

Vocera Data Export Adapter Configuration Guide

Version 2.0.0

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Last modified: 2023-02-24 13:39 ADP-dataexport-200-Docs build 102

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Understanding a Vocera Data Export Adapter Configuration

Configure the Vocera Data Export Adapter to enable the client to capture Vocera Platform data elements to their own database.

Adapters send information to and receive information from Vocera Platform, as well as monitor and collect data. Each adapter is configured to allow Vocera Platform to communicate with a specific type of resource and any devices that resource may control. For example, the Vocera Data Export Adapter facilitates the ability for a client to capture and store data points from the Vocera Platform appliance on demand through the use of rules.

The Vocera Data Export Adapter provides a client with the flexibility to have data elements pushed to their own database. The data push is on demand and based on a rule, and the adapter is designed to perform only 'INSERT' statements. Once the conditions of the rule are met, the data is routed to the Vocera Data Export Adapter Bundle and, if possible, delivered to the client database. If the data cannot be immediately delivered, then it is stored in a persistent queue until it can be routed back to the Vocera Data Export Adapter Bundle for delivery, or is discarded as undeliverable. Audit log entries will report the state of the data delivery.

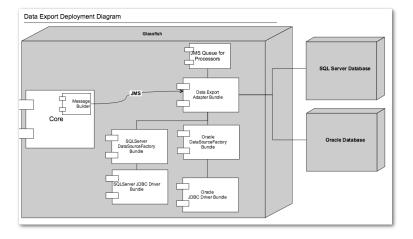
The Vocera Data Export Adapter creates an object for delivery tracking. The objects will only display the "Queued" status; they will not display a delivered status. Vocera Platform records the object status when it is sent outbound from the Vocera Platform appliance, but does not track the delivery to the client.



Note: Delivery tracking objects stay in "Queued" status; delivery is not tracked outbound to the client database.

The Vocera Data Export Adapter is not a part of the standard Solutions Configuration package. A separate RPM package must be downloaded and installed on the Vocera Platform appliance.

The following diagram provides a model of the Vocera Data Export Adapter deployment. It is important to note that the diagram shows the ability to deliver data to either a Microsoft SQL Server database or an Oracle database. At this time, however, Microsoft SQL is the only supported client database.



Configuring a Vocera Data Export Adapter

Description of the settings that enable direct communication between the Vocera Data Export Adapter and the Vocera Platform.

Select an empty field and begin typing, or select an existing value and type over it. To keep an existing value, do not edit that field.

The Vocera Data Export Adapter is not packaged as a part of the standard appliance configuration and must be installed on a Vocera Platform appliance as a separate RPM package. For instructions, see Understanding Adapter Installation on page 15.

Once the Data Export adapter type has been installed on the appliance, create a Vocera Data Export Adapter.

- 1. Access the Vocera Platform Web Console and navigate to the adapters.

 See Navigating the Vocera Platform Adapters on page 18 for instructions.
- 2. Select **New Adapter** in the Action menu, or select an adapter you wish to configure and then select **Edit**, to display the configuration fields. The configuration fields are the same for new and existing adapters.
- 3. Navigate to the New Adapter option, or navigate to an existing adapter to edit. See Creating a New Adapter on page 21 and Editing an Adapter on page 20 for instruction as needed.

 The configuration fields are the same for new and existing adapters.



4. Complete the configuration fields as described in the table.

The Adapter Settings determine how the Vocera Platform appliance connects to the client database. There are two methods of connection to the client server; the database server name and port of the Main Adapter settings, or the JDBC URL of the Advanced Adapter settings.



Warning: Complete either setting; do not attempt to complete both. Additionally, do not supply a database server port in both the Main Adapter settings and within the JDBC URL.



Note: Microsoft SQL is currently the only supported database.

Configuration Field	Description
Component Name	Click the Component Name field to display a list of the systems and devices that the Vocera Platform currently supports. Select the name of the adapter to create.
Reference Name	Enter a short descriptive name in the Reference Name field to uniquely identify an adapter instance. It may demonstrate the adapter function or other information; for example, Production adapter may differentiate a live adapter from a development or "sandbox" adapter.
Enabled	Select the Enabled checkbox to allow the Vocera Platform to use the new adapter. The Vocera Platform ignores the adapter if this option is disabled.

Main Adapter Settings	Description
When the Main Adapter Settings have been completed, no information is required in the Advanced Adapter Settings.	See Engage Reporting Configuration for important information about this port setting if the customer is using Engage Reporting.
Database Type	Select the type of database used by the client from the drop down list in the Database Type field.

Main Adapter Settings	Description
Database Server Name	Enter the host name or IP address of the database server.
Database Server Port	Enter the port number of the database serve, presented as an integer in the range 1-65535. If this field is left empty, then the default port for the selected Database Type will be used.

Advanced Adapter Settings	Description
When the Advanced Adapter Settings have been completed, no information is required in the Main Adapter Settings. Do not supply a database server port in both the Main Adapter settings and within the JDBC URL.	
JDBC Connection URL	When provided by the client, enter the JDBC Connection URL in the Advanced Adapter Settings. Note that the Database Type must be selected from the drop down menu in the Main Adapter Settings. Ensure that you have the correct URL, as there is no validation performed for the JDBC Connection URL. Refer to the Microsoft documentation for help in formatting a proper JDBC Connection URL.

Database Connection Credentials	Description
Database Name	Enter the name of the database that the adapter will connect to on the database server.
Database Username	Enter the user name of the user account on the database server.
Database Password	Enter the password for the user account on the database server.

5. Select one of the available options to exit the adapter configuration page. See Saving an Adapter on page 22 for details.

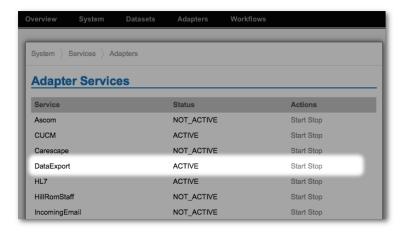
Working with the Adapter Processing Functionality

Pause and resume Vocera Data Export Adapter processing in the Vocera Platform.

Start the Adapter

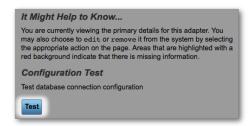
After creating the necessary rules, navigate to the Vocera Data Export Adapter in the Vocera Platform. See Working with the Data Export Rules on page 11 for additional information.

Select **Start** to start the adapter. The example below has been started and displays **Active** status.



Testing a Database Connection

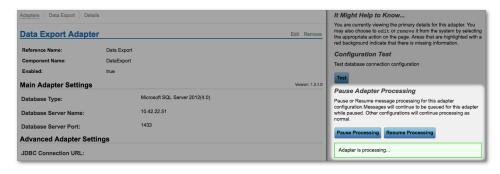
A test connection to a database can be performed from the sidebar of the adapter page. In the Configuration Test section, select **Test** to request a test database connection using the current configuration. A report of a successful or failed connection request will display underneath the Test button. If a test connection fails, the conditions for its failure are shown in the report.



Pausing and Resuming the Adapter

The client can pause the Vocera Data Export Adapter as needed. For example, the facility may have planned downtime for server maintenance. In this case, the client would want to pause the flow of messages to their database until the maintenance is completed and they are ready to begin accepting messages again.

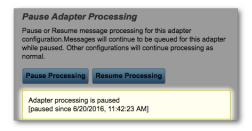
When the Vocera Data Export Adapter is sending information to the client database, the **Adapter is processing...** message will show in the green box as indicated below.



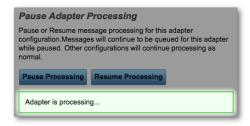
Select the **Pause Processing** button to pause the delivery of messages to the client database.

The messages will be queued while the adapter is paused. The **Adapter is processing...** message will change to **Adapter Processing is Paused** and will display the date and time the pause button was selected as shown below. There is no time limit on the pause function. The queue will continue to fill until the **Resume Processing** button is selected or the one million message limit is reached.

Audit log code 641 is generated when the **Pause Processing** button is selected. If a message is queued after the adapter is paused, Audit Log code 640 is generated to remind the user that the adapter is still paused.



To resume the flow of messages, select the **Resume Processing** button. The message changes to **Adapter** is **processing...** and Audit Log code 642 is generated.

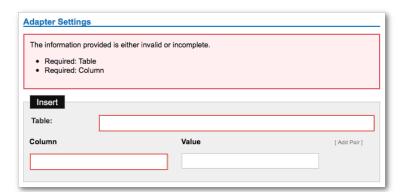


Working with the Data Export Rules

Rules can be configured on a dataset that can trigger the Vocera Data Export Adapter to insert data into the selected database.

The rule configuration defines the table to be inserted into, the column(s) of insertion, and the value(s) to be inserted. See the Vocera Platform Administration Guide for information about working with rules. See Configuring a Vocera Data Export Adapter on page 6 for information about the adapter settings.

In the Adapter Settings, configure the fields to manage how data is inserted into specifically named tables.



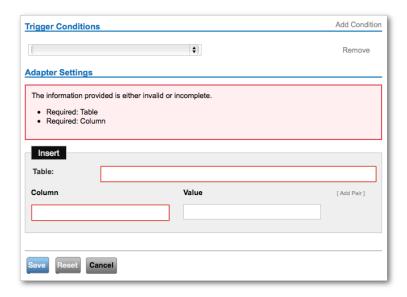
Adapter Setting	Description
Table	The name of the table that you wish to insert data into in the client database. This is a required field.
Column	The name of the column that you wish to insert data into within the table in the client database. This is a required field.
Value	This field is not required, but if completed, it must contain a string, attribute, or attribute expression. When populating the client database, the Vocera Data Export Adapter will attempt to truncate any data to fit the width of the column in the receiving database.

Viewing a Dataset Rule Configuration Example

This example of a rule configuration for the Vocera Data Export Adapter also contains a database conversion table and message handling details.

Navigate in the Vocera Platform to the dataset where an adapter rule should be configured. See the Vocera Platform Administration Guide for details.

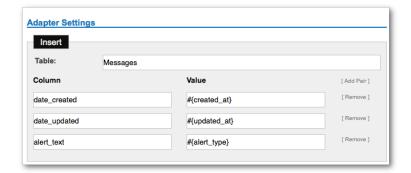
In the Adapter Settings section, these Data Export adapter settings display.



We can configure the settings for a Vocera Data Export Adapter example as shown below. In this example, the client has an MS SOL database that contains a table named "Messages", and within the Messages table there is a column named "date_created".

In the Adapter Settings for the new rule, the Table field would be populated with "Messages" and the Column field would be populated with "date_created". The Value field could contain a string or attribute relating to the column date created. See the Database Type Conversion section of this page.

In our example, we could populate the Value field with #{created_at}. This rule would then create an INSERT statement of the #{created_at} attribute into the date_created column in the client's table of Messages. There is no validation for any of these fields; for additional information, see the Validations and Timeouts of Messages section in this page.



Database Type Conversion

The Value field within a rule can include a string or attribute expression. Vocera will attempt to convert these strings or attribute expressions into the proper database type. This Database Type Conversion chart lists the supported database types.

Database Type	Action Taken	Format Restriction
Bit	Parses a string into a boolean.	
Boolean	Parses a string into a boolean.	
TinyInt	Parses a string into a byte.	
SmallInt	Parses a string into a short.	
Integer	Parses a string into an int.	

Database Type	Action Taken	Format Restriction
BigInt	Parses a sting into long.	
Float	Parses a string into a double.	
Real	Parses a string into a float.	
Numeric	Parses a string into a BigDecimal.	
Decimal	Parses a string into a BigDecimal.	
Char	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
NChar	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
VarChar	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
NVarChar	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
LongVarChar	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
LongNVarChar	Remains as a string; truncated to length of field in the remote database.(not truncated if length of the field is reported as 0)	
Date	Passes the string through a parser that will extract the date as a Java Date, then convert it into a SQL Date.	 2014-07-25 13:07:55 -0400 2014-07-25T13:07:55.177-04:00 2014-07-25T13:07:55.177-0400 07/25/14 2014-07-25
Time	Passes the string through a parser that will extract the time as a Java Date, converts it to a SQL Date, and then parses the SQL Date into a Time object.	 2014-07-25 13:07:55 -0400 2014-07-25T13:07:55.177-04:00 2014-07-25T13:07:55.177-0400 01:07:55.177 pm 13:07:55.177 01:07:55 pm 13:07:55 01:07pm
Timestamp	Passes the string through a parser that will extract the date as a Java Date, converts it to a SQL Date, and then creates a new Timestamp using that SQL Date's getTime() method as the parameter.	 2014-07-25 13:07:55 -0400 2014-07-25T13:07:55.177-04:00 2014-07-25T13:07:55.177-0400 07/25/14 2014-07-25

Validations and Timeouts of Messages



Important: There is no validation for the Table, Column, and Value fields.

If the connection between the Vocera Platform appliance and the client database is invalid, then the adapter will pause the message queue, thus restricting the attempted delivery of any message. If the connection between the appliance and the client database is valid, then the adapter will try three times, once every three minutes, to deliver the data. After three attempts to deliver with a valid connection, the adapter will assume the INSERT statement is invalid; then the message is discarded, and an Audit log event is created.

If the queue reaches 100,000 messages, across all client instances, then no additional messages will be placed in the queue and an audit log event will be generated. Any messages over the 100,000 mark will be discarded.

Additionally, there is no validation for the client database information or JDBC URL connection. Currently, there is no test for database connectivity between the appliance and the client database. It is recommended that you generate an activity that will fire a rule, in order to ensure that all connections and information has been entered correctly.

Audit codes 612 and 613 will be generated when an individual instance of the client database fails. The maximum number of connections is based on the available number of threads to the database, currently set to four.

The message queue will be purged and all messages will be lost if the adapter is deleted.

Understanding Adapter Installation

Adapters are installed on the Vocera Platform in a solution package, or individually as needed by the customer.

The Vocera Platform uses adapters to integrate with external systems and devices. Each adapter is configured by the user to include information that will allow the Vocera Platform to communicate and interact with a specific type of resource and, depending on the adapter, devices that resource may control. Adapters can allow the Vocera Platform to monitor and collect data, as well as send data out, when triggered manually or automatically.

When implementing Vocera Platform at a customer site, use this document to install an adapter that is not supplied in the Gold Image. Otherwise, you will install a needed adapter when instructed in the solution package installation process described in the Vocera Platform Installation Guide.

Recreating a Repository

In the event that the repository reference file has been compromised, you can re-create the platform repository.

This information should be specified on the related adapter's Release Information page in the wiki. See **Releases** and navigate to the needed adapter.

- 1. Verify that the adapter resides in a repository which is in 'etc/yum.repos.d'.
- 2. If the **repolist** or **yum** commands fail, verify that the file exists and try again. For example, use the following code to verify the repository exists on the Vocera Platform appliance:

[tpx-admin@engage log]\$ cat /etc/yum.repos.d/vocera.repo

3. Verify the output appears as shown.

Installing an Adapter

Install or uninstall a Vocera Platform adapter at a customer site on a Vocera system for a customer.

Execute the following steps using the system's command prompt.

- 1. Verify that the adapter resides in a repository which is in '/etc/yum.repos.d/'.
- 2. Run the following commands:

```
sudo yum clean all
sudo yum check-updates
```

3. Verify that the rpm package to be installed is available using the following command:

```
sudo yum list available | grep extension
```

4. Install the adapter by specifying its rpm package name in place of <package-name> in the code below. (This information should be specified on the related Release Information page in the wiki; see Release Notes.)

```
sudo yum install <package-name>
```

5. Uninstall an adapter by specifying its rpm package name in place of package-name in the code below. (This information should be specified on the related Release Notes page; see Release Notes.) sudo yum remove package name>

Practicing an Adapter Installation

Replicate these steps using the needed adapter package, in order to install adapters other than the example given here.

1. Verify the repo file contains the repos up to and including the release of interest.

2. Execute the following commands:

3. Verify the package is available, using the following command:

```
[tpx-admin@engage log] $ sudo yum list available | grep extension extension-navicare-interface.x86_64 1.3.6-0 Platform 5.0
```

4. Install the needed adapter; in this example, install the Navicare adapter:

```
[tpx-admin@engage log] $ sudo yum install extension-navicare-interface
Loaded plugins: langpacks, product-id, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use
 subscription-manager to register.
Resolving Dependencies
--> Running transaction check
---> Package extension-navicare-interface.x86 64 0:1.3.6-0 will be installed
--> Finished Dependency Resolution
Dependencies Resolved
Package
                                                 Arch
Version
                                Repository
                                                             Size
Installing:
                                                 x86 64
 extension-navicare-interface
 1.3.3-0
                                Quartz
                                                             59 k
Transaction Summary
Install 1 Package
Total download size: 59 k
Installed size: 62 k
Is this ok [y/d/N]: y
Downloading packages:
extension-navicare-interface-1.3.6-0.x86_64.rpm
                                            59 kB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
 Installing : extension-navicare-interface-1.3.6-0.x86_64
                                                           1/1
 Verifying : extension-navicare-interface-1.3.6-0.x86_64
                                                           1/1
Installed:
  extension-navicare-interface.x86_64 0:1.3.6-0
  Complete!
```

5. This completes the steps to install an adapter.

Navigating the Vocera Platform Adapters

Access the Adapters tab and use the filter or search tools to display a specific adapter.

This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

1. Access the Vocera Platform Web Console and sign in with your system credentials.



2. Select **Settings > Adapters** in the navigation menu.

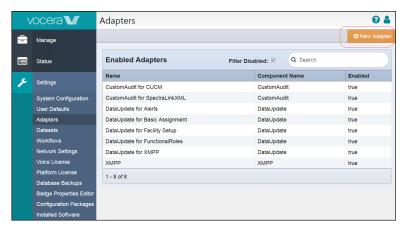


The **Adapters** page displays.

3. Select an adapter to work with from the list displayed in the grid, or select the New Adapter Action option to create a new adapter.

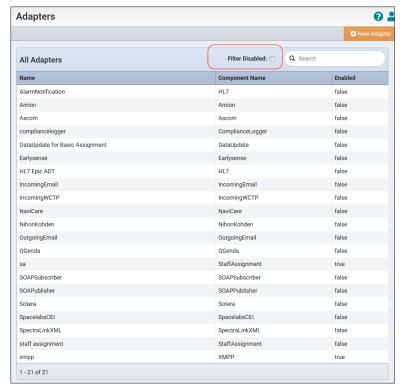
On the **Adapters** page you can identify adapters by their name or component name. The Enabled column (displaying a true or false status) indicates whether the adapter is active on the system, or disabled.

The bottom row of the grid reports the number of adapters displayed, of the available adapters. The Filter Disabled box is checked by default, and displays only the enabled adapters that are configured on the Vocera Platform.



4. Uncheck the **Filter Disabled** box to display all the adapters that have been installed, including those that are not currently enabled. The column title now displays **All Adapters**.

The Filter Disabled box is checked by default.



5. Enter a term in the **Search** field to locate a needed adapter on the system.

The search field is identified by a text field with a magnifying glass icon. The search is performed on the Name and Component Name columns.

When results are returned, the column header displays **Adapters Search Results** and an \mathbf{x} icon allows you to clear the search field.



Editing an Adapter

Edit an adapter that has been installed on the Vocera Platform.

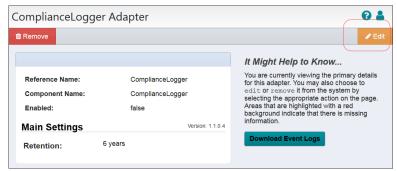
This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

- 1. Access the Vocera Platform Web Console and navigate to the adapters.

 See Navigating the Vocera Platform Adapters on page 18 for instructions.
- 2. Select the adapter to edit in the **Adapters** list.



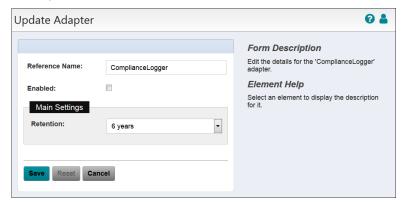
3. Select **Edit** in the adapter's menu.



The **Update Adapter** page for the adapter displays.

4. Edit the adapter's settings to revise the configuration as needed. See the adapter-specific configuration page for details on working with settings for this adapter.

Select an empty field and begin typing, or select an existing value and type over it. To keep an existing value, do not edit that field.



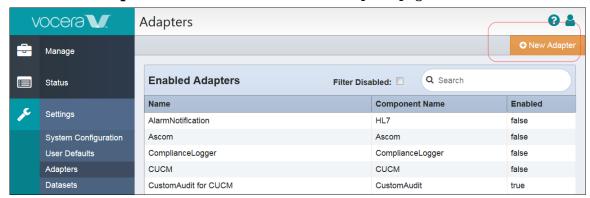
5. Select one of the options to exit the **Update Adapter** page. See Saving an Adapter on page 22 for details.

Creating a New Adapter

Access the Vocera Platform Web Console to work with adapters, or create a new adapter when prompted in the package import process.

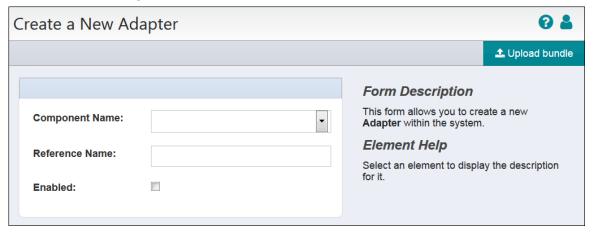
This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

- 1. Access the Vocera Platform Web Console and navigate to the adapters. See Navigating the Vocera Platform Adapters on page 18 for instructions.
- 2. Select **New Adapter** in the Action menu on the Adapters page.



The **Create a New Adapter** dialog displays.

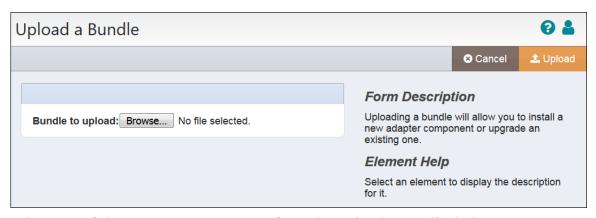
3. Complete the configuration fields.



Name	Description
Component Name *	Select the Component Name field dropdown arrow to display a list of the systems and devices that Vocera currently supports. Select the name of the adapter to create.
Reference Name	Enter a short descriptive name in the Reference Name field to uniquely identify an adapter instance. It may demonstrate the adapter function or other information; for example, Production adapter may differentiate a live adapter from a development or "sandbox" adapter.
Enabled	Select the Enabled check box to allow Vocera Platform to use the new adapter. Vocera ignores the adapter if this option is disabled.

- 4. Select **Upload Bundle** in the Action menu to install a package on a Vocera Platform.

 Use the Upload Bundle feature to install when the adapter is not available in the Component Name dropdown list, and you have downloaded the needed adapter bundle to a storage location.
- 5. Click on **Browse** to navigate to the bundle to install.



- 6. Select one of the Action options to exit from the Upload a Bundle dialog.
 - **Upload**: Upload the selected bundle to the appliance.
 - **Cancel**: Close the Upload a Bundle dialog without making a change to the system.

Saving an Adapter

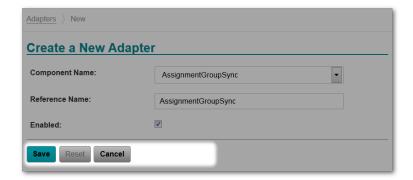
Close an adapter configuration dialog using the Save, Reset, or Cancel options.

This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

When creating a new adapter, the options at the bottom of the adapter configuration page are Save, and Cancel.

When editing an existing adapter, the options are Save, Reset, and Cancel.

Choose an option to close the dialog:



Option	Description
Save	Select Save to store the adapter configuration in the system, when the fields are set to desired specifications.
Cancel	Select Cancel to close the configuration window without saving your changes to the system.
Reset	Select Reset to clear all fields without closing the window, in order to select other specifications for the adapter's settings.

Deactivating an Adapter

Temporarily deactivate an adapter to avoid unintentional use of it in an implementation.

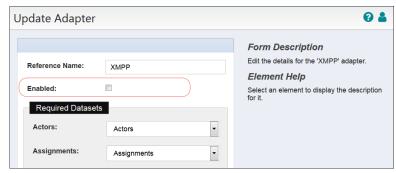
This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

- 1. Access the Vocera Platform Web Console and navigate to the adapter to deactivate. See Navigating the Vocera Platform Adapters on page 18 for instructions.
- 2. Select **Edit** in the Actions menu to access the Update page for the adapter.



3. Un-check the **Enabled** box to temporarily deactivate the adapter.

When deactivated, the Vocera system will ignore the adapter. You can easily enable or disable the adapter at any time.



4. Select one of the options to exit the **Update Adapter** page. See Saving an Adapter on page 22 for details.

Removing an Adapter

Permanently remove an adapter from the Vocera system.

This page is used by all the adapter guides, and therefore, the adapter used as an example here may not be the adapter that you are working with currently.

Use the remove function to permanently delete the adapter from the system. Alternatively, you can disable an adapter and the Vocera system will ignore it.

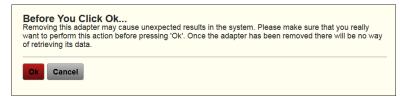


Warning: Remove cannot be undone. If any system features use this adapter, removing the adapter prevents the features from functioning.

- 1. Access the Vocera Platform Web Console and navigate to the adapter to remove. See Navigating the Vocera Platform Adapters on page 18 for instructions.
- 2. Select **Remove** in the Actions menu to permanently delete the adapter.



3. Click **Ok** in the confirmation window.



- **Ok**: Confirm the choice to remove the adapter from the system.
- Cancel: Return to the adapter page without making a change.
- 4. Confirm that the adapter no longer displays in the Adapters list view, when a success message displays.

