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Revision History

Section	Edition	Revised by	Date	Description
All	1.0	Jans Lien.	07/25/2024	New

Confidential Level	<input type="checkbox"/> Strictly Confidential	Scope: TPV/TP Vision	<input checked="" type="checkbox"/> All
	<input type="checkbox"/> Confidential		<input type="checkbox"/> Plant
	<input checked="" type="checkbox"/> Internal Use Only		

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	<input type="checkbox"/> Confidential		<input type="checkbox"/> Plant
	<input checked="" type="checkbox"/> Internal Use Only		

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1 Purpose :

This SOP provides the steps for retrieved the CPU and Memory usage information from the specific process on remote Linux server and monitor them for daily or any incident reference.

2 Scope :

TPV.

3 Definition :

Cacti Server: 172.17.32.16.
Remote Linux: 172.17.32.18. (Be monitored Server)
Cacti server will get the CPU and Memory usage of specific process on 172.17.32.18 and show graph on Cacti server.



4 Reference :

None.

Confidential Level	<input type="checkbox"/> Strictly Confidential <input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Internal Use Only	Scope: TPV/TP Vision	<input checked="" type="checkbox"/> All <input type="checkbox"/> Plant
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5 Contents :

5.1 rsh setup:

add 172.17.32.16 + into **/etc/hosts.equiv** file.

```
root@TWTPSVHQ018:/etc
[root@TWTPSVHQ018 etc]# more hosts.equiv
172.17.32.17
172.17.32.16
[root@TWTPSVHQ018 etc]#
```

Create /home/apache directory and change it owner and group to apache on 172.17.32.18 linux server.

```
root@TWTPSVHQ018:/
[root@TWTPSVHQ018 /]# mkdir /home/apache
[root@TWTPSVHQ018 /]# chown apache:apache /home/apache
[root@TWTPSVHQ018 /]#
```

Add "172.17.32.16 apache" into /home/apache/.rhosts

```
172.17.32.16 apache
[root@TWTPSVHQ018 apache]# more /home/apache/.rhosts
172.17.32.16 apache
[root@TWTPSVHQ018 apache]#
```

5.2 Shell script programming(172.17.32.18): Script path: /usr/bin

5.2.1 Get CPU usage Script: Get the CPU usage data of 'php' process.

Show the full script below:



is cpu_usage script.

The content of the script shows below:

```
#!/bin/bash

result=$(ps -eo %cpu,cmd | grep "php" | grep -v grep | awk '{cpu+=$1} END {print cpu}')

cpu_cores=$(nproc)

cpu_usage=$(echo "$result / $cpu_cores" | bc -l)

if [[ ! "$cpu_usage" =~ ^[0-9.]+$ ]]; then
    cpu_usage="0"
fi

cpu_usage=$(printf "%.2f" "$cpu_usage")

echo "$cpu_usage"
```

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cpu_cores=\$(nproc): number of CPU cores on Linux server.

cpu_usage = average CPU utilization. (Total CPU usage divided by cpu_cores).

5.2.2 Get Memory usage script: Get the Memory usage data of 'php' process.

The content of the script shows below:



is mem_usage script.

```
#!/bin/bash
|
result=$(ps -eo %mem,cmd | grep "php" | grep -v grep | awk '{mem+=$1} END {print mem}')

mem_usage=$(echo "$result" | awk '{print $1}')

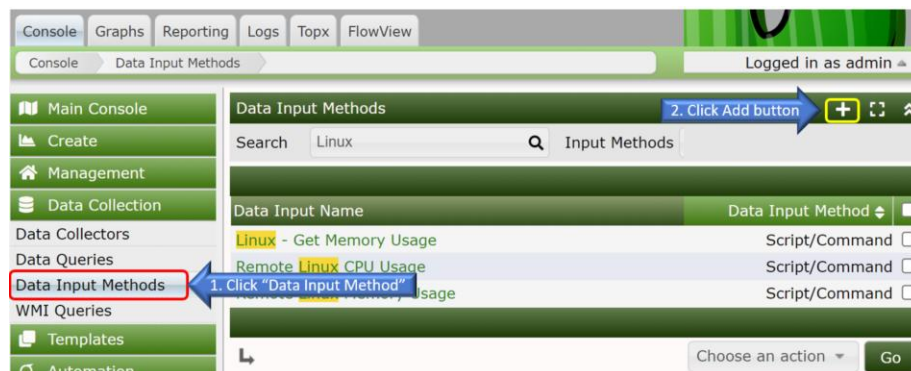
if [[ ! "$mem_usage" =~ ^[0-9.]+$ ]]; then
    echo "Error: Memory usage is not a valid number."
    mem_usage="0"
fi

#echo "mem:$mem_usage"
echo "$mem_usage"
```

5.3 Cacti Server, 172.17.32.16, setup for CPU, Memory usage display on Cacti server:

5.3.1 Input Method

Click "+" Add button to create input method:



5.3.1.1 CPU and Memory Input Method Creation.

Click "+" Add button to create input method:

- ♦ Name: "Remote MariaDb CPU Usage" (User define).
- ♦ Input Type: "Script/Command" selected.
- ♦ Input String: Call "172.17.32.18 get_cpu_script.sh" script.
- ♦ Click "Create" button to create "Data input method".

Confidential Level	<input type="checkbox"/> Strictly Confidential	Scope: TPV/TP Vision	<input checked="" type="checkbox"/> All
	<input type="checkbox"/> Confidential		<input type="checkbox"/> Plant
	<input checked="" type="checkbox"/> Internal Use Only		

Data Input Method [new]

Name

Remote Linux CPU Usage

Input Type

Script/Command

Input String

rsh 172.17.32.18 /usr/bin/get_cpu_usage.sh

Create

“Output Fields” Define:
Click “Output Fields” “+” button to create output field.

Data Input Method [edit: Remote Linux CPU Usage]

Name

Remote Linux CPU Usage

Input Type

Script/Command

Input String

rsh 172.17.32.18 /usr/bin/get_cpu_usage.sh

Input Fields

Name

F

Field Order

No Input Fields

Output Fields

Name

Fri

Update RRA

Click +

- ♦ Field: “cpu” (user define).
- ♦ Friendly Name: “cpu usage” (user define).
- ♦ Update RRDfile: “enabled”.
- ♦ Click “Save” button.

Output Fields [edit: Remote Linux CPU Usage]

Field [Output Field cpu]

cpu

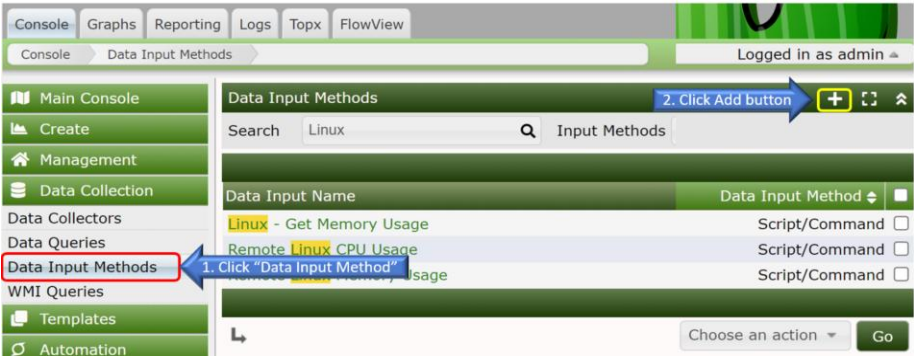
Friendly Name

cpu usage

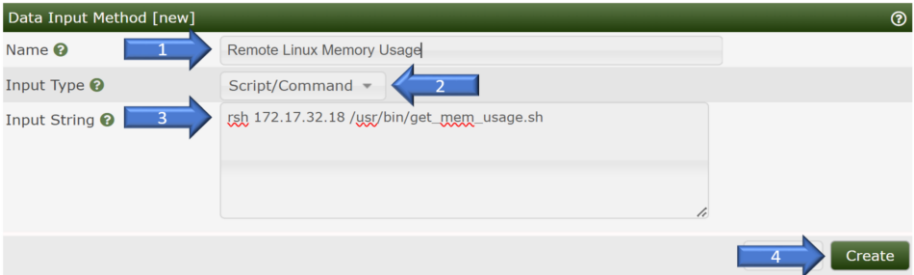
Update RRDfile

Save

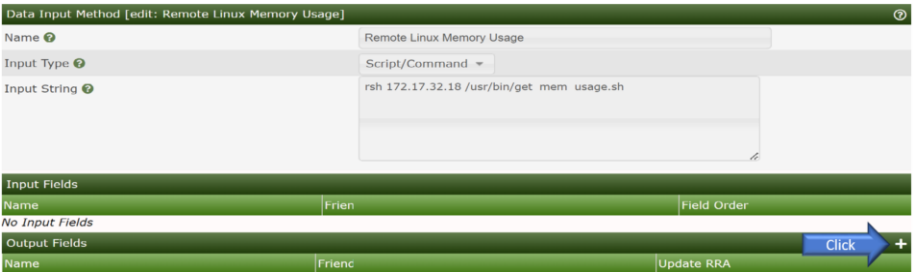
Click “+” Add button to create input method:



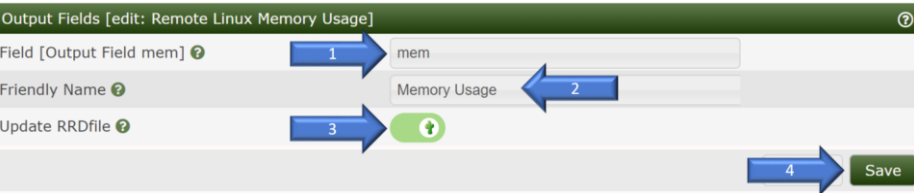
- ◆ Name: “Remote Linux Memory Usage” (User define).
- ◆ Input Type: “Script/Command” selected.
- ◆ Input String: Call “172.17.32.18 get_mem_script.sh script”.
- ◆ Click “Create” button to create “Data input method”.



Click “Output Fields” “+” button to create output field.

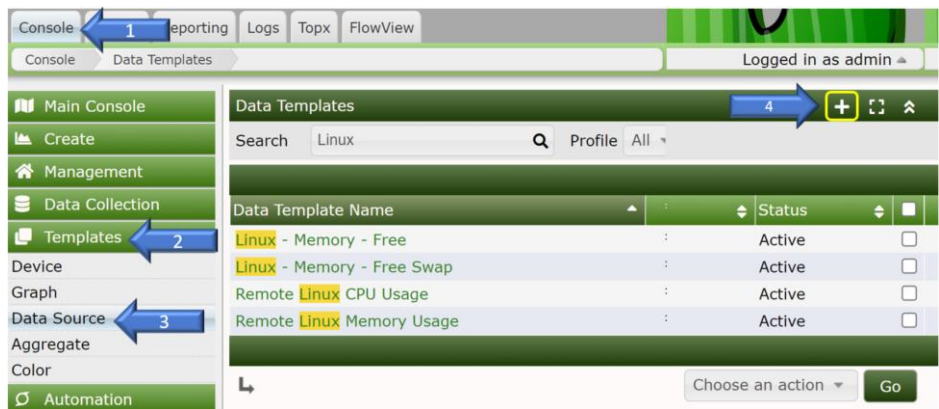


- ◆ Field: “mem” (user define).
- ◆ Friendly Name: “Memory usage”(user define).
- ◆ Update RRDfile: “enabled”.
- ◆ Click “Save” button.



5.3.2 CPU Memory Data Template Creation

Data Source Setup: Console → Template → Data Source → “+” add button.



- ◆ Data Templates Name: “Remote Linux CPU Usage” (User define).
- ◆ Data Source Name: “Remote Linux CPU Usage” (User define).
- ◆ Data Input Method: “Remote Linux CPU usage” selected which defined on input method.
- ◆ Click “Create” button.

Data Source Item[]:

- ♦ Output Field: “cpu-cpu usage” selected. (Internal Data Source Name: “cpu” which need same as the value on input method output field.)
- ♦ Click “Save” button.

The screenshot shows the 'Data Templates [edit: Remote Linux CPU Usage]' form. The 'Data Source' section includes fields for Name, Data Input Method, Data Source Profile, and Data Source Active. The 'Data Source Item [cpu]' section includes fields for Internal Data Source Name, Minimum Value, Maximum Value, Data Source Type, and Output Field. A blue arrow labeled '1' points to the 'Output Field' dropdown, which is set to 'cpu - cpu usage'. At the bottom right, a blue arrow labeled '2' points to the 'Save' button.

Data Source Setup: Console → Template → Data Source → “+” add button.

The screenshot shows the Cacti web interface. The left sidebar has a 'Data Source' link highlighted with a blue arrow labeled '3'. The main area shows the 'Data Templates' page with a list of templates. A blue arrow labeled '4' points to the '+' add button in the top right of the template list.

- ◆ Data Template Name: “Remote Linux Memory Usage” (User define).
- ◆ Data Source Name : “Remote Linux Memory Usage” (User define).
- ◆ Data Input Method: “Remote Linux Memory usage” selected which defined on input method.
- ◆ Click “Create” button.

Data Templates [new]

Name

Data Source

Name

Data Input Method

Data Source Profile

Data Source Active ☒

Data Source Item []

Internal Data Source Name

Minimum Value ("U" for No Minimum)

Maximum Value ("U" for No Maximum)

Data Source Type

- ◆ Output Field: mem-Memory Usage selected. (Internal Data Source Name: “mem” which need same as the value on input method output field.)
- ◆ Click “Save” button.

Data Templates [edit: Remote Linux Memory Usage]

Name

Data Source

Name

Data Input Method

Data Source Profile

Data Source Active ☒

Data Source Item [mem]

Internal Data Source Name

Minimum Value ("U" for No Minimum)

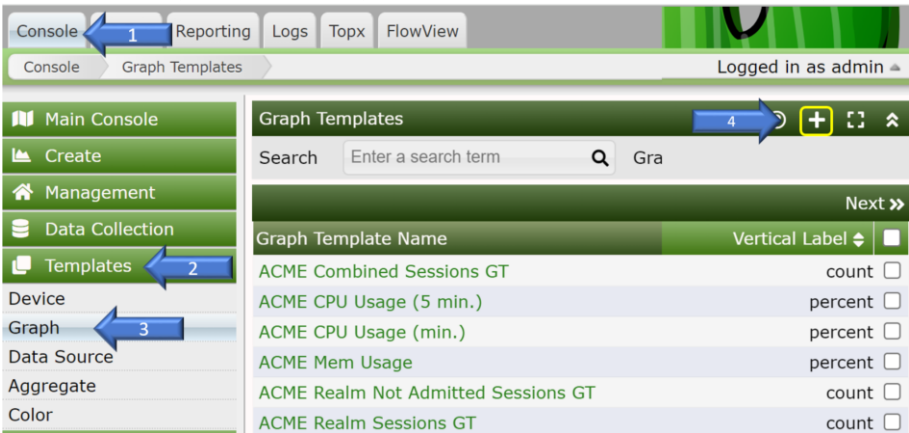
Maximum Value ("U" for No Maximum)

Data Source Type

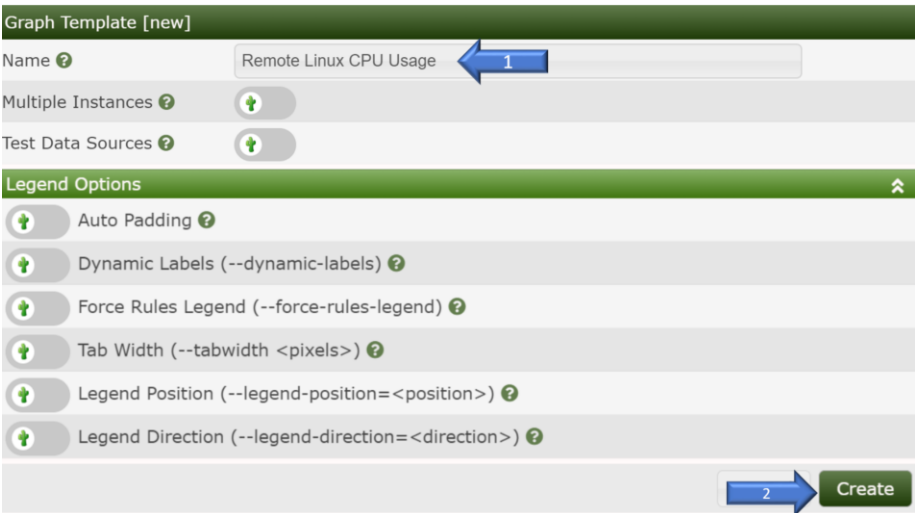
Output Field

Custom Data [data input: Remote Linux Memory Usa

5.3.3 CPU Memory Graph Template Creation
Console → Template → Graph → “+” to create Graph Template.



- ◆ Graph Template Name: “Remote Linux CPU Usage” (User define).
- ◆ Click “Create” to create graph template.



CPU Graph Template Creation:

- Click “Graph Template Items” add button “+”.
- Data Template Filter: “Remote Linux CPU Usage” selected.
- Graph Item Type: “LINE1” selected.
- Data Source: “Remote Linux CPU Usage-(cpu)” selected.
- Consolidation Function: “LAST” selected.
- Click “Save” button.

Graph Template Items [edit: Remote MariaDB CPU Usage]

Graph Item # Data Source Item Color

Graph Template Items [edit graph: Remote MariaDB CPU Usage]

Data Template Filter Remote Linux CPU Usage

Graph Item Type LINE1

Data Source Remote Linux CPU Usage - (cpu)

Color Cacti Color (0000FF)

Opacity/Alpha Channel 100%

Consolidation Function LAST

CDEF Function None

VDEF Function None

Shift Data

Text Format

Insert Hard Return

Line Width (decimal) 1.00

Dashes (dashes=[on_s[,off_s[,on_s[,off_s]...]])

Dash Offset (dash-offset=offset)

Sequence 1

Save

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- ◆ Click “Graph Template Items” add button “+”.
- ◆ Data Template Filter: “Remote Linux CPU Usage” selected.
- ◆ Graph Item Type: “CPRINT” selected.
- ◆ Data Source: “Remote Linux CPU Usage-(cpu)” selected.
- ◆ Consolidation Function: “LAST” selected.
- ◆ CPRINT TYPE: “Percent” selected.
- ◆ Text Format: “CPU Usage” inputted.
- ◆ Click “Save” button.

Memory Graph Template Creation:

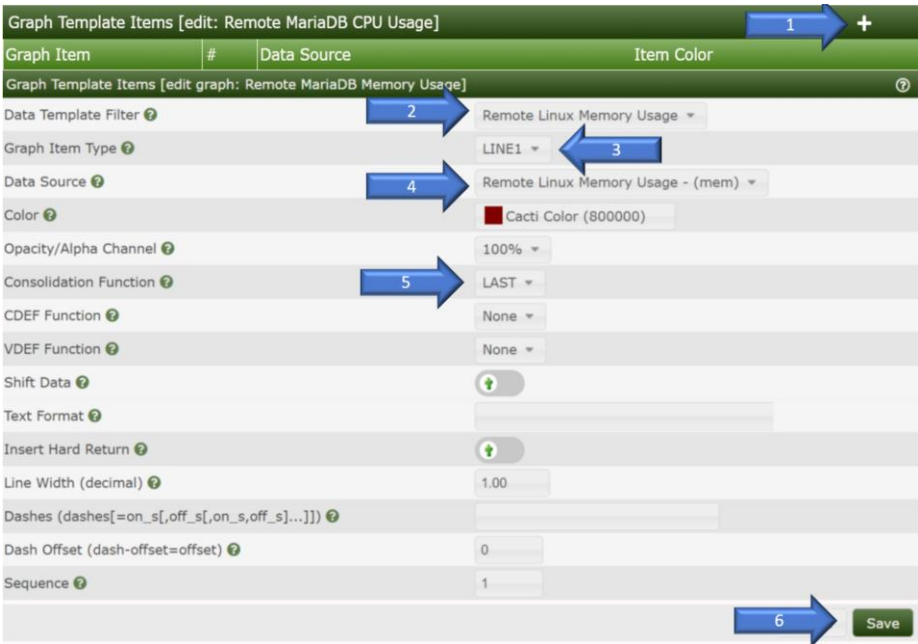
Console → Template → Graph → “+” to create Graph Template.

Confidential Level	<input type="checkbox"/> Strictly Confidential	Scope: TPV/TP Vision	<input checked="" type="checkbox"/> All
	<input type="checkbox"/> Confidential		<input type="checkbox"/> Plant
	<input checked="" type="checkbox"/> Internal Use Only		

- ◆ Graph Template Name: “Remote Linux CPU Usage” (User define).
- ◆ Click “Create” to create graph template.



- ◆ Click “Graph Template Items” add button “+”.
- ◆ Data Template Filter: “Remote Linux Memory Usage” selected.
- ◆ Graph Item Type: “LINE1” selected.
- ◆ Data Source: “Remote Linux Memory Usage-(mem)” selected.
- ◆ Consolidation Function: “LAST” selected.
- ◆ Click “Save” button.



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- ♦ Click “Graph Template Items” add button “+”.
- ♦ Data Template Filter: “Remote Linux Memory Usage” selected.
- ♦ Graph Item Type: “CPRINT” selected.
- ♦ Data Source: “Remote Linux Memory Usage-(mem)” selected.
- ♦ Consolidation Function: “LAST” selected.
- ♦ CPRINT TYPE: “MB” selected.
- ♦ Text Format: “CPU Usage” inputted.
- ♦ Click “Save” button.

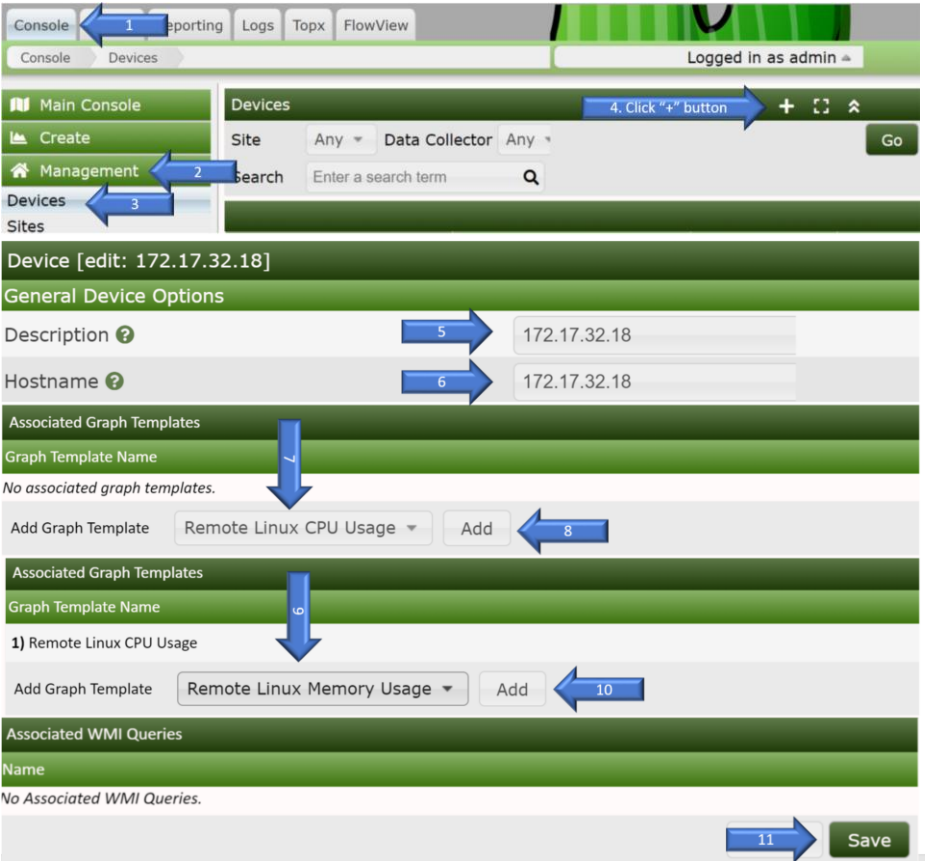
The screenshot shows the 'Graph Template Items' configuration page in Cacti. The page title is 'Graph Template Items [edit: Remote MariaDB CPU Usage]'. At the top right, there is a blue arrow labeled '1' pointing to a '+' button. Below this is a table with columns: 'Graph Item', '#', 'Data Source', and 'Item Color'. The main section is titled 'Graph Template Items [edit graph: Remote MariaDB Memory Usage]'. It contains several configuration fields with numbered arrows indicating the steps:

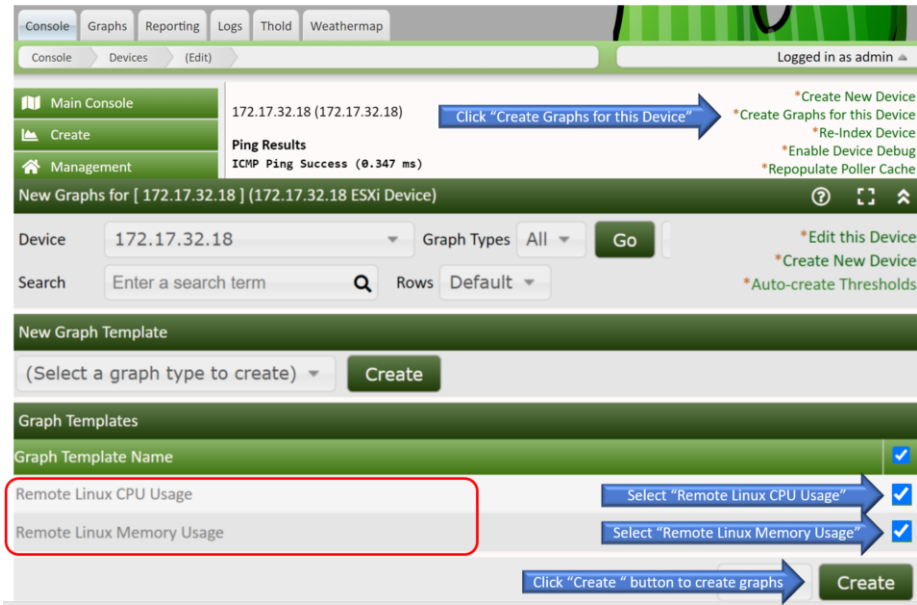
- Arrow 2 points to the 'Data Template Filter' dropdown, which is set to 'Remote Linux Memory Usage'.
- Arrow 3 points to the 'Graph Item Type' dropdown, which is set to 'GPRINT'.
- Arrow 4 points to the 'Data Source' dropdown, which is set to 'Remote Linux Memory Usage - (mem)'.
- Arrow 5 points to the 'Consolidation Function' dropdown, which is set to 'LAST'.
- Arrow 6 points to the 'GPRINT Type' dropdown, which is set to 'MB'.
- Arrow 7 points to the 'Text Format' input field, which contains the text 'Memory:'.
- Arrow 8 points to the 'Save' button at the bottom right.

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	<input type="checkbox"/> Confidential		<input type="checkbox"/> Plant
	<input checked="" type="checkbox"/> Internal Use Only		

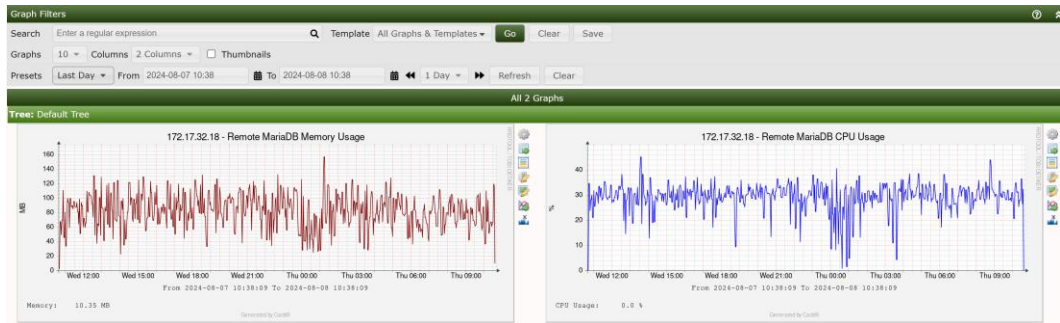
5.3.4 Host Graph Creation:

- ◆ “Console”: selected
- ◆ “Management”: selected.
- ◆ “Devices”: selected.
- ◆ Click “+” to add new device.
- ◆ “Description”: user defined.
- ◆ “Hostname”: IP address
- ◆ Add “Remote Linux CPU Usage” to “Associated Graph Templates.”
- ◆ Click “Add” button.
- ◆ Add “Remote Linux Memory Usage” to “Associated Graph Templates.”
- ◆ Click “Add” button.
- ◆ Click “Save” button.





5.3.4.1 172.17.32.18 CPU-Memory Usage Graphs created.



6 Attachment :
None.