IceWall SSO

Version 10.0

Performance Monitor Tool Manual

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1 Introduction

The IceWall SSO Performance Monitor Tool runs on the IceWall server and the Authentication Server, and provides commands to generate performance reports. This manual describes the overview and installation method of the Performance Monitor Tool, and provides some references for it.

1.1 Version designations in the text

The table below gives the meanings of the version designations added to the text.

Designation	Meaning
10.0	An item added to the version enclosed in the square. In this case, the designation indicates the item was added to 10.0.

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2 Overview

This chapter gives an overview of the IceWall Performance Monitor Tool (hereafter referred to as "iwpm").
iwpm includes iwpmd for the Forwarder and iwpmc for the Authentication Module.

2.1 Performance display for Forwarder (iwpmd)

iwpmd analyzes the access and error logs output from the Forwarder, and outputs performance reports.
Reports are output at an interval specified by a command argument.
You can also specify an option to output reports in the CSV format and/or to output reports to a specified file.
The following shows an example of a report displayed when iwpmd is run for the access and error logs of the Forwarder.

Report example (with display interval of 5 seconds)

```
iwpm v10.0[dfw] 18:52:53 Linux  dfw01.iw.hp.com                 interval:  5(s)
Cumulative error count  |      15
-------------------------------------------------------------------------------
  Forwarder log      | Req. rate      Pre-Fwd          Forwarding       Post-Fwd
 as of (18:52:50)    |  (hits/s)      average(s)       average(s)       average(s)
-------------------------------------------------------------------------------
ALL                  |      0.1       0.062444         0.022770         0.030244
-------------------------------------------------------------------------------
SCC                  |      0.0       0.000000         0.000000         0.000000
HPJP                 |      0.0       0.000000         0.000000         0.000000
LOCALHOST            |      0.0       0.000000         0.000000         0.000000
sys                  |      0.1       0.078119         0.008226         0.016286
sys2                 |      0.1       0.049905         0.034406         0.041410
ap01                 |      0.0       0.000000         0.000000         0.000000
ap02                 |      0.0       0.000000         0.000000         0.000000
ap03                 |      0.0       0.000000         0.000000         0.000000
ap04                 |      0.0       0.000000         0.000000         0.000000
ap05                 |      0.0       0.000000         0.000000         0.000000
```

2.2 Performance display for Authentication Module (iwpmc)

iwpmc analyzes logs (access, information, and performance logs) output from the Authentication Module and outputs performance reports.

Reports are output at an interval specified by a command argument.
You can also specify an option to output reports in the CSV format and/or to a specified file.
The output report contains the CERTINFO and PERF information.

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The CERTINFO information is the performance information output to the information log under the keyword "CERTINFO" when the operation information output command (info-cert) is executed. The PERF information is the performance information output to the performance log under the keyword "PERF" when "LOGPERF=1" is set in the configuration file of the Authentication Module (cert.conf).
The following shows an example of a report displayed when iwpmc is run for the log files of the Authentication Module.

Report example (with display interval of 5 seconds)

```
iwpm v10.0[certd] 15:06:45 Linux  cert01.iw.hp.com                interval:  5(s)
-------------------------------------------------------------------------------
        | Mem  RSS[certd]= 47924kB   VSS[certd]= 59kB      Phy. Mem= 2055476kB
-------------------------------------------------------------------------------
  CERTINFO log |
as of 15:06:44 |       Current          60s Average       60s Max       Limit
Active users   |        3 ( 30%)          2 ( 21%)         3 ( 30%)         10
Use cache      |        3 ( 30%)          2 ( 21%)         3 ( 30%)         10
Req. threads   |        1 ( 10%)          1 ( 10%)         1 ( 10%)         10
Acc. threads   |        0 (  0%)          0 (  0%)         0 (  0%)          0
Req. queue     |        0 (  0%)          0 (  0%)         0 (  0%)         20
Repli. threads |        0 (  0%)          0 (  0%)         0 (  0%)          5
Repli. queue   |        0 (  0%)          0 (  0%)         0 (  0%)       1000
DB Connections |        0 (  0%)          0 (  0%)         0 (  0%)          2
DB queue       |       20 ( 20%)          5 (  5%)        20 ( 20%)        100
LogDB queue    |       20 ( 40%)          7 ( 13%)        20 ( 40%)         50
-------------------------------------------------------------------------------
   PERF log    |  Rate  |          Processing Time (s/req)
as of 15:06:43 | (req/s)|  ALL        DB select  DB update  DB insert  DB bind
Login          |   0.2  |  0.043177   0.003816   0.017546   0.015280   0.000000
Access         |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
Password change|   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
Logout[Normal] |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
      [Force]  |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
      [Timeout]|   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
```


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3 Operating Environment

This chapter shows the operating environment of iwpm. For the latest information on the operating environment of IceWall SSO, see the HP Web page (http://www.hp.com/jp/icewall/).

- Server platform
  The server platform conforms to the operating environment conditions of the IceWall SSO Forwarder and Authentication Module.

- OS and Perl versions
  iwpm runs on the OS versions and the Perl versions listed below. Be sure to use the Perl version bundled with the OS.

OS	Perl
Red Hat Enterprise Linux 5.4 (x86 64-bit) or later	Perl bundled with OS (Recommended version: V5.8.5 or later) (The time acquisition module Time::Local is required.)
HP-UX 11i v3 Itanium	

- IceWall SSO version
  iwpm can be used for log files output by the Forwarder and Authentication Module of IceWall SSO Version 10.0.

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4 Installation Procedure

Install iwpmd and iwpmc as described below.

4.1 Installing the modules

4.1.1 Installing iwpmd

By installing the Forwarder as directed in the "IceWall SSO Installation Guide," iwpmd is installed in the **/opt/icewall-sso/iwpmd** directory.

4.1.2 Installing iwpmc

By installing the Authentication Module as directed in the "IceWall SSO Installation Guide," iwpmc is installed in the **/opt/icewall-sso/iwpmc** directory.

4.2 Confirming the version information

After installation, make sure the version of the modules have been installed.

4.2.1 Confirmation for iwpmd

(1) Move to the command execution directory.

```
# cd /opt/icewall-sso/iwpmd/bin
```

(2) Enter the following command:

```
# grep "@(#)" iwpmd
```

(3) The following information is displayed:

```
# @(#)IceWall SSO Performance Monitor (iwpm)
# @(#)File        : iwpmd
# @(#)Description : dfw activity reporter
# @(#)Version     : 10.00.00.xxxxxxX
```

4.2.2 Confirmation for iwpmc

(1) Move to the command execution directory.

```
# cd /opt/icewall-sso/iwpmc/bin
```


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(2) Enter the following command:

```
# grep "@(#)" iwpmc
```

(3) The following information is displayed:

```
# @(#)IceWall SSO Performance Monitor (iwpm)
# @(#)File        : iwpmc
# @(#)Description : certd activity reporter
# @(#)Version     : 10.00.00.xxxxxxX
```

4.3 Configuration after installation

After installation, configure the settings for running iwpmd and iwpmc.

4.3.1 Configuration for iwpmd

The write permission for the temporary directory is necessary for the user to run iwpmd. Run the following command:

```
# cd /opt/icewall-sso/iwpmd
# chown <user name> data run tmp
```

The user who runs iwpmd must:
- Have set the execution path to run Perl,
- Be able to read the access and error logs of the Forwarder,

HP recommends that the same user as the Forwarder run iwpmd.

Edit the configuration file of iwpmd as necessary.
The following file controls configuration of iwpmd:
/opt/icewall-sso/iwpmd/conf/iwpmd.conf

For details on the parameters that can be configured in this file, see "8 iwpm Reference" in this document. To change the default settings, edit the configuration file and change the necessary parameters.

4.3.2 Configuration for iwpmc

The write permission for the temporary directory is necessary for the user to run iwpmc. Run the following command:

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```
# cd /opt/icewall-sso/iwpmc
# chown <user name> data run tmp
```

The user who runs iwpmc must:

- Have set the execution path to run Perl, and
- Be able to read the access log of the authentication log.

HP recommends that the same user as the Authentication Module run iwpmc.

Edit the configuration file of iwpmc as necessary.
iwpmc can be configured using the following file:

/opt/icewall-sso/iwpmc/conf/iwpmc.conf

For details on the parameters that can be configured in this file, see "8 iwpm Reference" in this document. To change the default settings, edit the configuration file and change the necessary parameters.

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5 Performance Display for the Forwarder

This chapter describes the startup command syntax and arguments for iwpmd, as well as how to read performance display.

5.1 Syntax

 # iwpmd -i <interval> [-t [<alias1> <alias2> ...] [-o <filename>]]

5.1.1 Arguments

-i: Specifies the update interval (in seconds) of display. A positive integer can be specified.
This argument cannot be omitted.

-t: Shows performance data in the CSV format (separated with commas).
This argument can be omitted.
alias:
By specifying an alias defined by the HOST parameter in the iwpmd configuration file (iwpmd.conf) following the -t argument, performance data for the host specified by the alias is additionally displayed. You can specify multiple aliases.
* When no alias is specified, only the performance data for the entire Forwarder is displayed.

-o: Outputs performance data to a file in the CSV format.
You must also specify the -t argument when specifying this argument.

5.1.2 Execution example

(1) iwpmd -i 10
Displays performance data and updates it every 10 seconds.

(2) iwpmd -i 10 -t
Displays performance data in the CSV format and updates it every 10 seconds.

(3) iwpmd -i 10 -t SCC HPJP
Displays performance data in the CSV format and updates it every 10 seconds. In addition, performance data for the hosts specified by the aliases SCC and HPJP is output.

(4) iwpmd -i 10 -t SCC HPJP -o /data/dfwperf.csv
Displays performance data in the CSV format and updates it every 10 seconds. In addition, performance data for the hosts specified by the aliases SCC and HPJP is output.

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The results are also output to the /data/dfwperf.csv file.

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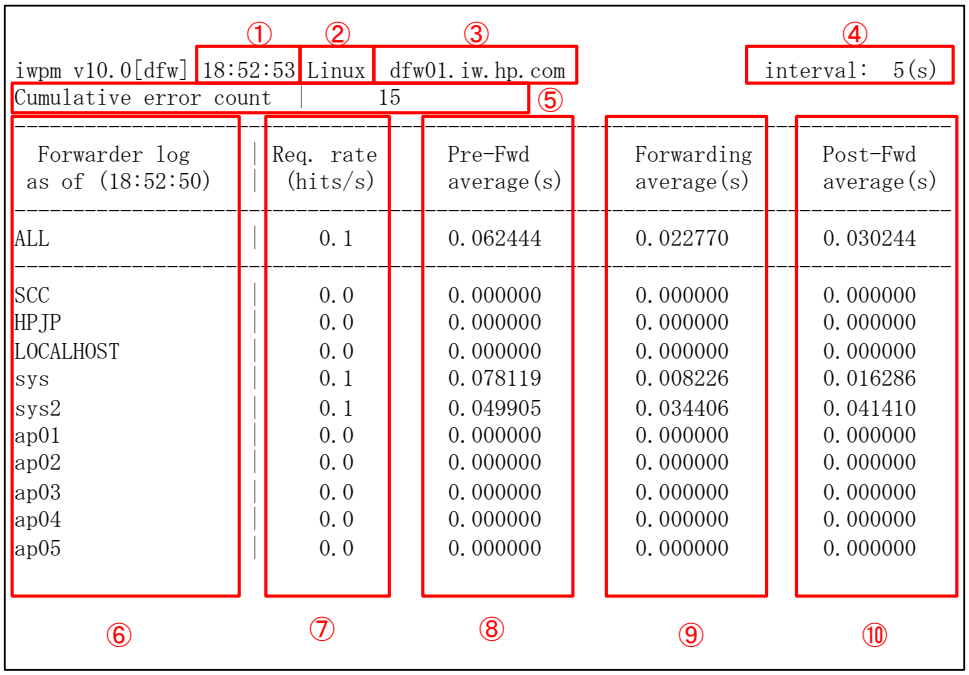
5.2 Display items

The following describes the items displayed by iwpmd.



(1) Display time
The current time is shown.

(2) OS
The OS name (returned by "uname -s") is shown.

(2) Host name
The host name (returned by "uname -n") is shown.

(4) Display interval
The display interval specified when iwpmd was invoked is shown.
This example shows that data is updated every 5 seconds.

(5) Number of errors
The cumulative number of errors occurring in the Forwarder after starting iwpmd (i.e., the number of error lines output to the error log) is shown.
This example shows that 15 errors have occurred after starting iwpmd.

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(6) Access log information (Forwarder log)

Information about the access log is shown.

Item	Description
as of	The time when the log was analyzed for the last time. Values shown in the items (7) to (10) are as of this time.
ALL	Information about all Backend Web Servers
Other (Items below ALL)	Information of each Backend Web Server Only the Backend Web Servers defined by the HOST parameter in the iwpmd configuration file are shown here.

In this example, the last log analysis time is 18:52:50.

Values for the items (7) to (10) show the log analysis results at 18:52:50.

* Log analysis takes some time. When the number of accesses is very high, the display time (1) and the last log analysis time (as of) become different.

(7) Req. rate (hits/s)

The average access count per second between the previous and last log analysis times is shown.

This example shows the average access rate per second during the five second period from 18:52:45 to 18:52:50 (same as the display interval), and the average access rate is 0.2 hits/sec. for the sys server, 0.2 hits/sec. for the sys2 server, and 0.4 hits/sec for the entire Backend Web Server.

(8) Pre-Fwd average (s)

The average time (per request), between the previous and last log analysis times, from when the Forwarder module starts up in response to arrival of a request until it is connected to the Backend Web Server is shown. (Time required to access to the Authentication Module is also included.)

This example shows the average time per second during the five second period from 18:52:45 to 18:52:50 (same as the display interval), and the average access rate is 0.078119 seconds for the sys server, 0.049905 seconds for the sys2 server, and 0.062444 hits/sec for the entire Backend Web Server.

(9) Forwarding average (s)

The average time (per request), between the previous and last log analysis times, from when connection to the Backend Web Server began until the entire contents have been received is shown.

This example shows the average time per second during the five second period from 18:52:45 to 18:52:50 (same as the display interval), and the average access rate is 0.008226 seconds for the sys server, 0.034406 seconds for the sys2 server, and 0.022770 hits/sec for the entire Backend Web Server.

(10) Post-Fwd average (s)

The average time (per request), between the previous and last log analysis times,

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from when the entire contents were received from the Backend Web Server until they have been output to the browser is shown.
This example shows the average time per second during the five second period from 18:52:45 to 18:52:50 (same as the display interval), and the average access rate is 0.016286 seconds for the sys server, 0.041410 seconds for the sys2 server, and 0.030244 hits/sec for the entire Backend Web Server.

5.3 Termination method

Press [Ctrl]-[C] keys to terminate iwpmd.

* Do not use the kill -9 command (SIGKILL signal) to forcibly terminate the iwpmd process. This may cause iwpmd to be terminated incorrectly, preventing it from starting normally the next time and/or leaving a redundant process. When using the kill command, do not specify the signal argument (i.e., use the default SIGTERM signal).

When iwpmd terminates, you see the following message:

```
exit program.
iwpmdd stopped.
```

When multiple instances of iwpmd are running on a single server and you terminate one of them, you see the following message which indicates that another instance of iwpmd is still running:

```
exit program.
warning: another iwpmd process is running.
```

If you see this message even when no instance of iwpmd is running, the instance executed the last time may not have been terminated properly.
In this case, use the following command to check if an iwpmd process is left, and use the kill command (with no signal argument) to kill any existing processes.

•Processes related to iwpmd

```
# ps -ef  | grep iwpmd
```

•Process to tail Forwarder log files

```
# ps -ef  | grep tail
```

* iwpmd internally uses the tail command to monitor log files.

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The following shows an output example when a process is remaining at the time of command execution:

```
# ps -ef  | grep iwpmd
root 6361 30226 0 19:09 pts/2 00:00:00 /bin/sh ./iwpmd -i 5
root 6395     1 0 19:09 pts/2 00:00:00 /bin/sh ./iwpmdd start
root 6397  6395 0 19:09 pts/2 00:00:00 perl ./script/
iwpmd_count_errlog.pl
root 6398     1 0 19:09 pts/2 00:00:00 /bin/sh ./iwpmdd start
root 6400     1 0 19:09 pts/2 00:00:00 /bin/sh ./iwpmdd start
root 6402  6400 0 19:09 pts/2 00:00:00 perl ./script/
iwpmd_analyselog.pl
```

```
# ps -ef  | grep tail
root 3992 3991 0 19:07 pts/2 00:00:00 tail -f /opt/icewall-sso/
logs/dfwerr.log
root 3998  1  0 19:07 pts/2 00:00:00 tail -f ./tmp/iwpmdd.datetmp
root 4001  1  0 19:07 pts/2 00:00:00 tail -f /opt/icewall-sso/
logs/dfw.log
```

5.4 Temporary file

When iwpmd terminates normally, all temporary files are deleted.
If it does not terminate normally for some reason, use the following command to check if any temporary files are remaining, and delete them.

```
# cd /opt/icewall-sso/iwpmd
# ls -ltr tmp/ run/ data/
tmp/:
total 0

run/:
total 0

data/:
total 0
```

Delete the temporary files (if any) using the following command:

```
# cd /opt/icewall-sso/iwpmd
# rm tmp/* run/* data/*
```


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6 Performance Display for the Authentication Module

This chapter describes the startup command syntax and arguments for iwpmc, as well as how to read performance display.

6.1 Syntax

 # iwpmc -i <interval> [-p <time>] [-t {c | p} [-o <filename>]]

6.1.1 Arguments

-i: Specifies the update interval (in seconds) of display. A positive integer can be specified.
This argument cannot be omitted.

-p: Specifies the period of time (in seconds) for which the average and maximum value should be displayed for the CERTINFOR information.
This argument can be omitted. "60" is assumed if it is omitted.

-t: Shows performance data in the CSV format (separated with commas).
This argument can be omitted. However, when this argument is specified, one of the following must be also used to specify the type of information to output.
c: Outputs the CERTINFOR information.
p: Outputs the PERF information.

-o: Outputs performance data to a specified file.
You must also specify the -t argument when specifying this argument.

6.1.2 Execution example

(1) iwpmd -i 10
Displays performance data and updates it every 10 seconds.

(2) iwpmc -i 10 -p 30
Displays performance data and updates it every 10 seconds. Values for the XXs Average and XXs Max parameters are calculated using data for the last 30 seconds.

(3) iwpmc -i 10 -t c
Displays the CERTINFO information in the CSV format and updates it every 10 seconds.

(4) iwpmc -i 10 -t p -o /data/certdperf.csv
Displays the PERF information in the CSV format and updates it every 10 seconds.
The results are also output to the /data/certdperf.csv file.

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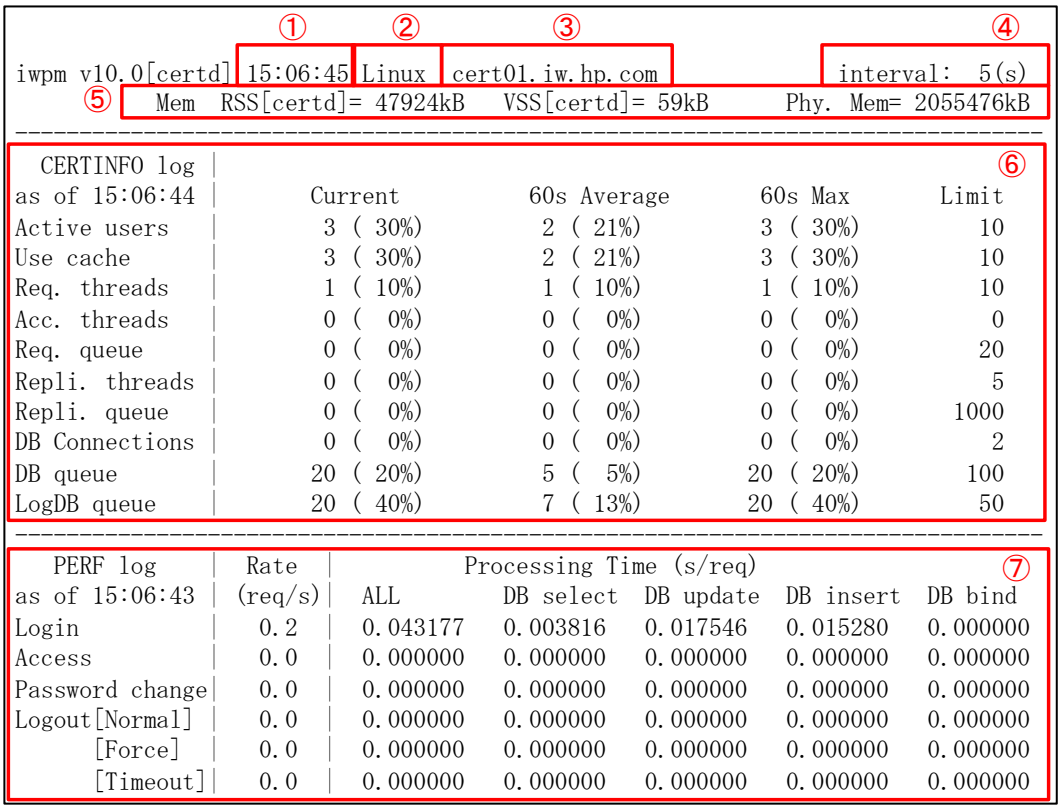
6.2 Display items

The following describes the items displayed by iwpmc.



```
                          ①          ②          ③                          ④
iwpm v10.0[certd]  15:06:45  Linux  cert01.iw.hp.com          interval:  5(s)
      ⑤   Mem  RSS[certd]= 47924kB   VSS[certd]= 59kB      Phy. Mem= 2055476kB
-------------------------------------------------------------------------------
  CERTINFO log  |                                                          ⑥
as of 15:06:44  |      Current        60s Average      60s Max       Limit
Active users    |        3 ( 30%)        2 ( 21%)        3 ( 30%)       10
Use cache       |        3 ( 30%)        2 ( 21%)        3 ( 30%)       10
Req. threads    |        1 ( 10%)        1 ( 10%)        1 ( 10%)       10
Acc. threads    |        0 (  0%)        0 (  0%)        0 (  0%)        0
Req. queue      |        0 (  0%)        0 (  0%)        0 (  0%)       20
Repli. threads  |        0 (  0%)        0 (  0%)        0 (  0%)        5
Repli. queue    |        0 (  0%)        0 (  0%)        0 (  0%)     1000
DB Connections  |        0 (  0%)        0 (  0%)        0 (  0%)        2
DB queue        |       20 ( 20%)        5 (  5%)       20 ( 20%)      100
LogDB queue     |       20 ( 40%)        7 ( 13%)       20 ( 40%)       50
-------------------------------------------------------------------------------
   PERF log     |  Rate  |                Processing Time (s/req)              ⑦
as of 15:06:43  | (req/s)|  ALL        DB select  DB update  DB insert  DB bind
Login           |   0.2  |  0.043177   0.003816   0.017546   0.015280   0.000000
Access          |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
Password change |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
Logout[Normal]  |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
      [Force]   |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
      [Timeout] |   0.0  |  0.000000   0.000000   0.000000   0.000000   0.000000
```

(1) Display time

The current time is shown.

(2) OS

The OS name (returned by "uname -s") is shown.

(3) Host name

The host name (returned by "uname -n") is shown.

(4) Display interval

The display interval specified when iwpmc was invoked is shown.
This example shows that data is updated every five seconds.

(5) Memory usage

Memory usage by the Authentication Module (certd) is shown. The values shown are calculated using data returned from the ps command.

RSS : Real memory amount used by the Authentication Module.
On an HP-UX operating system, "--" is displayed.

VSS : Virtual memory amount used by the Authentication Module.

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Phy. Mem : Physical memory amount used by iwpmc.
On an HP-UX operating system, "--" may be displayed.

(6) CERTINFO information display

This item is the performance information output to the access log or information log under the keyword "CERTINFO" when the operation information output command (info-cert) is executed. iwpmc regularly runs the info-cert command to analyze output logs.

Line

Item	Description
Active users	Number of login users
Use cache 10.0	Number of caches used
Req. threads	Number of request threads
Acc. threads 10.0	Number of access threads
Req. queue	Request queue size
Repli. threads	Number of replication threads
Repli. queue	Replication queue size
DB Connections	Number of DB connections
DB queue 10.0	Queue size of update process data for the authentication database
LogDB queue 10.0	Queue size for history database audit log data

Column

Item	Description
as of	Time when logs were analyzed last time
Current	Count at the time when logs were analyzed The value within () is usage for the maximum number of login users.
XXs Average	Average count within the last XX seconds (*) before the time when logs were analyzed The value within () is usage for the maximum number of login users.
XXs Max	Maximum value within the last XX seconds (*) before the time when logs were analyzed The value within () is usage for the maximum number of login users.
Limit	Maximum value Maximum value for each parameter defined in the configuration file of the Authentication Module

*: The value for "XX" is specified with the -p option.

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This example shows that the number of login users at 15:06:43 is 3.

(7) PERF information display

The PERF information is performance data output to the access or performance log file when LOGPERF=1 is specified in the cert.conf file.
For details on the PERF information, see the "IceWall SSO User's Manual."

Line

Item	Description
Login	Number of user ID login requests The following PERF information values are summed up to calculate this value. "LOGINUID" "FLOGINUID" "LOGINCERT" "FLOGINCERT" "LOGINSAML" "FLOGINSAML" "LOGINFEDE" "FLOGINFEDE"
Access	Number of user ID access requests The following PERF information values are summed up to calculate this value. "ACCESSUID" "ACCESSCERT"
Password change	Number of password change requests The "PWDCHG" value from the PERF information is used to calculate this value.
Logout [Normal]	Number of logout requests The "LOGOUT" value from the PERF information is used to calculate this value.
[Force]	Number of external cache references (login status/forced logout) The "FLOGOUT" value from the PERF information is used to calculate this value.
[Timeout]	Number of automatic logouts The "AUTOLOGOUT" value from the PERF information is used to calculate this value.

Column

Item	Description
as of	Time when logs were analyzed last time

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Item		Description
Rate(req/s)		Average number of requests per second during a period of time from the previous analysis until this analysis
Processing Time (s/req)		Average time per request during a period of time from the previous analysis until this analysis for the following five items:
	ALL	Average request processing time of the Authentication Module
	DB select	Average wait time for Authentication DB data search
	DB update	Average wait time for Authentication DB data update
	DB insert	Average wait time for audit log database insertion
	DB bind 10.0	Average time for binding to the Authentication DB and audit log database * Only when LDAP is used as the Authentication DB and bind authentication is performed

This example shows that the average number of requests at 15:06:43 is 0.0 and the average process time for a login request is 0.043177.

6.3 Termination method

Press [Ctrl]-[C] keys to terminate iwpmc.

* Do not use the kill -9 command (SIGKILL signal) to forcibly terminate the iwpmd process. This may cause iwpmd to be terminated incorrectly, preventing it from starting normally the next time and/or leaving a redundant process. When using the kill command, do not specify the signal argument (i.e., use the default SIGTERM signal).

When iwpmc terminates, you see the following message:

```
exit program.
iwpmcd stopped.
```

When multiple instances of iwpmc are running on a single server and you terminate one of them, you see the following message which indicates that another instance of iwpmc is still running:

```
exit program.
warning: another iwpmc process is running
```

If you see this message even when no instance of iwpmc is running, the instance executed the last time may not have been terminated properly.
In this case, use the following command to check if an iwpmc process is left, and use the kill command (with no signal argument) to kill any existing processes.

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•Processes related to iwpmc

```
# ps -ef  | grep iwpmc
```

•Process to tail Forwarder log files

```
# ps -ef  | grep tail
```

* iwpmc internally uses the tail command to monitor log files.

The following shows an output example when a process is remaining at the time of command execution:

```
# ps -ef  | grep iwpmc
root 12794 30226  0 19:14 pts/2    00:00:00 /bin/sh ./iwpmc -i 5
root 12824     1  0 19:14 pts/2    00:00:00 /bin/sh ./iwpmcd start
root 12827     1  0 19:14 pts/2    00:00:00 /bin/sh ./iwpmcd start
root 12830 12827  1 19:14 pts/2    00:00:00 perl ./script/
iwpmc_analyselog.pl
```

```
# ps -ef | grep tail
root 12829     1  0 19:14 pts/2    00:00:00 tail -f /opt/icewall-
sso/logs/cert.log
root 14175 30537  0 19:14 pts/3    00:00:00 grep tail
```

6.4 Temporary file

When iwpmc terminates normally, all temporary files are deleted.
If it does not terminate normally for some reason, use the following command to check if any temporary files are remaining, and delete them.

```
# cd /opt/icewall-sso/iwpmc
# ls -ltr tmp/ run/ data/
tmp/:
total 0

run/:
total 0

data/:
total 0
```

Delete the temporary files (if any) using the following command:

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```
# cd /opt/icewall-sso/iwpmc
# rm tmp/* run/* data/*
```


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7 Remarks

Note the following points when using iwpm:

7.1 Files necessary at startup

When starting iwpmd or iwpmc, log files specified in each of the configuration files must already exist.
If they do not exist, use the touch command to create them.

7.2 Moving currently running log files

Because log files are monitored during the operation of iwpmd and iwpmc, do not move the log files of the Forwarder and Authentication Module, such as with the mv command. Use extra care when rotating log files.

7.3 Temporary files

iwpmd and iwpmc output analysis results of log files to the temporary files and use them to calculate various values including the average number of accesses.
While the tool is running for a long time, the size of each temporary file may become too large.
But, if you clear the temporary files while the tool is running, calculated performance data may become inaccurate thereafter.
Terminate iwpm before clearing the temporary files.

7.4 Operating environment

Because iwpm itself consumes the CPU power, running iwpm on a system under a heavy load may affect the entire performance or cause the calculated values to be inaccurate.
Check the system status including the CPU usage using other commands before running iwpm.
iwpm is intended for use under a regular operation condition with a normal load, and cannot be used to measure performance under a test environment.

7.5 Support

This version of iwpm is not included in the target of official product support.

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8 iwpm Reference

This chapter describes the parameters which can be defined in the configuration files of iwpmd and iwpmc (iwpmd.conf and iwpmc.conf, respectively).
The following describes the format rules and restrictions applied to the configuration files.

- Describe the file in the text file format.
- A line which starts with "#" is a comment line.
- Lines with invalid parameter names are ignored.

In the following description, a "default value" refers to a value of a parameter which is used when the value is not defined in the configuration file.

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8.1 iwpmd configuration file (iwpmd.conf)

Overview

The iwpmd.conf file defines information of the Forwarder log files obtained by iwpmd as well as information necessary for its operation. The configurable parameters are as follows:

Parameter group	Parameter name
Basic configuration	TMPDIR
Parameters related to Forwarder	SRC_FILE
	SRC_ERRFILE
Backend Web Server configuration parameters	HOST

File path

The following is the standard file path:
/opt/icewall-sso/iwpmd/conf/iwpmd.conf

Remarks

- The name and location of this file cannot be changed.

The following pages describe these parameters.

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8.1.1 Basic configuration

These parameters are used commonly by the entire system while iwpmd is running.

Parameter name	Mandatory	Overview
TMPDIR	○	Specifies the temporary directory name.

For details on these parameters, see the following pages.

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TMPDIR

Overview

Specifies the name of the temporary directory used by iwpmd.

Format

TMPDIR=Temporary directory name

- The temporary directory name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/iwpmd/tmp.

Configuration Example

1) To set the standard temporary directory name:
TMPDIR=/opt/icewall-sso/iwpmd/tmp

Remarks

- Assign the write permission of the user who executes iwpmd to the directory defined with this parameter.
- iwpmd does not operate correctly if the data and run directories do not exist in the same hierarchy as the end of the directory path defined with this parameter. .

See also

None

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8.1.2 Parameters related to Forwarder

These parameters specify information of the Forwarder for which performance is to be analyzed.

Parameter name	Mandatory	Overview
SRC_FILE	○	Specifies the Forwarder access log file name.
SRC_ERRFILE	○	Specifies the Forwarder error log file name.

For details on these parameters, see the following pages.

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SRC_FILE

Overview

Specifies the name of the access log file of the Forwarder for which performance is to be analyzed.

Format

SRC_FILE=Forwarder access log file name

- The Forwarder access log file name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/logs/dfw.log.

Configuration Example

1) To set the standard access log file name:
SRC_FILE=/opt/icewall-sso/logs/dfw.log

Remarks

- If you specify a log file other than the Forwarder access log file with this parameter, performance analysis results will be all "0"s.

See also

SRC_ERRFILE

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SRC_ERRFILE

Overview

Specifies the name of the error log file of the Forwarder for which performance is to be analyzed.

Format

SRC_ERRFILE=Forwarder error log file name

- The Forwarder error log file name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/logs/dfwerr.log.

Configuration Example

1) To set the standard error log file name:
SRC_ERRFILE=/opt/icewall-sso/logs/dfwerr.log

Remarks

- If you specify a log file other than the Forwarder error log file with this parameter, the number of errors is not displayed correctly.

See also

SRC_FILE

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8.1.3 Backend Web Server configuration parameters

These parameters specify information of the Backend Web Server for which performance is to be analyzed.

Parameter name	Mandatory	Overview
HOST	×	Configures the Backend Web Server information.

For details on these parameters, see the following pages.

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HOST

Overview

Configures information of the Backend Web Server specified by the HOST and SHOTST parameters in the Forwarder configuration file (dfw.conf).
Enables individually analyzing performance and displaying the results for each of the Backend Web Servers defined here.

Format

HOST=Alias name=Backend Web Server name:port number

- The port number cannot be omitted.
- This parameter can span multiple lines.
- No default value is provided.
- The initial value is SCC=www.scc-kk.co.jp:80, HPJP=welcome.hp.com:80, and LOCALHOST=localhost:80.

Configuration Example

1) When configuring information for HPJP=welcome.hp.com:80 defined in the Forwarder configuration file
HOST=HPJP=welcome.hp.com:80

Remarks

- Proxy server information cannot be defined with this parameter. If proxy server information is defined in the Forwarder configuration file, just specify the Backend Web Server name and port number.

- If the port number is not specified in the Forwarder configuration file, use the default port number (80 for HTTP and 443 for SSL).

See also

None

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8.2 iwpmc configuration file (iwpmc.conf)

Overview

The iwpmc.conf file defines information of the Authentication Module log files obtained by iwpmc as well as information necessary for its operation.
The configurable parameters are as follows:

Parameter group	Parameter name
Basic configuration	TMPDIR
Parameters related to Authentication Module	CERTDIR
	PERF_FILE
	CERTINFO_FILE

File path

The following is the standard file path:
/opt/icewall-sso/iwpmd/conf/iwpmc.conf

Remarks

- The name and location of this file cannot be changed.

The following pages describe these parameters.

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8.2.1 Basic configuration

These parameters are used commonly by the entire system while iwpmc is running.

Parameter name	Mandatory	Overview
TMPDIR	○	Specifies the temporary directory name.

For details on these parameters, see the following pages.

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TMPDIR

Overview

Specifies the name of the temporary directory used by iwpmc.

Format

TMPDIR=Temporary directory name

- The temporary directory name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/iwpmc/tmp.

Configuration Example

1) To set the standard temporary directory name:
TMPDIR=/opt/icewall-sso/iwpmc/tmp

Remarks

- Assign the write permission of the user who executes iwpmc to the directory defined with this parameter.
- iwpmc does not operate correctly if the data and run directories do not exist in the same hierarchy as the end of the directory path defined with this parameter.

See also

None

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8.2.2 Parameters related to Authentication Module

These parameters specify information of the Authentication Module for which performance is to be analyzed.

Parameter name	Mandatory	Overview
CERTDIR	○	Specifies the operating directory name for the Authentication Module.
PERF_FILE	○	Specifies the performance log file name.
CERTINFO_FILE	○	Specifies the information log file name.

For details on these parameters, see the following pages.

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CERTDIR

Overview

Specifies the name of the directory where the Authentication Module is installed.

Format

CERTDIR=Authentication module installation directory name

- The directory name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/certd.

Configuration Example

1) To set the standard installation directory name:
CERTDIR=/opt/icewall-sso/certd

Remarks

- bin/info-cert must exist under the directory specified with this parameter.

See also

None

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PERF_FILE

Overview

Specifies the performance log file name for the Authentication Module.

Format

PERF_FILE=Performance log file name

- The performance log file name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/logs/cert.log.

Configuration Example

1) To set the standard performance log file name:
PERF_FILE=/opt/icewall-sso/logs/certperf.log

2) When the performance log is output to the access log
PERF_FILE=/opt/icewall-sso/logs/cert.log

Remarks

- If you specify a log file other than the performance log file with this parameter, the operation is not guaranteed.
- When the Authentication Module outputs the performance log, the LOGPERF parameter in the Authentication Module configuration file (cert.conf) must be set to "1."

See also

CERTINFO_FILE
PERFORMANCE (Authentication Module configuration file)

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CERTINFO_FILE

Overview

Specifies the information log file name for the Authentication Module.

Format

CERTINFO_FILE=information log file name

- The information log file name must be an absolute path.
- No default value is provided.
- The initial value is /opt/icewall-sso/logs/cert.log.

Configuration Example

1) To set the standard information log file name:
CERTINFO_FILE=/opt/icewall-sso/logs/certinfo.log

2) When the information log is output to the access log
CERTINFO=/opt/icewall-sso/logs/cert.log

Remarks

- If you specify a log file other than the information log file with this parameter, the operation is not guaranteed.

See also

PERF_FILE
INFORMATION (Authentication Module configuration file)

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9 Parameters Used for CSV Format Output

This chapter describes parameters used when the performance information is output in the CSV format.

9.1 Forwarder performance parameters

When iwpmd outputs the performance information of the Forwarder in the CSV format, parameters listed in the table below are used. These parameters are output to a single line in the same order as listed in the table, separated by commas (,). For the meaning of each parameter, see "5.2 Display items."
Note that the first line is always the header line showing the title of the table.

Parameter	Output format	Remarks
Date	YYYY/MM/DD	
Time	HH:MM:SS	
Req. rate(ALL)	N.N	
Pre-Fwd(ALL)	N.NNNNNN	
Forwarding(ALL)	N.NNNNNN	
Post-Fwd(ALL)	N.NNNNNN	
Req. rate(alias)	N.N	These parameters are output for the number of Backend Web Servers corresponding to the alias names defined with the -t option. The alias name is output to "alias."
Pre-Fwd(alias)	N.NNNNNN	
Forwarding(alias)	N.NNNNNN	
Post-Fwd(alias)	N.NNNNNN	

9.2 Authentication Module performance parameters

When iwpmc outputs the performance information of the Authentication Module in the CSV format, parameters listed in the table below are used. These parameters are output to a single line in the same order as listed in the table, separated by commas (,). For the meaning of each parameter, see "6.2 Display items."
Note that the first line is always the header line showing the title of the table.

CERTINFO information

Parameter	Output format	Remarks
Date	YYYY/MM/DD	
Time	HH:MM:SS	
Active users (Current)	N	
Active users ratio (Current)	N	

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Parameter	Output format	Remarks
Active users (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Active users ratio (NNs Average)	N	
Active users (NNs Max)	N	
Active users ratio (NNs Max)	N	
Active users (Limit)	N	
Use cache (Current) 10.0	N	
Use cache ratio (Current) 10.0	N	
Use cache (NNs Average) 10.0	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Use cache ratio (NNs Average) 10.0	N	
Use cache (NNs Max) 10.0	N	
Use cache ratio (NNs Max) 10.0	N	
Use cache (Limit) 10.0	N	
Req. threads (Current)	N	
Req. threads ratio (Current)	N	
Req. threads (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Req. threads ratio (NNs Average)	N	
Req. threads (NNs Max)	N	
Req. threads ratio (NNs Max)	N	
Req. threads (Limit)	N	
Acc. threads (Current) 10.0	N	
Acc. threads ratio (Current) 10.0	N	
Acc. threads (NNs Average) 10.0	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Acc. threads ratio (NNs Average) 10.0	N	
Acc. threads (NNs Max) 10.0	N	
Acc. threads ratio (NNs Max) 10.0	N	
Acc. threads (Limit) 10.0	N	
Req. queue (Current)	N	
Req. queue ratio (Current)	N	
Req. queue (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Req. queue ratio (NNs Average)	N	
Req. queue (NNs Max)	N	
Req. queue ratio (NNs Max)	N	
Req. queue (Limit)	N	
Repli. threads (Current)	N	
Repli. threads ratio (Current)	N	
Repli. threads (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Repli. threads ratio (NNs Average)	N	
Repli. threads (NNs Max)	N	
Repli. threads ratio (NNs Max)	N	
Repli. thread (Limit)	N	

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Parameter	Output format	Remarks
Repli. queue (Current)	N	
Repli. queue ratio (Current)	N	
Repli. queue (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
Repli. queue ratio (NNs Average)	N	
Repli. queue (NNs Max)	N	
Repli. queue ratio (NNs Max)	N	
Repli. queue (Limit)	N	
DB Connections (Current)	N	
DB Connections ratio (Current)	N	
DB Connections (NNs Average)	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
DB Connections ratio (NNs Average)	N	
DB Connections (NNs Max)	N	
DB Connections ratio (NNs Max)	N	
DB Connections (Limit)	N	
DB queue (Current) 10.0	N	
DB queue ratio (Current) 10.0	N	
DB queue (NNs Average) 10.0	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
DB queue ratio (NNs Average) 10.0	N	
DB queue (NNs Max) 10.0	N	
DB queue ratio (NNs Max) 10.0	N	
DB queue (Limit) 10.0	N	
LogDB queue (Current) 10.0	N	
LogDB queue ratio (Current) 10.0	N	
LogDB queue (NNs Average) 10.0	N	The number of seconds specified with the -p option is output to "NNs." "60" is output when the -p option is omitted.
LogDB queue ratio (NNs Average) 10.0	N	
LogDB queue (NNs Max) 10.0	N	
LogDB queue ratio (NNs Max) 10.0	N	
LogDB queue (Limit) 10.0	N	

PERF information

Parameter	Output format	Remarks
Date	YYYY/MM//DD	
Time	HH:MM:SS	
Login (Rate [req/s])	N.N	
Login (Processing Time ALL [s/req])	N.NNNNNN	
Login (Processing Time DB select [s/req])	N.NNNNNN	
Login (Processing Time DB update [s/req])	N.NNNNNN	
Login (Processing Time DB insert [s/req])	N.NNNNNN	
Login (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	

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Parameter	Output format	Remarks
Access (Rate [req/s])	N.N	
Access (Processing Time ALL [s/req])	N.NNNNNN	
Access (Processing Time DB select [s/req])	N.NNNNNN	
Access (Processing Time DB update [s/req])	N.NNNNNN	
Access (Processing Time DB insert [s/req])	N.NNNNNN	
Access (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	
Password change (Rate [req/s])	N.N	
Password change (Processing Time ALL [s/req])	N.NNNNNN	
Password change (Processing Time DB select [s/req])	N.NNNNNN	
Password change (Processing Time DB update [s/req])	N.NNNNNN	
Password change (Processing Time DB insert [s/req])	N.NNNNNN	
Password change (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	
Logout[Normal] (Rate [req/s])	N.N	
Logout[Normal] (Processing Time ALL [s/req])	N.NNNNNN	
Logout[Normal] (Processing Time DB select [s/req])	N.NNNNNN	
Logout[Normal] (Processing Time DB update [s/req])	N.NNNNNN	
Logout[Normal] (Processing Time DB insert [s/req])	N.NNNNNN	
Logout[Normal] (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	
Logout[Force] (Rate [req/s])	N.N	
Logout[Force] (Processing Time ALL [s/req])	N.NNNNNN	
Logout[Force] (Processing Time DB select [s/req])	N.NNNNNN	
Logout[Force] (Processing Time DB update [s/req])	N.NNNNNN	
Logout[Force] (Processing Time DB insert [s/req])	N.NNNNNN	
Logout[Force] (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	
Logout[Timeout] (Rate [req/s])	N.N	
Logout[Timeout] (Processing Time ALL [s/req])	N.NNNNNN	
Logout[Timeout] (Processing Time DB select [s/req])	N.NNNNNN	
Logout[Timeout] (Processing Time DB update [s/req])	N.NNNNNN	
Logout[Timeout] (Processing Time DB insert [s/req])	N.NNNNNN	
Logout[Timeout] (Processing Time DB bind [s/req]) 10.0	N.NNNNNN	

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