

Advanced Monitors

Overview

In some cases, the standard *up.time* service monitors may not fully enable you to monitor all of the systems, applications, and proprietary devices in your environment; in some cases, you may need to capture unique metrics. To do this, you can configure advanced service monitors, or download and install customized plug-in monitors.

These advanced monitors can be simple scripts that run service checks on a host. You can write a shell script, or use a higher-level scripting language like Perl, Python, or Ruby. Or, the advanced monitors can be binary programs that interact with more sophisticated applications. On top of that, advanced monitors do not require an agent to be installed on the system that you are monitoring.

Regardless of how you develop your advanced monitor scripts or programs, those scripts or programs should return the following codes:

- **0 - OK**
The services are functioning properly.
- **1 - Warning**
There is a potential problem with one of more of the services being monitored.
- **2 - Critical**
There is a critical problem with one or more of the services being monitored.
- **3 - Unknown**
There is an error in the configuration of the monitor itself, or *up.time* cannot execute the service check.

up.time captures the output from the script or program, usually from standard output (*stdout*). The output appears in the service status section of the *Global Scan* panel (see [Understanding the Status of Services](#)). The *up.time* monitoring framework picks up any error codes and triggers the appropriate monitoring action.

If you have already written scripts or programs for other monitoring tools, you can re-use those scripts or programs with *up.time* . You simply point your advanced monitor to where your scripts or programs are located and *up.time* will run them.

The *uptime* user account on the *up.time* Monitoring Station must be able to execute the script or program that you use.



Note - Contact uptime software Client Support Services for help with creating custom monitor scripts.

Before You Begin

When creating a script or an executable for an advanced monitor, you should ensure that:

- the necessary interpreter for the scripting language that you are using is installed on the Monitoring Station
- you have determined the arguments that the script or program requires, and the parameters that you want your script or program to return
- you use forward slashes when specifying directory paths in your scripts, regardless of the operating system (e.g., *C:/* on Windows, or */opt* on Solaris or Linux)

Many of the fields that you use to define an advanced monitor are the same as those used with agent and agentless monitors. You can find more information about those fields in the following sections.

- To learn how to access the custom monitor definition window, see [Using Agentless Monitors](#).
- For a description of monitor identification information fields, see [Monitor Identification](#).
- For a description of monitor timing settings, see [Monitor Timing Settings](#).
- For a description of alert settings, see [Monitor Alert Settings](#).
- For a description of Alert Profiles, see [Alert Profiles](#).
- For a description of Action Profile, see [Action Profiles](#).

Custom Monitors

A Custom monitor runs a script that captures information which is related to a situation that may be unique to your environment. When the script is run, the system being monitored returns a single line of information to standard output (*stdout*). The script reads *stdout* , which may contain an error or return value. This error or return value is then displayed in the *up.time* Monitoring Station.

As well, you can specify that the monitor writes the data that the script returns to the *up.time* DataStore. You can use the retained data to later generate a Service Metrics report (see [Service Monitor Metrics Report](#)) or a Service Metrics graph (see).

Configuring Custom Monitors

To configure Custom monitors, do the following:

1. In the Custom monitor template, complete the monitor information fields.
To learn about monitor information fields, see [Monitor Identification](#).
2. Complete following fields:
 - **Script Name**
The name of, and path to, the script or program on the Monitoring Station that will collect metrics.



Note - The uptime user account on the up.time Monitoring Station must be able to execute the script or program that you use. Ensure that the permissions for the uptime user account are set correctly.

- Arguments (Optional)
Specify any arguments that are required by the script or program.
 - Output (Optional)
Specify a comparison method to override the settings of an Alert Profile, or to return only the most severe errors. Do this by selecting an option from the *Comparison Method* dropdown lists beside the *Warning* and *Critical* fields. Then, enter a value in the field. For example, to return only unknown errors you can select *Exactly Matches* from the dropdown list, and type *UNKNOWN* in the field.
For more information on comparison methods, see [Comparison Methods](#).
 - Response Time
Optionally, enter the Warning and Critical Response Time thresholds. For more information, see [Configuring Warning and Critical Thresholds](#).
3. Click the *Save for Graphing* option to save the output in the DataStore. You can later use the retained data to generate a report or a graph.
 4. Complete the following settings:
 - Timing Settings (see [Adding Monitor Timing Settings Information](#) for more information)
 - Alert Settings (see [Monitor Alert Settings](#) for more information)
 - Monitoring Period settings (see [Monitor Timing Settings](#) for more information)
 - Alert Profile settings (see [Alert Profiles](#) for more information)
 - Action Profile settings (see [Action Profiles](#) for more information)
 - Click *Finish*.

Custom with Retained Data

Custom monitors with Retained Data return the following information:

- up to 10 values that you can save and evaluate
- a return status of 0 to 3 (see [Overview](#) for more information)

You can specify whether the monitor writes any returned data to the *up.time* DataStore. You can use the retained data to later generate a Service Metrics report (see [Service Monitor Metrics Report](#)) or a Service Metrics graph (see [Viewing System and Service Information](#)).

You can also specify whether the monitor will use retained values as arguments in the custom monitor script. The values used are from the last instance the monitor was run. This most recent data sample can be used in cases where you would like to set alerts based on value comparisons.

When you wish to refer to retained values in a script, use the following environment variable as an argument:

`%UPTIME_PREV_CUSTOM##%`

Replace “#” with the ordered value the custom monitor has been configured to save (i.e., 1 - 10).

For example, running a sample script called *application.exe* with the following arguments would make use of retained values for *Variable 1* and *Variable 5* as retained by the monitor:

`%UPTIME_PREV_CUSTOM1% %UPTIME_PREV_CUSTOM5%`

Configuring Custom Monitors with Retained Data

To configure Custom monitors with Retained Data, do the following:

1. In the Custom with Retained Data monitor template, complete the monitor information fields.
To learn how to configure monitor information fields, see [Monitor Identification](#).
2. Complete the following fields:
 - Script Name
The name of, and path to, the script or program on the Monitoring Station that will collect metrics on the system.



Note - The script or program that you specify must be executable by the uptime user account on the up.time Monitoring Station. Ensure that the permissions are set correctly.

- Arguments (Optional)
Specify any arguments required by the script or program.
 - Pass retained variables from previous collection as environment variables
Select this checkbox if you would like the monitor to be able to use the most recently collected variables as arguments in the script.
 - Variable 1 to Variable 10 (Optional)
Specify up to 10 variables that your custom script will return to the *up.time* Monitoring Station. If you click the *Save for Graphing* checkbox, these variables will be saved to the DataStore.
 - Response Time
Enter the Warning and Critical Response Time thresholds. For more information, see [Configuring Warning and Critical Thresholds](#).
3. Complete the following settings:
 - Timing Settings (see [Adding Monitor Timing Settings Information](#) for more information)
 - Alert Settings (see [Monitor Alert Settings](#) for more information)
 - Monitoring Period settings (see [Monitor Timing Settings](#) for more information)
 - Alert Profile settings (see [Alert Profiles](#) for more information)
 - Action Profile settings (see [Action Profiles](#) for more information)

4. Click *Finish*.

External Check

The External Check monitor captures asynchronous events. *up.time* does not actively monitor these events by polling or initiating service checks. Instead, External Check monitors rely on an external event to generate the information that the monitors capture. External Check monitors enable you to determine when to collect service data for the event that you specify.

After you define an External Check monitor, the monitor runs a Perl script named *extevent.pl*. The script *extevent.pl* is included with *up.time*, in the *scripts* subfolder. When it is run, the script connects to the port on which the server is listening. It then triggers the application on the server that generates the external event that is sent to *up.time*.

This script *extevent.pl* has the following command line syntax:

```
extevent.pl --host=Hostname --port=PortNumber
--status=StatusNumber --message=message
--monitorName=name
```

Where:

- *host*
The host name of the server that is running *up.time*.
- *port*
The *up.time* port on the server (usually 9996).
- *status*
The status of the service being monitored. See [Overview](#) for more information.
- *message*
A human readable diagnostic message.
- *monitorName*
The name of the service monitor to which the output will be returned.



Note - Before using an External Check monitor, contact uptime software Client Support Services for assistance. You will need specific detailed instructions for configuring this monitor depending on the nature of the applications that will be generating asynchronous events for up.time.

Configuring External Check Monitors

To configure External Check monitors, do the following:

1. In the External Check monitor template, complete the monitor information fields.
To learn how to configure monitor information fields, see [Monitor Identification](#).
2. Complete the following settings:
 - Timing Settings (see [Adding Monitor Timing Settings Information](#) for more information)
 - Alert Settings (see [Monitor Alert Settings](#) for more information)
 - Monitoring Period settings (see [Monitor Timing Settings](#) for more information)
 - Alert Profile settings (see [Alert Profiles](#) for more information)
 - Action Profile settings (see [Action Profiles](#) for more information)
3. Click *Finish*.

Plug-In Monitors


up.time can be integrated with plug-in monitors that are not part of the standard distribution. Plug-in monitors are custom service monitors that have been created by uptime software, or other *up.time* users.

The benefit of sharing plug-in monitors is that uptime customers with relatively unique, but not exclusive, monitoring needs can share the results of their efforts with each other. Additionally, if uptime software creates a custom plug-in monitor for a customer's environment, this monitor would then be available to all customers.

The uptime Support Portal is the host to all plug-in monitors. There, you can find and download a plug-in monitor archive before installing it on your Monitoring Station. All plug-in monitors that have been installed will always appear in the *Add Service Monitor* window, ready to be configured as would any pre-packaged system monitor:

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<input type="radio"/> Custom	<input type="radio"/> Custom with Retained Data	<input type="radio"/> External Check
<input type="radio"/> Apache Tomcat	<input type="radio"/> Cisco Router CPU-Memory Usage	<input type="radio"/> DB2 Availability
<input type="radio"/> DB2 Buffer Pool	<input type="radio"/> DB2 Tablespace	<input type="radio"/> JBoss

 Can't find the monitor you're looking for? [Click here to find more plug-in monitors.](#)

Installing Plug-In Monitors

To use a plug-in monitor with *up.time* , do the following:

1. Download the plug-in monitor from the uptime Support Portal.
2. Locate the *loadpluginmonitor* script, which is found in your *up.time scripts* directory.
3. In a command line shell, change to the *[UP.TIME_HOME]/scripts/* directory, and locate the *loadpluginmonitor* script.
4. Run the *loadpluginmonitor* script with a single argument that points to the location and name of the plug-in monitor you downloaded.
The plug-in monitor will be installed in a subdirectory under the */scripts* directory. The installation directory is determined by the plug-in monitor's XML file.
5. Run the *up.time* GUI.
6. Click *Services* on the *up.time* tool bar.
7. Click *Add Service Instance* in the *Tree Panel* .
The *Add Service Monitor* window appears.
8. In the *Advanced Monitors* section, you will see the plug-in monitor you added to *up.time* .
You can now select and configure the plug-in monitor.