

# Cloudpath Enrollment System Legacy API User Guide, 5.11

**Supporting Cloudpath Software Release 5.11**

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# Contents

---

<b>How to Use The Cloudpath API</b> .....	<b>5</b>
Overview.....	5
<b>Outbound: Sending Notifications to External Systems</b> .....	<b>5</b>
<b>Format for Variables</b> .....	<b>5</b>
Inbound: Querying Cloudpath.....	5
Creating an API Key.....	6
<b>API Examples</b> .....	<b>9</b>
Enrollment Queries and Actions.....	9
Retrieve Enrollment Data.....	9
Revoke/Unrevoke Enrollment.....	9
Certificate Queries.....	10
Generate Certificate.....	10
Generate a P12 Certificate.....	10
Revoke/Unrevoke Certificate.....	11
Return Certificate Data.....	11
Revoke Certificate by Certificate Serial Number.....	12
User Queries.....	12
Blocking/Unblocking User.....	12
Revoke Enrollments.....	13
Device Queries.....	13
Block/Unblock Device.....	13
Revoke Certificates.....	13
Register MAC address.....	14
Device Configuration Queries and Actions.....	15
Generate Mobileconfig File.....	15
External Queries .....	15
Device Capabilities Query.....	17
Device Authorization.....	17
Change MAC Address.....	18
Get Device Information by Certificate Serial Number.....	19
Get Devices Associated with a Customer Account Number.....	19
Get Device Information by MAC Address and Customer Account Number.....	20
Revoke Certificate by MAC Address and Customer Account Number.....	20
Clear Device Capability Cache (For Testing Only).....	21
Destroy Enrollment Records by Customer Account Number (For Testing Only).....	21
Destroy Enrollment Records by GUID.....	22
External DPSK (eDPSK) Actions and Queries.....	22
Create eDPSK Pool.....	22
Create PSK Within an eDPSK Pool.....	25
Get all available eDPSK pools .....	27
Lookup a PMK Without Specifying the eDPSK Pool.....	28
Lookup a PMK in a specific eDPSK pool.....	30
Delete a Specific DPSK Pool.....	32
Flush eDSPK Lookups from Cache.....	33
Modifying Settings in Cloudpath.....	33
Return Passphrase Information.....	33

Return Passphrase String.....	34
Change Passphrase.....	34
Create Voucher Object.....	34
Troubleshooting.....	35

# How to Use The Cloudpath API

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- [Overview.....](#) 5
- [Outbound: Sending Notifications to External Systems .....](#) 5
- [Inbound: Querying Cloudpath.....](#) 5

## Overview

Cloudpath provides APIs to enable integration with existing processes or third-party applications. The APIs allow the system to actively notify external systems (outbound calls) and to be queried and manipulated by external systems (inbound calls).

### NOTE

The word "Legacy" has been added to the title of this guide to denote that this guide contains APIs that do not support JsonWebTokens, HateOAS, or full user authentication. Another Cloudpath API manual - the *Cloudpath Enrollment System REST API User Guide* - contains APIs that *do* support full user authentication.

## Outbound: Sending Notifications to External Systems

You can pass data from Cloudpath using notifications through email or URL requests. Variables are populated in the Enrollment Record and may be passed through the URL call.

For example, you might want to include enrollment data in a certificate issuance notification email. In this case, the URL containing the variables is sent to the server using a simple GET request, and the HTTP reply is the result data, included as part of the email notification.

### NOTE

Some API calls support POST requests. If supported, POST is listed in the parameters.

## Format for Variables

Variables in Cloudpath are in the following format: \${MAC\_ADDRESS}, \${USERNAME}, or \${IP\_ADDRESS}. See the Enrollment Variables section on the Enrollment Record page to view available variables, variable syntax, and expected values.

The variables are passed through a URL, as in this example: `http://test.company.net/registration?user=${USERNAME}&mac=${MAC_ADDRESS}`. The result from this example would be that the username and device MAC address get sent within the notification.

Only variables which are populated at the time of the notification event are sent. MAC addresses and other variables may be populated through events other than onboarding, such as data prompts.

### NOTE

It is recommended that you use URL requests for large amounts of data. For example, you can send the enrollment GUID value in the URL, and then query the Cloudpath system for the enrollment record.

## Inbound: Querying Cloudpath

You can retrieve information from Cloudpath through a REST-type API query and perform an action, based on the result data. For example, you might use an API query to block a user or revoke a certificate.

## How to Use The Cloudpath API

### Inbound: Querying Cloudpath

The API query, containing the identifier information and appropriate action, is sent to the server and the objects are returned in either JSON or XML.

The API call is structured as follows:

**http://test.company.net/admin/api/zAdBCLcgrwca/enrollment/IdentityCN/bob/get**

- **http** ://test.company.net/admin = HTTP authentication
- **api** = API entry point
- **zAdBCLcgrwca** = API key
- **enrollment** = realm
- **IdentityCN** = Identity type
- **bob** = Identity value
- **get** = Action

Each realm allows a different set of identity information. See the appropriate sections in API Examples for the list of valid identity types.

## Creating an API Key

For Cloudpath to honor inbound requests from external systems, the external system must authenticate using an API key. The API key is part of the API query used to retrieve information from the Cloudpath system. To create an API Key, perform the following steps:

1. Go to **Configuration > API Keys** .
2. Click **API Keys**

FIGURE 1 Create API Key

Configuration > API Keys > Create

Cancel Save

### API Key Information

**Name:** Device Capabilities \*

**Description:**

**Enabled:**

**API Key:** BmGsez6evQc8 \*

**Allowed Path Regex:** \*

**Expiration Date:** 20180404

Cloudpath provides a generated **APIKey**, or you can specify a custom key. An API key must be URL-safe.

The **Allowed Path Regex** is a regex specifying the paths allowed to be called with this API key. For example, `/admin/api/.*certificate/.*` can query anything in the 'certificate' realm. If left blank, there is no restriction.

For the **Expiration Date**, the Cloudpath system defaults to a one-year expiration, but this value can be modified.





# API Examples

- Enrollment Queries and Actions..... 9
- Certificate Queries..... 10
- User Queries..... 12
- Device Queries..... 13
- Device Configuration Queries and Actions..... 15
- External Queries ..... 15
- External DPSK (eDPSK) Actions and Queries..... 22
- Modifying Settings in Cloudpath..... 33
- Troubleshooting..... 35

This section provides some common API queries for use with Cloudpath.

## Enrollment Queries and Actions

When specifying which enrollment should be queried or manipulated by a request, the enrollments can be specified in various formats, such as *Pk*, *Guid*, *MACAddress*, *Username*, *AssistanceId*, and *Email*. Many of the requests contain a section similar to *Username/bob*, meaning any environment where the *username* is *bob*.

### Retrieve Enrollment Data

Returns data for the specified enrollment.

#### Resource URIs

URI	Description
/admin/api/{API_KEY}/enrollment/{IDENTITY_TYPE}/{IDENTITY_VALUE}/get	Get enrollment data

#### Example

http://test.company.net/admin/api/zAdBCLcgrwca/enrollment/Username/bob/get

### Revoke/Unrevoke Enrollment

Revoke (or unrevoke) the specified enrollment.

#### Resource URIs

URI	Description
/admin/api/{API_KEY}/enrollment/{IDENTITY_TYPE}/{IDENTITY_VALUE}/revoke	Revoke enrollment
/admin/api/{API_KEY}/enrollment/{IDENTITY_TYPE}/{IDENTITY_VALUE}/unrevoke	Unrevoke enrollment

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/enrollment/Email/bob@company.net/voke>

<http://test.company.net/admin/api/zAdBCLcgrwca/enrollment/MACAddress/A1:B2:C3:D4:E5:F6/unvoke>

# Certificate Queries

When specifying which certificate should be queried or manipulated by a request, the certificates can be specified in various formats, such as *Pk*, *Cn*, and *Serial*.

## Generate Certificate

Generates a certificate based on the CSR provided. This query supports description (optional) and CUSTOM\_VARIABLES (any variable used in the certificate template).

### Resource URIs

URI	Description
/admin/api/{API_KEY}/certificate/generate	Generate Certificate

### GET/POST Parameters

**csr**

Required

*certificateTemplateName*

Required. Required. Name of certificate template in Cloudpath from which to issue.

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/generate?csr={CSR}&certificateTemplateName=TestCompanyTemplate>

## Generate a P12 Certificate

Generates a certificate in P12 format, without a CSR. This query supports description (optional) and CUSTOM\_VARIABLES (any variable used in the certificate template).

### Resource URIs

URI	Description
/admin/api/{API_KEY}/certificate/generateP12	Generate P12 certificate

### GET/POST Parameters

*certificateTemplateName*

Required. Required. Name of certificate template in Cloudpath from which to issue.

*password*

Required. Password to use to encrypt the P12. May be left blank if not encrypted.

*validForDaysOverride*

Optional. If provided, this overrides the certificate template's validity period.

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/generateP12?certificateTemplate=ServerTemplate&password=test>

## Revoke/Unrevoke Certificate

Revoke the specified certificate.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/certificate/{IDENTITY_TYPE}/{IDENTITY_VALUE}/revoke	Revoke certificate
/admin/api/{API_KEY}/certificate/{IDENTITY_TYPE}/{IDENTITY_VALUE}/unrevoke	Unrevoke certificate

### Usage Guidelines

**NOTE**

For external CAs, the CA must support unrevoke.

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/Pk/235/revoke>

Unrevoke the specified certificate

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/Cn/bob@company.net/unrevoke>

## Return Certificate Data

Returns data about the specified certificate.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/certificate/{IDENTITY_TYPE}/{IDENTITY_VALUE}/get	Get certificate data

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/Serial/d8a76ccc42e6f3c5048fee0aa7d6e411841db54b/get>

## Revoke Certificate by Certificate Serial Number

Revokes a certificate with a specified serial number.

### Resource URIs

URI	Description
/admin/api/{apiKey}/certificate/Serial/{serialNumber}/revoke	Revoke certificate by serial number

### GET/POST Parameters

*serialNumber*

Required. Serial number of the certificate.

*reason*

Optional. Description of why the certificate was revoked

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/certificate/Serial/00fde721f1bb5e45e3feb7b49e1e8728b561936b/revoke>

## User Queries

When specifying which user should be queried or manipulated by a request, the user can be specified in various formats, such as IdentityCN, IdentityDN, CertificateCN, CertificateSerial, and Email. Many of the requests contain a section similar to Email/bob@company.net, meaning any environment where the Email is bob@company.net.

## Blocking/Unblocking User

Blocks the specified user account, which includes revoking all associated certificates and MAC registrations, and prevents the user from enrolling again.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/user/{IDENTITY_TYPE}/{IDENTITY_VALUE}/block	Block user
/admin/api/{API_KEY}/user/{IDENTITY_TYPE}/{IDENTITY_VALUE}/unblock	Unblock user

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/user/IdentityCN/bob/block>

**Unblocks the specified user account:**

<http://test.company.net/admin/api/zAdBCLcgrwca/user/CertificateCN/bob/unblock>

## Revoke Enrollments

Revokes all enrollments for the user account, which includes revoking all associated certificates and MAC registrations. This does not block the user account, and allows the user to enroll again.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/user/{IDENTITY_TYPE}/{IDENTITY_VALUE}/revokeAll	Revoke all enrollments

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/user/Email/bob@company.net/revokeAll>

## Device Queries

When specifying which device should be queried or manipulated by a request, the devices can be specified by *MACAddress*. Many of the requests contain a section similar to *MACAddress/A1:B2:C3:D4:E5:F6*, meaning any environment where the device *MACAddress* is A1:B2:C3:D4:E5:F6.

## Block/Unblock Device

Blocks the specified device.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/device/{IDENTITY_TYPE}/{IDENTITY_VALUE}/block	Block the specified device
/admin/api/{API_KEY}/device/{IDENTITY_TYPE}/{IDENTITY_VALUE}/unblock	Unblock the specified device

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/device/MACAddress/A1:B2:C3:D4:E5:F6/block>

**Unblocks the specified device:**

<http://test.company.net/admin/api/zAdBCLcgrwca/device/MACAddress/A1:B2:C3:D4:E5:F6/unblock>

## Revoke Certificates

Revokes all certificate for the specified device.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/device/{IDENTITY_TYPE}/{IDENTITY_VALUE}/revokeAll	Revoke all certificate for a device

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/device/MACAddress/A1:B2:C3:D4:E5:F6/vokeAll>

## Register MAC address

Registers the MAC address for the specified device to a specified MAC Registration list.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/device/registerMac	Register MAC Address

### GET/POST Parameters

*macRegistrationName*

Required. The name of the MAC registration list.

*macAddress*

Required. The MAC address to register.

*username*

Optional. If specified, this value is saved as the associated username.

*email*

Optional. If specified, this value is saved as the associated email.

*deviceName*

Optional. If specified, this value is saved as the device name.

*location*

Optional. If specified, this value is saved as the location.

*expirationDate*

Optional. If specified, this value overrides the default expiration date.

### Usage Guidelines

#### NOTE

The expiration Date must be entered using the UNIX time format (yyyymmdd), regardless of the date format of the system.

## Examples

[http://test.company.net/admin/api/zAdBCLcgrwca/device/registerMac?  
macRegistrationName=MacRegList1&macAddress=A1:B2:C3:D4:E5:F6](http://test.company.net/admin/api/zAdBCLcgrwca/device/registerMac?macRegistrationName=MacRegList1&macAddress=A1:B2:C3:D4:E5:F6)

# Device Configuration Queries and Actions

## Generate Mobileconfig File

Generates a signed mobileconfig file containing a certificate and device configuration. This query supports the optional parameters for `validForDaysOverride` and `description`, and `CUSTOM_VARIABLES` (any variable used in the certificate template must also be provided as a parameter).

### Resource URIs

URI	Description
<code>/admin/api/{API_KEY}/deviceConfig/generateMobileconfig</code>	Generate Mobileconfig file

### GET/POST Parameters

*deviceConfigName*

Required. Name of the device configuration in Cloudpath from which to use.

*certificateTemplateName*

Required. Name of certificate template in Cloudpath from which to issue.

*validForDaysOverride*

Optional. If not zero, this overrides the expiration date specified in the certificate template.

### Examples

```
http://test.company.net/admin/api/zAdBCLcgrwca/deviceConfig/generateMobileconfig?  
deviceConfigName=SecureNetwork1&certificateTemplateName=CertTemplate1
```

## External Queries

Certain external queries (**checkCapability** and **authorizeDevice**) require the location URL name, which is specified in the URL Name field on the **Configuration > Workflows** Properties tab.

FIGURE 2 Location URL Name

The screenshot displays the 'Configuration > Workflows' page. At the top right is an 'Add Workflow' button. Below is a table with columns: Workflows, Status, Published URL, and Last Publish Time. The 'Production' workflow is listed with a 'Published' status and a URL of '/enroll/Anna44TestXPC/Production/'. Below the table are tabs for 'Properties', 'Enrollment Process', 'Look & Feel', 'Snapshot(s)', and 'Advanced'. The 'Properties' tab is active, showing 'Workflow Properties' and 'Enrollment Portal URL Options'. The 'Name' field is 'Production', and the 'URL Name' field is also 'Production'. There are 'Save' buttons in the top right of the properties section and at the bottom right of the page.

Workflows	Status	Published URL	Last Publish Time
Production	Published	/enroll/Anna44TestXPC/Production/	20170404 1035 MDT

**Workflow Properties**

Name:

Description:

**Enrollment Portal URL Options**

URL Name:

Enable DNS Shortcut:

Enforce Required Parameters:

The examples in this section use Production for the locationUrlName.



## Device Capabilities Query

Queries the capabilities of a device based on the user agent and device configuration. An HS2R1 or HS2R2 response value is returned only if the HS2R1/HS2R2 SSID Type has been set for the device configuration.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/{locationUrlName}/checkCapability	Queries device capability

### GET/POST Parameters

#### *userAgent*

Required. A string representing the user agent of a device.

#### *screenHeight*

Optional. Necessary to exclude iPhone 4s and iPad 2 and earlier devices from hotspot 2 support.

#### *screenWidth*

Optional. Necessary to exclude iPhone 4s and iPad 2 and earlier devices from hotspot 2 support.

### Examples

http://test.company.net/admin/api/zAdBCLcgrwca/external/Production/checkCapability?userAgent=Mozilla%2F5.0%20(iPad%3B%20CPU%20OS%208\_3%20like%20Mac%20OS%20X)%20AppleWebKit%2F537.51.1%20(KHTML%2C%20like%20Gecko)%20CriOS%2F30.0.1599.12%20Mobile%2F11A465%20Safari%2F8536.25%20

## Device Authorization

Authorizes a device using the customer account number and optional parameters

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/{locationUrlName}/authorizeDevice	Authorize a device

### GET/POST Parameters

#### *externalId*

Required. A string representing the customer account number. This can be up to 14 characters.

#### *macAddress*

Optional. The device MAC address, formatted as aa:bb:cc:dd:ee:ff.

#### *userAgent*

Optional. A string representing the user agent of a device.

#### *username*

Optional. Username of the device.

*screenHeight*

Optional. Necessary to exclude iPhone 4s and iPad 2 and earlier devices from hotspot 2 support.

*screenWidth*

Optional. Necessary to exclude iPhone 4s and iPad 2 and earlier devices from hotspot 2 support.

## Usage Guidelines

**NOTE**

The *userAgent* parameter is optional. However, if the user agent is not part of the enrollment record, other API calls may not return the correct OS family.

Optional parameters, if specified, are set in the device record.

## Examples

```
http://test.company.net/admin/api/zAdBCLcgrwca/external/Production/authorizeDevice?  
externalId=123456789012&macAddress=aa:bb:cc:dd:ee:ff&username=bob&userAgent=Mozilla%2F5.0%20(iPad%3B%20CPU%20OS  
%208_3%20like%20Mac%20OS%20X)%20AppleWeb%20Kit%2F537.51.1%20(KHTML%2C%20like%20Gecko)%20CriOS  
%2F30.0.1599.12%20Mobile%2F11A46%20Safari%2F8536.25%20
```

## Change MAC Address

Changes the MAC address for an enrollment record.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/changeMac	Change MAC address for enrolment record

### GET/POST Parameters

*externalId*

Required. A string representing the customer account number. This can be up to 14 characters

*oldMacAddress*

Required. The MAC address currently populated in the enrollment record, formatted as aa:bb:cc:dd:ee:ff.

*newMacAddress*

Required. The new MAC address to be set in the enrollment record, formatted as aa:bb:cc:dd:ff.

## Examples

```
http://test.company.net/admin/api/zAdBCLcgrwca/external/changeMac?  
externalId=123456789012&oldMacAddress=aa:bb:cc:dd:ee:ff&newMacAddress=11:22:33:44:55:66
```

## Get Device Information by Certificate Serial Number

Queries the customer account number and MAC address associated with a certificate serial number. The associated information is returned regardless of revocation status.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/getDeviceBySerialNumber	Get device information by serial number

### GET/POST Parameters

#### *certificateSerialNumber*

Required. The serial number of the client certificate to query, formatted 00fde721f1bb5e45e3feb7b49e1e8728b561936b. The serial number must be exactly 40 characters. If less than 40 characters, the value must be left-padded with zeros.

### Examples

`http://test.company.net/admin/api/zAdBCLcgrwca/external/getDeviceBySerialNumber?certificateSerialNumber=00fde721f1bb5e45e3feb7b49e1e8728b561936b`

## Get Devices Associated with a Customer Account Number

Returns all devices associated with a customer account number.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/getDevices	Get devices with customer account number

### GET/POST Parameters

#### *externalId*

Required. A string representing the customer account number. This can be up to 14 characters.

#### *includeRevoked*

Optional. If '1', the response includes revoked enrollments and certificates. If not specified or '0', revoked enrollments and certificates are excluded from the response.

### Usage Guidelines

#### **NOTE**

This call places a heavy load on the system.

### Examples

`http://test.company.net/admin/api/zAdBCLcgrwca/external/getDevices?externalId=123456789012`

## Get Device Information by MAC Address and Customer Account Number

Returns the data associated with a customer account number and specified MAC address.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/getDeviceByMacAddress	Get device information by MAC Address and customer account

### GET/POST Parameters

*externalId*

Required. A string representing the customer account number. This can be up to 14 characters.

*macAddress*

Required. The device MAC address, formatted as aa:bb:cc:dd:ee:ff.

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/external/getDeviceexternalId=CustomerA&macAddress=00:bb:cc:dd:ee:ff>

## Revoke Certificate by MAC Address and Customer Account Number

Revokes one or more certificates associated with a customer account number and specified MAC address.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/revokeByMacAndExternalId	Revoke certificate for customer account

### GET/POST Parameters

*externalId*

Required. A string representing the customer account number. This can be up to 14 characters.

*macAddress*

Required. The device MAC address, formatted as aa:bb:cc:dd:ee:ff.

**destroy**

Optional. If specified and set to '1', the enrollment record(s) are permanently deleted rather than revoked. This causes the enrollment record and all associated data (including certificates) to be permanently deleted. After deletion, the log will be the only record of the existence of the certificate. OCSP responses will be "not found".

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/external/revokeByMacAndExternalId?externalId=CustomerA&macAddress=00:bb:cc:dd:ee:ff>

## Clear Device Capability Cache (For Testing Only)

This method allows the cache to be flushed without restarting the server.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/clearCache	Clear the cache

### Usage Guidelines

#### NOTE

Caching occurs by a combination of the user agent and location. The only time the cache should need to be cleared is if the location's device configuration is changed.

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/external/clearCache>

## Destroy Enrollment Records by Customer Account Number (For Testing Only)

Allows a call to destroy all elements for a specified customer account number.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/destroyByExternalIdForTestingOnly	Clear customer record

### GET/POST Parameters

#### *externalId*

Required. The customer account number for which all enrollments will be destroyed. If the externalId is blank, this call is ignored by the system.

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/external/destroyByExternalIdForTestingOnly?externalId=CustomerA>

## API Examples

### External DPSK (eDPSK) Actions and Queries

## Destroy Enrollment Records by GUID

This method allows a caller to destroy all data related to an enrollment based on the enrollment's GUID. This causes the enrollment record and all associated data (including certificates) to be permanently deleted.

### Resource URIs

URI	Description
/admin/api/{apiKey}/external/destroyByEnrollmentGuid	Destroy enrollment data

### GET/POST Parameters

*guid*

Required. The GUID for the enrollment to be destroyed.

### Usage Guidelines

#### NOTE

After deletion, the log will contain the only record of the existence of the certificate in the system. OCSF responses will be "not found".

The system logs a message (at INFO level) containing the enrollment GUID, MAC address, external ID, certificate PK, certificate serial number, certificate thumbprint, certificate expiration date, MAC registration PK, and the MAC registration expiration date. If permanent storage is desired, use the syslog.

### Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/external/destroyByEnrollmentGuid?guid=xyz>

## External DPSK (eDPSK) Actions and Queries

There are a number of APIs you can use to create eDPSK pools, create pre-shared keys within those pools, lookup pair-master keys in pools, and other actions.

## Create eDPSK Pool

Creates an eDPSK pool from which DSPKs can be generated for devices connecting to external DSPK WLANs. These pools can also be used in an eDPSK enrollment workflow.

### Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/create?	Creates an eDPSK pool.

## GET/POST Parameters

### NOTE

For any parameters that are not specified in the API call, the default values for these parameters will be used.

#### *name*

Required. This value will be set as the name of the eDPSK pool.

#### *description*

Optional. If specified, this value will be set as the description of the eDPSK pool.

#### *enabled*

Optional. The value is true, by default, which means that the eDPSK pool is available for use.

#### *defaultLength*

Optional. If specified, this is the default number of characters of a new passphrase in the eDPSK pool. If not specified, this value will be the default of 12.

#### *randomCharactersType*

Characters to allow in the DPSK can be one of the following (if not specified, the default value of alphabetic (lowercase) is used).

- ALPHANUMERIC\_UPPER
- ALPHANUMERIC\_LOWER
- ALPHANUMERIC\_MIXED
- ALPHABETIC\_UPPER
- ALPHABETIC\_LOWER
- ALPHABETIC\_MIXED
- NUMERIC
- ASCII

#### *ssids*

A required semi-colon separated list of SSID(s) that this pool will be utilized on. These are literal SSID names; no wildcards or regexes are allowed.

#### *enforceExpirationDate*

Boolean value. If *true*, newly generated DPSKs are assigned an expiration date that is based on the creation date and the defined offset. The default value is *false*.

#### *expirationDateType*

If you set the value of **enforceExpirationDate** to *true*, you can specify the **expirationDateType** to be any of the following:

- SPECIFIED\_DATE (in the format of: yyyyymmdd)
- MINUTES\_AFTER\_TIME
- HOURS\_AFTER\_TIME
- DAYS\_AFTER\_TIME
- WEEKS\_AFTER\_TIME
- MONTHS\_AFTER\_TIME
- QUARTERS\_AFTER\_TIME
- YEARS\_AFTER\_TIME
- END\_OF\_HOUR
- END\_OF\_DAY

## API Examples

### External DPSK (eDPSK) Actions and Queries

- END\_OF\_WEEK
- END\_OF\_MONTH
- END\_OF\_QUARTER
- END\_OF\_HALF
- END\_OF\_YEAR

The default is END\_OF\_MONTH. The time periods are all relative to the time the DPSK gets issued (regardless of when it is first used).

#### *expirationDateValue*

If you are using one of the "...AFTER\_TIME" parameters for **expirationDateType**, you can specify a corresponding value. The default is 1.

#### *enforceDeviceCountLimit*

Boolean value. If *true* (default is *false*), each DPSK is assigned a maximum device count as specified in the `deviceCountLimit` parameter. If *false*, an unlimited number of devices can utilize the DPSK.

#### *deviceCountLimit*

If you set the **enforceDeviceCountLimit** parameter to *true*, you can specify the number of devices that are allowed to utilize the DPSK you are creating. The default is 1.

#### *vlanid*

This is optional. If not specified, the device receives the default vlan configured on the controller.

#### *classid*

This is optional. If not specified, the device is not assigned a class id.

#### *filterid*

This is optional. If not specified, the device is not assigned a filter id..

#### *sessionTimeout*

The reauthentication period, in seconds, included in the RADIUS reply for successful authentications. If the device stays connected for longer than this period, the WLAN or switch will require that the device (invisibly to the user) be reauthenticated. If not specified, `sessionTimeout` is not applied, which means that the device is not required to reauthenticate as long as it remains associated.

## Examples

The following example shows an HTTPS GET request to create an eDPSK pool in the Cloudpath system `ray198.cloudpath.net`:

```
https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/create?
name=Ray10&description=Ray14&enabled=true&defaultLength=48&randomCharactersType=ALPHANUMERIC_MIXED&ssids=ssi
dl;ssid2&enforceExpirationDate=true&expirationDateType=END_OF_HALF&expirationDateValue=7&enforceDeviceCountL
imit=true&deviceCountLimit=9&vlanId=100&classId=myClassid&filterId=myFilterId&sessionTimeout=88
```

## Response Body

```
{
  "successful": true,
  "dpskPoolPk": 78,
  "dpskPoolName": "Ray10",
  "dpskPoolGuid": "AccountDpskPool-B4270DFC-D029-420B-93BD-7826F626A973",
  "millis": 59
}
```



## Create PSK Within an eDPSK Pool

Creates pre-shared keys within an existing eDPSK pool for devices connecting to external DPSK WLANs.

### Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/\$dpskPoolGuid/create?	Creates a PSK within the specified pool. The \$dpskPoolGuid value comes from the response of a Create eDPSK Pool request.

### Parameters

#### *dpsk*

Optional. If specified, this is the dpsk/passphrase that will be utilized for this new DPSK record. If not specified, the dpsk/passphrase is automatically generated using the parameters specified in the pool (default length, character types).

#### *externalName*

The reference name of the item. This is only visible to administrators.

#### *externalId*

External name of the DPSK.

#### *ssids*

If specified, this further restricts the SSIDs on which the DPSK can be used. This value must be a subset of the eDPSK Pool's SSIDs. If not specified, the DPSK can be used on any SSID contained in the eDPSK pool's "ssids" field.

#### *expirationDate*

The DPSK (and the devices registered to it) will no longer be usable after the date specified. Use the following format to specify date: yyyyMMdd

#### *expirationDateTime*

The DPSK (and the devices registered to it) will no longer be usable after the date and time specified. Use the following format to specify date and time: yyyyMMdd HHmmss

#### **NOTE**

Both *expirationDate* and *expirationDateTime* are optional, though it is recommended to use one of these two parameters. If both are specified, only the value of *expirationDateTime* is used.

#### *deviceCountLimit*

If specified, this DPSK will have its own device count limit enforced independent of the eDPSK pool.

#### *vlanId*

If specified, this VLAN ID will override the VLAN ID specified within the DPSK pool.

## API Examples

### External DPSK (eDPSK) Actions and Queries

## Examples

The following example creates a PSK within the eDPSK pool whose GUID is AccountDpskPool-B00FD092-6D64-41A9-B1E4-10B88E4A3E14, and uses all available parameters:

### URI

```
https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/AccountDpskPool-B00FD092-6D64-41A9-B1E4-10B88E4A3E14/create?
dpsk=01234567890abcdef0123456789abcd04&externalName=ray10dpsk4&externalId=ray104&
ssids=MySsid;MyOtherSsid&expirationDate=01/01/2019&deviceCountLimit=10&vlanId=20
```

### Response Body

```
{
  "successful": true,
  "dpsk": "01234567890abcdef0123456789abcd03",
  "dpskPoolGuid": "AccountDpskPool-B00FD092-6D64-41A9-B1E4-10B88E4A3E14",
  "dpskPk": 125163,
  "dpskName": "ray10dpsk4",
  "dpskGuid": "AccountDpsk-8A838791-1E51-4102-8542-7234461417FE",
  "expirationDateEpoch": 1546326000000,
  "expirationDate": "20190101 0000 MST",
  "millis": 14
}
```

## History

Release version	History
Release 5.4	This API call was introduced.

## Get all available eDPSK pools

Gets all available eDPSK pools and their associated GUIDs in the Cloudpath enrollment system.

### Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/getAll?	Gets the GUIDs of all the eDPSK pools.

### Examples

The following example gets all the configured eDPSK pools and their GUIDs in the Cloudpath system ray198.cloudpath.net.

#### URI

https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/getAll?

#### Response Body

```
{
  "millis": 12,
  "pools": [
    {
      "pk": 65,
      "guid": "AccountDpskPool-02A25203-3D89-4ACD-937A-E333B4C1BD4F",
      "name": "Ray2"
    },
    {
      "pk": 64,
      "guid": "AccountDpskPool-077552EE-22A5-4157-AB8B-7C12A53A706E",
      "name": "Ray1"
    },
    {
      "pk": 61,
      "guid": "AccountDpskPool-37BF3DD3-2C33-4376-B1D3-8DC4FFCDE631",
      "name": "ApiDpskPool - 1545162242332"
    }
  ]
}
```

### History

Release version	History
5.4	This API call was introduced.

## API Examples

External DPSK (eDPSK) Actions and Queries

# Lookup a PMK Without Specifying the eDPSK Pool

Looks up the pairwise master key.

## Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/lookup?	Performs a PMK lookup without a specific pool to search.

## Parameters

*ssid*

Name of the SSID

*anonce*

ANonce value in the four-way Handshake process.

*bssid*

MAC Address of the access point

*clientMacAddress*

MAC address of the client

*eapolKeyFrame*

EAPOL Key Frame value

*timeoutMillis*

The lookup timeout value in milliseconds

*includeTraceLog*

This optional parameter can have a value of either 0 or 1. If the value is 1, the trace log for that request will be included in the response.

### NOTE

This has significant impact on the performance of the system, and should only be used for troubleshooting.

## Examples

The following example performs a PMK lookup, using many of the available parameters:

### URI

```
https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/lookup?
ssid=mySsid&nonce=EE71DC737D5C89BFC861EEBDB9C30071B0EDFD20D2269A473719ACAAFB928622&bssid=248762F700A8&clientM
acAddress=3B04958BE31C&eapolKeyFrame=A4CB50236C02EA8FD0E89D4D2C1AA9F23853846F1DDB0629AB72F404FBD8B2E3855EF75B
4D780D262733B0B6393EDB281C5675AD5231F8E8059346462474E22FC98EB301475F7B0BC80BE5498677C9367CD413726498F23AAC76
54328743ABCF59C8408896CCBA6B9D5A93FE783A6767FBC4AFD15053D987A0&timeoutMillis=180000&
```

### Response Body

```
{
  "millis": 37,
  "accountName": "RayTest",
  "accountGuid": "Account-32E21B85-5D6F-4BEA-846C-F423C3980B76",
  "lookupInCache3Millis": 1,
  "lookupInDatabaseMillis": 15,
  "linearSearchForPmkMillis": 0,
  "countOfAllPotentialPmksForLinearSearch": 0,
  "countOfSleepsForMissingPmks": 0,
  "countOfIncorrectPmkForLinearSearch": 0,
  "millisInQueue": 0,
  "lookupInCache1Millis": 0,
  "lookupInCache2Millis": 2,
  "pmk": "0xB421CAF6741A898AACDECA27D72CFC0B751982F109BB36E973FA8AF46AF427B0",
  "successful": true,
  "completionPoint": "FOUND_BOUND_ENTRY_IN_DATABASE",
  "countOfPmksCheckedDuringLinearSearch": 0,
  "countOfMissingPmkForLinearSearch": 0,
  "dpskPoolName": "ApiDpskPool - 1545259174052",
  "dpskPoolGuid": "AccountDpskPool-CDCE1FB8-81F2-495D-9523-33E90BECF734",
  "dpskName": "My External Name",
  "dpskGuid": "AccountDpsk-4EFF1B67-595F-4D61-BC9A-B195F22D2C13",
  "dpskExternalId": "My External Id",
  "attributeAssignments": {}
}
```

## History

Release version	History
5.4	This API call was introduced.

## API Examples

External DPSK (eDPSK) Actions and Queries

# Lookup a PMK in a specific eDPSK pool

Looks up the pairwise master key in a specific eDPSK pool.

## Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/\$dpskPoolGuid/lookup?	Performs a PMK lookup in the pool specified by its GUID in \$dpskPoolGuid. This GUID can be obtained in the response from the Create eDPSK Pool call.

## Parameters

*ssid*

Name of the SSID

*anonce*

ANonce value in the four-way Handshake process.

*bssid*

MAC Address of the access point

*clientMacAddress*

MAC address of the client

*eapolKeyFrame*

EAPOL Key Frame value

*timeoutMillis*

The lookup timeout value in milliseconds

## Examples

The following example looks up the PMK in the eDPSK pool whose GUID is AccountDpskPool-CDCE1FB8-81F2-495D-9523-33E90BECF734, and uses all possible parameters in the call:

### URI

```
https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/AccountDpskPool-CDCE1FB8-81F2-495D-9523-33E90BECF734/lookup?ssid=mySsid&nonce=EE71DC737D5C89BFC861EEBDB9C30071B0EDFD20D2269A473719ACAAFB928622&bssid=248762F700A8&clientMacAddress=3B04958BE31C&eapolKeyFrame=A4CB50236C02EA8FD0E89D4D2C1AA9F23853846F1DDB0629AB72F404FBD8B2E3855EF75B4D780D262733B0B6393EDB281C5675AD5231F8E8059346462474E22FC98EB301475F7B0BC80BE5498677C9367CD413726498F23AAC7654328743ABCF59C8408896CCBA6B9D5A93FE783A6767FBC4AFD15053D987A0&timeoutMillis=180000&
```

### Response Body

```
{
  "millis": 0,
  "accountName": "RayTest",
  "accountGuid": "Account-32E21B85-5D6F-4BEA-846C-F423C3980B76",
  "lookupInCache3Millis": 0,
  "lookupInDatabaseMillis": 0,
  "linearSearchForPmkMillis": 0,
  "countOfAllPotentialPmksForLinearSearch": 0,
  "countOfSleepsForMissingPmks": 0,
  "countOfIncorrectPmkForLinearSearch": 0,
  "millisInQueue": 0,
  "lookupInCache1Millis": 0,
  "lookupInCache2Millis": 0,
  "pmk": "0xB421CAF6741A898AACDECA27D72CFC0B751982F109BB36E973FA8AF46AF427B0",
  "successful": true,
  "completionPoint": "FOUND_PMK_IN_CACHE",
  "countOfPmksCheckedDuringLinearSearch": 0,
  "countOfMissingPmkForLinearSearch": 0,
  "dpskPoolName": "ApiDpskPool - 1545259174052",
  "dpskPoolGuid": "AccountDpskPool-CDCE1FB8-81F2-495D-9523-33E90BECF734",
  "dpskName": "My External Name",
  "dpskGuid": "AccountDpsk-4EFF1B67-595F-4D61-BC9A-B195F22D2C13",
  "dpskExternalId": "My External Id",
  "attributeAssignments": {}
}
```

## History

Release version	History
5.4	This API call was introduced.

## Delete a Specific DPSK Pool

Deletes an eDPSK pool specified by its GUID.

### Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/\$dpskPoolGuid/destroy	Deletes the pool whose value is provided in \$dpskPoolGuid. The GUID can be obtained from the response in the Create eDPSK Pool call.

### Examples

The following example deletes the eDPSK pool whose GUID is AccountDpskPool-02A25203-3D89-4ACD-937A-E333B4C1BD4F. The DSPKs belonging to the pool are also deleted from the system.

#### URI

<https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/AccountDpskPool-02A25203-3D89-4ACD-937A-E333B4C1BD4F/destroy>

#### Response Body

```
{
  "millis": 29,
  "successful": true
}
```

### History

Release version	History
5.4	This API call was introduced.



## Flush eDSPK Lookups from Cache

Flushes all of the previously successful DSPK lookups from the cache table.

### Resource URIs

URI	Description
/admin/api/\$EDPSK_API_KEY/dpsk/flushcache	Flushes all of the previously successful DSPK lookups from the cache table of the Cloudpath system.

### Examples

The following example flushes all of the previously successful DSPK lookups from the cache table of the Cloudpath system ray198.cloudpath.net.

#### URI

https://ray198.cloudpath.net/admin/api/EDPSKAPI/dpsk/flushcache

#### Response Body

```
{
  "millis": 14619,
  "successful": true
}
```

### History

Release version	History
5.4	This API call was introduced.

## Modifying Settings in Cloudpath

Settings can be manipulated using APIs. When specifying which setting should be manipulated by a request, specify the OBJECT\_GUID for passphrase information, and the desired parameter for voucher information. See the appropriate Parameters section for details.

### Return Passphrase Information

Returns information about the specified shared passphrase.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/object/ss/{OBJECT_GUID}/get	Get passphrase information

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/object/ss/SharedSecretPrompt-FC1C020C-6A62-4581-B661-18ED883831C2/get>

## Return Passphrase String

Returns only the shared passphrase string for a shared passphrase.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/object/ss/{OBJECT_GUID}/get/ss	Get shared passphrase string

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/object/ss/SharedSecretPrompt-FC1C020C-6A62-4581-B661-18ED883831C2/get/ss>

## Change Passphrase

Changes the shared passphrase.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/object/ss/{OBJECT_GUID}/change	Change passphrase

### GET/POST Parameters

*newSs*

Optional. If specified, this value is used as the new shared passphrase. If not specified, a random shared passphrase is generated

*length*

Optional. If a random shared passphrase is generated, this will be the length of it.

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/object/ss/SharedSecretPrompt-FC1C020C-6A62-4581-B661-18ED883831C2/change?newSs=brandnewpassphrase>

## Create Voucher Object

Sets a value in the voucher.

### Resource URIs

URI	Description
/admin/api/{API_KEY}/object/otp/{OBJECT_GUID}/create	Create a voucher

## GET/POST Parameters

<i>name</i>	Optional. If specified, this value will be set as the name in the voucher.
<i>company</i>	Optional. If specified, this value will be set as the company in the voucher.
<i>email</i>	Optional. If specified, this value will be set as the email in the voucher.
<i>sponsor</i>	Optional. If specified, this value will be set as the sponsor in the voucher.
<i>accessDays</i>	Optional. If specified, this value will be set as the number of days of access in the voucher.
<i>sms</i>	Optional. If specified, this value will be set as the SMS in the voucher.
<i>otp</i>	Optional. If specified, this value will be set as the voucher in the voucher. If not specified, a random voucher will be generated.
<i>sendEmail</i>	Optional. Defaults to 1. If 1, the user will be emailed the voucher code (if an email is populated).
<i>sendSms</i>	Optional. Defaults to 1. If 1, the user will be sent the voucher code (if an SMS is populated) via SMS.
<i>daysToRedeem</i>	Optional. Defaults to 3. If specified, this is the number of days within which the voucher must be redeemed.

## Examples

<http://test.company.net/admin/api/zAdBCLcgrwca/object/otp/xyz/create?name=bob&email=bob@test.com&sendEmail=1>

# Troubleshooting

To assist with troubleshooting, append the following to the API query.

- Append `?debug=true` for diagnostics.
- Append `?format=xml` for XML formatted response on GETs.

**TABLE 1** Common API Error Messages

Error Code	Error Message
204	No records found matching parameters.
400	Invalid parameter or value.
401	Unauthorized.
500	Internal Server Error.



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