

Adapt Hybrid Access Gateway for large deployment

Not two installations look the same and therefore it is natural that performance configurations differ from setup to setup. This article lines out what actions can be done to adapt [Nexus Hybrid Access Gateway](#) for large concurrent usage.

Related information

- [Hybrid Access Gateway overview](#)
- [Hybrid Access Gateway architecture overview](#)

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The following usage scenarios are considered below:

USAGE-LOW: 0-100 concurrent users

USAGE-MEDIUM: 101-1000 concurrent users

USAGE-HIGH: 1001-5000 concurrent users

USAGE-HIGHER: 5000- concurrent users



The memory impact for a single user might differ greatly between systems depending on the use case. Some back-end resources are a lot heavier on the Hybrid Access Gateway than others, and different usage scenarios (e.g. [Access Client](#), Ericom, etc.) might put different load on the system. If it is noted that the system is slow in response or that Out-of-memory can be seen in the logs it is suggested to select a higher usage level even if the amount of users does not imply this.

Given the usage scenarios, configure the memory limits according to the following table.

In the default state, a Hybrid Access Gateway appliance has 3072 MB memory designated to it.

Administration Service

Usage scenario	Init memory	Max memory
USAGE-LOW,USAGE-MEDIUM	64	256
USAGE-HIGH, USAGE-HIGHER	128	512
If there are more than ten individual services in the Hybrid Access Gateway network add the following memory amount to the above figures.	128	256

Authentication Service

Usage scenario	Init memory	Max memory
USAGE-LOW	64	256
USAGE-MEDIUM	128	512
USAGE-HIGH, USAGE-HIGHER	256	1024

Policy Service

Usage scenario	Init memory	Max memory
USAGE-LOW	64	256
USAGE-MEDIUM	128	512
USAGE-HIGH, USAGE-HIGHER	256	1024

Distribution Service

Usage scenario	Init memory	Max memory
USAGE-LOW, USAGE-MEDIUM, USAGE-HIGH	64	256
USAGE-HIGHER	128	512



In the sum of max memory, there must be space for the Operative System and the [Access point](#) (if configured on the same server). The Access Point can consume up to 1024 MB memory.

Each of the java services, that is, [Administration service](#), [Authentication service](#), [Distribution service](#), and [Policy service](#), has two limits that decide how much memory can be used by that particular process and how much initial memory should be addressed.

To change the memory limits for the java services:

1. Start a shell and authenticate towards the appliance containing the service, using for example putty or ssh.
2. In the menu select **exit to bash**.
3. Elevate the prompt using **sudo bash** or similar.
4. For each of the services that need to be configured, repeat steps 5-12.
5. Type at the prompt:

```
cd /opt/nexus/<service>/config
ls -la
```
6. Inspect the result and see if a file called **customize.conf** is listed. If so, continue to step 8.
7. Copy the template file. Type at the prompt:

```
cp customize-template.conf customize.conf
```
8. Change permissions of the file so it can be read by the Authentication service:

```
chown pwuser:pwuser customize.conf
```
9. Edit the new file using a file editor of choice. Below vi is assumed.
Type at the prompt:

```
vi customize.conf
```
10. Replace the values for

```
wrapper.java.initmemory=
```


and

```
wrapper.java.maxmemory=
```


with the values from the table for this service, see the recommended memory limits

above.

11. Save the file (:wq!)
12. Restart the service
At the prompt:
`/etc/init.d/<service> restart`
13. Verify in `/opt/nexus/<service>/logs/system.log` that the service starts as it should.
At the prompt:
`cat /opt/nexus/<service>/logs/system.log`
14. If it is decided that the system requires more memory than what is available to the appliance (i.e. VMware or Hyper-V instance), configure more memory for the appliance in Hyper-V or VMware management.

The Access point performance settings are in the Administration interface. To update the Access point performance settings:

1. Log into the administration service with an administrator account.
2. Go to **Access Points > Global Access Point Settings** and configure the settings accordingly:

Usage scenario	Worker threads	Size of socket listening backlog
USAGE-LOW	200	25
USAGE-MEDIUM	300	35
USAGE-HIGH	500	50
USAGE-HIGHER *	700	75

*To configure a higher value than 700, Hybrid Access Gateway 5.10.0 or higher must be used.

3. If the system uses many Tunnel connections, that is, Access Client users, raise the max number of Tunnel Connections accordingly. The max number of Tunnel Connections is the number of concurrent users multiplied by average number of tunnels per user. Also add space to accommodate for usage peaks.
4. If it is noted that systems with heavy usage still suffers from performance issues after these tweakings it is suggested to expand the system to balance the load on several nodes. That is, add more Access Point Nodes and Policy Server Nodes for the access and if needed more Authentication Servers also.