

Chapter 5

Reports Involving Round-Robin Database (RRD) Tools

5.1 Foreword

This chapter focuses on how Servers Alive, in conjunction with RRD Tools, provides even more powerful information at your fingertips in the form of HTML reports.

RRD is short for "Round Robin Database". It is a system to store and display time-series data, such as network bandwidth, server load average etc, and its storage algorithm is such as to maintain an optimum archive size, which otherwise can grow substantially over a period of time.

RRD Tools pick up data from a database and plots it in a graph format. Servers Alive integrates with a host of RRD Tools available in the market, and the software can be set to automatically update the database as well as to generate the graphs.

There are the following two sets for which RRD graphs are available:

- RoundTrips
- CheckResults

For each set, there are five graphs that can be generated, with each of them providing historical information for different spans of time:

- Hourly
- Daily
- Weekly
- Monthly
- Yearly

This information is available separately for each individual entry that Servers Alive is asked to process. The graphs are available as inline URLs that the user can click and view in separate windows at will.

5.2 Tags for RRD

Following are the relevant tags for RRD:

S No	Tag	Comments
1	<sa_rrd_roundtrip_enabled>	Returns TRUE or FALSE
2	<sa_rrd_checkresult_enabled>	Returns TRUE or FALSE
3	<sa_rrd_roundtrip_graph_available>	Returns TRUE or FALSE
4	<sa_rrd_checkresult_graph_available>	Returns TRUE or FALSE
5	<sa_rrd_roundtrip_graphname>	Displays the name of the RRD graph for roundtrip that Servers Alive generates if this feature is enabled.
6	<sa_rrd_checkresult_graphname>	Displays the name of the RRD graph for checkresult that Servers Alive generates if this feature is enabled.
7	<sa_rrd_roundtrip_hour_graphname>, <sa_rrd_checkresult_hour_graphname>	
8	<sa_rrd_roundtrip_day_graphname>, <sa_rrd_checkresult_day_graphname>	
9	<sa_rrd_roundtrip_week_graphname>, <sa_rrd_checkresult_week_graphname>	
10	<sa_rrd_roundtrip_month_graphname>, <sa_rrd_checkresult_month_graphname>	
11	<sa_rrd_roundtrip_year_graphname>, <sa_rrd_checkresult_year_graphname>	
	The following tags are relevant when the graph is being updated in a directory on the web:	
12	<sa_rrd_roundtrip_hour_web_graphname>, <sa_rrd_checkresult_hour_web_graphname>	
13	<sa_rrd_roundtrip_day_web_graphname>, <sa_rrd_checkresult_day_web_graphname>	

14	<sa_rrd_roundtrip_week_web_grap hname>, <sa_rrd_checkresult_week_web_gra phname>	
15	<sa_rrd_roundtrip_month_web_gra phname>, <sa_rrd_checkresult_month_web_g raphname>	
16	<sa_rrd_roundtrip_year_web_graph name>, <sa_rrd_checkresult_year_web_gra phname>	

5.3 Using RRD Tools within Servers Alive

Following are the steps to use RRD Tools within Servers Alive:

1. **Installation of RRD Tools.** While the exact procedure of installation of RRD Tools is beyond the scope of this tutorial, the user is directed to the following site for further information on this step:

- www.rrdtool.org

The above are only representative of the RRD tools community, and the user may surf the net for any RRD tools, and as long as they follow the standard protocols recognized by the industry, they may be seamlessly interfaced with Servers Alive.

2. **Installation of Web Server.** This step may be essential if the user wishes the browser to serve the output HTML pages (that give the monitoring report for your entries) from a different folder than your present one. This step is not a must, and may be bypassed, if there is sufficient comfort in hardcoding the path where the graphs are generated (discussed further).
3. **Introducing RRD Tools to Servers Alive.** This step is beyond the purview of the present tutorial; and the user is referred to a How-To article here - <http://www.woodstone.nu/salive/howtorrd.asp>.

The outcome of achieving this handshake between RRD Tools and Servers Alive are two batch files:

- Sa_Create_RRD.Bat
- Sa_Graph_RRD.Bat

Running the first batch file - Sa_Create_RRD.bat - will cause one database file each to be created in the 'Roundtrip' and 'CheckResult' folders, for every entry that Servers Alive is monitoring. The second batch file - Sa_Graph_RRD.bat - will be automatically run by the Servers Alive software to update the database files and to recreate fresh graphs.

4. **Introduce an HTML template file involving RRD tags.** The same method used in earlier chapters may be deployed to introduce an HTML template file, the sample below is a basic example, with minimal tags:

```
<HTML><HEAD><TITLE>Condition-Tags, Basic HTML Template</TITLE>
This report based on Servers Alive version: <sa_version>, running on computer: <sa_said>.<br><br>
Report Dated: <sa_currentlongdate>, <sa_currentlongtime><br><br>
Monitoring started at <sa_startshortdate>, <sa_startlongtime>.
Number of cycles monitored: <sa_cycles>.<br><br>
</HEAD><BODY><sa_report><H4>
Host id = <sa_hostid>, Uid = <sa_uid>.<br>
Host name = <sa_hostname>, also known as <sa_prettyname>.<br>
The full path for this entry is: <sa_fullpath>.<br></H4>
Status value = <sa_status><br>
<sa_select_case status>
  <sa_case UP>
    
  <i><sa_checkdescription></i><br>
  <sa_case DOWN>
    
  <b><sa_checkdescription></b><saif sa_prettyname IS "BOSS!" AND sa_status IS DOWN><h4><FONT
color = "ff0f00"><b>---Hey, Boss' Site is DOWN, MAN! Update your resume, quick!</b></h4><FONT
color="000000"></saif>
  <sa_case ELSE>
    <sa_checkdescription><br>
</sa_select_case>

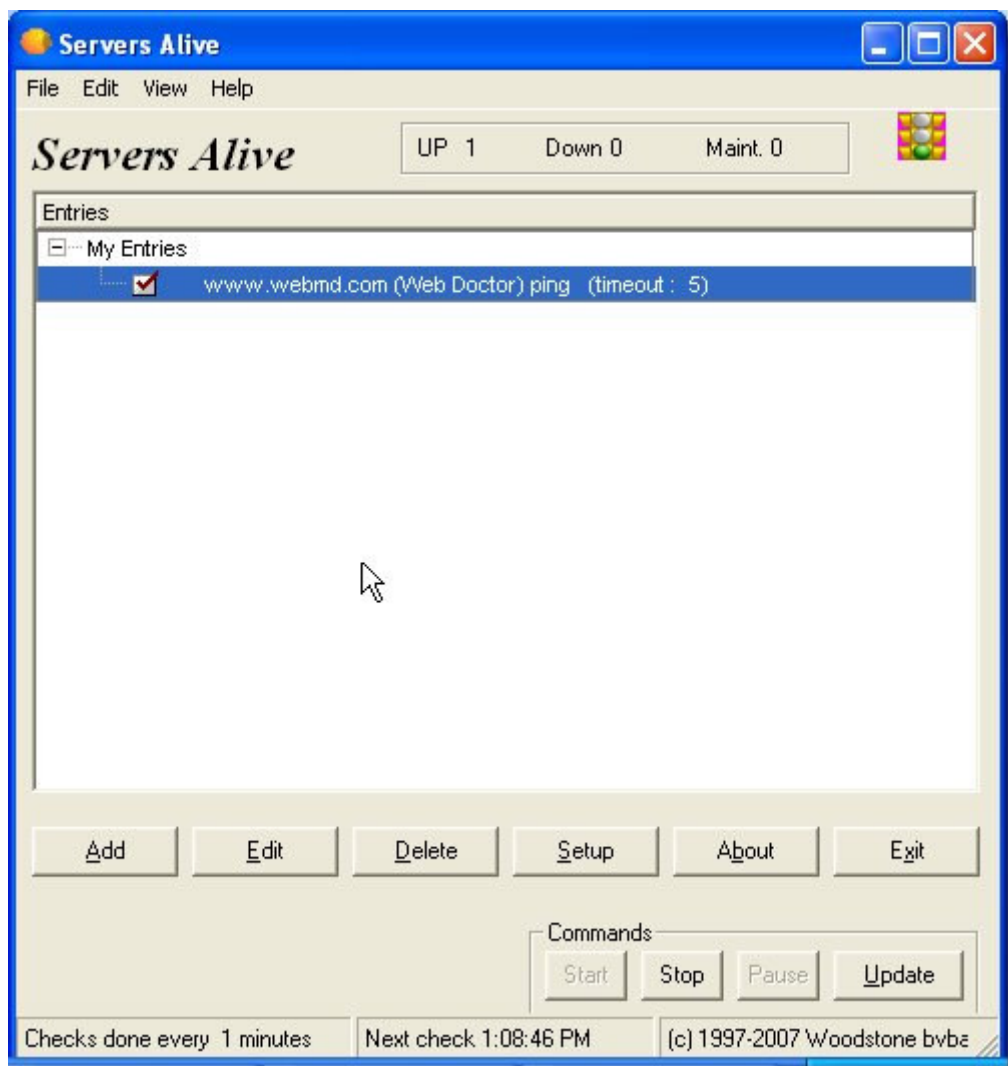
Roundtrip times: Max. time: <sa_stats_maxrtrip>, Min time: <sa_stats_minrtrip>.<br>
Total Up cycles: <sa_stats_upcycles>, with consecutive UP time: <sa_stats_nondowntime>.<br>
Total Down cycles = <sa_stats_downcycles> (<sa_stats_downtime>).<br>

Roundtrip-enabled value = <sa_rrd_roundtrip_enabled>, graph available value =
<sa_rrd_roundtrip_graph_available>, Graph name = <sa_rrd_roundtrip_graphname><br>
Check result-enabled value = <sa_rrd_checkresult_enabled>, graph available value =
<sa_rrd_checkresult_graph_available>, Graph name = <sa_rrd_checkresult_graphname><br>
UpDown day graph name = <sa_rrd_updown_day_graphname><br>

Roundtrip Graphs are: <a href="<sa_rrd_roundtrip_hour_graphname>">Hour</a> - <a
href="<sa_rrd_roundtrip_Day_graphname>">Day</a> - <a
href="<sa_rrd_roundtrip_Week_Graphname>">Week</a> - <a
href="<sa_rrd_roundtrip_Month_Graphname>">Month</a> - <a
href="<sa_rrd_roundtrip_Year_Graphname>">Year</a>

Check result Graphs are: <a href="<sa_rrd_checkresult_hour_graphname>">Hour</a> - <a
href="<sa_rrd_checkresult_Day_graphname>">Day</a> - <a
href="<sa_rrd_checkresult_Week_Graphname>">Week</a> - <a
href="<sa_rrd_checkresult_Month_Graphname>">Month</a> - <a
href="<sa_rrd_checkresult_Year_Graphname>">Year</a>
</sa_report><BR><CENTER>
<H4 align="left"><B><a href="http://www.woodstone.nu/">(c) 1997-2006 Woodstone bvba</a>
Servers Alive Tutorial, version - 1.0</B></H4></CENTER></BODY></HTML>
```

5. For the above sample, the following entry was made in Servers Alive:



6. The following HTML output file was obtained for the above sample:

This report based on Servers Alive version: 6.1.2082, running on computer: SANKALPDEEP.

Report Dated: Tuesday, January 16, 2007, 1:10:40 PM

Monitoring started at 16/01/2007, 1:04:04 PM. Number of cycles monitored: 4.

Host id = 6, Uid = 1.

Host name = www.webmd.com, also known as Web Doctor.

The full path for this entry is: My Entries\www.webmd.com (Web Doctor) ping (timeout : 5).

Status value = RUNNING



Roundtrip times: Max. time: 329 ms, Min time: 307 ms.

Total Up cycles: 4, with consecutive UP time: 100%.

Total Down cycles = 0 (0%).

Roundtrip-enabled value = T, graph available value = , Graph name = hour_sa_1.png

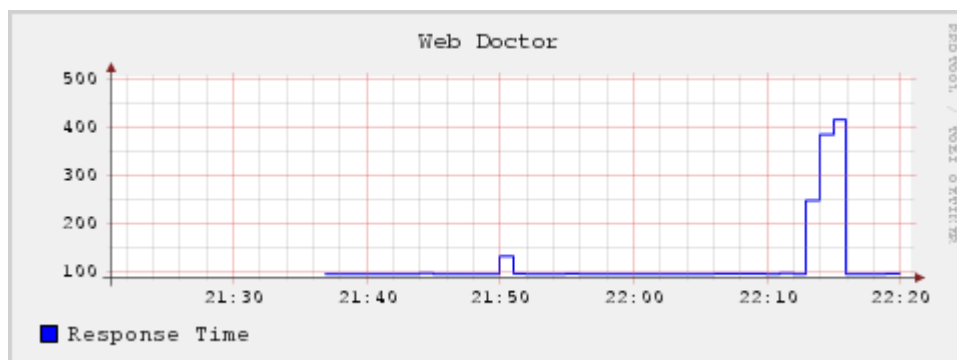
Check result-enabled value = T, graph available value = , Graph name = hour_sa_1.png

UpDown day graph name = day_sa_1.png

Roundtrip Graphs are: [Hour](#) - [Day](#) - [Week](#) - [Month](#) - [Year](#) check result Graphs are: [Hour](#) - [Day](#) - [Week](#) - [Month](#) - [Year](#)

(c) 1997-2006 Woodstone bvba Servers Alive Tutorial, version - 1.0

Clicking on the inline URL "Hour" in the output HTML file yielded the following graph:



5.4 HTML template file with RRD and Conditional tags

1. Given below is a template file that includes a high level of complexity achievable through Servers Alive tags. Conditional tags and RRD tags together provide a very sophisticated method of monitoring one's entries.

```
<HTML>
<HEAD><TITLE>RRD, Conditional Tags - Servers Alive</TITLE></HEAD>
<BODY BGCOLOR="FFFFFF" TEXT="666666" LINK="6699CC" ALINK="33CC00" VLINK="003399"
LEFTMARGIN="0" TOPMARGIN="0">
<table><tr><td width="126"></td><td>
<sa_report sort=status,onstatustime>
<sa_topgroupheader><h1></h1></sa_topgroupheader>
<sa_groupheader>
  <h2><sa_group_name></h2>
  <h4><sa_group_number_of_entries>(up=<sa_group_up_entries>,down=<sa_group_down_ent
ries>,maintenance=<sa_group_maintenance_entries>,unavailable=<sa_group_unavailable_entries>)</h
4>
  <TABLE WIDTH="762" BORDER=1>
</sa_groupheader>
<sa_groupfooter></table><br><br><br></sa_groupfooter>
<tr bgcolor="<saif sa_status is down>ff0f00</saif><saif sa_status is up>dbdcaf</saif>">
<TD>
<sa_select_case status>
  <sa_case UP>
    <b><sa_hostname> (<sa_checkdescription>)</b>
  <sa_case DOWN>
    <I><sa_hostname> (<sa_checkdescription>)</I>
  <sa_case ELSE>
    <sa_hostname> (<sa_checkdescription>)
</sa_select_case>
</font>
</TD>
<td><font face="verdana" size=1><sa_prettyname></font></td>
<TD><FONT face="verdana" Size=1><Center><p><sa_checkresponse></p></Center></FONT></TD>
<TD WIDTH="175" Valign="center" align="center">
<FONT face="verdana" size=1><sa_statuschangetime>, <sa_statuschangedate></font>
</TD>
<td>
  <table>
  <tr>
  <td>
    </td></tr>
  <tr><td><a href="<sa_rrd_roundtrip_day_graphname>">Day</a> - <a
href="<sa_rrd_roundtrip_week_graphname>">Week</a> - <a
href="<sa_rrd_roundtrip_month_graphname>">Month</a> -<a
href="<sa_rrd_roundtrip_year_graphname>">Year</a></td></tr>
  <sa_select_case SA_RRD_CHECKRESULT_GRAPH_AVAILABLE>
  <sa_case TRUE>
  <tr><td>
    </td></tr>
  <tr><td><a href="<sa_rrd_checkresult_day_graphname>">Day</a> - <a
href="<sa_rrd_checkresult_week_graphname>">Week</a> - <a
href="<sa_rrd_checkresult_Month_graphname>">Month</a> - <a
href="<sa_rrd_checkresult_year_graphname>">Year</a></td></tr>
  </sa_select_case>
  </table>
</td>
</TR>
```

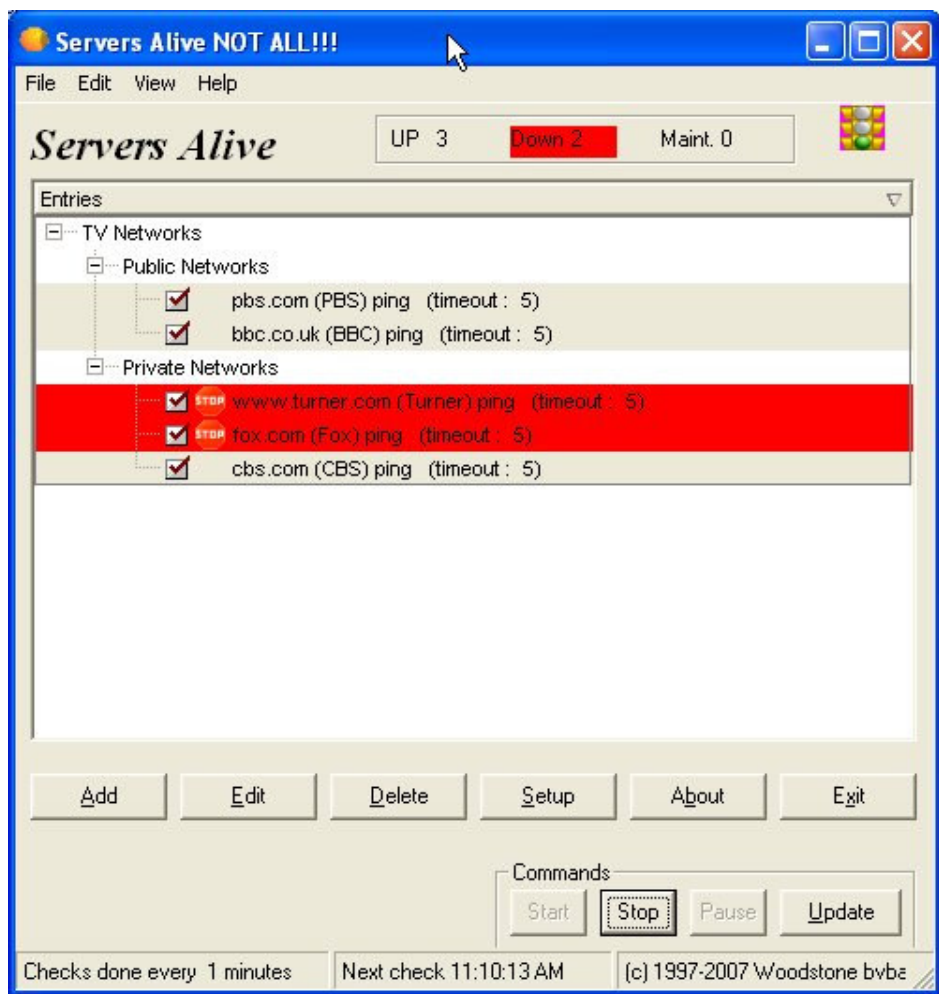
... cont'd next page


```

</sa_report>
<BR>
<TABLE WIDTH="762" BORDER=0>
<H4 align="left">Last check done on <sa_currentlongdate>&nbsp;&nbsp;&nbsp;<sa_currentlongtime>
</TABLE>
<H4 align="left">
</h4>
<HR>
<CENTER>
<H4 align="left"><B><a href="http://www.woodstone.nu/">(c) 1997-2006 Woodstone bvba
sanjay</A> Servers Alive version <sa_version></B></CENTER>
</td></tr></table>
</BODY>
</HTML>

```

2. For the above HTML template file, Servers Alive was set up with the following entries:

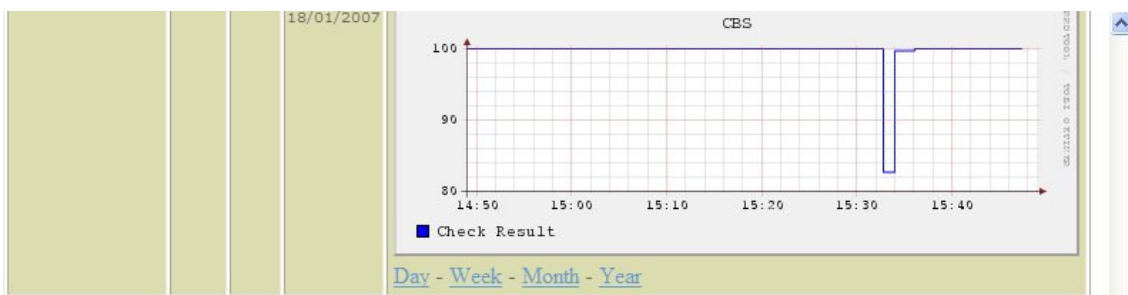
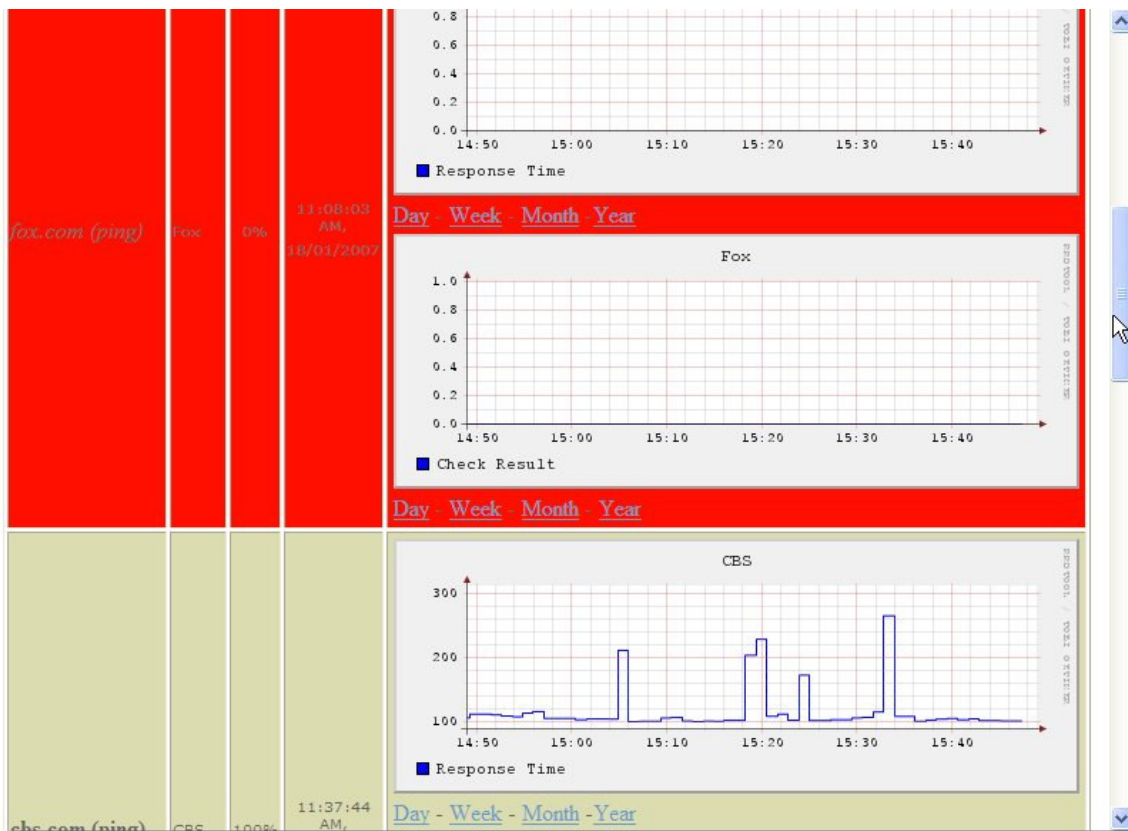


The following output HTML file was obtained from the above sample HTML template.

Private Networks

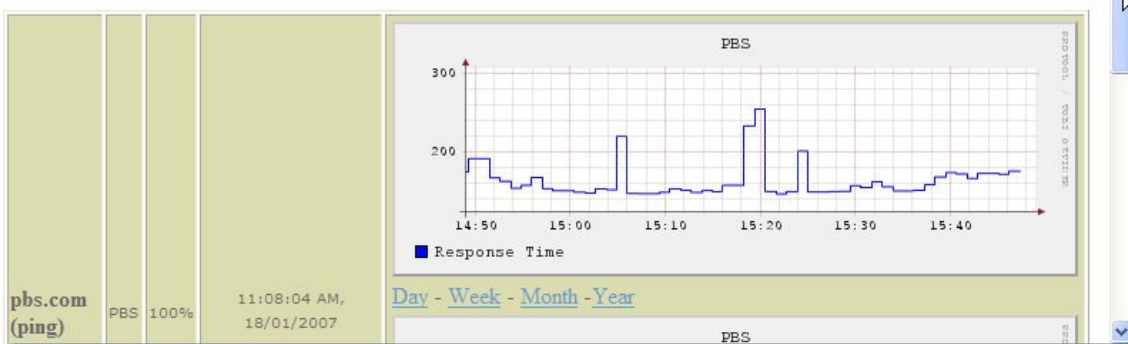
3(up=1,down=2,maintenance=0,unavailable=0)





Public Networks

2(up=2,down=0,maintenance=0,unavailable=0)

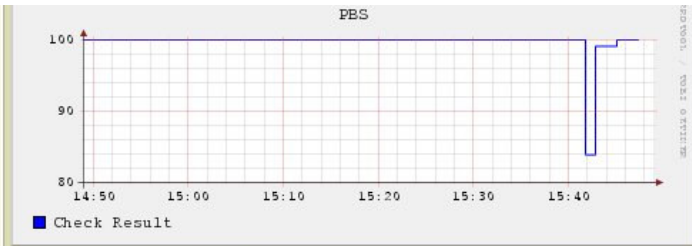


(ping)

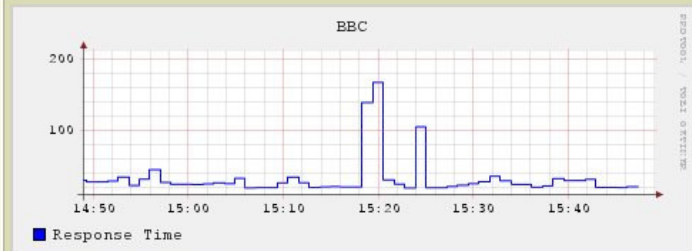
bbc.co.uk
(ping)

BBC 100%

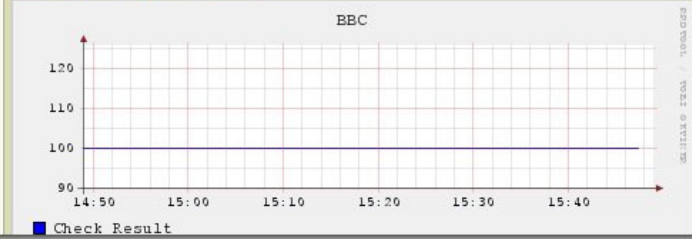
11:08:00 AM,
18/01/2007



[Day](#) - [Week](#) - [Month](#) - [Year](#)

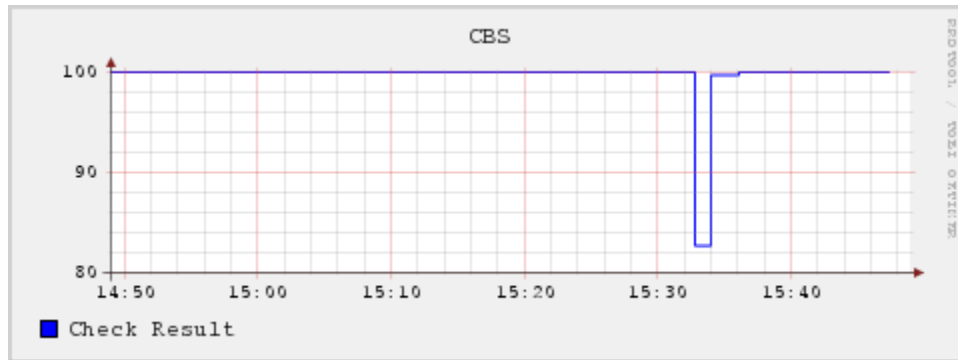


[Day](#) - [Week](#) - [Month](#) - [Year](#)

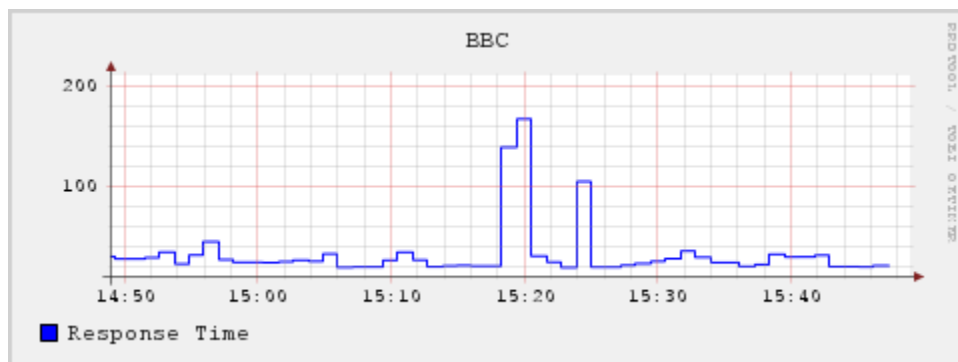


3. Clicking on the inline links for graphs opens up new windows showing the following graphs (not all the graphs have been shown here):

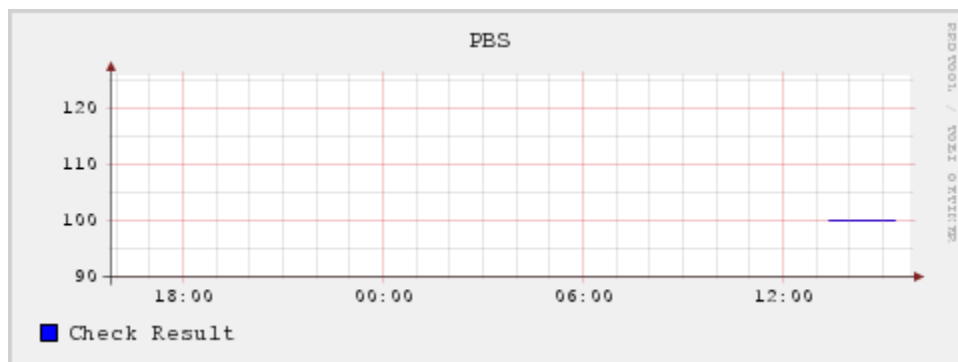
i. CheckResult, Hour Graph for Entry: CBS



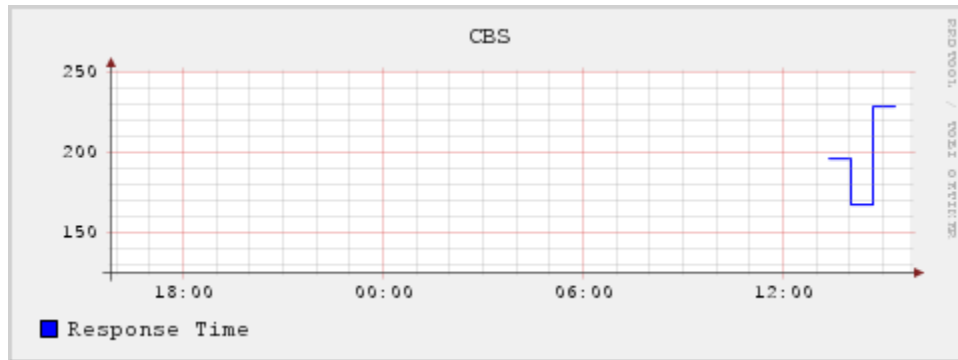
ii. Roundtrip, Hour Graph for Entry: BBC



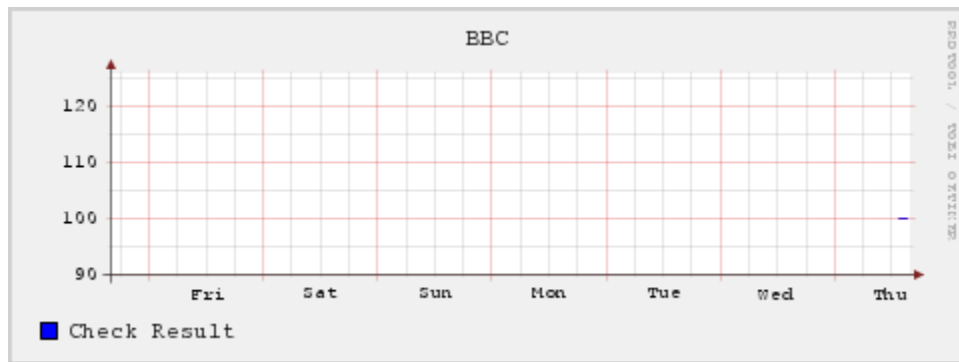
iii. CheckResult, Day Graph for Entry: PBS



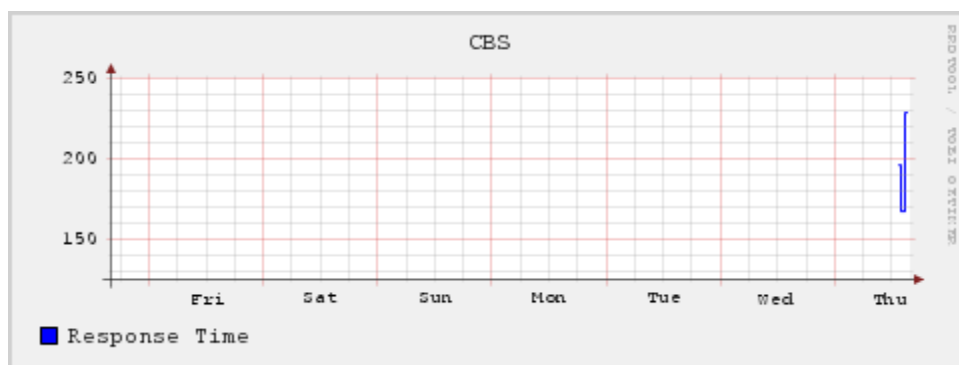
iv. Roundtrip, Day Graph for Entry: CBS



v. Checkresult, Week Graph for Entry: BBC



vi. Roundtrip, Week Graph for Entry: CBS



Since the tests conducted for the purpose of this tutorial did not exceed one day, Graphs for Month and Year have come out to be blank so they have not been included here.

5.5 End Word

From the above example, we see how to introduce an external, third-party RRD tool software to Servers Alive, and to generate the appropriate graphs that give a visual snapshot of how an entry is performing at different time periods during a monitoring session.

From these graphs it is also possible to discern any patterns in the performance of any entry, and corrective measures can be taken to rectify problems.
