriptions, and exporting extensions. Import operations require the use of a properly formatted CSV file.

### Import Contacts

Use the `import/contacts` endpoint to import employees from a CSV file. See [Import Contact Data on page 15](#) for information about the format and fields of the CSV file.

**Table 11** `import/contacts` Endpoint Parameters

Parameter	Type	Description
file	FormData	CSV file containing contact data.
reset	Boolean	If true, all contacts are deleted before importing the CSV file. The default is false.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Import Sites, Departments, and Extension Data

Use the `import/csv` endpoint to import sites, department, and extension data. See [Import Extension Data on page 14](#) for information about the formatting and fields of the CSV file.

**Table 12** import/csv Endpoint Parameters

Parameter	Type	Description
file	FormData	CSV file containing site, department, and extension data.
site	Array	Optional list of sites. When specified, only these sites in the CSV file are imported.
reset	Boolean	If true, all site, department, and extension data is deleted before importing the CSV file. The default is false.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Export Site Data

Use the `export/csv` endpoint to export sites and their associated data to a CSV file.

**Table 13** export/csv Endpoint Parameter

Parameter	Type	Description
site	String	Site for which data is exported.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Specify IP Addresses for a Site

Use `ips` endpoint to associate IPv4 addresses with a site. See [Import IP Addresses on page 16](#) for information about the format of the CSV file.

**Table 14** ips Endpoint Parameters

Parameter	Type	Description
file	FormData	CSV file with a list of site IP addresses.
reset	Boolean	If true, all IP addresses are deleted before importing the CSV file. The default is false.
X-Auth-Token	String	Authorization token for the Extension Manager.

## Import Subscriptions

Users of Asterisk PBX systems use the **subscriptions** endpoint to import call groups. See [Importing Subscriptions on page 16](#) for information about the format of the CSV.

**Table 15** subscriptions Endpoint Parameters

Parameter	Type	Description
file	FormData	CSV file with a list of Asterisk call groups.
site	String	Optional list of sites. When specified, only these sites in the CSV file are imported.
reset	Boolean	If true, all call groups are deleted before importing the CSV file. The default is false.
X-Auth-Token	String	Authorization token for the Extension Manager.

## sync-license controller

The sync-license controller provides the **device** endpoint for removing or obsoleting a device from the Extension Manager database. The endpoint requires the device ID and a customer license.

### Delete/obsolete the device

Use the `device/{did}` endpoint to delete/obsolete the selected device.

**Table 16** delete/obsolete Endpoint Parameters

Parameter	Type	Description
did	String	Device identification number.
X-Auth-Token	String	Authorization token for the Extension Manager.

### Synchronize license in the device

Use the `sync/license` endpoint to synchronize licenses from Provisioning Manager for a customer.

**Table 17** sync/license Endpoint Parameters

Parameter	Type	Description
X-Auth-Token	String	Authorization token for the Extension Manager.

# Data File Formats

The Zebra WFC Extension Manager uses data imported from CSV files. An administrator uses the provided templates to specify the necessary data and uses the Extension Manager API to import, export, and manage the data.

- extensions-template CSV file specifies store, department, and PBX information
- contacts-template CSV file specifies employee contact information
- subscriptions-template CSV file specifies Asterisk call groups
- site-ips-template CSV file specifies site IP addresses

## Import Extension Data

The Zebra WFC Extension Manager provides an endpoint to import a CSV file that describes the store, department, extension, and private branch exchange (PBX) information. [Table 18](#) describes the fields included in the CSV file that is used by the `import/csv` endpoint. Refer to the `extension-sample.csv` file included with Zebra WFC Extension Manager for the proper format.

**Table 18** Extension Template Fields

Column Name	Required	Description
site_name	Yes	Site or store identifier.
site_info	No	Additional information regarding the site. Limit of 256 characters.
site_multi	No	Yes or No. A value of Yes indicates that the user can select from a list of departments displayed on the device.
dep_name	Yes	Name of the department within the site. Limit of 64 characters.
dep_info	No	Additional information regarding the department. Limit of 256 characters.
dep_auto	No	Yes or No. Yes indicates that an extension is automatically assigned.
dep_hidden	No	Department name is not displayed in the WFC Voice client.
dep_reserved	No	Reserves an extension based on user or device ID.
dep_role	No	Name of role displayed on WFC Voice client.
dep_role_desc	No	Description of role.
dep_code	No	Unique identifier for the role.
ext_name	No	Name of the extension. Limit of 64 characters.

**Table 18** Extension Template Fields (Continued)

Column Name	Required	Description
ext_info	No	Additional information regarding the extension name. Limit of 256 characters.
pbx_name	No	Name for the PBX.
profile_type	Yes	Type of PBX. Valid values are listed in the sample CSV file.
sip_remhost	Yes	IP address of the PBX.
sip_remhost2	No	IP address of the PBX.
sip_sipid	Yes.	ID used to access the PBX. Limit of 64 characters.
sip_userid	Specify the parameters required for your PBX.	User ID to access the PBX. Limit of 64 characters.
sip_mac		Literal or psuedo MAC address to identify the device with the PBX. Limit of 64 characters.
sip_userpass		Password to access the PBX. Limit of 64 characters.
sip_transport		No
sip_rempart	No	Port on which the PBX listens. Default is 5060.

## Import Contact Data

The Zebra WFC Extension Manager provides an endpoint to import a CSV file that includes the site ID, first name, last name, phone numbers, and ring tone information. [Table 19](#) describes the fields included in the CSV file used by `import/contacts` endpoint.

**Table 19** Contact Template Fields

Column Name	Required	Description
siteld	Yes	Corresponds to site_name in <code>extension-template.csv</code> .
group	No	Department or group to which the employee belongs.
firstName	Yes	Given name of employee.
lastName	Yes	Surname of employee.
cellNumber	Yes One field is required.	Employee mobile phone number.
officeNumber		Employee office phone number.
homeNumber		Employee home phone number.
ringtone	No	Ringtone for extension.
photo	No	Photo of contact.

## Import IP Addresses

The Zebra WFC Extension Manager provides an endpoint to import a CSV file that specifies the IP addresses used by each site or store. [Table 20](#) describes the fields included in the CSV file used by the `ips` endpoint.

**Table 20** IP Template Fields

Column Name	Required	Description
store_id	Yes	Site or store identifier.
ip1	No	IPv4 address assigned to the site.
ip2	No	Second IPv4 address assigned to the site.

## Importing Subscriptions

Subscriptions are call groups in an Asterisk PBX and enable a user to receive calls made to the group. In most use cases, a group represents a department. [Table 21](#) describes the fields used to import subscriptions for an Asterisk PBX.

**Table 21** Subscription Template Fields

Column Name	Required	Description
storeid	Yes	Site or store identifier.
name	No	Department or group name.
hint	Yes	Extension number.
event	Yes	Value must be 'presence'.



# Configure Voice Clients

Organizations that use the Zebra WFC Extension Manager must configure the Zebra WFC Voice client to communicate with the Extension Manager. In addition, devices can be configured with a custom dashboard button that enables device users to add a department and extension.

Zebra recommends that organizations configure devices through their Mobile Device Management (MDM) software. Zebra provides a `WFCConnect.xml` file that administrators can push to WFC Voice clients to remotely configure and manage the WFC Voice client devices.

## Configuring the Voice Client

Two new parameters, described below, are provided in the `WFCConnect.xml` file to support the Zebra WFC Extension Manager. The `WFCConnect.xml` file is described in the Workforce Connect Voice Client administrator guides available from the Zebra support site: [zebra.com/support](http://zebra.com/support).

- Add the Extension Manager URI to `WFCConnect.xml`
- Optionally, add new button to the WFC Voice dashboard
- Push the `WFCConnect.xml` to devices using the MDM.

## Specifying the URI to Extension Manager

The Zebra WFC Voice client must be able to connect to the Zebra WFC Extension Manager to enable the management capabilities provided by Extension Manager. The `WFCConnect.xml` includes a new parameter, `<var_location>`, that specifies the URI to Extension Manager.

Add the `<var_location>` parameter to the `<profile>` section of the `WFCConnect.xml` file.

```
<?xml version="1.0" encoding="utf-8"?>
<WFCConnect>
<Profile>
  <var_location>
    http[s]://host[:port]/profiles/ \
    stores[/store_id][? \
    api_key=<key_value> \
    [&dep=<department>[&dep=...]][&f=<department>...]
  </var_location>
  .
  .
  .
</Profile>
```

The URI includes the attributes listed in [Table 22](#).

**Table 22** Attributes for Extension Manager URI

Attribute	Description
host	Address of the system where Extension Manager is running.
port	Optional TCP port on which Extension Manager listens.
store_id	Store number specifies the store number. If a store number is not specified, the WFC Voice client displays the complete list of stores managed by the Extension Manager.
api_key	Authorization key at access Extension Manager. The api_key is configured on the Extension Manager.
dep	Department name can specify one or more departments.
f	Reserved for future use.

## Configuring an Add Department Button for the WFC Voice Client

Administrators can add a button to the WFC Voice client Dashboard that enables device users to add a department and an extension. This option is useful when a user needs to temporarily answer calls for another department. When finished, the user can log out and return to their default configuration.

The WFC Voice client configuration is controlled through the `WFConnect.xml` file. To add the button to the Voice Client dashboard, add the following XML to the `<Dashboard>` section of the `WFConnect.xml` file:

```
<Button>
  <title>Add Department</title>
  <action>SIGNOUT_CHANGE</action>
  <value></value>
  <enabled>true</enabled>
  <confirm>false</confirm>
  <description></description>
  <icon>i_group</icon>
  <scale>CENTER_INSIDE</scale>
</Button>
```



The `site_multi` parameter described in [Table 18](#) must be set to yes to enable a user to add a department.