

CentraSite

Virtualizing APIs Using the CentraSite Business UI

Version 9.5 SP1

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Preface

This document describes how to:

- Create and configure APIs in the CentraSite catalog.
- Publish APIs to the webMethods Mediator.
- Consume APIs using the API key.

The content is organized under the following sections:

Browsing and Searching for APIs	Describes how to find APIs in the catalog.
Virtualizing an API	Describes how to virtualize an API in the catalog.
Viewing the Details of a Virtual API	Describes how to view the information for virtual APIs in the catalog.
Editing the Properties of a Virtual API	Describes how to view a virtual API's attributes and how to change them.
Publishing an API for Consumption	Describes how to publish virtual APIs to webMethods Mediator.
Requesting an API for Consumption	Describes how to request an API for consumption.
Viewing an API Key	Describes how to view an API key.
Consuming an API Using the API Key	Describes how to consume an API using the API key.
Unpublishing an API	Describes how to unpublish an API from webMethods Mediator.
Deleting a Virtual API	Describes how to remove a virtual API.

1 Browsing and Searching for APIs

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■ Searching for APIs	2

As a Consumer, Provider or Guest user, you can use the CentraSite Business UI to browse and search for APIs in the CentraSite by name, description, attribute values, asset types and/or taxonomy groups.

The CentraSite Business UI provides a powerful search facility. You can search for APIs across organizations, classifications and types on the basis of several search criteria using a logical conjunction (ALL) or disjunction (ANY) operation. If you need to find APIs based on attributes, then the sophisticated “advanced search” interface also allows you to search against the attributes defined in APIs. The CentraSite Business UI also makes custom fields available as search criteria, allowing you to refine your searches even further.

All CentraSite users, including guests, have permission to browse the CentraSite catalog. You do not need any explicit permission to use the CentraSite catalog in the Business user interface.

Browsing for APIs

You can use the CentraSite’s *Browse* feature to find APIs.

▶ To perform a quick find by browse

- 1 In CentraSite Business UI, locate the search panel in the top left corner of the navigation bar.
- 2 From a list of the scopes shown in the drop-down, choose **Assets** to include in the view. The list of scopes includes a set of predefined scopes and custom (i.e. customer-defined) scopes.
- 3 Click the **Browse** link.

CentraSite returns the APIs in the **Search Results** panel.

- 4 You can further refine your browse by specifying attributes that are applicable to the API.

For more information about how to use the browse feature for APIs in CentraSite Catalog, see *Browsing the CentraSite Catalog* in the document *Managing the CentraSite Catalog*.

Searching for APIs

You can use the CentraSite’s *Search* feature to find APIs.

▶ To search by keyword and scope

- 1 In CentraSite Business UI, locate the **Type a Search** text box at the top of the screen.
- 2 From a list of the scopes shown in the drop-down, choose **Assets** to include in the view. The list of scopes includes a set of predefined scopes and custom (i.e. customer-defined) scopes.

- 3 In the text box, type the keyword(s) to search for. You can use one or more wildcards to specify the keywords.
 1. CentraSite applies the filter to the **Name** of the API and returns the first 5 related APIs.
 2. Press the Up Arrow and Down Arrow keys to scroll through one API at a time.
 3. Locate the API whose details you want to view.
 4. Double click or press Enter.
 5. If you would like to see more APIs for the specified key pattern, click the **Click here to see more results** link.

- 4 Else, click the **Search** () icon.

CentraSite returns the APIs that match both the keyword and scope in the **Search Results** panel.

- 5 You can further refine your search by specifying attributes that are applicable to the API.
- 6 You can save your search as a filter in the CentraSite Business UI, so you can recall the same search and run it again or even share it with other users.

For more information about how to use the search for APIs in CentraSite Catalog, see *Searching the CentraSite Catalog* in the document *Managing the CentraSite Catalog*.

2 Virtualizing an API

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This CentraSite release provides a Release Preview of the API Virtualization Feature. The feature described in this section is for evaluation purposes only. It is not yet an official feature of the product and should not be used for production work.

CentraSite provides a wizard for virtualizing and publishing APIs.

Within CentraSite Business UI, the endpoints for an API are shown in the **Provider Overview** profile of the API.

In this profile, a native endpoint is represented by the *Binding*; while a virtual endpoint is represented as an *Alias* that identifies a specific Access URI (i.e., address where the virtual API is published).

The following example shows the **Provider Overview** profile for an API with the native and virtual endpoints. Note that the Access URI provides the exact address of each endpoint.

The content is organized in the following topics:

General

When virtualizing an API, keep the following points in mind:

- You must be a registered user (i.e., Provider) in the CentraSite.
- You must belong to either one of the following roles:
 - CentraSite Administrator
 - API Publisher
 - Runtime API Provider

However, an administrator can grant these permissions to other roles.

For more information about roles and permissions, see the section *About Roles and Permissions* in the document *Users, Groups, Roles and Permissions*.

- The **Virtualize** action is visible only for the APIs (Service, REST, XML Service).
- Ensure that the service to virtualize has a WSDL or schema file associated with it.
- Ensure that the interface for the native API is completely implemented and that interface is reflected in the WSDL or schema file that is registered for the API in the CentraSite registry.
- The metadata for the native API is valid and up-to-date. If the metadata for the native API has not been completely specified or is out-of-date, you should update it before you virtualize API so that you do not carry inaccurate/incomplete data into the virtual API.
- Make sure that the Mediator is configured and running on the Integration Server.

Virtualize an API

To virtualize an API in CentraSite, you perform the following high-level steps:

- [Creating a New Virtual Alias](#)
- [Defining Policy Enforcement Rules for a Virtual Alias](#)
- [Publishing a Virtual Alias](#)

Creating a New Virtual Alias

Use the following procedure to create a new virtual alias (API) for the native API.

► To create a virtual alias

- 1 In CentraSite Business UI, display the details page for the API that you want to create a virtual copy. For procedures, see the section *Viewing Details of an API*.

2



On the API details page, click **Virtualize** () to open the **Virtualize <>** wizard.

- 3 In panel 1 of the **Virtualize <>** wizard, complete the following fields:

In this field...	Do the following...
Create a new virtual alias	<p>Enter a name for the virtual alias.</p> <p>The name you assign to the virtual alias can contain any character, including spaces.</p> <p>By default, CentraSite derives the virtual alias name from the display name that you specify for the native API.</p> <p>If an alias with the same name already exists, CentraSite issues a warning message.</p>
Reconfigure an existing virtual alias	<p>Alternatively, you use this option to redefine an existing virtual API and adapt it to your requirements.</p>
Endpoint of <> to be virtualized	<p><i>For a SOAP-based API.</i> You will see a list of available endpoints for the native API.</p> <p>Select the native endpoint that you want to virtualize by choosing its radio button.</p>
Resource of <> to be virtualized	<p><i>For an XML/REST-based API.</i> You will see a list of available resources for the native API.</p> <p>Select the native resource that you want to virtualize by choosing its radio button.</p>

- 4 When the **Next** button is enabled, click it.



Note: If you have not specified the virtual alias, the **Next** button remains disabled.

- 5 In panel 2, define policy enforcement for the virtual API. If you need procedures for this step, see [Defining Policy Enforcement Rules for a Virtual API](#).
- 6 In panel 3, specify in which of the targets you want to publish the virtual API. If you need procedures for this step, see [Publishing a Virtual Alias](#).
- 7 Click **Virtualize** to create the new virtual copy of native API.

Defining Policy Enforcement Rules for a Virtual Alias

Use the following steps to complete panel 2 in the **Virtualize** <> wizard. You use this panel to define the set of policy actions and processing steps for the virtual API.

▶ To define policy enforcement rules for a virtual alias

- 1 Go to panel 2 in the **Virtualize** <> wizard. If you need procedures for this step, see [Creating a New Virtual Alias](#).
- 2 To define the policy enforcement rules for the virtual API, you have one of the following options:
 - Create a new definition of policy enforcement rule within the message flow. For procedures, see step 3.
 - Reuse any existing definition of policy enforcement rule within the message flow. For procedures, see the section [Editing the Policy Enforcement Rules of a Virtual API](#).
- 3 If you choose to create a new definition of the policy enforcement rule, do the following:
 1. Inspect the accordions in the **Policy Actions** area.

You can view a tooltip text for any accordion by moving the cursor to the accordion name. The tooltip text gives a summary of the accordion's purpose.

The following table identifies the accordions and the runtime actions that each accordion supports.

Accordion	Runtime Action
Request Handling	<ul style="list-style-type: none"> ■ Request HTTP Protocol ■ Request Transformation ■ Invoke webMethods IS Service
Policy Enforcement	<ul style="list-style-type: none"> ■ Logging / Monitoring <ul style="list-style-type: none"> ■ Log Invocations ■ Monitor Service Level Agreement ■ Routing <ul style="list-style-type: none"> ■ Endpoint Properties ■ Set Headers ■ Set HTTP Authorization ■ Straight Through Routing ■ Security <ul style="list-style-type: none"> ■ Allow Anonymous Usage ■ Evaluate Hostname ■ Evaluate HTTP Basic Authentication ■ Evaluate IP Address ■ For SOAP APIs. Evaluate WSS Username Token ■ For SOAP APIs. Evaluate X.509 Certificate ■ Evaluate XPath Address ■ Require SSL ■ Validation <ul style="list-style-type: none"> ■ Validate Schema
Response Handling	<ul style="list-style-type: none"> ■ Response Transformation ■ Invoke webMethods IS Service
Error Handling	<ul style="list-style-type: none"> ■ Custom SOAP Response Message

For more details on the actions that CentraSite provides for runtime governance of an API, see *Run-Time Actions Reference for Virtualized APIs* in the document *Built-In Run-Time Actions Reference for Virtualized APIs*.

- Expand an accordion node whose action you want to add for the enforcement.
- From the accordion, drag and drop an action onto the **Message Flow** area.

The **Message Flow** area has the following policy enforcement workflow components:




- **Receive** - This component enables you to specify the actions used for request processing. For example, the Require HTTP Protocol action to configure the format of requests that the virtual API will accept.

- **Enforce** - This component enables you to specify the actions used for enforcement. For example, these include actions to monitor the API usage, log the usage per consumer, and validate the request and response messages.
 - **Routing** - This component enables you to specify the actions used for enforcement. For example, these include actions to configure the endpoints and route the requests to native APIs.
 - **Response** - This component enables you to specify the actions used for response processing. For example, an action to remove sensitive attributes that may have been added to a request by a consumer as a result of security operations against request elements.
4. When you drag and drop an action in to the **Message Flow** area, CentraSite automatically places the action in the corresponding workflow component. Not all components support the full set of actions. Some actions happen only with certain components. For example, an Evaluate action occurs only on the Enforce component; while a Routing action occurs only on the Routing component.

You can view a tooltip text for any action by moving the cursor to the action name. The tooltip text gives a summary of the action's purpose. The tooltip text shown is the content of the action's Description field, as defined for the action in the CentraSite registry.

5. Repeat steps [a](#) to [d](#) until you obtain a list that contains the actions that you want to add to **Message Flow** area.

CentraSite executes the actions in a predefined order. For details, see *Action Evaluation Order and Dependencies for Virtual APIs* in the document *Built-In Run-Time Actions Reference for Virtual APIs*.

- 4 Specify parameter values for each of the actions by clicking  on the right side of the action name.
- 5 Remove an action from the **Message Flow** area by clicking .
- 6 If you want to save the new policy enforcement rule, so that you can reuse the same enforcement rule again at a later stage, in the **Save as Blueprint** text box specify a name for the new policy enforcement rule and click **Save** (.
- 7 When the **Next** button is enabled, click it.



Note: If you have not specified all of the mandatory parameters for the actions, the **Next** button remains disabled.

- 8 In panel 3, specify in which of the targets you want to publish the virtual API. If you need procedures for this step, see [Publishing the Virtual Alias](#).

Or:

Else, click **Virtualize** to create the new virtual copy of native API.


Publishing a Virtual Alias

Use the following steps to complete panel 3 in the **Virtualize** < > wizard. You use this panel to simply virtualize the API or to define the targets and publish the virtual API.

► To publish a virtual alias

- 1 Go to panel 3 in the **Virtualize** < > wizard. If you need procedures for this step, see [Creating a New Virtual Alias](#).
- 2 You can choose to perform one of the following operations on the API:
 - Publish your virtual API. For procedures, see step 3.
 - Virtualize the API and publish later. For procedures, see step 4.
- 3 If you choose to publish your virtual API, do the following:
 1. From the **Available Targets** list, choose the targets in which you want CentraSite to publish the virtual API. Keep the following points in mind when you select the targets for publishing the virtual API:
 - The **Available Targets** shows a list of targets that are available for you.
 - You can select multiple targets for publishing the virtual API.
 - If necessary, you can click **Previous** to return to the panel 2 in the **Virtualize** < > wizard and change your definition.
 2. In the **Advanced Settings** node, select the **Expose to Consumers** checkbox. Doing this will allow unauthorized consumers (guests) to search and access the API.

The **Expose to Consumers** checkbox is visible only to those users who have “Full” permission on the particular API.
 3. When the **Publish** button is enabled, click it.

 **Note:** If you have not specified a target, the **Publish** button remains disabled.
- 4 If you choose to simply virtualize the API, do the following:
 1. In the **Advanced Settings** node, select the **Expose to Consumers** checkbox to allow unauthorized consumers (guests) search and access the API.
 2. Click the **Virtualize** button.

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Viewing the Details of a Virtual API

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CentraSite provides a summary of details of the virtual API. The details rendered as attributes are grouped together as profiles.

General

When you view the details of a virtual API in CentraSite catalog, keep the following points in mind:

- The set of virtual APIs that are available to you are the APIs on which you have View permission. You can obtain View permission on a virtual API in the following ways:
 - By belonging to a role that includes any of the following permissions.

This permission...	Allows you to...
View Assets	View all virtual APIs within a specified organization.
Modify Assets	View and edit all virtual APIs within a specified organization.
Manage Assets	View, edit and delete all virtual APIs within a specified organization, and set instance-level permissions on those APIs. This permission also allows you to create virtual APIs.
Create Assets	Add new virtual APIs to a specified organization. You automatically receive Full permission (which implies Modify and View permission) on all virtual APIs that you create.

- By having View, Modify or Full instance-level permissions on a particular virtual API.
- By default, all CentraSite users belong to the Asset Consumer role. This role includes the “View Assets” permission for the organization to which a user belongs.

Having the “Asset Consumer” role gives you implicit view permission on all the virtual APIs in your organization. You can view virtual APIs from other organizations only if you are given permission to do so through the assignment of additional role-based or instance-level permissions.

- In rare instances, an administrator might not grant view permissions to all of the users in an organization. If the administrator of your organization has done this, you will need instance-level permissions on a virtual API in order to view it.

For more information about permissions, see the CentraSite online documentation section *About Roles and Permissions* in the document *Users, Groups, Roles and Permissions*.

The Virtual API Profiles

Profile	Description
Basic Information	Provides basic information about the virtual API. This profile shows individual characteristic such as the virtual API version, type, owner, organization and description. If you are having users watching or consuming this API, CentraSite displays that information on this profile. This profile also contains controls for approving requests placed on this API.
Advanced Information	Provides additional information about the virtual API. This profile shows the technical specifications, and the list of providers and consumers for the virtual API.
Technical Details	Provides technical information about the virtual API. For a service virtual API, this profile includes the WSDL URL and a list of the operations and bindings. For an XML/REST virtual API, the profile includes the XML URL and a list of the resources.
Provider Overview	Provides a link to the native API, and a list of Access URIs and API keys.
Consumer Overview	Provides information about the consumption of the virtual API. For a SOAP API, this profile displays the Consumer Service WSDL / WSDL URL, and a list of Access URIs and API keys. For a REST based API, this profile displays a list of Access URIs and API keys.
Runtime Metrics	<p><i>For Virtual XML & REST APIs.</i> Displays the run-time performance metrics associated with the virtual API. If you are using webMethods Mediator, webMethods Insight or another run-time monitoring component to log performance metrics for an API, CentraSite displays those metrics on this profile.</p> <p>Note: The Runtime Metrics profile is displayed for virtual APIs regardless of whether you enable or disable it for the Service asset type. In other words, when you disable the Runtime Metrics profile for the Service asset type, CentraSite removes the profile from native APIs, but continues to display it for virtual APIs.</p>
Runtime Events	<p><i>For Virtual XML & REST APIs.</i> Displays the run-time events associated with the virtual API. If you are using webMethods Mediator, webMethods Insight or another run-time monitoring component to log run-time events for an API, CentraSite displays those events on this profile.</p> <p>Note: The Runtime Events profile is displayed for virtual APIs regardless of whether you enable or disable it for the Service asset type. In other words, when you disable the Runtime Events profile for the Service asset type, CentraSite removes the profile from native APIs, but continues to display it for virtual APIs.</p>

View the Details of a Virtual API

Use the following procedure to view the details for a virtual API (alias).

► **To view the details of a virtual API**

- 1 In CentraSite Business UI, use either the *Browse* or *Search* feature to locate a virtual API that you want to view. If you need information on how to browse or search the CentraSite catalog, refer to the section *Browsing the CentraSite Catalog* or *Searching the CentraSite Catalog* in the document *Managing the CentraSite Catalog*.
- 2 Click the virtual API's hyperlinked name.
- 3 On the virtual APIs' details page, examine the properties as necessary.

CentraSite will display the attributes for the selected virtual API. If you have Modify permission on the virtual API, you can edit the virtual API's attributes.

Viewing the Provider Overview Profile

The **Provider Overview** profile of a virtual API shows a link to the native API, and a list of Access URIs and API keys.

Viewing the Consumer Overview Profile

The **Consumer Overview** profile of a virtual API displays the following information:

- For an instance of the SOAP API, this profile displays the Consumer Service WSDL / WSDL URL, and a list of Access URIs and API keys.
- For an instance of the REST-based API, this profile displays a list of Access URIs and API keys.

▼ **Consumer Overview**

Consumer Service WSDL

http://localhost:53307/CentraSite/Repository/projects/WSDL/uddi_19e9e3b1-299a-11e3-896d-bbb7db2ac856/airport_V5.wsdl

Access URIs

http://127.0.0.1:5555/ws/airport_V5

API Keys

00ef7690-299b-11e3-b72f-da8e9862fb6a

4 Editing the Properties of a Virtual API

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This section describes how to view an API's attributes and how to change them.

General

When editing the properties of a virtual API, keep the following general points in mind:

- If you are not the owner of the virtual API, you cannot edit the virtual API unless you have “Modify” permission on the virtual API (granted through either a role-based permission or an instance-level permission).
- When you view the details for the virtual API, you will only see profiles for which you have “View” permission. You will only be able to edit the profiles on which you have “Modify” permission.
- Some attributes accept only specific types of information.
- Some attributes are designed to be read-only and cannot be edited even if they appear in a virtual API on which you have “Modify” permission.

Edit the Profiles of a Virtual API

Use the following procedure to edit the profiles of a virtual API.

To edit the profiles of a virtual API

- 1 In CentraSite Business UI, display the detail page of the virtual API whose profiles you want to edit. If you need procedures for this step, see [Viewing the Details of a Virtual API](#).
- 2 To edit the virtual API's Name, Description or Version number, place the cursor in the appropriate field and modify the text as required.
- 3 To modify the extended attributes associated with the virtual API, do the following:
 1. Select the profile that contains the attribute(s) that you want to modify.
 2. Edit the attributes on the profile as necessary.
- 4 When you have finished making your edits, click **Next**.

Or:

If at any time you want to abandon your unsaved edits, click **Cancel**.

Edit the Policy Enforcement Rules of a Virtual API


Use the following procedure to edit the policy enforcement rules of a virtual API.

► **To configure the policy enforcement of a virtual API**

- 1 In CentraSite Business UI, display the detail page of the virtual API whose policy enforcement you want to configure. If you need procedures for this step, see [Viewing the Details of a Virtual API](#).

2



On the API detail page, click **Virtualize** () to open the **Virtualize < >** wizard.

- 3 In panel 1 of the **Virtualize < >** wizard, do the following:

1. On the **Reconfigure an Existing Virtual Alias** section, select the existing virtual alias for that you want to reconfigure the policy enforcement rule by choosing its radio button.

When you choose to reconfigure an existing virtual API, CentraSite will automatically populate the associated native binding information. You are not allowed to reconfigure the APIs native binding information.

2. Click **Next**.

- 4 In panel 2 of the **Virtualize < >** wizard; do the following:

1. Configure the actions for the policy enforcement definition.

- a. In the **Policy Actions** area, expand the accordions and locate the actions that you want to add to the policy enforcement.
- b. Drag and drop the actions to the **Message Flow** area. The action descriptions are displayed as tooltip.


When you drag and drop an action in to the Message Flow area, CentraSite automatically places the action in the corresponding workflow component.

2. Configure the behavior of the action at enforcement time.

- a. In the **Message Flow** area, choose the action whose parameter you want to set or examine.
- b. Specify parameter values for any new actions that you might have added to the **Message Flow** area or make any necessary updates to the parameter values for existing actions, by clicking (Configure) on the right side of the action name.

3. Delete the actions from the policy enforcement definition.

- a. In the **Message Flow** area, choose the action that you want to remove.

- b. Delete an action, by clicking () on the right side of the action name.
 - 5 In panel 3 of the **Virtualize** < > wizard; do the following:
 1. Select the targets to/from which you want to publish/unpublish the virtual API by clicking its radio button.
 2. Click **Publish**.
- Or:
- If at any time you want to abandon your unsaved edits, click **Cancel**.

5

Publishing an API for Consumption

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This section describes how to publish a virtual API (endpoint) to the webMethods Mediator.

Prerequisites

Before publishing an API for consumption, you must do the following high-level steps:

1. Virtualize the API. For procedures, see [Virtualizing an API](#).
2. Configure the key settings of the API. For procedures, see [Configuring Your API Key Settings](#).

General

When publishing an API, keep the following points in mind:

- You must be a registered user (i.e., Provider) in the CentraSite.
- You must belong to either one of the following roles:
 - CentraSite Administrator
 - API Publisher
 - Runtime API Provider

However, an administrator can grant these permissions to other roles.

For more information about permissions, see the CentraSite online documentation section *About Roles and Permissions* in the document *Users, Groups, Roles and Permissions*.

- If you are a registered user and accessing CentraSite using the logon credentials, to publish an API, you must have Full permission on the API. If your user account belongs to a role that has the "Manage Assets" permission for an organization, you automatically have permission to publish all APIs in that organization. Also, if you are the owner of an API, you can publish that particular API.
- If you are a registered user and accessing CentraSite as a guest, to publish an API, you must at least have the instance-level Full permission on the API.
- This action is *not visible* for the following conditions:
 - Unless you have a minimum of "Full" permission on the API.
 - If the API does not belong to the type "Service".
 - Unless the API has one or more virtual APIs.
- If the API is under the control of an active lifecycle model (LCM), ensure that:
 - The API is in a "deployable" lifecycle state. If you are not certain of what the "deployable" lifecycle state is, consult your CentraSite administrator.

- The API has a design-time policy that includes the Change Deployment Status action and it is set to Yes. This action specifies whether the API is eligible for deployment. For more information, see the description of the action in the section *Built-In Actions for Design/Change-Time Policies* in the document *Built-In Design/Change-Time Actions Reference*.

Ways in Which You Can Publish an API

You can publish the virtual APIs for consumption to one or more targets in either of the following ways:

If you want to publish using the...	Follow the steps described in...
Native API's Publish action	Publishing an API from Native API's Action Menu
Native API's Virtualize wizard	Publishing an API from Native API's Virtualize Wizard
Virtual API's Publish action	Publishing an API from Virtual API's Action Menu

Publish an API from Native API's Action Menu

You use this procedure to publish a virtual API using the native API's **Publish** action.

► To publish an API for consumption

- 1 In CentraSite Business UI, display the details page of the API you want to expose for consumption. For procedures, see the section *Viewing Details of an API*.
- 2 On the API detail page, click **Publish**. This opens the **Publish API** dialog.
- 3 Choose the alias you want to publish from the drop-down labeled **Virtual Alias**. (The list will contain the virtual aliases that are defined for the native API.)
- 4 Enable the checkbox next to the name of the target to publish the API. You can select multiple targets.
- 5 Enable the **Expose to Consumers** checkbox to allow unauthorized consumers (guests) to search and access the API.

The **Expose to Consumers** checkbox is visible only to those users who have "Full" permission on the particular API.

- 6 Click the **Publish** button.

Or:

Else, if at any time you wish to terminate this operation, just click the **Cancel** button.

- 7 A **Publish Progress** popup will display the progress state of publishing your API. Click **Ok**.

If the publish process failed, identify and correct the error and then try publishing the virtual alias again.

Publish an API from Native API's Virtualize Wizard

You use this procedure to publish a virtual API using the native API's **Virtualize** action.

► To publish an API for consumption

- 1 In CentraSite Business UI, display the details page for the API that you want to expose for consumption. For procedures, see the section *Viewing Details for an API*.

- 2 On the API details page, click **Virtualize** () action. This opens the **Virtualize <>** wizard.

- 3 If there are no existing virtual alias, go to panel 1 in the **Virtualize <>** wizard. Define a virtual alias as described in the section .

- 4 Choose the alias you want to publish from the drop-down labeled **Virtual Alias**. (The list will contain the virtual aliases that are defined for the native API.)

- 5 Enable the checkbox next to the name of the target to publish the API. You can select multiple targets.

- 6 Enable the **Expose to Consumers** checkbox to allow unauthorized consumers (guests) to search and access the API.

The **Expose to Consumers** checkbox is visible only to those users who have Full permission on this API.

- 7 Click the **Publish** button.

Or:

Else, if at any time you wish to terminate this operation, just click the **Cancel** button.

- 8 A **Publish Progress** popup will display the progress state of publishing your API. Click **Ok**.

If the publish process failed, identify and correct the error and then try publishing the virtual alias again.

Publish an API from Virtual API's Action Menu

You use this procedure to publish a virtual API using the API's **Publish** action.

► **To publish a virtual API for consumption**

- 1 In CentraSite Business UI, display the details page of the virtual API you want to publish. For procedures, see the section [Viewing the Details of a Virtual API](#).
- 2 On the virtual API detail page, click **Publish**. This opens the **Publish API** dialog.
- 3 Enable the checkbox next to the name of the target to publish the API. You can select multiple targets.
- 4 Enable the Expose to Consumers checkbox to allow unauthorized consumers (guests) to search and access the virtual API.

The Expose to Consumers checkbox is visible only to those users who have "Full" permission on this API.

- 5 Click the **Publish** button.

Or:

Else, if at any time you wish to terminate this operation, just click the **Cancel** button.

- 6 A **Publish Progress** popup will display the progress state of publishing your virtual API. Click **Ok**.

If the publish process failed, identify and correct the error and then try publishing the virtual alias again.

6

Requesting an API for Consumption

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CentraSite does not begin generating an API key unless a consumer requests an API for consumption.

Prerequisites

To enable guest users (i.e. users without a valid CentraSite user account) to access and register as consumers of APIs, you must do the following:

- Create a policy that enables the administrators to approve or reject the "Register as Consumer" requests. For information, see *Consumer Onboarding Policies* for details.
- Configure the API key settings. For information, see *Configuring the API Key Settings*.
- Virtualize the endpoint in the native API. For information, see [Virtualizing an API](#)
- Publish the virtual API into the Mediator. For information, see [Publishing an API for Consumption](#).

General

When requesting an API for consumption, keep the following points in mind:

- If you are a registered user and accessing CentraSite using the logon credentials, to request an API key, you must have View permission on the API. If your user account belongs to a role that has either the "Manage Assets", "Create Assets", "Modify Assets" or "View Assets" permission for an organization, you automatically have permission to request all APIs in that organization.
- If you are a registered user and accessing CentraSite as a guest, to request an API for consumption, you must at least have the instance-level "View" permission on the API.
- If you are a registered user and accessing CentraSite as a guest, when you request an API for consumption, you will be prompted to specify your logon credentials.
- If you are not a registered user and accessing CentraSite as a guest, when you request an API for consumption, you will be prompted to register as a consumer in CentraSite.

CentraSite internally executes the consumer on-boarding workflow. This workflow helps you to onboard in an organization of interest within the CentraSite registry/repository. An onboarding request is sent to the organization's administrator for approval. On successful onboarding of the user, a request for consumption of the selected API will be sent to the provider of the API who will generate the API Key for consumption.

- The **Consume API** action applies only for the virtualized services.


Request an API for Consumption

Use the following procedure to request an API for consumption.

► **To request an API for consumption**

- 1 In CentraSite Business UI, display the details page for the API that you want to consume. For procedures, see the section *Viewing Details for an API*.

2

On the API detail page, click **Consume API** ().

- 3 In the **Consume API** dialog, do one of the following:

If you are accessing the API as logged on user:

1. Enable the **Email me** checkbox so as to receive auto-generated workflow notifications.
2. Enter a valid reason to request the API for consumption.
3. Specify a precise identifier token by which messages from you will be recognized at runtime. See [Using Consumer Evaluators](#) for details.
4. Click the **Consume** button.

An API key request is sent to the designated approvers of API consumption for approval. On approval, a request for consumption of the selected API will be sent to the provider of the API who will generate the API Key for consumption.

Once approved, the API consumption request will be processed and notification sent to you at specified email address.

However, if an approval workflow is not defined for the API, the key is generated immediately.

If you are accessing the API as a guest user, and you have a valid CentraSite user account:

1. In the **Login to Your Account** panel, do the following:
 - a. Enter your username and password.
 - b. Click the **Next** button.
2. Enable the **Email me** checkbox so as to receive auto-generated workflow notifications.
3. Enter a valid reason to request the API for consumption.
4. Specify a precise identifier token by which messages from you will be recognized at runtime. See [Using Consumer Evaluators](#) for details.
5. Click the **Consume** button.

An API key request is sent to the designated approvers of API consumption for approval. On approval, a request for consumption of the selected API will be sent to the provider of the API who will generate the API Key for consumption.

Once approved, the API consumption request will be processed and notification sent to you at specified email address.

However, if an approval workflow is not defined for the API, the key is generated immediately.

If you are accessing the API as a guest user, and you do not have a valid CentraSite user account:

1. In the **Request an Account** panel, specify the following:
 - a. Enter your **First Name**, **Last Name** and **Email** address.
 - b. Type in your password in the **Password** field.
 - c. Retype the password in the **Confirm Password** field.
 - d. Enter the **Organization** you want to join

If the **Organization** field is left blank, CentraSite will automatically register the user as a consumer in the organization that was configured in the Global Onboarding Policy.

 - e. Click the **Next** button.
2. Enable the **Email me** checkbox so as to receive auto-generated workflow notifications.
3. Enter a valid reason to request the API for consumption.
4. Specify a precise identifier token by which messages from you will be recognized at runtime. See [Using Consumer Evaluators](#) for details.
5. Click the **Consume** button.

A consumer registration request is sent to the organization's administrator for approval. On successful registration of the consumer, a request for consumption of the selected API will be sent to the provider of the API who will generate the API Key for consumption.

However, if an approval workflow is not defined for the API key, the key is generated immediately.

Using Consumer Evaluators

When you request API key for consumption of an API that requires additional runtime actions validation as configured by the provider, CentraSite requires you to specify additional identifiers.

In this field...	Do the following...
IPv4 Address	<p>Specify a range of IPv4 addresses. Type the lowest IP address in the From field and the highest IP address in the To field.</p> <p>This will identify only those requests originating from any IP address that lies between the specified range.</p> <p>Example:</p> <p>192.168.0.0 and 192.168.0.10</p> <p>If you need to specify additional IP addresses, use the plus button to add more rows.</p>
IPv6 Address	<p>Specify a IPv6 address.</p> <p>This will identify only those requests that originate from the specified IP address.</p> <p>Example:</p> <p>fd5d:5cc1:23:4::1f</p> <p>If you need to specify additional IP addresses, use the plus button to add more rows.</p>
Hostname	<p>Specify the hostname. This will identify only those requests that originate from the specified hostname.</p> <p>Example:</p> <p>pcmachine.ab.com</p> <p>If you need to specify additional hostnames, use the plus button to add more rows.</p>
HTTP Authentication Token	<p>Specify one or more HTTP user names. This will identify only those requests that contain the specified user name encoded and passed in the HTTP authentication user token.</p> <p>Example:</p> <p>SAGUser123</p> <p>If you need to specify additional tokens, use the plus button to add more rows.</p>
WS-Security Authentication Token	<p>Specify the WSS username token. This will identify only those requests that contain the specified user name in the SOAP or XML message header.</p> <p>Example:</p> <p>userwss</p> <p>If you need to specify additional tokens, use the plus button to add more rows.</p>

In this field...	Do the following...
XPath Token	<p>Specify one or more XPath expressions. This will identify only those requests that contain the specified XPath the SOAP or XML message or request.</p> <p>Example:</p> <pre>//*[local-name()='Envelope']//*[local-name()='Body']//*[local-name()='echoInt']//*[local-name()='echoIntInput'][-]</pre> <p>If you need to specify additional tokens, use the plus button to add more rows.</p>
Consumer Certificate	<p>Specify the X.509 certificates that help the API owner to identify requests from you.</p> <p>Click Upload to locate and select the certificate (.cer) file.</p>

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Viewing an API Key

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CentraSite automatically sends notification of the generated API key and API usage to both the approvers and the consumer requesting for API key.

The CentraSite Business user interface enables users to view notifications of the API key generation in the following ways:

- Using an Email. For procedures, see the section [Viewing API Key via Email](#).
- Using the Consumer Overview profile. For procedures, see the section [Viewing API Key via API Details](#).

To receive notifications of the API key generation, remember that:

- You should have the notification option (Email/Inbox) set in the **User Preferences** page.
- If opted for an email notification, make sure that you have specified a valid email address.

Viewing API Key Notifications via Email

Access your mailbox.

- If you were the user requesting for API key, you will receive an email message containing the following information:
 - API key
 - API key expiration date
 - API key usage
- If you were the user who owns the API, you will receive an email message containing the following information:
 - API key
 - API key expiration date

Viewing API Key via API Details

Use the following procedure to view the API key notifications from the API details page.

► To view the API key

- 1 In CentraSite Business UI, display the details page of the API whose API key you want to view. For procedures, see the section [Viewing Details of an API](#) or [Viewing the Details of a Virtual API](#).

- 2 Access the **Consumer Overview** profile.
- 3 The information in this profile depends on whether you are the requestor for API consumption or the API owner.
 - If you were the user requesting for API consumption, you will see the following information:
 - API key
 - API key expiration date
 - API key usage
 - If you were the user who owns the API, you will see the following information:
 - API key
 - API key expiration date

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Consuming an API Using the API Key

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RESTful APIs are often exposed over the open Internet for consumption. API providers need a mechanism to prevent unauthorized access to the API. One approach is to provision consumers with API keys. Those keys can be used as authentication tokens.

CentraSite API Management Solutions automatically generates API keys when a consumer request for consumption of that API. It enables API providers to view, approve and set expiration for API keys. By applying a policy workflow, you can enforce verification of API keys at runtime. This ensures that no consumer can access a protected API without a valid key.

API keys are verified at runtime to ensure that:

- The API key presented is valid and has not been expired.
- The API key presented is approved to consume an API that includes the URI in the request.



Note: Throughout this section, the term “Virtual Alias” is also referred to as “Virtual API” or simply “API”. The name can be used interchangeably.

This section provides information about consuming APIs that are published in the webMethods Mediator. If you are using a different kind of PEP, refer to its documentation for publishing procedures and information.

The API Consumption Model

Consumption refers to the process you use to

1. Consumer initiates the consumption by selecting the API that is to be consumed and specifies the authentication credentials by which he is to be identified.
2. CentraSite generates the API key for consumption of the API (the specific key generation steps depend on the configuration settings defined by the Provider of that particular API). Later, CentraSite prepares the API for publishing and invokes the deployer service on the Mediator. The generated API key is submitted as input to this API.
3. The deployer service publishes the API in the Mediator.
4. If the publishing is successful, the deployer service returns a success message and data that is pertinent to the published API. (This includes the Access URL and the API key that are required to consume this API). If the publishing is unsuccessful, the deployer service returns a failure message.
5. Consumer accesses the URL for API consumption, sends the API key as integral part of the HTTP request header or as a query string, and upon validation of the API key consumes the API.
6. If the consumption is successful, the consumer uses the API. If the consumption is unsuccessful for some reasons of authentication, a 500 fault is returned.

How Does Mediator Evaluate Consumers at Run Time?

To determine the consumer from which an API consumption request was submitted, an API must have the policy enforcement rule defined with at least one Evaluate action. This action extracts a specified evaluator from an incoming request and locates the consumer defined by that identifier.

For example, if you configure the "Evaluate IP Address" action to evaluate consumers by IP address, Mediator extracts the IP address from a request's HTTP header and searches its list of consumers for the consumer that is defined by that IP address.

You can configure the Evaluate actions to evaluate consumers based on the following information in a request message.

Evaluator	Description
IP Address	The IP address from which the request originated.
Host Name	The name of the host machine from which the request originated.
HTTP Authentication Token	The user ID submitted by the requestor when it was asked to provide basic HTTP credentials (username and password).
WS-Security Authentication Token	The WSS username token supplied in the header of the SOAP request that the consumer submitted to the API.
XPath	
Consumer Certificate	The X.509 certificate supplied in the header of the SOAP request that the consumer submitted to the API.

How Does a Consumer Use the Generated API Key?

REST services rely on HTTP methods like GET, POST, PUT and DELETE to make request to an API provider, so the API keys are closely tied to these HTTP methods, where they are sent as part of these HTTP method requests.

CentraSite allows you to set API keys as part of the HTTP header or as the query component of an API request.



Important: In the case where a consumer is sending a request with both credentials (HTTP header) and (query string), the HTTP header take precedence over the query string when the Mediator is determining which credentials it should use for the consumption.

- [Request Header](#)

- [Query String](#)

Request Header

The API keys are passed as the HTTP header component of an API consumption request. The HTTP header corresponds to an array of header names to include for that particular API consumption.

The following example demonstrates a typical HTTP request with API keys that form the header value of the API Access URL.

```
x-CentraSite-APIKey:a4b5d569-2450-11e3-b3fc-b5a70ab4288a
```

Query String

The API keys are passed as the query component of an API consumption request.

The following example demonstrates a typical HTTP GET request with API keys that form a query string of the API Access URL.

```
http://localhost:5555/ws/RestAPI?APIKey=a4b5d569-2450-11e3-b3fc-b5a70ab4288a
```

Notice that the API keys are added to the path after a “?”, and specified as key-value pair.

What Happens When You Request for API Consumption?

When you request an API for consumption using the Access URL and the generated API key, CentraSite automatically validates the APIs run-time actions to ensure that any Evaluate action that appears in the policy enforcement rule of an API is validated with the consumer requesting for that API.

What Happens When Consumption Fails?

If the API consumption encounters a problem due to one or more of the following reasons, a 500 SOAP fault is returned.

- If the API key value in the HTTP header or the query string is authenticated as invalid.

The sample message looks like this:

```
The request is authenticated as invalid.
```

- If the HTTP header is not present in the request.

The sample message looks like this:

```
A required header is missing in the request.
```

- If the API key value in the HTTP header is expired.

The sample message looks like this:

```
The API key has expired.
```


9 Unpublishing an API

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The following procedure describes how to unpublish a virtual API from one or more targets.

General

When unpublishing a virtual API, keep the following points in mind:

- If you are a registered user and accessing CentraSite using the logon credentials, to unpublish a virtual API, you must have Full permission on the native API. If your user account belongs to a role that has the “Manage Assets” permission for an organization, you automatically have permission to unpublish all virtual APIs in that organization. Also, if you are the owner of an API, you can unpublish that particular API.
- If you are a registered user and accessing CentraSite as a guest, to unpublish a virtual API, you must at least have the instance-level Full permission on the native API.
- This action is *not visible* for the following conditions:
 - Unless you have a minimum of "Full" permission on the API.
 - If the API does not belong to the type "Service".
 - Unless the API has one or more virtual aliases already published into the Mediator.

Ways in Which You Can Unpublish an API

You can unpublish the virtual APIs from one or more targets in either of the following ways:

If you want to unpublish using the...	Follow the steps described in...
Native API's Unpublish action	Unpublishing an API from Native API's Action Menu
Virtual API's Unpublish action	Unpublishing an API from Virtual API's Action Menu

Unpublishing an API from Native API's Action Menu

You use this procedure to unpublish a virtual API using the native API's **Unpublish** action.

► To unpublish an API for consumption

- 1 In CentraSite Business UI, display the details page of the API whose virtual alias you want to unpublish from the target(s). For procedures, see the section *Viewing Details of an API*.
- 2 On the API detail page, click **Unpublish**. This opens the **Unpublish API** dialog.

- 3 Choose the alias you want to unpublish from the drop-down labeled **Virtual Alias**. (The list will contain the virtual aliases that are defined for the native API.) You can select multiple targets.
- 4 Enable the checkbox next to the name of the target to unpublish the API. You can select multiple targets.
- 5 Click the **Unpublish** button.

Or:

Else, if at any time you wish to terminate this operation, just click the **Cancel** button.

- 6 An **Unpublish Progress** popup will display the progress state of unpublishing the API (s). Click **Ok**.

If the unpublish process failed, identify and correct the error and then try unpublishing the virtual alias again.

Unpublishing an API from Virtual API's Action Menu

You use this procedure to unpublish a virtual API using the API's **Unpublish** action.

► To unpublish a virtual API for consumption

- 1 In CentraSite Business UI, display the details page of the virtual API you want to unpublish. For procedures, see the section [Viewing the Details of a Virtual API](#).
- 2 On the virtual API detail page, click **Unpublish**. This opens the **Unpublish API** dialog.
- 3 Enable the checkbox next to the name of the target to unpublish the API. You can select multiple targets.
- 4 Enable the Expose to Consumers checkbox to allow unauthorized consumers (guests) to search and access the virtual API.

The Expose to Consumers checkbox is visible only to those users who have "Full" permission on this API.

- 5 Click the **Unpublish** button.

Or:

Else, if at any time you wish to terminate this operation, just click the **Cancel** button.

- 6 A **Unpublish Progress** popup will display the progress state of unpublishing your virtual API. Click **Ok**.

If the unpublish process failed, identify and correct the error and then try unpublishing the virtual alias again.

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Deleting a Virtual API

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Deleting an API permanently removes the API from the CentraSite registry.

General

When you delete an API, CentraSite removes the registry entry for the API (that is, it removes the instance of the API from CentraSite's object database). Also note that:

- You cannot delete the predefined APIs (not even if you have the default permissions associated with the CentraSite Administrator role).
- If you are not the owner of the API, you cannot delete the API unless you have “Manage Assets” permission (granted through a role-based permission) or at least Full permission on the API (granted through an instance-level permission).
- You cannot delete an API that is in pending state (e.g., awaiting approval).
- You cannot delete an API if any user in your CentraSite registry is currently modifying the API.
- Deleting an API will not remove the supporting documents that are attached to it.

Delete a Virtual API

You can delete a single virtual API or a selected set of virtual APIs. The descriptions in this section give you details on how to do this.

To delete a virtual API, you must belong to a role that has the “Manage Assets” permission for the organization in which the API resides.


The following sections describe how to delete virtual APIs.

- [Deleting a Single Virtual API](#)
- [Deleting a Set of Virtual APIs](#)

Deleting a Single Virtual API

Use the following procedure to delete a single Virtual API.

► To delete a virtual API

- 1 In CentraSite Business UI, display the details page for the virtual API that you want to delete. If you need procedures for this step, see the section [Viewing the Details of a Virtual API](#).
- 2 On the API's actions menu, click **Delete** ().
- 3 When you are prompted to confirm the delete operation, click **Yes**.


The API is permanently removed from the CentraSite registry.

Deleting a Set of Virtual APIs

You can delete multiple APIs in a single step. The rules described above for deleting a single API apply also when deleting multiple APIs.

Use the following procedure to delete a set of APIs.

▶ To delete multiple APIs in a single operation

- 1 In CentraSite Business UI, use either the *Browse* or *Search* feature to select a set of APIs you want to delete. If you need information on how to browse or search the CentraSite catalog, refer to the section *Browsing the CentraSite Catalog* or *Searching the CentraSite Catalog* in the document *Managing the CentraSite Catalog*.
- 2 Mark the checkbox next to the name of each API you want to delete.
- 3 In the actions menu, click **Delete** ().



Note: If one or more of the selected APIs is in pending state (e.g., awaiting approval), an error message will appear and no APIs will be deleted.

