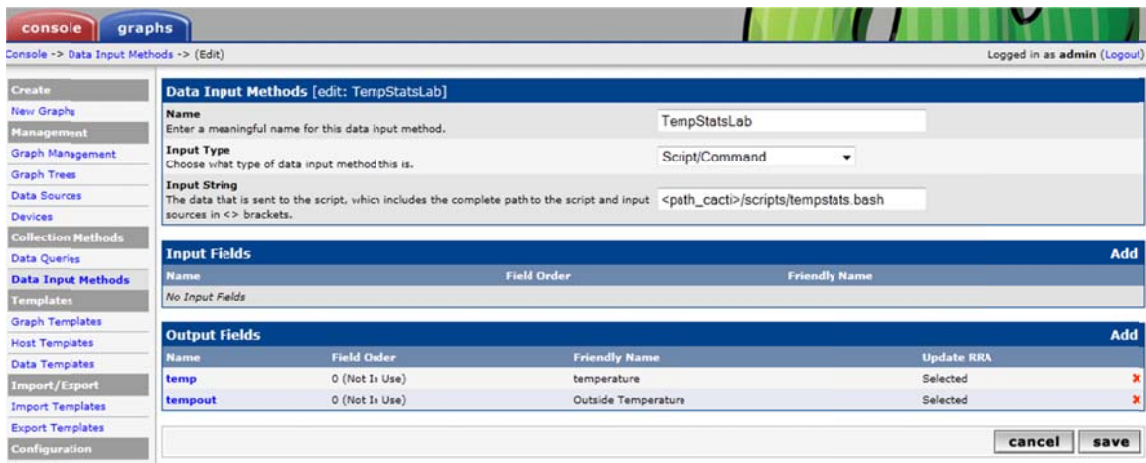


## Network Monitoring with Cacti

This article will describe the steps necessary to create custom data sources for graphing within Cacti. This particular example will take 2 readings, one from a temperature sensor inside a data center, and another reading from weather.com for the outside temperature.

### Cacti Configuration

With Cacti installed, create a new Data Input Method:



The screenshot shows the Cacti web interface for configuring a new Data Input Method. The page title is "Data Input Methods [edit: TempStatsLab]". The "Name" field is "TempStatsLab". The "Input Type" is "Script/Command". The "Input String" is "<path\_cacti>/scripts/tempstats bash". Below the input fields are two tables: "Input Fields" and "Output Fields".

Name	Field Order	Friendly Name	
No Input Fields			

Name	Field Order	Friendly Name	Update RRA
temp	0 (Not In Use)	temperature	Selected
tempout	0 (Not In Use)	Outside Temperature	Selected

As you can see, this is where we specify our custom script. In this case, tempstats.bash is a simple wrapper script that will call 2 commands—one for each of our data sources. The wrapper script will output raw data in the form “temp:value tempout:value”. To be able to parse this, Cacti needs to know which fields to pick up. So we create two new Output Fields accordingly.

Next, we create a Data Template. This will provide some basic parameters for our data source:

Data Templates [edit: TemperatureProbe]	
<b>Name</b> The name given to this data template.	TemperatureProbe
<b>Data Source</b>	
<b>Name</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	TemperatureProbe
<b>Data Input Method</b> <i>This field is always templated.</i>	TempStatsLab
<b>Associated RRA's</b> <i>This field is always templated.</i>	<ul style="list-style-type: none"> <li>Hourly (1 Minute Average)</li> <li>Daily (5 Minute Average)</li> <li>Weekly (30 Minute Average)</li> <li>Monthly (2 Hour Average)</li> </ul>
<b>Step</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	300
<b>Data Source Active</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	<input checked="" type="checkbox"/> Data Source Active
<span style="background-color: #e0e0e0; padding: 2px;">1: temp ✕</span> <span style="background-color: #e0e0e0; padding: 2px; margin-left: 10px;">2: tempout ✕</span>	
Data Source Item [temp] <span style="float: right;">New</span>	
<b>Internal Data Source Name</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	temp
<b>Minimum Value</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	0
<b>Maximum Value</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	120
<b>Data Source Type</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	GAUGE
<b>Heartbeat</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	600
<b>Output Field</b> <input type="checkbox"/> Use Per-Data Source Value (Ignore this Value)	temp - temperature
<b>Custom Data</b> [data input: TempStatsLab] <i>No Input Fields for the Selected Data Input Source</i>	

Here we define which round-robin databases we want. We also take the two previously defined output fields, and we create a new Data Source Item for each. The Data Source Items will define additional parameters for the data source, such as the temperature range.

Next, we create a Graph Template Item:

Graph Template Items [edit: LabTemperature]					Add
Graph Item	Data Source	Graph Item Type	CF Type	Item Color	
Item # 1	(temp): Inside Deg F	LINE3	AVERAGE	DA4725	⬇ ⬆ ⌘
Item # 2	(temp): Max:	GPRINT	MAX		⬇ ⬆ ⌘
Item # 3	(temp): Min:	GPRINT	MIN		⬇ ⬆ ⌘
Item # 4	(temp): Current:	GPRINT	LAST		⬇ ⬆ ⌘
Item # 5	(tempout): Outside Deg F	LINE3	AVERAGE	4444FF	⬇ ⬆ ⌘
Item # 6	(tempout): Max:	GPRINT	MAX		⬇ ⬆ ⌘
Item # 7	(tempout): Min:	GPRINT	MIN		⬇ ⬆ ⌘
Item # 8	(tempout): Current:	GPRINT	LAST		⬇ ⬆ ⌘

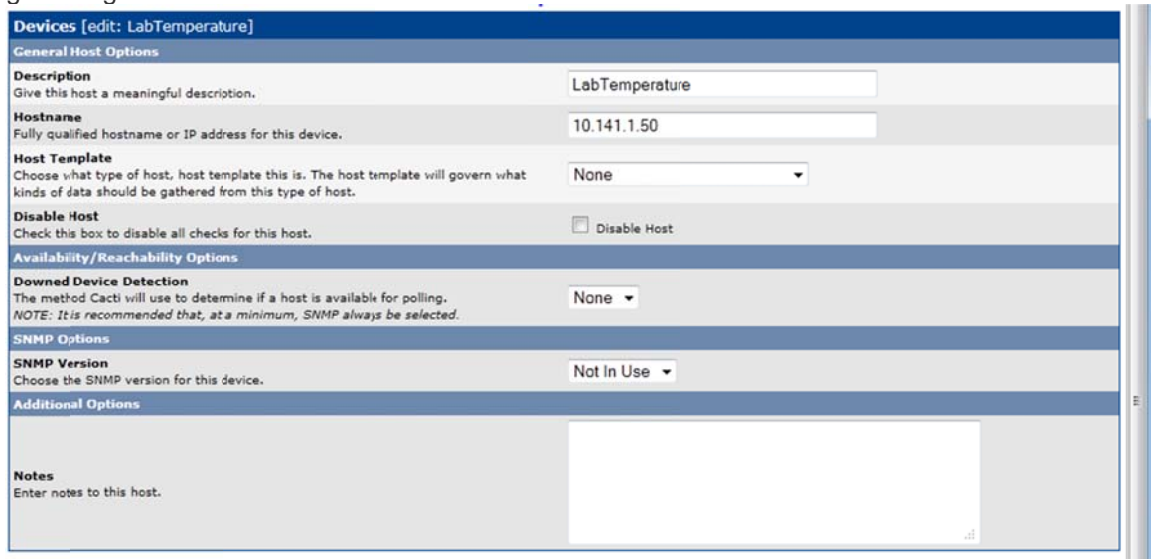
Graph Item Inputs		Add
Name		
Data Source [tempout]		⌘
Data Source [temp]		⌘

Template [edit: LabTemperature]	
Name	LabTemperature
The name given to this graph template.	

Graph Template	
<b>Title (--title)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	LabTemperature
<b>Image Format (--imgformat)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	PNG
<b>Height (--height)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	120
<b>Width (--width)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	500
<b>Slope Mode (--slope-mode)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input checked="" type="checkbox"/> Slope Mode (--slope-mode)
<b>Auto Scale</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input checked="" type="checkbox"/> Auto Scale
<b>Auto Scale Options</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input type="radio"/> Use --alt-autoscale (ignoring given limits) <input checked="" type="radio"/> Use --alt-autoscale-max (accepting a lower limit) <input type="radio"/> Use --alt-autoscale-min (accepting an upper limit, requires rrdtool 1.2.x) <input type="radio"/> Use --alt-autoscale (accepting both limits, rrdtool default)
<b>Logarithmic Scaling (--logarithmic)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input type="checkbox"/> Logarithmic Scaling (--logarithmic)
<b>SI Units for Logarithmic Scaling (--units=si)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input type="checkbox"/> SI Units for Logarithmic Scaling (--units=si)
<b>Rigid Boundaries Mode (--rigid)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input checked="" type="checkbox"/> Rigid Boundaries Mode (--rigid)
<b>Auto Padding</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input checked="" type="checkbox"/> Auto Padding
<b>Allow Graph Export</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	<input checked="" type="checkbox"/> Allow Graph Export
<b>Upper Limit (--upper-limit)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	120
<b>Lower Limit (--lower-limit)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	20
<b>Base Value (--base)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	1000
<b>Unit Grid Value (--unit/--y-grid)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	
<b>Unit Exponent Value (--units-exponent)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	
<b>Vertical Label (--vertical-label)</b> <input type="checkbox"/> Use Per-Graph Value (Ignore this Value)	

This provides further detail for the graphs. In particular, we specify that we want to display Average, Min, Max, and Last values. We also define line colors for each of our data sources.

Next, we'll want to create a Device. In this example, I create a device for the temperature probe. Optionally, we can tell Cacti to periodically ping this device to see if it is available for data gathering:



**Devices [edit: LabTemperature]**

**General Host Options**

**Description**  
Give this host a meaningful description.

**Hostname**  
Fully qualified hostname or IP address for this device.

**Host Template**  
Choose what type of host, host template this is. The host template will govern what kinds of data should be gathered from this type of host.

**Disable Host**  
Check this box to disable all checks for this host.  Disable Host

**Availability/Reachability Options**

**Downed Device Detection**  
The method Cacti will use to determine if a host is available for polling.  
*NOTE: It is recommended that, at a minimum, SNMP always be selected.*

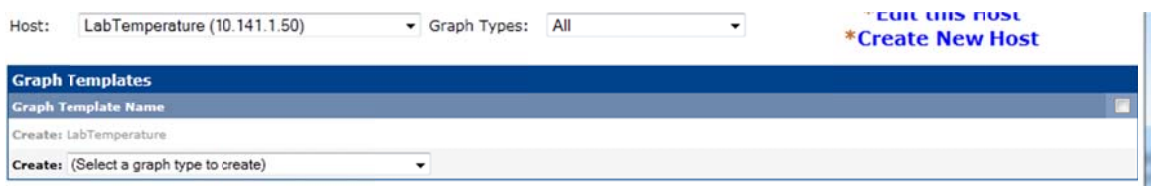
**SNMP Options**

**SNMP Version**  
Choose the SNMP version for this device.

**Additional Options**

**Notes**  
Enter notes to this host.

Finally, create the new graph. Click on "New Graphs" under "Create":



Host:  Graph Types:

[Edit this host](#)  
[\\* Create New Host](#)

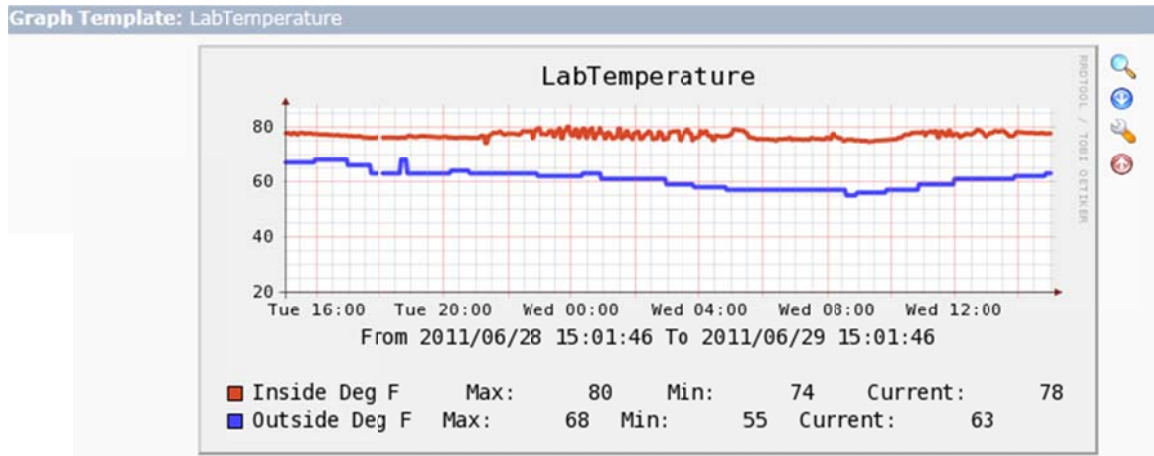
**Graph Templates**

**Graph Template Name**

Create: LabTemperature

Create:

Here is our end result:



## Supporting Scripts

tempstats.bash:

```
#!/bin/bash
```

```
INSIDE=`curl -s http://tempsensor/index.html?em | grep TF: | awk -F:\
{'print $2'} | awk -FHU {'print $1'}`\
OUTSIDE=`/var/www/cacti/scripts/weather.bash`
```

```
echo temp:$INSIDE tempout:$OUTSIDE
```

weather.bash:

```
#!/bin/bash
```

```
php -q -d error_reporting=0 /var/www/cacti/scripts/weather.php | grep
^Temp | sed 's/Temp:\ \([0-9][0-9]\)F.*\/1/'
```

weather.php:

```
Credit goes to the following author of weather.php:
// WEATHER.COM XML PARSER
// Version 1.4
// Copyright 2005 Nick Schaffner
// http://53x11.com
```