Ring Plug-In for HS4.

Go to https://forums.homeseer.com/forum/hs4-products/hs4-plugins/camera-plugins-aa/ring-dcorsus for on-line forum support! Please read the help file and take traces before you post questions on-line!

Introduction

Welcome to the HS4 compatible version of the Ring Plugin.

If you run into an issue or have a question, when you post on the forum, what is required is:

- 1. Recreate the issue with debug logging on, typically the log level set to "errors and events" is sufficient.
- 2. Log to disk! It is easy and makes sure that all info is present as using the HS log to cut/paste loses HTML tag information.
- 3. Post screen shots of your configuration, i.e.. HS device page.
- 4. Detail what exactly you are doing and what exactly is not working.

READ THIS FIRST!!

- <u>The Plugin does NOT start automatically</u> upon initial activation. Users must acknowledge the UELA by navigating to Plugins->Ring->Accept and reviewing the information prior to acceptance.
- Next, authenticate yourself with your Ring service on the configuration screen by providing your username and password. If you have activated 2-Factor Authentication (2FA) (recommended), a code will be sent to your registered email address or cellphone. Enter this code in the pop-up window.
- The Plugin Interface (PI) will retrieve your account information from Ring and begin populating devices and features.
- For Windows users, if prompted for network access approval by the PI, please grant permission.
- Note that the plugin author has no affiliation with Ring, and Ring may alter its API at any time, potentially rendering the plugin ineffective. Users should consider and accept this risk before purchasing, as refunds will not be issued under such circumstances.
- The Ring API reveals proprietary information. When posting logs, ensure they do not contain sensitive data. If uncertain, send a personal message with debug log details to the author via the message board.
- For unsupported new Ring devices, users can "capture" setup information published by Ring by going to settings->Debug, selecting the "Capture" button, and sending the log file along with a description to the author.
- Some 3rd party devices supported by Ring (e.g., Car Camera) may lack API support and cannot be managed by this plugin.

- The PI supports live views, but compatibility varies across different browsers and platforms. Ensure necessary codecs are installed; if live view is inaccessible via ring.com on your browser and platform, the plugin will also be unable to provide this functionality.
- For 2-way audio during live view, browsers only permit this over HTTPS (or localhost). HS does not natively support HTTPS access; options include localhost access, installing certificates for HTTPS use, or using MyHS.
- Live view is not localized; video streams from your camera to Ring Servers and back to the browser, introducing latency and generating network traffic. This feature should not be used for continuous camera viewing.
- When motion detection is disabled on a camera/doorbell, snapshot functionality is also disabled. Thus, on-demand snapshots will not be possible.

A bit about Ring's API

Ring groups their products into families of "similar kind". For example, there will be:

- 1. Doorbots: cameras, floodlights, doorbells ...
- 2. Chimes
- 3. Stick-up Cameras
- 4. Base Stations (Alarm systems)
- 5. Beams and Beam-Bridges (lights)
- 6. Other: 3rd party devices such as a car camera ...

Depending on the Ring device "kind", this plugin will create a HS-device with a different feature set depending on its "kind". Moreover, there is a very distinct difference between these families when it comes to events.

This is important because cameras & doorbells (doorbots) cannot generate autonomous events so the plugin will have to periodically check for status changes.

Alarm systems on the other hand are controlled with an always-on websocket based connection and any change is immediately received by this plugin.

Consequently, under settings, you will find a set of timer settings to define the periodicity for polling doorbots.

I would recommend you do not change the default settings but note that you can and defining larger periods will on average make the plugin react slower to doorbot changes.

HS Devices

This plugin will create an HS device for each Ring device it discovers. Discovery is NOT a local network activity; it is performed by querying your Ring account. Therefore, discovery cannot work unless you have authenticated yourself, neither can it work if your network is unable to connect to Ring Servers. Note that this plugin ONLY communicates with the Ring Servers, no information can be retrieved directly via the local network from any of the Ring Devices, this includes Ring Live Video Streams.

The plugin automatically creates devices and features. If you need to 'refresh" a device or feature, say, a newer version of the plugin added some more states, you can delete a device at any time, but you can only delete a feature while the plugin is running. The feature recreation applies to all alarm devices' features but not to camera features. If you restart the plugin or click on "Refresh Devices' Info" (Settings->Debug), the missing device(s) or feature(s) will be recreated. If you deleted a feature while the plugin is not running or in case of camera devices, that feature will not be recreated unless you delete its device and have the device recreated by the plugin.

Ring Master					
Ring Master Control					
Account Cloud Status	Online	10/16/2023 4:28:09 PM			
Authenticate	Authenticated	10/3/2023 4:22:50 PM			
History Event count	534	Today 9:58:19 AM	DOWNLOAD EVENT CLIPS		
× location Heverlee Mode Status	Disarmed	9/22/2023 3:09:07 PM	DISARM	HOME	AWA
X location Begijnendijk Mode Status	Disarmed		DISARM	HOME	AWA
location Heverlee WebSocket Status	Online	Today 8:48:12 AM			
location Begijnendijk WebSocket Status	Online	Today 8:48:12 AM			

The Ring Master Control device

The plugin at startup will always create this device, there is only one and it represents the overall and common parts of the plugin. The first two features represent the critical status of this plugin to function:

- 1. Account Cloud Status: Indicates whether the plugin can communicate with the Ring server or not. If Offline, this plugin is not doing anything at all!
- 2. Authenticate: this feature indicates whether the plugin is properly authenticated, if the status is not "Authenticated" go to the plugin Settings page and under the "General" tab, enter your Ring credentials. If this is the first time or perhaps you have been locked out, you need to "fully authenticate", which means that the Ring Servers will send you a token/code you need to use to do the two-step authentication. If you have authenticated before and your account is still OK, typically a "re-Authentication" will suffice and there will be no need to enter tokens/codes. In case of doubt, click on "Fully Authenticate Ring Client".

Depending on your Ring configuration, if you have alarm hubs or light beam hubs, this plugin will create additional features. For each location a "Location Websocket Status" feature will be created. The status of that feature shows whether the communication for that location is Online or Offline. If Offline, no status changes will be received and this could be caused by network issues or Ring Server issues, Authentication issues. If it persists, first try to restart the plugin just to rule out plugin issues.

If the location has an Alarm Hub (as opposed to Beam), a "Location Mode Status" feature will be created so you can use the "Arm" state of that location for events or change its state.

There is also a "History Event count" feature, which allows you to download all clips that are available on your Ring Account. A word of caution here, each Ring Clip download easily takes 20 seconds of more, so downloading hundreds or thousands of clips, will cause quite some load on the plugin, not to mention, disk space requirements.

Ring Heverlee No Room Assigned Base Station				
G Cloud Status	Onine	10/19/2023 12:39:01 AM		
Faulted Devices List	Poort Garage is open, Motion Woonkamer has motion, Gate is open, Voordeur is open	7oday 2:40:44 PM		
Alarm State	No Alarm			
Tamper State	No Tampering			
A Power Connected State	OK	9/21/2023 1:22:01 PM		
(V) Avery Strate	Dimensional	0/00/0000 0:00:05 01#	DISARM ARM HO	DME ARM AWAY
All state	Lisarnes.	5/22/2020/005/00 FW	ARM HOME BYPASS	ARM AWAY BYPASS
Siren State	Siren Off	10/2/2023 2:38:40 PM	OFF	ON
Active Reminders List	No Reminders			
Network Connection	Ethernet	9/4/2023 8:46:34 PM		

The Alarm Hub device

For each alarm hub an HS device will be created that holds features that deal with the health of that Hub and/or features that related to the hub itself, such as the "arm state" or "siren state".

For each location that has an alarm hub, permanent communication (WebSocket) will be established so any state changes will be received automatically and immediately. If your "Cloud Status" is not Online, then there will be any issue with the network, or the Ring Server and you will not receive any status updates!

The "Failed Devices List" will have a list of all Ring devices that have failed, this is important because faulted devices may prevent you from arming your Ring alarm. The "Active Reminder List" shows which Ring devices you have "silenced" but are still in an active fault state.

For the users who tend to leave debug logging on, the Ring servers will terminate the permanent communication channel to the plugin, about every four hours. The plugin will automatically re-establish a new connection.

The Camera or Doorbell device

Ring Heverlee I Voordeur Video Doorbell Pro 2 (1927)			
ද්ධි Status (1928)	Online	Today 9:17:57 PM	
Motion (1929)	NoMarian		DISABLE MOTION DETECTION
T Monou (1953)	NO MODUL		ENABLE MOTION DETECTION
Ring State (1930)	No Ringing		
🛜 Wifi Signal (1931)	Good	Today 9:17:57 PM	
Snapshot (1932)	/images/Ring/nosnapshot png	Today 9:17:57 PM	TAKE SNAPSHOT
Live View (1933)	/images/Ring/nosnapshot.png	Today 917.57 PM	MAKE VIDEO CLIP

The doorbell HS device allows the user to disable or enable all motion detection, make a snapshot, view live feeds or record a video clip.

<u>A note of warning with respect to snapshots and video clips</u>: The Ring API implementation doesn't seem to be very consistent. Depending on whether your camera is battery fed or wired to power, its behavior could be quite different. When on battery, the camera will preserve power by only allowing periodic snapshots or videos. The plugin will attempt to make a new snapshot or retrieve the next available snapshot. Depending on the camera, how it is powered and network bandwidth, the result could vary quite a bit.

Video life snapshots tend to be 60~120 seconds long, so it will take a while before the "Record Video Clip" feature status is updated. You should create an event that triggers based on the value of that feature changing and use its value to retrieve/display the clip. The value for the "Snapshot" or "Record Video Clip" feature can be either expressed in a raw filename which is based on a <u>"relative" URL</u>. If you enable 'Set video and snapshot info in HTML …" then the feature value will be HTML encapsulated information. If set, it will allow you to see the snapshot or video content and play it on the HS devices page or the Dashboard. If you elect not to have the feature value in HTML, you can do http retrievals by prepending the feature value (URL) with "http:<HS IP Address>:<HS port>/ prefix/". The full disk path would be <HS root directory>/html/<URL>.

Live View Capability

The plugin provides a "Live View" feature. This feature has a fixed feature value which represents an HTML encapsulated player with embedded controls. It will allow you to establish a live feed with two-way communication. This live feed is established directly between your browser and the Ring server.



A few things to note:

- 1. This communication is between your browser and the Ring server, but not directly between your browser and the camera. Therefore, there will be a lag depending on network speed.
- 2. When you establish this connection, the Ring server is also recording this event, hence the plugin has a timer upon expiry, the connection will be disconnected. It is defaulted to 5 min.
- 3. The plugin provides two-way audio, but browsers have built-in protection allowing this to work, only over encrypted HTTPS connections. The only way you can do this with Homeseer is to establish a connection via MyHS.
- 4. If the browser supports it, doubling clicking on the image (video) switches to fullscreen mode. For all other browsers you can use full-screen control.
- 5. When the Live Feed is not active, the image will automatically update depending on your setting with respect to retrieving snapshots. Note that for battery operated cameras, this drains the battery quickly, so the plugin will prevent snapshot retrieval periods of less than one per hour.
- 6. Currently, there is one big drawback. When a feature value changes, HS4's implementation is to update all features on any active UI. This update causes any live feed you may have started on the Devices page or Dashboard to be stopped. This problem doesn't exist on the plugin-in's Camera page or if you were to use the live feed HTML directly (see the Feature Settings paragraph below).

Indoor Stickup Camera

Ring Heverlee Test office Indoor Cam (gen 2) (1905)			
4 Status (1906)	Online	Today 8:55:16 PM	
(B) Martin 7(007)	Marine Dataset	To day 0.55/25 D14	DISABLE MOTION DETECTION
	WORD Devected	Tuday 5.50.40 PM	ENABLE MOTION DETECTION
奈 Wifi Signal (1908)	Good	Today 8:56:16 PM	
Siren State (1909)	Siren Off		OFF ON
Snapshot (1910)	/images/Ring/nosnapshot.png	Today 8:55:16 PM	TAKE SNAPSHOT
Live View (1911)	/images/Ring/nosnapshot.png	Today 8:56:16 PM	MAKE VIDEO CLIP
Privacy Cover (1912)	Open	Today 8:56:46 PM	

The camera features are nearly the same as the doorbell features except you might have a "Siren" or "Privacy Cover" feature.

Plugin Settings

Authentication Settings

Ring Authentication Settings		
Ring User Name		
Ring password		<mark>@</mark>
REAUTHENTICATE RING CLIENT	FULLY AUTHENTICATE RING CLIENT	

Before you can do anything with this plugin, you must authenticate, using your Ring credentials. In your Ring App, you most likely have been forced to pick a Two Step Authentication, either by SMS, Email or Authenticator Application. The first time you authenticate or when you click on "Fully Authenticate Client", a pop-up screen will appear.

Code re	ceived via	a sms/en	nail ente	er with	in 60 :	sec		
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You should have received a number from the Ring Server. The plugin doesn't care which form of Two Step Authentication was selected, but you need to enter the code in this popup screen and click enter. A confirmation should pop up when successfully authenticated.

After the authentication, the plugin will have received a special token that enables access to your Ring devices. This token will have a limited lifetime, but the plugin will automatically renew it before it expires and there is no need for any Two Step Authentication.

However, if the plugin has been disabled for an extended period or perhaps you've had network issues over a prolonged period, you may find the plugin's authentication state as "not Authenticated". In this case click on the "Reauthenticate Ring Client" button first, if that doesn't solve the problem, click on "Fully Authenticate Ring Client", which will have you go through the two Step Authentication. You should always check your HS log for errors or warnings. Excessive reauthenticating could lead to your account being locked for a while.

Timer setting related to camera-based devices

Ring Timer Settings

Ding check period in seconds – 10

Device status change check period in seconds

10

History check period in seconds 60

As of version 1.0.1.2 the plugin will subscribe to Fire Based Messages (FCM) and receive events autonomously for camera devices when motion or dings are detected. This requires Node.JS to run a slew of applications. All these applications are compiled into one single executable and this executable will be started automatically. This will be the default setting going forward. However, if you experience missing events there are 2 known reasons why the plugin might not receive them:

1. If you enabled "Smart Alerts" (click on Motion Settings->Smart Alerts) you must enable the notifications as part of the motion zones.



2. There have been cases where no notifications are received unless the authorized user list is cleared. NOTE: you will have to do full authorization again (click on Account Settings -> Authorized Client Devices -> Remove all Devices)



In addition to using notifications, which are fast, the plugin will also poll for changes. I decided to do both polling and notifications, to avoid lengthy trial and error sessions with users where we just can't get the notifications to work. Polling will be just slower.

The next paragraph only applies to system with "Use Push Notifications" disabled.

For any Ring device that has a camera, the Ring API has default autonomous notifications (only FCM based) of events, hence the plugin will query for changes. There are three configurable periods if you feel the need to make changes. I would recommend not changing the default values but take note that the option exists.

- 1. Ding Check Period:
 - a. In Ring API parlance, an event on a camera-device, be it motion or a press on the ring button is called a "Ding".
 - b. With the introduction of notification events the new default is 10 sec. The start of a new event will be received via FCM Push Messages. However, there is no "Off" notification so the plugin will still have to poll the end of the event (end motion).

- c. If you make this period longer, it will just take the plugin longer to update ring and motion state related features.
- 2. Device Status Change Check Period: whilst the "Ding" timer checks (only) for ring and motion, this timer will check for other changes, examples are battery levels, communication status etc.
- 3. History Check Period: this is the frequency when the plugin will check for new video clips available on the Ring server. If you are not interested in downloading these clips you could make this value much larger.

Count settings

```
      Ring Count Settings

      Maximum # of history entries to retrieve

      100

      Maximum # of http fail before declaring off-line

      10

      Connection retry time in seconds

      30
```

This section mostly deals with counters to make the plugin's overall performance more efficient.

- 1. Maximum History Entries: if you tend to never delete video clips on your Ring account, or you have a lot of recorded events each day, retrieving that information could take a long time or potentially fail due to too large a message. You would notice this the most when you go to the "Settings->History" tab and find your browser unresponsive for a large period.
- 2. Maximum # of http fails, and connection retry time settings tend to go together. The plugin will set its "Account Cloud Status" to Offline based on the configured number of allowed fails. If you have a bad connection, you could increase this value, but it would be better to fix that connection. Once the plugin goes off-line, it will reattempt to connect to the Ring server periodically, based on the setting here.

Ring Live view/UI Settings

Ring Live View/UI Settings

/ Set video and snapshot info in HTML format as feature value

If set, the feature value will be set in HTML encapsulated information. This will enable the snapshot or video to be visible on the HS Device page and the Dashboard page. You will also be able to set it in full screen and in case of video content, play the video.

Videoclip Settings

Ring Videoclip Settings
Automatically download motion video clips into /videos subdirectory
Set a different path for your video files
Autodelete video file selection # of days or files 45
Older Then # Days

The plugin has the option to automatically download any new video clips it discovers on your Ring account. This could be the preferred option for users who prefer to permanently store all video events. However, this could lead to huge disk space requirements so use this option wisely.

There is an option to automatically remove these files based on days or number of files. This clean up runs at start-up, every 24hours after start-up or on demand if you click on the "Run Cleanup" button. Warning, this action is non-reversable so check your settings before clicking on "Run Cleanup". For existing users, the default is set to NEVER but for new installations the default is 60 days.

Another option is to store the video clips in a different location, perhaps a NAS or some other form of large storage. It would require read-write access for this plugin to that location to work and this needs to be a complete (not relative) path.

Warning: defining a different directory location for your video clips most likely will cause the built-in functions, to view and manage your History (Settings->History), to fail.

HS4 has a built in HTTP webserver and its user accessible directory space is based on <HS Root Directory>/html. That means that HTML based screens (ex. Settings->History) the built-in webserver cannot deliver content it has no access rights to. This is a protection to prevent HTTP requests to get access to your entire system.

By default, the video info is in the html/Ring/videos subdirectory. The video (.mp4) filename has six parts separated by a _ character: <time><day><motion kind><ring doorbot id><ding id><Timestamp in Ticks>.

If the plugin was running when the event (that triggered a videoclip) happened, the plugin will also store a snapshot in the video directory, it is used to display a thumbnail picture in the video history page (under settings->History). This will only happen unless you have configured "Snapshot Retrieval" to be different from "Never" (Settings->Features).

Snapshot Settings

Ring Snapshot Settings



In the html/Ring/snapshot directory, here one snapshot per camera can be found. This snapshot will always be overwritten with the latest snapshot. The snapshot feature value on your HS devices will have the relative path value to that file so you can use it in events or HS Touch to show only the latest snapshot.

The filenames are composed of 6 parts separated by a _ character. <time><day><motion kind><ring doorbot id><ding id><timestamp in Ticks>. If the snapshot was taken on demand, the <ding id> field will be empty.

The snapshot/video file names will always be unique, so feature values will change when new files are available and therefore you can set a trigger event on a feature value changing. Having this value, i.e. the filename being different, is important to make sure UI Clients are being updated, for example, HS Touch screens won't update if this value isn't different when a new snapshot is made.

There is an option to automatically remove these files based on days or number of files. This cleanup runs at start-up, every 24hours after start-up or on demand if you click on the "Run Cleanup" button. Warning, this action is non-reversable so check your settings before clicking on "Run Cleanup". For existing users, the default is set to NEVER but for new installations the default is 60 days.

Debug Settings

Plugin Debug Settings
Plugin Debug Level
Events And Errors
✓ Log to disk - Logfile directory : C:\Program Files (x86)\HomeSeer HS4/html/Ring/logs/debug.txt
Capture debug information
CAPTURE Log all relevant information into : C:\Program Files (x86)\HomeSeer HS4/html/Ring/logs/capturedebug.json
Device Table
REFRESH DEVICES' INFO DELETE ALL DEVICES
ZWave Network
SHOW NETWORK BASE STATION SHOW NETWORK BASE STATION

You can set here the debug log level and whether you want it logged to disk. Note that the checkmark for logging to disk works as a "toggle", so if you enable it, it will overwrite any existing file, so if you want to erase a log file, checkmark off/on and it will create a new log file. If you do take a log, don't forget to uncheck the log to the disk to make sure all information is properly written through.

Very important to debug, especially unsupported Ring devices, is the "Capture" function. When you click it, the plugin will retrieve all relevant information from the Ring server and store it in a disk file in JSON format. Important is not to edit this file, else it will be possible to "read" the JSON information. Also of extreme importance is that this file will contain proprietary information, so don't post it on the forum, send it to me as a Personal Message.

If you deleted features or devices and you want them recreated, you can either restart the plugin or click on "Refresh Devices' Info".

If you have an Alarm Hub, the Hub communicates with all its devices using Z-Wave. You can display here some of the information published by the Ring-API.

History management

The plugin can download snapshots and videoclips. Read the respective chapters on where and how these files are stored. The history management page provides the necessary tools for you to manage your files. There is an option to manage camera files or snapshots. You can also pull up the event log for Alarms or Lights but here there are no options to delete anything.



A few things to know:

- 1. snapshots are not accessible on your Ring account, at least not for the user to browse them like videoclips. So, the snapshots you see under the History management screen are locally stored .jpg files.
- 2. Videoclips are different, they are on your Ring account (assuming you have a proper subscription plan) and you can browse and manage them using the Ring App.
- 3. By default, the plugin does not download videoclips, so when you pull up the camera history, the entries you see are a combination of what is stored on your local HS PC and what Ring has stored for you.

The following is a typical entry in the camera list:



The empty checkmark box allows you to select multiple entries and use the Bulk Action function to perform actions on all these entries.

Indicates that a video is available on your Ring account, and you can download a copy to the HS PC.

Allows you to delete the video from your Ring account. If you had previously downloaded a copy to your local HS PC, that copy will remain untouched.

The Erase function will remove everything locally and on your Ring account.

If you downloaded a video, you would typically see an entry as follows:



If you click on the greyed part, a pop-up screen will appear, and your video will play.

Because there is now a local copy, the cloud-download-icon is replaced with a filedelete-icon. If you click on this, the local file will be deleted but the cloud video is still available and you can download it again, if you desire to do so.

If you deleted the video from your Ring account but there is still a local copy available, the file-delete-icon will be colored red.

When a motion event causes your Ring device to make a video clip, the plugin will automatically try to take a snapshot. This snapshot is stored together with the videoclips and is used to show a picture in the list even though you might not have downloaded the video. Therefore, if you deleted the cloud copy and deleted the local video, you will still see the Erase-icon, which will subsequently also delete the local snapshot.

Feature management

This settings page allows you to configure snapshot/video/live-view settings on a per device basis.

Garage Id=398642945		
Snapshot Settings	Record Video Settings	Live View Settings
 Create Snapshot Feature Embed TimeStamp in Snapshot Snapshot Image size in % (1-100) 100 	Create Record Video Feature Record Video Image size in % (1-100) 55	Create Live View Feature C Live View Image size in % (1-100) 100
Snapshot Retrieval Only Motion	v	
Snapshot to Store Only motion events	•	

Given that the snapshot/video/live feed features will take up significant space in your HS Devices list, you may prefer not having these features at all. Defaulted, the features will be (re) created but you can elect not to do so. You can also specify a smaller size here.

By default, the plugin will take a snapshot (and download it) when there is motion. You can however change the setting to either, never take snapshots or take them with a specific period. If you use the live view feature a lot, you may want to set a periodic snapshot retrieval, which will subsequently update your live view image. Do note that you should not do these on-battery operated cameras as it will drain the battery quickly. The plugin will prevent you from doing this.

There is also an option to keep the snapshots. Typically, snapshots are always overwritten with the latest snapshot and kept in the snapshot's subdirectory. However, the plugin can store copies of these snapshots and by default it will store motion-based snapshots into the snapshots/<device id> subdirectory, allowing you to review them using the "History" page functions. There is also an option to store all snapshots, but be warned, in combination, say with a periodical retrieval of 1 minute, this will fill up your disk space quickly.

Because the Live View feature has a static value, that is set when the feature is created, just in case this value gets corrupted or modified, there is an option here to rebuild that feature value. In case you want to embed the HTML info directly into your own webpage or perhaps use it in HSTouch designer, you have an option to copy the value to the clipboard, so you can paste it for your own use.

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