ThinAnywhere Load Balance Statistics

ThinAnywhere, Inc.

❖ Table of Contents

Introducing ThinAnywhere Load Balance Statistics

The "tawlbstat" package allows administrators to see the current status of the entire network of ThinAnywhere Servers via a single tool. The home page of this tool gives an "at a glance" view of how many systems are currently reporting and how many users have connected or disconnected sessions across all ThinAnywhere Load Balance Servers from all locations.

Current Status - All Reporting Systems
(This page will automatically refresh in 60 seconds.)

Date/Time Last Reported: 2018/Mar/01 12:45:00	Current Systems Reporting: 81	Current Connected Sessions: 425	Current Disconnected Sessions: 173

The tawlbstat package also summarizes usage and allows administrators to find machines that have been running under heavy load and help analyze the cause (CPU usage, memory, number of users, etc.,...). See the section below on "Drilling Down" for more details.

Installing the TAWLBSTAT package

Requirements (other ThinAnywhere machines in network)

- Requires tawlbserver package installed on **ThinAnywhere Load Balance Server** machines.

    o Please make sure that TCP ports 27506, 27507, 27508 and 27509 are open on those systems.

    o SELinux must be in permissive mode. (Using "setenforce 0" will temporarily change it, but it must be permanently reset to permissive mode on reboot.)

    o No other configuration of the package is necessary.

- Requires tawlbclient package installed on **ThinAnywhere Server** machines.

    o Configure S92tawlbextclnt and S92tawlbstatclnt to point to the load balance server (where tawlbserver package is installed).

    o Edit those scripts and **replace "localhost"** with name or IP address of load balance server. The line to change will be similar to this:

        export TAWLB_SERVER='localhost'

Installing the "tawlbstat" package:

- The "tawlbstat" package may be installed on one of the load balance servers or on a completely different machine. No other "taw" packages are needed.

- Please make sure that a web server is running correctly on the selected machine.

- SELinux must be in permissive mode. (Using "setenforce 0" will temporarily change it, but it must be permanently reset to permissive mode on reboot.)

- Use "yum" or "rpm" to install. For example:

    rpm –Uhv tawlbstat-17.2-1.el6.i686.rpm

- A symbolic link will be made so that the pages are available under the server's web site at **http://{server name}/tawlbstat**

- The tawlbstat server pulls data from each load balance server. In order for tawlbstat to know which servers to check, you must edit the following file and add the IP addresses of each load balance server:

    /opt/IIPServer/tawlbstat/tawlbstat.ini

    You may also adjust parameters for frequency of the summary and updates from the load balance servers.

    For more details, please see the section below entitled "**Configuring tawlbstat.ini**".

- Note: If the package is removed, the data files "raw.dat" and "sum.dat" (both found in the "data" directory) do not get removed. They contain all the statistical data recorded. The package may then be reinstalled and the previous data will be merged with newly recorded data.

Configuring tawlbstat.ini

All configurations for the tawlbstat package can be set in the file "tawlbstat.ini" located in the installation directory (usually /opt/IIPServer/tawlbstat).

The tools can be directed to use a different INI file location using the environment variable "TAWLBSTATINI" but this is not recommended because the start scripts and all the web pages will have to be configured for this variable.

Below is a sample of the configuration file. Lines starting with "#" are comments.

```
[TAWLBStat]

# Interval (in seconds) to query load balance servers
#QueryInterval  10 seconds
QueryInterval  600 seconds

# List of load balance servers to query
# LBSrvIP xxx.xxx.xxx.xxx
#  or
# LBSrvIP xxx.xxx.xxx.xxx:port
#
LBSrvIP 192.168.1.55
LBSrvIP 192.168.1.79

# Location of Raw data file
RawDataFile    /opt/IIPServer/tawlbstat/data/raw.dat

# Location of Summary data file
SumDataFile    /opt/IIPServer/tawlbstat/data/sum.dat

# Interval (usually in hours) at which a summary is generated
SumInterval    1 hour

# Logging options
#PrintDebug 10
PrintDebug 0
```

Be sure to list the IP addresses of Load Balance server to query on individual lines using the "LBSrvIP" keyword.

The servers will be queried at the interval given by the "QueryInterval" keyword.

Summaries will be generated based on the "SumInterval" value.

Most installations only require setting up the proper LBSrvIP lines for each machine.

NOTE: To more easily identify the location of the Load Balance Servers being queried, see the section entitled "Setting Cluster Names" below.

Setting Cluster Names

Clusters can be named for easier identification. TAw Load Balance Servers and the TAw Servers that report to them are considered as separate "clusters."

Configuration is handled by the file: **/opt/IIPServer/tawlbstat/html/clusternames.php**

NOTE: The format of this file is very specific. Please only modify values between the parentheses. Values must be quoted and separated by =>. Lines end in commas. See example below.

```
<?
// Uncomment the following to show IP addresses instead of names:
//$showipaddresses = 1;

//
// Add a new location by copying any line (except for the "END" line)
// and replacing the IP address and friendly name with the new ones.
//
$clusters = array(
 "10.1.10.100"     => "Orlando",
 "10.1.10.101"     => "Dallas",
 "10.1.10.102"     => "Chicago",
 "10.1.10.103"     => "New York",
 "END"             => "END"
);
?>
```

Server Names for Drop-Down List

The ThinAnywhere Load Balance Statistics system will only know which systems are reporting to it or have reported in the past. To better tune the drop-down list for the current systems expected, you may edit the file:

/opt/IIPServer/tawlbstat/html/servers.txt

The file has a format very similar to /etc/hosts. Each line contains an IP address and a system name, separated by white spaces.

Starting the "tawlbstattool" Service

Upon installation, the "tawlbstattool" service will be configured to start at reboot.

In order to start the service manually, such as after initial configuration, please use the following command:

/etc/init.d/tawlbstattool start

Accessing the TAW LB Statistics Home Page

Upon installation, a symbolic link is made so that the home page can be accessed at the following URL:

http://{server name}/tawlbstat

For example:

The page will begin to populate with the information from the TAw Load Balance Servers that are listed in the tawlbstat.ini file.

NOTE: Only "Current Activity" will be available until the first summaries run. Summaries will run on the interval specified in the tawlbstat.ini file. The default is hourly.

Weekly Usage Graphs

Overall usage can be displayed, or the usage can be filtered by cluster location or specific server name as shown below.

NOTE: These graphs only populate on a WEEKLY basis, so no data will show until at least one full week of statistics have been recorded.
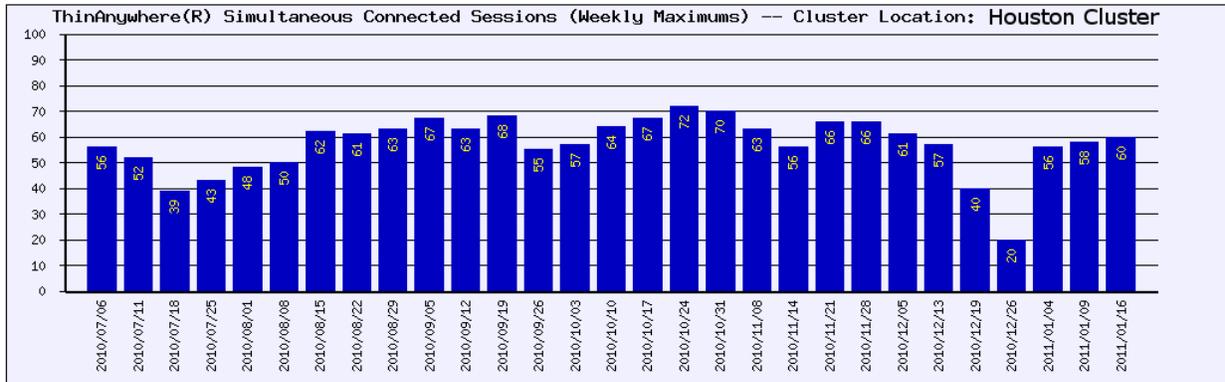
Usage by Cluster Location
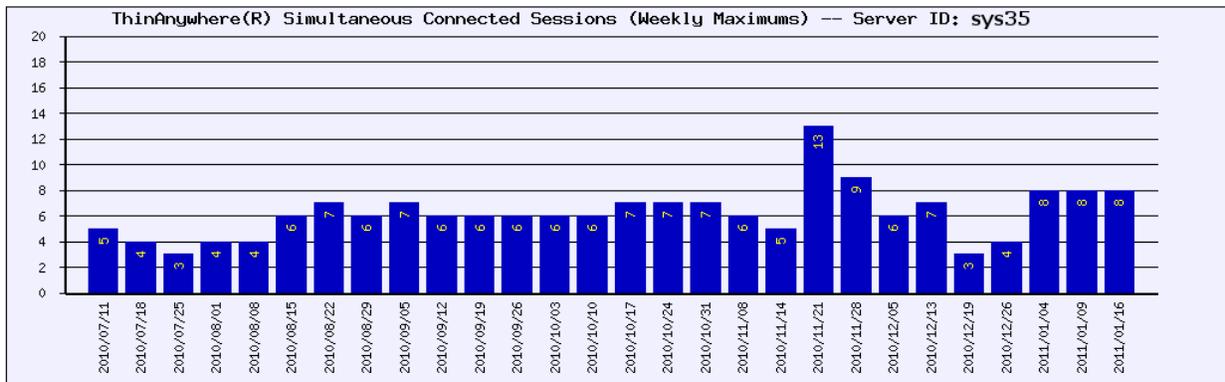
Usage by Individual Server

Drilling Down Through Server Statistics

One of the handiest features of the TAwLBStat package is the ability to easily "drill down" through the massive amount of statistics available and rapidly pin-point where an issue is occurring.

The example below shows how starting with a monthly summary, an administrator can quickly find when machines are being overloaded and whether or not the load was only for a short time and quickly corrected or if the machine has been in continual states of heavy load.

First, for example, select the "Monthly" summary:

Any machines loaded past their selected limits will be highlighted in red. Machines nearing limits will be highlighted in yellow.

For this example, we select the first machine that is red.

Cluster Location [A] [D]	Server ID [A] [D]	Num CPU	CPU MHz	Date [A D]	Max Connected Sessions [A] [D]	Max Disconnected Sessions [A] [D]	Max Total Sessions	Max 3D Sessions	Max CPU 1-min Load Avg	Max CPU 5-min Load Avg	Min Free Memory (MB)	Max Paging Activity	Max Last Contact
Houston Cluster 1	sys.1001	4	2400	2010/Jul	3	0	3	3	36	37	16	45512	60
Houston Cluster 1	sys.1002	4	2400	2010/Jul	4	0	4	4	26	25	45347	46904	60
Houston Cluster 1	sys.1003	4	2400	2010/Jul	3	1	3	3	39	39	16	45956	64
Houston Cluster 1	sys.1004	4	2400	2010/Jul	4	0	4	4	18	11	46160	42032	60
Houston Cluster 2	sys.1005	4	3000	2010/Jul	4	1	4	4	46	33	46675	58884	60
Houston Cluster 2	sys.1006	4	3000	2010/Jul	3	1	3	3	22	19	168	92420	64
Houston Cluster 3	sys.1007	4	3000	2010/Jul	2	1	2	2	59	56	46698	74492	60

ThinAnywhere Load Balance Statistics

Once clicked, the view will automatically switch to the daily summary and filter based on the machine selected.

Now we can see which day of the month was reported as having a high load.

DAILY Summary - Server ID: 10.1.10.5

Cluster Location [A] [D]	Record Information				Max Connected Sessions [A] [D]	Max Disconnected Sessions [A] [D]	Max Total Sessions	Max 3D Sessions	Max CPU 1-min Load Avg	Max CPU 5-min Load Avg	Min Free Memory (MB)	Max Paging Activity	Max Last Contact
	Server ID [A] [D]	Num CPU	CPU MHz	Date [A D]									
Houston Cluster 1	sys.1001	4	2400	2010/Jul/07	1	0	1	1	36	37	16	33819	59
Houston Cluster 1	sys.1001	4	2400	2010/Jul/08	2	0	2	2	2	1	62104	3264	60
Houston Cluster 1	sys.1001	4	2400	2010/Jul/09	1	0	1	1	2	2	62145	8520	60
Houston Cluster 1	sys.1001	4	2400	2010/Jul/10	0	0	0	0	1	1	62280	2248	60
Houston Cluster 1	sys.1001	4	2400	2010/Jul/11	0	0	0	0	1	1	62284	2352	59
Houston Cluster 1	sys.1001	4	2400	2010/Jul/12	3	0	3	3	4	2	61155	2420	60
Houston Cluster 1	sys.1001	4	2400	2010/Jul/13	3	0	3	3	27	26	55018	45512	60

Clicking the day drills down to the hourly view.

Cluster Location [A] [D]	Server ID [A] [D]	Num CPU	CPU MHz	Date [A D]	Connected Sessions [A] [D]	Disconnected Sessions [A] [D]	Total Sessions	3D Sessions	1-min Load Avg	5-min Load Avg	Free Memory (MB)	Paging Activity	Last Contact
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 0800	1	0	1	1	1	1	62337	4516	26
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 0900	1	0	1	1	8	2	62261	3544	33
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1000	1	0	1	1	1	1	62285	3236	40
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1100	1	0	1	1	1	1	62220	3088	48
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1200			0	1	1	1	62386	3072	54
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1300			0	1	1	1	62430	2848	59
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1400	1	0	1	1	36	36	53035	1264	9
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1500	1	0	1	1	35	35	31046	1008	15
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1600	1	0	1	1	36	37	25708	848	22
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1700	1	0	1	1	35	35	23476	864	30
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1800	1	0	1	1	33	32	16	976	36
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 1900	1	0	1	1	32	31	16	1032	43
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 2000	1	0	1	1	15	3	4224	1124	49
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 2100	1	0	1	1	1	1	62303	33819	51
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 2200	1	0	1	1	1	1	62293	1192	48
Houston Cluster 1	sys.1001.company	4	2400	2010/Jul/07 2300	1	0	1	1	1	1	62293	1416	54

(Red annotations on the table: "Click on Server ID to display detailed analysis of statistics for this server / month." and "This view will display the hours when the system used resources.")

Lastly, clicking on a record in the hourly view will display the individual records that were pulled from the Load Balance Server about this particular machine. The interval resolution depends upon the query interval specified in the INI file.

The detailed page:

# of Users	Min	Max	Median	Mean (avg)	Min	Max	Median	Mean (avg)	CPU 5-min Load Avg — Min % Load	Max % Load	Median	Mean (avg)	Free Memory — Min MB	Max MB	Median	Mean (avg)	Paging Activity — Min Act	Max Act	Median	Mean (avg)
0									1	1	1	0.01	62337	62564	62452	62451	640	4516	952	14.12
1									1	2	1	0.02	62261	62338	62287	62290	852	3544	1058	21.96
1	1	1	1	1.00	1	1	1	0.01	1	1	1	0.01	62285	62290	62286	62287	732	3236	898	19.19
0	0	1	0	0.50	1	1	1	0.01	1	1	1	0.01	62220	62387	62338	62326	784	3088	820	18.60
0	0	0	0	0.00	1	1	1	0.01	1	1	1	0.01	62386	62435	62417	62413	772	3072	858	18.89
0	0	0	0	0.00	1	1	1	0.01	1	1	1	0.01	62430	62435	62433	62433	556	2848	810	14.87
0	1	1	1	0.67	1	36	29	0.30	1	36	20	0.26	53035	62435	60298	59100	556	1264	728	10.73
1	1	1	1	1.00	33	35	34	0.46	32	35	34	0.46	31046	49652	40872	40656	604	1008	712	10.47
1									28	37	35	0.46	25708	26842	26380	26339	668	848	694	9.83
1									32	35	33	0.45	23476	25466	24895	24767	600	864	792	10.29
1									31	32	31	0.43	16	18941	8018	8479	636	976	802	11.03
1									26	35	30	0.40	16	4232	16	718	528	1032	660	9.72
1									1	3	1	0.02	4224	62697	4225	12971	520	1124	662	9.61
1	1	1	1	1.00	1	1	1	0.01	1	1	1	0.01	62293	62604	62394	62425	613	33819	676	84.72

(Red annotations on the detailed page: "This detailed page contains quite a number of columns. The min, max, median, and average of each statistic is displayed. On the far right we find the "Free Memory" columns." and "Here we can see that the free memory dropped to 16 MB but it was not pegged at 16 MB the entire sampling interval.")

ThinAnywhere Load Balance Statistics

Configuration Warnings

Below is an example of a warning display. In this example, the number of connected and disconnected sessions are zero, but the system has activity, so the system is flagged orange. This usually means that the RemoteControlHosts access list (or firewall) is not configured correctly. There are several systems not reporting connected / disconnected session usage at the time.

| Cluster Location [A] [D] | Record Information | | | | Max Connected Sessions [A] [D] | Max Disconnected Sessions [A] [D] | Max CPU 1-min Load Avg | Max CPU 5-min Load Avg | Min Free Memory (MB) | Max Paging Activity | Max Last Contact |
	Server ID [A] [D]	Num CPU	CPU MHz	Date [A D]							
London 1	10.1.10.25	4	2400	2010	0	0	79	59	16	78004	61
London 1	10.1.10.26	4	2400	2010	0	0	87	79	15	562348	63
London 1	10.1.10.27	4	2400	2010	0	0	100	100	15	243000	265
London 1	10.1.10.28	4	2400	2010	0	0	56	53	16	624256	60

Systems with potential configuration issues are flagged in ORANGE.

For example, these systems show CPU and memory usage but do not report any sessions.

Most likely this is a configuration problem.

ThinAnywhere Load Balance Statistics