

Synology®

Plugin for



# Synology Plugin for HomeSeer HS4 Manual

## Introduction

Thank you for using the Synology Plugin for HS4! This plugin can be used to communicate with a Synology device: read metrics, control applications and Wake on LAN.

This is my seventh plugin for HS4. My other plugins are the Somfy Local Plugin, OpenTherm Plugin, Volvo Plugin, Updates Plugin and Horizon Remote Plugin. My main motivation to develop these plugins is to get better and better at C# development, and because I want the functionality for my own system.

The plugin uses Synology APIs that were mostly reverse engineered by myself, which unfortunately means I can't guarantee everything keeps working, but I will always do my best to find alternative ways to fix things.

I have tested this plugin thoroughly, but if you find bugs anyway, please let me know.

Bernold

## Requirements

To use this plugin, you will need the following:

- HomeSeer HS4.
- .NET Framework 4.7.1 or higher.
- At least one Synology device.
- An account on that Synology device that can be used by the plugin.

## Installation/Configuration

1. Install and activate the plugin like any other plugin. If you're new to HS4, here is how:
  - Go to your HomeSeer *Web Control page*.
  - Use the *Plugin* dropdown and choose *Add*.
  - Use the (2<sup>nd</sup>) Search bar, or scroll to *Synology Plugin*.
  - Choose *Install*.
  - In *Plugins > Manage* use the toggle to enable the plugin.
2. Configure:
  - Go to *Plugins > Synology Plugin > General Settings*.
  - Follow the steps:
    - Choose *Continue* at the introduction step.
    - Set the polling frequency. This depends on:
      - How important you find it to know a status.
      - How much CPU percentage you want to allow this plugin.
      - Etc.
    - Note: In DSM the default update frequency is often 10 seconds.
    - Choose *Save Settings*.

## Add/Modify a Synology Device

1. Go to *Plugins > Synology Plugin > Add/Modify a Device*.
  - Follow the steps:
    - Choose *Continue* at the introduction step.

- Choose *Add a new device* (or an existing one if you want to modify it). Choose *Continue*.
- Enter how you would like the device to be named in the plugin. Then Choose *Continue*.
- Enter the host address. This can be its IP address (either IPv4 or IPv6) or a DNS name. Do not add a protocol or port. Choose *Continue*.
- Choose whether you want to use http or https. Choose *Continue*.
- Enter the port number. The plugin will suggest 5000 or 5001, but you may have set it to use a different port. Choose *Continue*.
- Enter a valid user name that is active on your Synology.  
Tip: You may want to first create a separate user with a name indicating its use with HS4 or this plugin. The user has to be added to the Admins group, but you can deny access to all shares and applications.  
Choose *Continue*.
- Enter the password for your that account. Choose *Continue*.
- If you're sure you have filled in everything correctly, choose *Confirm*. Otherwise go back step by step to check/modify what you entered.  
The plugin will login on your Synology. If successful, it will let you know which (sets of) features are available. Select which sets you want the plugin to create features for. If you're modifying and deselect a set, its features will be deleted.  
Choose *Save*.

Note that features will be created during polling, so if you have polling set to manual you may want to make sure that is done.

The plugin supports more than one device Simply repeat the Add/Modify a Device page.

Noteworthy:

- Feel free to rename devices and features.
- Please do not delete devices and/or features manually. If you don't want to see them, hide them instead. For speed purposes this plugin assumes devices/features that it created are there. If not, the plugin will crash.

## Add/Modify Chat Webhook

After you have added a device, you can add chat webhooks to it. These webhooks can be used with this plugin's Chat Trigger and Send Chat Message Action.

To setup a new webhook on your Synology, open the Synology Chat application as an admin user. Then open your user profile (top right corner) and select Integration. Then you can select Incoming/Outgoing/Slash Command or Chatbot. Set up the wanted webhook(s) and then use the information to add it to the plugin. When asked for a URL, enter the url to your HS4, followed by */SynologyPlugin/chatwebhook* (for example <http://192.168.1.23/SynologyPlugin/chatwebhook>).

1. Go to *Plugins > Synology Plugin > Add/Modify Chat Webhook*.
  - Follow the steps:
    - Choose *Continue* at the introduction step.
    - Choose the Synology device that the webhook applies to. Choose *Continue*.
    - Choose *Add a new webhook to <name of device>* (or an existing one if you want to modify it). Choose *Continue*.
    - Enter how you would like the chat webhook to be named in the plugin. Then Choose *Continue*.  
Tip: You may want to include the type of webhook, channel name and/or a trigger word.
    - Select the type of webhook. Choose *Continue*.
    - Based on the selection of the type, next step will ask you for either Webhook URL or Token. Copy this from the settings from the Synology Chat Integration. Choose *Continue*.
    - Confirm and choose *Save*.

## Devices and Features

Depending on your device, installed applications and which sets of features you selected during setup, quite some devices and features could be created. Here is an overview:

### <Device Name>

This is the (root) device.

### Uptime Days

This feature shows how many days your Synology device has been running.

### Uptime Hours

This feature shows how many hour your Synology device has been running on top of the Uptime Days.

### Uptime Minutes

This feature shows how many hour your Synology device has been running on top of the Uptime Days and Uptime Hours.

### Uptime Seconds

This feature shows how many hour your Synology device has been running on top of the Uptime Days, Uptime Hours and Uptime Minutes.

### Firmware Version

This feature shows the currently installed firmware version of your Synology device.

### System Temperature

This feature shows the system temperature of your Synology device, either in Celsius or Fahrenheit (depending on your HS4 settings during startup of the plugin).

### Disk x Temperature

This (series of) feature(s) shows the temperature per disk, either in Celsius or Fahrenheit (depending on your HS4 settings during startup of the plugin).

### Volume x Used

This (series of) feature(s) shows the percentage of volume usage.

### CPU Load features

This series of features show the CPU load percentage:

- CPU Load Average 1 Minute
- CPU Load Average 5 Minutes
- CPU Load Average 15 Minutes
- CPU System Load
- CPU User Load
- CPU Other Load

These match the CPU tab in Resource Monitor.

### Disk x Read Speed

This (series of) feature(s) shows the read speed per disk in KB/s.

### Disk x Write Speed

This (series of) feature(s) shows the write speed per disk in KB/s.

### Disk x Utilization

This (series of) feature(s) shows the utilization percentage per disk.

### Memory Resource features

This series of features shows the memory usage:

- Memory Reserved in MB
- Memory Used in GB
- Memory Buffer in MB
- Memory Cached in GB
- Memory Available in GB

These match the Memory tab in Resource Monitor.

### **Network resource features**

This series of features shows the network usage per connection:

- Network LANx Receive Speed in KB/s
- Network LANx Transmit Speed in KB/s

These match the Network tab in Resource Monitor

### **Backup Task Status for <backup task name>**

This feature shows the status of the (Hyper Backup) backup task and contains buttons to change the status.

Statuses:

- Unknown (Let me know when you get this, to see if the status can be added!)
- None (Backup task is not running)
- Running

Buttons:

- Cancel (0)
- Start (100)

You may want to hide these features for other users, so they can't mess with your backups. Or remove the buttons. You can still control the feature by setting its value to the values mention above.

### **Backup Last End Time for <backup task name>**

Shows the last time this backup task ended (or N/A if it never ran before).

### **Backup Last Result for <backup task name>**

Shows the result of the last time the task ran.

Statuses:

- Unknown (Let me know when you get this, to see if the status can be added!)
- Failed
- Canceled (if the backup task was canceled)
- Done (completed successfully)

### **Backup Progress for <backup task name>**

Shows the progress percentage when the backup task is running (or N/A when it is not).

### **Container Status for <container name>**

This feature shows the status of the (Docker) container in Container Manager and contains buttons to change the status.

Statuses:

- Unknown (Let me know when you get this, to see if the status can be added!)
- Created (When the container has been created, but has never been run)
- Exited (Container is stopped)
- Running

Buttons:

- Stop (0)
- Force Stop (10)
- Restart (20)
- Start (100)

You may want to hide these features for other users, so they can't mess with your containers. Or remove the buttons. You can still control the feature by setting its value to the values mention above.

### **Container <container name> Running Since**

When running this feature shows since when (long date format) the container has been running. If not, it will show N/A.

### **VM Status for <VM name>**

This feature shows the status of the VM in Virtual Machine Manager and contains buttons to change the status.

Statuses:

- Unknown (Let me know when you get this, to see if the status can be added!)
- Shutdown
- Booting
- Suspended
- Running

Buttons:

- Shutdown (0)
- Force Shutdown (10)
- Reset (20)
- Suspend (30)
- Resume (70)
- Power On (100)
- Create Snapshot (200)

You may want to hide these features for other users, so they can't mess with your VMs. Or remove the buttons. You can still control the feature by setting its value to the values mention above.

### **<VM name> vCPU Usage**

This feature shows the CPU usage percentage of the VM.

### **<VM name> Disk x Usage**

This (series of) feature(s) shows the disk usage percentage of the VM.

### **<VM name> Disk x Read Throughput**

This (series of) feature(s) shows the disk read throughput of the VM in KB/s.

### **<VM name> Disk x Write Throughput**

This (series of) feature(s) shows the disk write throughput of the VM in KB/s.

### **<VM name> LANx Status**

This (series of) feature(s) shows the network status of the VM.

### **<VM name> LANx Receive Speed**

This (series of) feature(s) shows the network receive speed of the VM in KB/s.

### **<VM name> LANx Transmit Speed**

This (series of) feature(s) shows the network transmit speed of the VM in KB/s.

## Chat Trigger

If you're using this plugin with the Synology Chat application, you can use the Synology Plugin Chat Trigger to trigger events when a message was posted that:

- Comes from a certain chat webhook (Chatbot, Outgoing, Slash Command).
- Comes from a certain chat channel number.
- Has an interactive message attachment (buttons) with a certain callback ID, name and/or value (Chatbot only).
- Is coming from a certain user.
- Contains (a) certain word(s) or matches a regex (Chatbot, Outgoing only).
- Contains a trigger word (Outgoing only).

Before you can use chat webhooks in this trigger, you have to add them to the settings on the Add/Modify Chat Webhook page. After that just select the trigger and start filling in its conditions.

### Chat Channel Number

To look up a chat channel number, just open Synology Chat from a browser, select the channel you want to look up and check the URL bar. The URL should end with the channel number.

### Interactive Message Attachment

The Callback ID, Name and Value match what you entered on the Generate Interactive Attachment String page.

### Matching words

When a message is coming from a Chatbot or Outgoing webhook, you can filter on words:

- Any message
- Match entire string (case sensitive or not)
- Starting with string (case sensitive or not)
- Ending with string (case sensitive or not)
- Matching any word of string (case sensitive or not)
- Matching all words in string (case sensitive or not)
- Matching regex string

### Trigger word

Outgoing chat webhooks can be configured from the Integration settings to only send when a message starts with certain words, called trigger word.

## Chat Message Action

To send a chat message from an event, you can use the action Synology Chat – Send Message.

Before you can use chat webhooks (Chatbot, Incoming) in this action, you have to add them to the settings on the Add/Modify Chat Webhook page. After that just select the action and start filling in its parameters.

Parameters can be:

- The message to be send, which is obviously mandatory. If you want to include a hyperlink in your message you can put it between <> to show as a link. If you want your own text to show, instead of the link add | and your text behind the link.  
Example: Click the link to go to the <<https://www.homeseer.com>|HomeSeer page>!
- The user to send it to (Chatbot only), mandatory for Chatbot.
- URL to attach a file. Note this has to be from a fast responding server, or it will timeout.
- Interactive Attachment, or in plain English: Buttons (Chatbot only). To generate a properly formatted Interactive Attachment, you can use the Generate Interactive Attachment String page.

## Wake on LAN (WoL) Action

The Wake on LAN action allows you to wake up your Synology device from an event. It does this by sending the WoL magic packet to the LAN1 MAC Address of the device, which was read when you added the device. The packet will be send to port 40000. In case you wonder why this port instead of port 0, 7, or 9: WoL doesn't care about the port, but 40000 looks better in WireShark :)

## Scripting

### Poll

For manual polling, a function has been made available. It takes no parameters and returns nothing (just updates the features) and can be used as follows:

```
hs.PluginFunction("Synology Plugin", "", "Poll", New Object() {})
```

## View Setup JSON

If you feel this plugin is lacking functionality, please let me know. Especially when you're missing status info or commands. Most of what is used is reverse engineered and therefore not documented. There are many possibilities I know of, but sometimes I just need more info on what something really does. Sometimes I need to know what the value range is and/or what unit it is in.

To help figure things out, please send me your JSON. Preferably more than once, with the actuator in different states (for example, fully open/closed/on/off and half way, dimmed, etc.).

To get the JSON, you can use the View Setup JSON page:

1. Go to *Plugins > Synology Plugin > View Setup JSON*
  - Follow the steps:
    - Choose *Continue* at the introduction step.
    - Select the correct gateway from the dropdown. Choose *Continue*.
    - Select the format. If it holds private information, please manually redact. Choose *Show Data*.
    - Copy all text in the textarea and send it to me. On the forum you may want to put it between Code tags, or upload it as a text (.txt) file after first pasting it in a text editor (for example Notepad) and saving it.  
Don't forget to let me know what you are missing.

Thanks for your help!

## Uninstall: Completely removing

If you decide that the plugin is not for you, that's too bad. But here is how to delete every last byte of it, because just uninstalling usually leaves files for any plugin.

1. Uninstall the plugin.
2. Remove its devices and features, for example by enabling Bulk Edit, selecting all relevant devices/features, choosing Bulk Action > Delete and confirming it.
3. Manually delete these files and folders:
  - From the Config folder: SynologyPlugin.ini and SynologyPlugin.ini.bak
  - From the html > images folder: folder SynologyPlugin and its files
  - From the Bin folder > folder SynologyPlugin and its files
  - From the Docs folder > Synology Plugin for HomeSeer HS4 manual.pdf (this file)

## Support

If you have a question about this plugin or want to report a bug, please use the dedicated sub-forum on <https://forums.homeseer.com/>

## Changelog

Version	Remark
1.0.2.0	Added Hyper Backup features. Added automatic removal of features for containers, VMs (and backup tasks) that were removed from your Synology. Fixed modifying IPV6 address in Add/Modify Device page. Fixed deleting features after removing a feature set from Add/Modify Device page. Now skipping modifying device/features when name and/or host did not change from Add/Modify Device page. Added more validity checks and debug logging to Add/Modify Device page.
1.0.1.0	Fixed chat webhook not always saving.
1.0.0.0	Initial release