

Capacity Advisor

Importing OVPA Data from Non-VSE Nodes

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Intended Audience

This white paper is written for users who need to use OVPA data with Capacity Advisor.

1 Introduction

HP Integrity Essentials Capacity Advisor is a tool in the HP Virtual Server Environment Management (VSEMgr) suite designed for doing capacity planning by simulating placement of application workloads to help IT administrators improve server utilization.

Capacity Advisor captures server utilization data and manages what-if configuration scenarios to perform ongoing capacity planning. One source for server utilization data is HP OpenView Performance Agent (OPVA). OVPA data can be imported into the Capacity Advisor database using the `capovpaextract(1M)` command.

Before the Capacity Advisor Version A.03.00.00 release, `capovpaextract` could import data only from nodes listed in VSEMgr, that is, nodes running HP-UX 11i or the Integrity versions of Microsoft[®] Windows[®] and Linux. With the 3.0 release, `capovpaextract` can now import data from a wider variety of systems including systems running HP-UX 11.0 and 10.20, systems running Solaris, and x86 systems running Linux.

This white paper describes a process for importing OVPA data into Capacity Advisor from nodes not listed in VSEMgr. This is useful when collecting data from:

- Legacy systems
- Systems where administrators do not want to expose the root password, required for `capovpaextract` execution
- Systems without a ssh (secure shell) connection, usually running behind firewalls
- Any data source where the user can acquire utilization data manually

To use data from nodes not listed in VSEMgr and Capacity Advisor, the user must:

1. Import OVPA data into Capacity Advisor as a non-VSE workload¹. This task is described in Section 2 and an example is shown in Section 3.
2. Import this non-VSE workload into a scenario, because non-VSE workloads can be used only in Capacity Advisor scenarios. This second task is described in Section 4.

Section 5 lists the operating systems supported for these tasks, while later sections provide References and a Glossary.

2 Importing OVPA Data into the Capacity Advisor Database

To import OVPA data from a node into the Capacity Advisor database, follow these steps:

1. Extract OVPA data from OVPA records
2. Convert the OVPA data to Capacity Advisor's file format as a workload file
3. Import the workload file into the Capacity Advisor database

Section 2.1 describes how to import OVPA data from non-VSE systems that are not listed in the Virtualization Manager screen but are listed on HP-SIM managed nodes. Section 2.2 describes how to import OVPA data from systems without a ssh connection.

To import OVPA data from VSEMgr nodes, see the `capovpaextract` manpage.

1. This white paper assumes that nodes not listed in VSEMgr will always be imported as non-VSE workloads. Refer to the `capprofile(1M)` and `capovpaextract(1M)` manpages for more information about non-VSE workloads.

2.1 Importing OVPA data from HP-SIM nodes

This section presents the process for importing OVPA data when the target system is listed in HP-SIM but not in VSEMgr. This process requires that:

- The system is a HP-SIM node and is not listed in VSEMgr
- A ssh connection is enabled for the given system. ssh is required to execute the capovpaextract command on the CMS.



To enable ssh on the target system, use the following steps:

- On the HP-SIM main web page, access **Options**→**Protocol Settings**→**System Protocol Settings**.
- Select the target system and click **Continue**.
- Fill in the ssh settings (root username and password) and click **Run** to complete the process.

If the above requirements are met, the user can proceed to import data, running the capovpaextract command on the CMS. For example, execute the following command:

```
capovpaextract -p HOSTNAME
```

where *HOSTNAME* is the name of the HP-SIM node. Note that the `-p` option is required for systems not listed in VSEMgr. Refer to the capovpaextract (1M) manpage for more information and CLI options.

If the capovpaextract command completes successfully, the OVPA data is stored in the Capacity Advisor database as a non-VSE workload. The workload name is *HOSTNAME* and can be listed using the capprofile (1M) command. To see this workload in the VSEMgr GUI, see Section 4.

2.2 Importing OVPA Data from Systems without ssh

This section describes a process for importing OVPA data from a system without ssh access. While ssh is widely used, sometimes it is not available, for example when the target host is behind a firewall or the system administrator does not want to enable direct root access to the host using ssh.

The importing process described in this section assumes the following:

- Root access on the managed node running OVPA
- A mechanism for transferring files between the CMS and the managed node such as ftp

To import OVPA data in this case, use the following steps:

1. Copy `/opt/vse/lbin/extracttool` and `/opt/vse/lbin/capovpaextract` files from the CMS to the managed node, assuming that VSE is installed in the `/opt` directory on the CMS.
2. As the root user on the managed node, set execute permissions on the scripts, using the `chmod (1)` command. For example,

```
chmod 700 /opt/vse/lbin/extracttool /opt/vse/lbin/capovpaextract
```

3. Verify that the directory `/var/opt/mx/data/` exists on the OVPA host. If it does not exist, as root user, use the following command to create it:

```
mkdir -p /var/opt/mx/data/
```

If `/var/opt/mx/data/` already exists, then verify that the following files do NOT exist in `/var/opt/mx/data/`:

```
HOSTNAME.sysConfig.dat  
HOSTNAME.sysGlobal.dat  
HOSTNAME.sysDisk.dat  
HOSTNAME.sysNet.dat  
HOSTNAME.miss
```

where *HOSTNAME* is the name of the managed node running OVPA.

4. As root user on the managed node, cd to the directory where you copied the files in Step 1 and execute the following commands:

```
./extracttool -f -b FIRST -e LAST
cp .capextractdir/sysConfig.dat /var/opt/mx/data/HOSTNAME.sysConfig.dat
cp .capextractdir/sysGlobal.dat /var/opt/mx/data/HOSTNAME.sysGlobal.dat
cp .capextractdir/sysDisk.dat /var/opt/mx/data/HOSTNAME.sysDisk.dat
cp .capextractdir/sysNet.dat /var/opt/mx/data/HOSTNAME.sysNet.dat
cp .capextractdir/missingData /var/opt/mx/data/HOSTNAME.miss
rm -rf .capextractdir/
```

These commands create utilization data files in a human-readable format. The `capextractdir/missingData` file is created only under certain conditions; skip the step of copying this file if it was not generated.

5. Generate the Capacity Advisor workload file by running one, not both, of the following commands:

If `/var/opt/mx/data/HOSTNAME.miss` is present, use the following command:

```
./capovpaextract -d HOSTNAME -m /var/opt/mx/data/HOSTNAME.miss
-f HOSTNAME.csv
```

Otherwise, use the following command:

```
./capovpaextract -d HOSTNAME -f HOSTNAME.csv
```

(The file extension `.csv` specifies a file containing comma-separated values.)

6. Use the `rm (1)` command to remove the following files from the `/var/opt/mx/data/` directory:

```
HOSTNAME.sysConfig.dat
HOSTNAME.sysGlobal.dat
HOSTNAME.sysDisk.dat
HOSTNAME.sysNet.dat
HOSTNAME.miss
```

7. Copy the file `HOSTNAME.csv` generated on the OVPA host back to the CMS, where `HOSTNAME` is the name of the managed node.
8. On the CMS host, import OVPA data into Capacity Advisor as an authorized user using the `capprofile` command. For example,

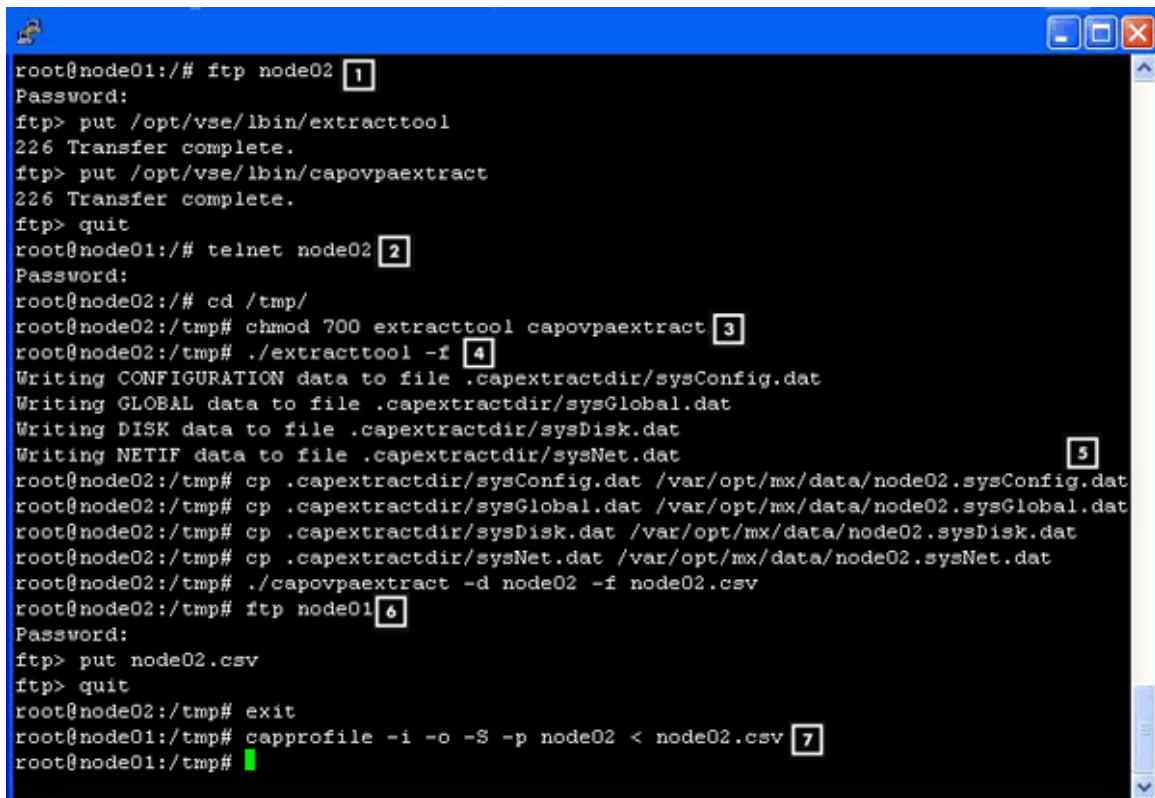
```
capprofile -i -o -S -p HOSTNAME < HOSTNAME.csv
```

where `HOSTNAME` is the name of the managed node. This stores the OVPA data in the Capacity Advisor database as a non-VSE workload with a workload name of `HOSTNAME` that can be listed with the `capprofile (1M)` command.

3 Example: Importing OVPA Data into the Capacity Advisor Database

This section provides an example of importing OVPA data from a system without ssh, as described in Section 2.2; see Figure 1.

Figure 1 Example: Importing OVPA Data from Systems without ssh



```
root@node01:/# ftp node02 1
Password:
ftp> put /opt/vse/lbin/extracttool
226 Transfer complete.
ftp> put /opt/vse/lbin/capovpaextract
226 Transfer complete.
ftp> quit
root@node01:/# telnet node02 2
Password:
root@node02:/# cd /tmp/
root@node02:/tmp# chmod 700 extracttool capovpaextract 3
root@node02:/tmp# ./extracttool -f 4
Writing CONFIGURATION data to file .capextractdir/sysConfig.dat
Writing GLOBAL data to file .capextractdir/sysGlobal.dat
Writing DISK data to file .capextractdir/sysDisk.dat
Writing NETIF data to file .capextractdir/sysNet.dat 5
root@node02:/tmp# cp .capextractdir/sysConfig.dat /var/opt/mx/data/node02.sysConfig.dat
root@node02:/tmp# cp .capextractdir/sysGlobal.dat /var/opt/mx/data/node02.sysGlobal.dat
root@node02:/tmp# cp .capextractdir/sysDisk.dat /var/opt/mx/data/node02.sysDisk.dat
root@node02:/tmp# cp .capextractdir/sysNet.dat /var/opt/mx/data/node02.sysNet.dat
root@node02:/tmp# ./capovpaextract -d node02 -f node02.csv
root@node02:/tmp# ftp node01 6
Password:
ftp> put node02.csv
ftp> quit
root@node02:/tmp# exit
root@node01:/tmp# capprofile -i -o -S -p node02 < node02.csv 7
root@node01:/tmp#
```

1. Copy files from the CMS to the managed node.
2. Access target host.
3. Set permissions.
4. Extract OVPA data.
5. Copy files and run capovpaextract.
6. Copy workload .csv file back to CMS.
7. Import workload .csv file into Capacity Advisor.

4 Using Imported Data in Scenarios

This section describes how to use workload data from non-VSE systems in a Capacity Advisor scenario. To import non-VSE workload data, do the following:

1. In the Capacity Advisor GUI, select a Scenario into which to import the non-VSE workload. Use the **Modify**→**Edit Scenario** menu pick to launch the Edit Scenario screen.
2. In the Edit Scenario screen, select the **What-If Action**→**Create Workload** menu pick. This action displays the “Edit Scenario - Create Workload” screen. In this screen, activate the radio button “Use profile data from workload” and choose a non-VSE workload from the “Import Profile Values” workload list. Choose the name of the non-VSE workload to be imported from the drop-down list. See Figure 2 (page 9) for an example of the Create Workload screen. After filling in the other fields in the form, click OK; the what-if workload is then listed in the Edit Scenario page.
3. The new workload can be moved to any system, real or what-if, in the scenario.



IMPORTANT: When moving imported workloads, it is crucial to enter a platform CPU multiplier. Capacity Advisor uses a multiplier computed from the clock speed of the system to scale a workload's demand profile when it is moved from one system to another. Such an estimate gives numbers that are usually accurate within 10% when moving workloads within the PA family of processors or within the Integrity family of systems. However, this estimate can be radically wrong when moving a workload from one processor family to another. Integrity systems often perform twice as much work as ProLiant systems with the same clock speed and number of cores.

Consult benchmarks when moving workloads from one processor family to another. Either run your own benchmark using your application, or consult industry standard benchmarks that are run on a wide range of systems.

Benchmarks can be found at <http://spec.org>.

Figure 2 Selecting a Non-VSE Workload

Edit Scenario - Create Workload
Creates a new workload that exists only in the scope of this scenario.

Scenario Name: Test Scenario
Scenario Description: Test Scenario

System: parked
CPU Allocation: N/A
Memory Allocation: N/A

Workload Name: * NONVSE
A short identifier for this workload.

Workload Description: NONVSE
A detailed workload description.

Estimated Utilization:
 Use profile data from workload
Import Profile Values:
Select Workload: NONVSE **1**
CPU Workload Multiplier: 1.0
Notes: Offset hours can be a positive or negative integer.

1. Select non-VSE workload from drop-down list.

5 Supported Versions of OVPA

The solutions presented in this white paper support the following versions of OVPA:

Table 1 Supported Versions of OVPA

Platform	Versions Supported
HP-UX	C.03.35 or later
SOLARIS	C.03.75 or later
LINUX	C.04.00 or later

References

- *HP Integrity Essentials Capacity Advisor User's Guide:*
www.docs.hp.com/en/vse.html#HP%20Integrity%20Essentials%20Capacity%20Advisor
- Capacity Advisor capovpaextract (1M) manpage
<http://docs.hp.com/en/vse.html#HP%20Integrity%20Essentials%20Capacity%20Advisor>
- Capacity Advisor capprofile (1M) manpage:
<http://docs.hp.com/en/vse.html#HP%20Integrity%20Essentials%20Capacity%20Advisor>
- Capacity Advisor capprofile (4) manpage:
<http://docs.hp.com/en/vse.html#HP%20Integrity%20Essentials%20Capacity%20Advisor>
- Capacity Advisor capcollect (1M) manpage:
<http://docs.hp.com/en/vse.html#HP%20Integrity%20Essentials%20Capacity%20Advisor>
- HP Virtual Server Environment (VSE) documentation:
<http://docs.hp.com/en/vse.html>

Glossary

Acronyms used in this white paper.

CMS	Central Management System
CSV	comma-separated values
HP-SIM	HP System Insight Manager
OVPA	OpenView Performance Agent
SSH	Secure Shell
VSE	HP Virtual Server Environment
VSEMgr	HP Virtual Server Environment Manager