Sine Pro

aruba
a Hewlett Packard
Enterprise company

ClearPass
Change Log

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Modified By</th>
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<td>2018-01</td>
<td>Aug-2018</td>
<td>Arpit Bhatt</td>
<td>Initial release</td>
</tr>
<tr>
<td>2019-01</td>
<td>July-2019</td>
<td>Arpit Bhatt</td>
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Introduction

This guide covers the setup, configuration, and monitoring of the ClearPass extension for Sine Pro and the configuration of a webhook in Sine Pro for the Integration.

Sine Pro is an easy to use cloud-based visitor management platform. When visitors arrive, Sine makes it easy for them to Check-In and Check-Out, presents them with relevant forms where they can provide their information, sign documents (NDAs) and it optionally notifies the person they are visiting of their arrival.

ClearPass is an industry leading Guest Management solution that delivers secure, automated guest access workflows. It’s very useful for an enterprise to combine these two applications to get a seamless visitor management system that automates visitor’s Wi-Fi requirements.

This Extension serves two primary use-cases

1. Guest account creation upon Visitor Check In
2. Guest account deletion upon Visitor Check Out

With Sine hosted in the cloud and ClearPass sitting primarily on-prem, there are challenges in making these two applications communicate in real time so that a visitor gets guest WiFi credentials from ClearPass as soon as he registers using Sine application. Traditionally the apps would communicate using APIs where an application would request information which is usually followed by a response. Hence in order to get real-time information you have to poll or request as often as possible which is not scalable. The answer or the solution is a webhook which does not wait for a request to send information but sends the data as soon as it’s available.

Before we proceed with the flow, we need to understand the concept of webhooks and skyhook.

What is a webhook?

A webhook (also called a web callback or HTTP push API) is a way for an app to provide other applications with real-time information. A webhook delivers data to other applications as it happens, meaning you get data immediately.

What is skyhook?

Skyhook was developed to overcome the inability for Cloud based applications to send events [webhooks] directly into a ClearPass that was typically deployed on the Trust side of a corporate firewall. In short, it is a service that runs in AWS. ClearPass nodes running on-prem, use extensions to open a persistent connection into Skyhook to receive the events originally sent from a 3rd party cloud application specific for that customer/tenant.

As an overview, Sine Pro running in the cloud will send a webhook upon a Visitor check-in (signin_after) or a check-out (signout_after) event. This will communicate with Skyhook. The ClearPass extension configured and installed will maintain a persistent connection with Skyhook awaiting an event (Check In/ Check Out).
Software Requirements

The minimum software version required for ClearPass is 6.7.2. At the time of writing, version 6.7.5 is available and is the recommended release. The TechNote covers installation steps and screenshots from a ClearPass server running 6.7.5. ClearPass runs on hardware appliances with pre-installed software or as a Virtual Machine under the following hypervisors. Hypervisors that run on a client computer such as VMware Player are not supported.

- VMware ESXi 5.5, 6.0, 6.5 or higher
- Microsoft Hyper-V Server 2012 R2 or 2016 R2
- Hyper-V on Microsoft Windows Server 2012 R2 or 2016 R2

Access to the Extension Store

Access to the Extension Store to download extensions is simplified in ClearPass 6.7. The ability to download extensions from the store and to validate support entitlement for access to the Software Updates Portal (e.g. Posture & Profile Data Updates, Software Updates, & Skins) now uses the HPE Passport account credentials that are associated with the customers’ ClearPass licenses. This is configured where previously the subscription-id was defined, under Administration -> Agents and Software Updates -> Software Updates as shown below. Ensure you enter your HPE Passport credentials to enable Extension download capabilities.

![Figure 1: Entering HP Passport credentials](image)

Installation and Deployment Guide

The ClearPass installation and deployment guide is located here:

Pictorial View of the Integration

The diagram below shows a pictorial overview of the components and how they interact with each other.

**Figure 2: Pictorial view of ClearPass Policy Manager integration with Sine Pro**

1. **Guest registers via the Sine Visitor iPad at Reception**
2. **Check-in recorded in Sine**
3. **Skyhook**
4. **Host is notified by SMS, email and/or push notification**
5. **Guest receives Email + SMS with WiFi details and credentials**

Guest Account generated from Sine provided details

---

ClearPass and Sine Pro - Integration Guide
New Extension Support in ClearPass 6.7+

With the release of 6.7, several new features have been added to enhance the functionality of the extension framework. Previously, all extension installation and operation tasks required use of the API Explorer to interoperate with the Extension and the underlying framework. Now this functionality has been exposed with a new GUI. The GUI is accessed from within the Guest UI and is shown below, Administration -> Extensions.

Extensions and IP address configuration support

The other major additions in the 6.7 release are the ability to define the extension framework base IP network and statically define the IP address of the individual extensions. The latter being useful when deploying extensions in a cluster and the requirement for a fixed IP address for the same extension across a cluster regardless of which ClearPass node or nodes it is installed on.

Extensions and web proxy support

Prior to 6.7 support for web proxy was limited to the installation of the extensions. Starting in ClearPass 6.7, extensions now support communications with 3rd parties via a web proxy. This adds incremental web proxy functionality. If a web proxy is defined in ClearPass Policy Manager, then an extension will use that configuration.

Note that the Policy Manager web proxy configuration is ONLY read by the extension at installation time. If the web proxy configuration is changed in Policy Manager, then the extension must be re-installed so the new settings are re-read and bonded to the extension.

Figure 3: Extension Framework GUI
Configuring the base Extension IP subnet, this is defined within Policy Manager as shown below under Administration -> Server Manager -> Server Configuration [chose your node] Service Parameters [ClearPass system service]. The default is 172.17.0.1/16, this address is the non-routed address of the ClearPass node itself. The IP addresses range for the extensions are based upon the network prefix used.

Note that the subnet defined here for the extension framework must be one of the following 10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16.

**Figure 4: Defining the base IP SUBNET and LOCALHOST for the Extensions Framework**

Note that changing the extension base IP address will require the extension service to be restarted.

Changing the “Extensions Network Address” range is necessary if either the MGMT or DATA interface are also using an address in the extension default range of 172.17.x.x/12. Set the new network address range as needed and restart the extension service for this to take effect.
Configuration Steps

There are primarily 3 steps involved in getting this integration configured.

1. Register and request for a Skyhook tenant
2. Configuration of Sine Pro for Integration

It is assumed you have SMTP and SMS configured to allow ClearPass Guest to send visitor account details to the Visitor/Guest.

Step I: Register and Request for a Skyhook Tenant ID

- Register on the URL [https://peoplemove.typeform.com/to/Z80ezD](https://peoplemove.typeform.com/to/Z80ezD)

  Follow the instructions on the form to request for the Skyhook tenant ID. This ID is unique per customer.

- Read the instructions carefully and ensure you use your company email address only.

Figure 5: Skyhook tenant registration email ID
• Select SinePoint Pro for our integration

**Figure 6: Skyhook tenant registration application to integrate**

- Choose a Unique Company Identifier for your skyhook app. Kindly read the instructions carefully and avoid spaces or special characters

**Figure 7: Skyhook tenant registration company identifier**

• Accept Terms and Conditions and Submit the request.
Following is a sample response with the desired details

**Figure 8: Sample email response upon registration**

Re: Typeform: New response for Skyhook API Registration

Tuesday, August 14, 2018 at 2:14 AM
To: Bhatt, Arpit
Cc: Escalante, Cameron; Lechner, Bryan

You replied to this message on 8/14/18, 2:16 AM.

Thanks for your interest in our integration between SinePoint Pro and ClearPass. Please find below your registered tenant details for our Skyhook platform which will enable your ClearPass deployment to receive real-time sign-in events from the Sine cloud platform.

A new set of documentation for this integration is under development and we will be sure to share it with you once complete. In the meantime, please don't hesitate to contact me if you have any questions, at this time we are recommending a minimum version of ClearPass Policy Manager 6.7.2.

```
"skyhookTenant": "f7d4ed71-e681-d186-8abaf185196",
"dbAccessToken": "eyI0eXAIQjkwV1QILCJhVGoiQJUj1NIj9.eyIjEHAiC
xDWZN______________________ifgE"
```

The extension id required to download the latest build of the Sine integration is as follows:

```
"store_id": "3b4d6e73-49b8-4152-8d2d-68e5c3d90c91"
```

Alternately, if you are running 6.7.2 as recommended, you can search the Extension Store by name.

Regards

-DANNY JUMP, PRODUCT MANAGER – CLEARPASS
Step II: Configuring Sine Pro for ClearPass Integration

Setup and Configuration of Sine Pro is beyond the scope of this guide. Here we specify the steps necessary to configure the integration. The “Email Required” field must be enabled in Sine Pro. This can be accessed from Passes > Check-In Requirements under Settings for individual sites. This email field is mapped to the Guest account username created in ClearPass.

Below are the configuration steps to follow:

- Login to Sine Pro using your credentials on [https://dashboard.sine.co](https://dashboard.sine.co)
  Click on Sites. Select a Site and go to Settings. Navigate to Integrations and add (+) a WebHook.

**Figure 9: Webhook Integrations in Sine Pro**

The screen capture above covers the configuration required in the Sine Pro environment. Following are the values required for the configuration.

1. **URL:** This is the Skyhook Posting URL. The SkyHook Tenant is obtained from the sample email as shown in previous step. Replace the `<SKYHOOK TENANT>` below to create the URL.

   https://skyhook.clearpassbeta.com/api/skyhook/sine/<SKYHOOK TENANT>

2. **API Key:** This is a shared key for communication between ClearPass and Sine.

We recommend using a GUID value or a large random value as the key. You can generate a GUID value here: [https://www.guidgenerator.com/](https://www.guidgenerator.com/) OR a random value here: [https://www.random.org/bytes/](https://www.random.org/bytes/)
3. External ID: This can be left blank as it is not used currently. It will automatically pick the default value.

4. Visitor Types: You could choose these based on your requirement however, in current versions of ClearPass all Visitor Types will be mapped to a Guest role on ClearPass by default.

5. Events: Do not enable “Check-in Request” or “Check-in Approval Pending”. “Check-in Success” is a mandatory event that has to be selected. It is strongly recommended to select both the events “Check-in Success” and “Check-out Success” to complete the guest sign in workflow.

6. Status: Ensure the status is enabled.

**Step III: Sine Pro Extension Installation and Configuration**

Starting in ClearPass 6.7, a Graphical User Interface (GUI) was introduced to make the process of interacting with the extension framework easier. To access the extension GUI, from the Guest System, under Administration find the Extension User Interface as shown below.

*Figure 10: Extensions Framework GUI*

From here, click on ‘Install Extension’, and the search box below appears. Enter the keyword “Sine” and click on ‘Search’.

*Figure 11: GUI Extension Installation*
Starting 6.7, in a cluster environment an extension can be installed on the subscriber nodes directly. Do not install the older version (0.3). It will soon be deprecated. Ensure you select version 2.0 as shown below.

**Figure 12: GUI Extension Search**

![GUI Extension Search](image)

Click on the extension and then the "Install" option, and if necessary, set the IP address. It will automatically pick an IP address if not assigned. Also, it can be set later if required.

**Figure 13: GUI Extension Configuration at Install time**

![GUI Extension Configuration at Install time](image)
After the extension has been installed, review the extension configuration as necessary and adjust as needed. Notice the options to Start, Delete, Reinstall or Show Logs and the option to review and set the extension configuration.

The default configuration used for extension is below

```
{   "skyhookTenant": "27f80f8a8ea8974d9c7ca43e69xxxxb5xxxx85910",   "dbAccessToken": "********",   "sineApiKey": "********",   "cppmDefaultExpiryHrs": 8,   "cppmGuestRoleName": "[Guest]",   "cppmGuestRoleId": 2,   "cppmGuestSmsReceipt": true,   "cppmGuestEmailReceipt": true,   "dbLogging": false,   "logLevel": "INFO"
}
```

A copy of the Sine Pro Extension with the desired configuration is shown below, this will need to be modified for your deployment. Include the `skyhookTenant`, `dbAccessToken` and `sineApiKey` that will be specific to your environment. Change any other default values if necessary. Select ‘Restart’ and click on Save Changes to restart the extension.

**Figure 14: GUI Review and Setting the Extension configuration**

The table on the next page explains each option with the values and examples required for configuration.
### Configuration attribute | Description | Example/Values
--- | --- | ---
skyhookTenant | The Skyhook tenant ID received in the registration email. | 27f80f8aaaeea8974d9c7ca43e69xxxxb5xxxx85910

dbAccessToken | The access token for Skyhook received in the registration email. | Long Random string like 7INXYr1Yuxxxxxv...

sineApiKey | The API key configured in the sine integrations configuration. | 4a348197-cc57-4cf7-a339-5a4c3f76b2b0

cppmDefaultExpiryHrs | The default number of hours for an account to be active. | 8

cppmGuestRoleName | The role name to be used in ClearPass Guest when creating the account. This value should match with the cppmGuestRoleId attribute. | [Guest], [Contractor], [Employee], Custom Role

cppmGuestRoleId | This value sets the role id to use when creating guest accounts | 1 - [Guest], 2 - [Contractor], 3 - [Employee], 4 - Custom Role

cppmGuestSmsReceipt | Sets the value of auto_send_sms for ClearPass to send the Guest credentials receipt via SMS | true/false

cppmGuestEmailReceipt | Sets the value of auto_send_smtp for ClearPass to send the Guest credentials receipt via SMTP | true/false

dbLogging | Enables advanced logging of skyhook db connection | true/false

logLevel | Logging level for troubleshooting | "DEBUG", "INFO", "WARN", "ERROR"
After the configuration and the restart of the extension, click on Show Logs. You should see the following.

**Figure 16: Log Validation**

![Log Validation](image)

The above log shows the **License Agreement** and also states that the extension is now ready to process events for Sine Pro.

You can change the logLevel to DEBUG under configuration for detailed logs. These are very useful for troubleshooting and should be included before raising a support case if necessary.
Migration Steps from Sine Pro v1 to Sine Pro v2

Sine Pro v1 was available as a ClearPass extension prior to writing this guide. Customers who already have v1 installed are recommended to move to v2 for performance enhancements.

Note the Sine Pro v1 is denoted as version 0.3 in ClearPass Extension UI.

Following are the migration steps.

1. Request for a new SkyHook Tenant ID for Sine Pro v2 integration. The steps for the same are specified in the section “Step I: Register and Request for a Skyhook Tenant ID”.

2. Disable the WebHook created for v1 Integration. Do not delete this. The idea is to keep the v1 integration in a disabled state so that we can move back to v1, if the v2 migration fails.

   You can also rename this to WebHook-v1 or WebHook-OLD to avoid confusion.

   **Figure 17: Disable WebHook**

3. The next step is to create another WebHook for v2 integration. Follow the steps in the section “Step II: Configuring Sine Pro for ClearPass Integration”.
4. Stop the Sine Pro v0.3 extension installed on your ClearPass server. Navigate to ClearPass Guest and go to \textit{Administration > Extensions}. Click on the Sine Extension to \textbf{Stop} it as shown below.

\textbf{Figure 18: Stop extension}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{sine-extension-stop.png}
\caption{Stop extension}
\end{figure}

5. Follow the section \textit{“Step III: Sine Pro Extension Installation and Configuration”} to install the new Sine Pro v2 extension.

6. Test the functionality for few days to ensure it works. If yes, the old extension and the WebHook can be deleted. If no, they can be re-enabled to ensure no service interruption. Contact Aruba support for any further assistance with troubleshooting.
Testing/Demo

Now that the components are all configured and ready to use, let’s walk through the experience from the user and administrator perspective. In order to do so, the first step for a visitor is to register using the Sine Pro app running on an iPad at a reception in the customer setup.

Configuring an iPad or any other device to assist customers with registration at front desk is beyond the scope of this document. Essentially, you download the SinePoint Pro app from the appstore and use the registered account to login with this device to your Sine Pro tenant. Detailed steps are available on Sine’s website here

https://www.sine.co/sinepointsetup/

I. Visitor walks up to a tablet used for Registration. Every company can have a different skin for the Registration page. A simple Registration Check-In page configured for our demo is shown below.

Visitor clicks Check-In.

Figure 19: Visitor Check In

II. A first-time visitor is asked to fill all the forms with his details as shown below. A site location in Sine is recognized using the Google Maps. This will default the country code to that region. For example, 0414 will
automatically be converted to +61414 for sites in Australia. Visitors from outside the region can manually enter the country code when checking-in.

We have used basic forms here for demo. These forms are customizable and can be created as per customer requirements. As you can see below, the email field should be available in the Check-In form. This field is mapped to the username of the Guest account created in ClearPass.

**Figure 20: Visitor Details**

III. The next steps will ask the visitor to click a picture if configured and then make them digitally sign the required forms like NDA etc.

IV. As a final step, the application asks the visitor to select the host. A notification about the visitor’s arrival will be sent to this host via SMS, email and/or push notification, as configured within Sine Pro.
Once done, you will see a successful check-in. This finishes the registration from the user perspective.

VI. User should receive an email as well as an SMS with his credentials. Following is the snapshot of the email. Notice the account expiry time is set to 8 hours by default.

You can change the Receipt Template (Guest Manager Receipt) under Configuration > Receipts > Templates.
VII. After the visit, user can Check Out at the registration desk using the same Tablet. Type your email, mobile or you can also scan the QR code to check-out. Click Next.

Figure 23: Visitor Check Out

Now let’s see what happens in the backend from an administrator perspective.

I. Login to ClearPass Guest and go to Manage Accounts under Guest.

Figure 24: ClearPass Guest Account Creation

The new account has been created upon registration. Note the Expiration time, this should match with the Sine Pro extension configuration setting for cppmDefaultExpireHrs. By default, it is set to 8 hours. Another thing to note is the Role which is set to [Guest]. This depends on the extension configuration settings for cppmGuestRoleName and cppmGuestRoleId. This could also be set to a custom Role value if required. The configuration for the same is beyond the scope of this guide.

II. If you enable DEBUG and Click on Show Logs under Extension, you should see the following details as a part of the Check In event.
III. Upon Check Out, the User account will be disabled, see this under Manage Accounts in ClearPass Guest

Figure 25: ClearPass Guest Account Disabled

IV. The user’s WiFi session should also get disconnected automatically upon Check Out. This depends on the Policy configured for the Guest SSID. This configuration is beyond the scope of this document.

V. You would see a similar Check Out event in the DEBUG logs.
Appendix A – Additional Diagnostics & Support

The Extensions Service

The ClearPass extension is supported by a new system service that was initially added in 6.6. This service should be running. Note that restarting this service will affect all deployed and running extensions.

To check on the state and to restart the service, go to Administration > Server Manager > Server Configuration [select a cppm node] > Service Control. From here start/stop the extension service. By default, this service is automatically started.

**Figure 26: Checking on the extensions service and how to start/stop the service**

Extension logs and debugging

If there is a need to access the logs from inside the extension, turn on log collection from the API Explorer. Referencing the configuration previously used, adjust the "logLevel" to "DEBUG". In the new 6.7 GUI change the config and restart the extension as shown below. Logs can then be viewed from the 'Show Logs'.

**Figure 27: Using the GUI to change the DEBUG level**
Alternatively, the config can be changed from the API Explorer. Remember after changing the logging level, the extension will need to be restarted for this change to take effect.

Here are a few examples of ‘normal’ logs under DEBUG

```
[2018-08-14T15:25:35.449] [INFO] sine - Ready to process Sine events.
[2018-08-14T15:25:35.449] [DEBUG] sine - Using Extension api.access
[2018-08-14T15:29:39.874] [DEBUG] sine - [Sign In] Looking up guest "abhett@arubanetworks.com" in CPPM.
[2018-08-14T15:29:40.612] [INFO] sine - [Sign In] The following guest signed in: Arpit Bhatt (abhatt@arubanetworks.com)
[2018-08-14T15:29:40.613] [DEBUG] sine - Removing event from skyhook (36daceff-3b62-4fdc-8cd9-fba077d0cbd7)...
[2018-08-14T15:55:42.473] [DEBUG] sine - New event received (36daceff-3b62-4fdc-8cd9-fba077d0cbd7).
[2018-08-14T15:55:42.486] [DEBUG] sine - The Sine API Key is a match. Processing message...
[2018-08-14T15:55:42.486] [INFO] sine - [Sign Out] The following guest signed out: abhett@arubanetworks.com
[2018-08-14T15:55:43.409] [INFO] sine - [Sign Out] The user "abhett@arubanetworks.com" has been signed out.
[2018-08-14T15:55:43.409] [DEBUG] sine - Removing event from skyhook (36daceff-3b62-4fdc-8cd9-fba077d0cbd7)...
```

Accessing extension logs within ClearPass ‘Collect Logs’

In addition to the logging of messages that be examined in the extension as shown above, it’s possible to configure the extension to log messages so that they can be collected and examined via the Policy Manager ‘Collect Logs’ system function. This is extremely useful for Aruba TAC. The logs are available under Administration > Server Manager > Server Configuration > Collect Logs.

If there is a requirement for Aruba TAC to investigate a system issue, one of the items they regularly ask for is the system logs to aid with their diagnostic investigation. The ClearPass extension can write its logs such that they are available and can be collected with all other system diagnostics information when the ‘Collect Logs’ function is run. Remember that by default, the logLevel is set to INFO but TRACE, DEBUG, INFO, WARN, ERROR, FATAL can also be set. Any of the levels will display the information for the selected state and lower. For example, if INFO is selected, it will show messages for INFO, WARN, ERROR, FATAL.
After the Logs have been collected and exported from the system, expand the GZ file and locate the extension logs in the following location 'PolicyManagerLogs->extension' as shown below.

**Figure 28: Extension logs location in 'Collect Logs' diagnostic GZ file**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Modified</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConfigBackup</td>
<td>Today, 4:18 PM</td>
<td>--</td>
</tr>
<tr>
<td>DiagnosticDumps</td>
<td>Today, 4:21 PM</td>
<td>--</td>
</tr>
<tr>
<td>PolicyManagerLogs</td>
<td>Today, 4:30 PM</td>
<td>--</td>
</tr>
<tr>
<td>activation-client</td>
<td>Jul 16, 2018, 10:33 PM</td>
<td>--</td>
</tr>
<tr>
<td>async-netd</td>
<td>Today, 4:23 PM</td>
<td>--</td>
</tr>
<tr>
<td>auth-count-records.tar.gz</td>
<td>Today, 4:23 PM</td>
<td>9 KB</td>
</tr>
<tr>
<td>backend-cetain.out</td>
<td>Today, 4:23 PM</td>
<td>81 KB</td>
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<td>battery</td>
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<td>battery-info.txt</td>
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<td>cluster-failover.json</td>
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<td>core-files.ilst</td>
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<td>cpass-firewall</td>
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<td>cpass-onboot-service</td>
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<td>cpass-statsd</td>
<td>Jul 16, 2018, 10:34 PM</td>
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<td>ddbcn-daemon</td>
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<td>extension</td>
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<td>sine-cppm.log</td>
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<td>sine-cppm.log.2</td>
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<td>sine-cppm.log.3</td>
<td>Today, 7:02 AM</td>
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