

# Trouble-shooting iCAP (Instant Capacity) on OpenVMS

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# 1. Executive Summary

This white paper outlines how HP OpenVMS is embracing the utility pricing solutions like iCAP/TiCAP/GiCAP and provides information on how to address issues in configuring iCAP and dependent products.

The following topics are covered:

- An introduction to the utility pricing solutions offered from HP
- Configuration of iCAP and Dependent software on HP Integrity servers
- Troubleshooting
  - Quick Check
  - ICAP\_SERVER does not start on reboot of a partition in a complex
  - iCAP command does not work in a mixed environment due to HP-UX OS upgrade
  - HTTP Error (500 Internal Server Error)

## 2. Introduction to the utility pricing solutions offered from HP

HP Instant Capacity software provides the ability to instantly increase or decrease computing capacity on partitionable HP enterprise servers. The Instant Capacity software provides the means to:

- Increase or decrease (load balance) system processing capacity (icapmodify command).
- View status and configuration of the system components (icapstatus command).
- Administer system identification and notification information (icapmodify command).
- If configured, send system asset reports through encrypted email to HP (ICAP\_SERVER process on OpenVMS).
- Send configuration change notification, through encrypted email, to the specified system contact.
- Monitor and report system compliance (ICAP\_SERVER process on OpenVMS).

For the OpenVMS equivalents of these commands, see [DCL ICAP Commands](#) in the [Special OpenVMS-Specific Features and Considerations](#) section.

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NOTE: HP Instant Capacity for HP 9000 and HP Integrity Servers, also known as Instant Capacity or iCAP, was known in earlier versions as Instant Capacity on Demand, or iCOD. Although the commands, warning messages and error messages refer to the software as iCAP, some internal files might still refer to iCOD.

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With Instant Capacity, you initially purchase an HP enterprise server with a specified amount of active processing capacity, and a specified amount of inactive processing capacity. This amount can vary based on your sales contract with HP.

Processing capacity consists of the system components:

- **Processors** containing **cores**
- **Cell boards**

For each type of component, the number of components that can be active is equal to the number of usage rights applied to the complex for that type of component. Components that are purchased with a part number identifying them as “Instant Capacity” and without the label “Right to Use” come without usage rights. Components that are not labeled “Instant Capacity” implicitly include usage rights that can be applied to any component of that type that is installed on the complex.

Prior to activation of an inactive component, you must obtain additional **usage rights**. The fundamental method is to purchase usage rights by purchasing the appropriate Instant Capacity products that include the label “Right to Use (RTU)”. HP then supplies an **RTU codeword**. When the codeword is applied to the HP enterprise server, the inactive component can be activated.

Additional methods for activating components for which usage rights have not been purchased include:

- If a server is a member of a **Global Instant Capacity (GiCAP)** group, and if extra capacity is available from other members of the group, capacity can be “borrowed” from another member of the group.
- You can purchase additional temporary capacity and apply the **Temporary Instant Capacity (TiCAP)** codeword in order to activate one or more cores temporarily. If a server is a member of a GiCAP group, temporary capacity can be shared among members of the group.
- You can temporarily activate one or more inactive cores using the **Instant Access Capacity (IAC)** provided with the initial purchase of the Instant Capacity component. Instant Access Capacity is the same as TiCAP except it is automatically provided with an Instant Capacity component and cannot be purchased separately. It provides an immediate buffer of temporary capacity in case extra capacity is needed before there is time to purchase an RTU or a TiCAP codeword.

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**NOTE:** It is always a good idea to keep some quantity of temporary capacity in reserve. Purchase of codewords may take one or more days, so having a buffer of temporary capacity allows you to avoid delays in activation of additional cores. Instant Access Capacity provides this buffer initially, but as that capacity is depleted, ongoing purchases of additional temporary capacity are recommended to replenish it. **Global Instant Capacity** features, including the use of the **icapmanage** command, are not supported on OpenVMS.

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## 2.1. Instant Capacity Software in Virtual Environment

Instant Capacity must be run on a partitionable system. In an **Integrity Virtual Machine (VM)** environment, Instant Capacity software provides meaningful functionality only on the **VM Host** system; it does not run on a **virtual machine** (also known as a “guest”).

## 2.2. Utility Pricing Solutions Portal

The Utility Pricing Solutions (or Instant Capacity) portal is located at the HP web site:  
<http://www.hp.com/go/icap>.

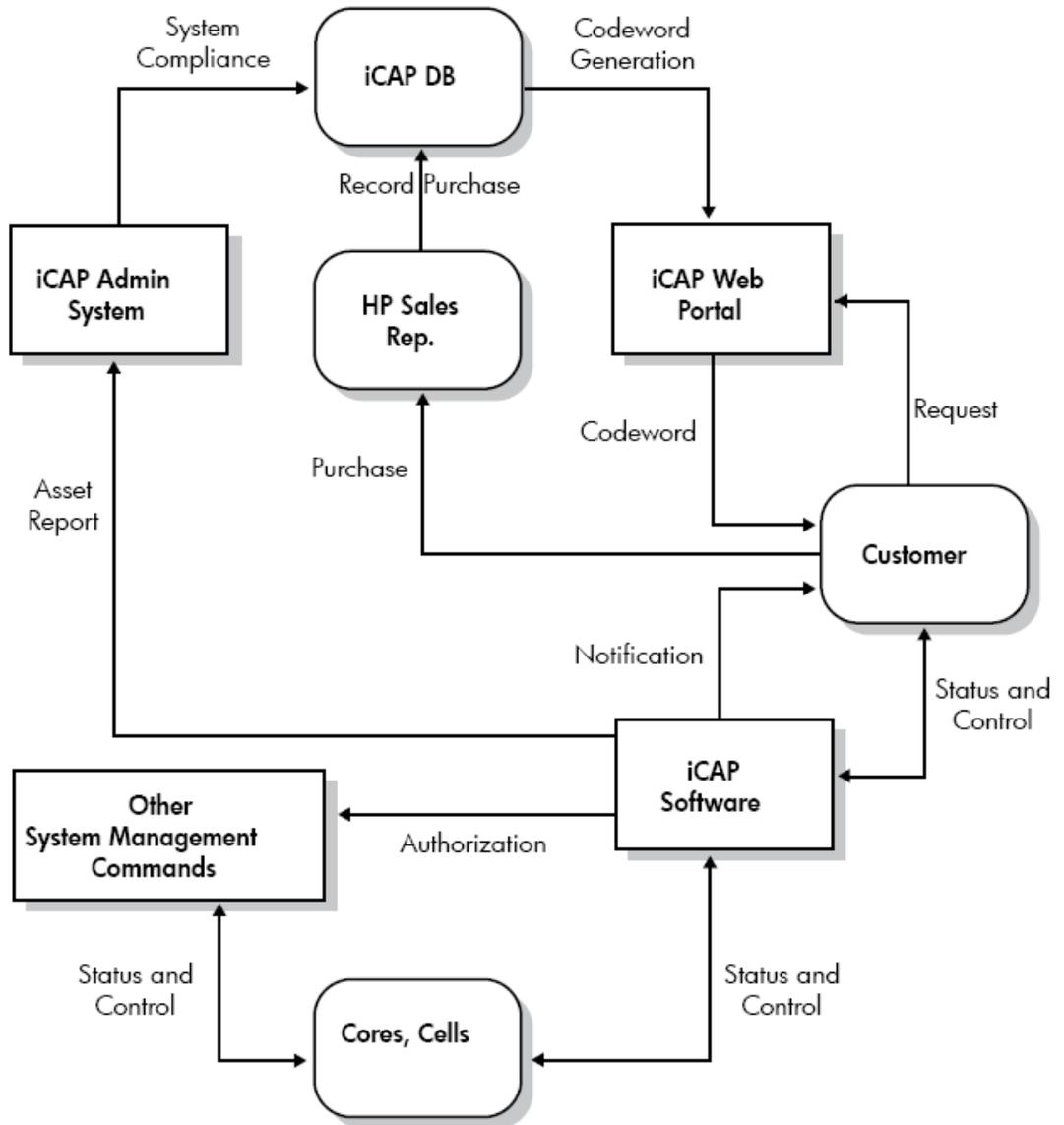
After you purchase a component without usage rights, HP sends you a letter containing instructions on how to obtain an RTU codeword from the Utility Pricing Solutions portal.

## 2.3. Instant Capacity Administration System

If asset reporting is configured, the ICAP\_SERVER process sends asset reports, in the form of encrypted email messages, to the Instant Capacity Administration System, which saves information in the Instant Capacity database.

## 2.4. Instant Capacity Database

The Instant Capacity database is a repository on an HP (internal) corporate server that tracks system resources and provides the information for codeword generation. Note that this database should not be confused with a Global Instant Capacity database, which is created on a customer Group Manager system.



**Fig: Instant Capacity System Elements**

## 3. Special OpenVMS-Specific Features and Considerations

### 3.1. Core Activation and Deactivation

The ICAP command or the corresponding HP-UX foreign commands must be used on OpenVMS systems when stopping and starting CPUs in complexes containing iCAP components. To start cores on OpenVMS, use the ICAP ACTIVATE/CPU= command. To stop cores on OpenVMS, use the ICAP DEACTIVATE/CPU= command. HP recommends not to use START /CPU and STOP /CPU command or the corresponding system services in order to start or stop processor resources in an iCAP complex. When you enter the START /CPU command on an OpenVMS system in a complex containing iCAP resources, the ICAP\_SERVER process validates that the start operation does not take the complex out of compliance. When you enter the STOP /CPU command, the CPU might restart at a later time if the count of intended active cores on the system is greater than the actual active cores. Using the START /CPU command can result in unintended consequences, such as an unexpected usage of temporary capacity or the deactivation of cores on the system or on another system in the complex. Using the STOP /CPU command can result in an unexpected restart of the core or the unexpected start of a core in another system in the complex.

### 3.2. Email Considerations

The iCAP software requires that SMTP mail be configured on the OpenVMS system to send email to the system contact. For more information about setting up SMTP mail, see your IP provider's documentation.

### 3.3. Time zone Considerations

On OpenVMS systems, the ICAP\_SERVER process performs routine Instant Capacity software tasks on a daily basis. A partition's local time zone setting affects what time zone the ICAP\_SERVER process uses for the timing of these tasks. Be sure that the time zone is set properly to ensure synchronization among the partitions.

On OpenVMS systems, the ICAP\_SERVER uses the time zone settings defined by the SYS\$STARTUP:TDF\$UTC\_STARTUP.COM file.

To view the time zone settings, enter the command  
**\$ @sys\$manager:utc\$time\_setup "show"**

Enter the command  
**\$ @sys\$manager:utc\$time\_setup**

and follow the menu instructions to modify the time zone setting for the iCAP partition.

### 3.4. Restrictions

- Instant Capacity software on OpenVMS Version 8.3-1H1 does not support HP virtual partitioning (vPars) since OpenVMS itself doesn't support vPars.
- Global Instant Capacity features, including the use of the icapmanage command, are not supported on OpenVMS.
- Instant Capacity on OpenVMS does not support internationalization. Only English language support is provided.
- LPMC and HPMC are not available on OpenVMS systems.

## 3.5. Removing Instant Capacity Software

To participate in the Instant Capacity version 9.x program, you must comply with the following conditions of the HP Utility Pricing Solutions program:

- Maintain the HP Instant Capacity software on each HP-UX or OpenVMS partition in the system. The Instant Capacity software is a nonintrusive, low-overhead software module that resides on the partition.

- Migrate to later Instant Capacity software versions as they become available. For specifics about your individual program requirements, see the Utility Pricing Solutions contract from HP or your authorized channel partner.

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**NOTE:** HP recommends not to remove the Instant Capacity software. Participants in the Utility Pricing Solutions program who do not meet these requirements may be in breach of contract. This can result in unnecessary expense for both the program participant and HP.

---

## 4. Configuration of iCAP and Dependent software on HP Integrity servers

### 4.1. iCAP Product Versions and Supported Platforms

The table lists the current versions of Instant Capacity and the platforms supported for each version.

Software and Version	Operating System Version	Supported Hardware Platforms	Notes
iCAP 8.1 (BA484AA)	HP OpenVMS Version 8.3-1H1	HP Integrity servers: <ul style="list-style-type: none"><li>• Superdome</li><li>• rx8640</li><li>• rx8620</li><li>• rx7640</li><li>• rx7620</li></ul>	Available on: <ul style="list-style-type: none"><li>• OpenVMS Version 8.3-1H1 Operating System media</li></ul>

### 4.2. Special Requirements

Installation disk of all the products (including the dependency products & patches) should be ODS-5 formatted since UNIX-style file names are used in some cases, which is not supported on ODS-2 formatted disks.

### 4.3. Dependency Products

- HP TCP/IP Services of OpenVMS (ECO2 is required for TCP/IP Services Versions 5.5 and 5.6)
- HP SSL V1.3
- HP WBEM Services V2.61

Please do maintain the order of installation of the dependency products as mentioned above.

### 4.4. Required Patches

- HP I64VMS VMS831H11\_PCSI V1.0,
- HP I64VMS VMS831H11\_UPDATE V2.0.

---

NOTE: Please do maintain the order of installation of the patches as mentioned above since the later is dependent on the previous one. It is recommended to upgrade your system with the latest SYS and UPDATE patches. Update patches make functional changes to the system and requires reboot in order to have the images in the kit to fully take effect. The patches could be downloaded from the hp [ITRC](#) site.

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## 4.5. Compatibility Matrix

Operating System/Patch version	WBEM Services version	iCAP version
HP I64VMS OPENVMS V8.3-1H1	HP I64VMS WBEMCIM V2.61-A070728	iCAP B.08.02
VMS831H1_ICAP-V0200 ECO kit (releasing shortly)	HP I64VMS WBEMCIM V2.91-A090219	iCAP B.08.02

**Note that not all the WBEM Services versions are compliant with the iCAP software.**

## 5. Installation & Configuration WBEM Services for OpenVMS

WBEM Services for OpenVMS is installed automatically with OpenVMS. As with other similar products, an OpenVMS upgrade does not automatically include WBEM Services for OpenVMS if it is not already installed on the target system disk. In this case, you must install the product separately using the PCSI PRODUCT INSTALL command. You must configure WBEM Services for OpenVMS to obtain the services provided by HP SIM (Version 5.2 or later) and products such as Instant Capacity, and gWLM. To provide services over the network, HP recommends using TCP/IP Services for OpenVMS and SSL (for security purposes).

Before configuring WBEM Services for OpenVMS, configure TCP/IP Services for OpenVMS. For information about configuring TCP/IP Services for OpenVMS, see Section 7.7.5 (page 122) of [HP OpenVMS Version 8.3-1H1 for Integrity Servers Upgrade and Installation Manual](#).

To configure WBEM Services for OpenVMS on a system on which WBEM Services for OpenVMS has never been installed and configured, follow the steps described in [Section 5.1](#). If you are configuring the product on a system on which it has been configured previously, see [Section 5.2](#). For more information about HP WBEM products, see the following website: <http://www.hp.com/go/wbem>

### 5.1. Configuring WBEM Services for OpenVMS (Where Not Configured Previously)

To configure WBEM Services for OpenVMS on a system for the first time, follow these steps:

1. Enter the following command

**\$ RUN SYS\$SYSROOT:[WBEM\_SERVICES]WBEM\_SERVICES\$CONFIG**

This command invokes the utility that configures and initializes the environment for WBEM Services for OpenVMS.

2. After displaying the initial configuration utility banner, the utility informs you where it will store the configuration files and repository and asks if you want to change the location.

The configuration files and repository will be placed in the following location:  
SYS\$SPECIFIC:[WBEM\_Services].

Do you want to change this location (Yes/No) [No]?:

---

**NOTE:** The repository, a compiled version of the Common Information Model (CIM) class schema, requires an ODS-5 formatted disk (the repository uses UNIX-style file names, which are not supported on ODS-2 formatted disks). If the default location is on an ODS-2 formatted disk, you must change the location to an ODS-5 disk.

---

When you accept the default location, the utility informs you that all configuration questions have been answered and asks whether you want to continue, as shown in the following example. If you choose to continue, the utility creates the CIMSERVER repository tree in the location indicated earlier. The CIMSERVER is the WBEM Services for OpenVMS process that runs on the system to support certain applications. It also creates the following command files:

```
SYS$STARTUP:WBEM_Services$Startup.com
SYS$STARTUP:WBEM_Services$Shutdown.com
SYS$SYSROOT:[WBEM_SERVICES]WBEM_Services$Define_Commands.com
```

The SYS\$STARTUP:WBEM\_Services\$Startup.com file defines system logicals for the WBEM Services for OpenVMS environment.

All configuration questions have been answered.

```
Do you want to continue (Yes/No) [YES]?:
%WBEMCONFIG-I-CREREPBEGIN, Create Repository Begins...
%WBEMCONFIG-I-CREREPCOMPLETE, Create Repository Complete.
This utility creates:
  SYS$STARTUP:WBEM_Services$Startup.com
which should be added to SYS$STARTUP:SYSTARTUP_VMS.COM.
```

```
This utility creates:
  SYS$STARTUP:WBEM_Services$Shutdown.com
which should be added to SYS$STARTUP:SYSHUTDOWN.COM.
```

```
This utility creates:
  SYS$SYSROOT:[wbem_services]WBEM_Services$Define_Commands.com
which users who use this product can add to their login.com.
```

### 3. The utility asks whether to start the CIMSERVER:

Do you want to start the CIMServer now (Yes/No) [Yes]?:

CIMSERVER must be running so that your system can use such applications as Instant Capacity, and gWLM. You can start CIMSERVER now, or you can perform other post-installation or post-upgrade tasks first and then start CIMSERVER. If you choose to start CIMSERVER now, the utility displays the progress and operating system information, as in the following example:

```
%RUN-S-PROC_ID, identification of created process is 21A00599
%WBEMCIM-I-STARTUPWAIT, Waiting for CIMServer to start... 120 seconds remaining.
%WBEMCIM-S-CSSTARTED, CIMServer successfully started.
OperatingSystem Information
Host: boston.hp.com
Name: OpenVMS
Version: V8.3-1H1
UserLicense: Unlimited user license
Number of Users: 1 users
Number of Processes: 29 processes
OSCapability: 64 bit
LastBootTime: Jul 31, 2007 10:52:55 (-0400)
LocalDateTime: Aug 3, 2007 10:14:58 (-0400)
SystemUpTime: 256923 seconds = 2 days, 23 hrs, 22 mins, 3 secs
```

4. To ensure that CIMServer starts automatically at each reboot, add the following line to the

SYS\$MANAGER:SYSTARTUP\_VMS.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Startup.com**

To have CIMServer shut down automatically with the operating system, add the following line to the SYS\$MANAGER:SYSTARTUP:SYSHUTDOWN.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Shutdown.com**

All users who use this product should also add the following line to their LOGIN.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Define\_Commands.com**

5. In an OpenVMS Cluster, each member that runs WBEM Services for OpenVMS needs its own repository. Therefore, you must perform the WBEM Services for OpenVMS configuration procedure on each of those cluster members.

## 5.2. Configuring WBEM Services for OpenVMS (Where Configured Previously)

To configure WBEM Services for OpenVMS on a system where it has been configured previously, follow these steps:

1. Enter the following command

**\$ RUN SYS\$SYSROOT:[WBEM\_SERVICES]WBEM\_SERVICES\$CONFIG**

This command starts the utility that configures and initializes the environment for WBEM Services for OpenVMS.

If the WBEM Services for OpenVMS product (Version 2.0) available with OpenVMS I64 Version 8.3 is already configured on your system, the following error message and the recommended remedial actions appear:

```
%WBEMCONFIG-E-SYSCOMMONLOGICAL, WBEM_VAR can no longer be defined to point to a location in SYS$COMMON. The repository files in WBEM_VAR should not be shared with other cluster members.
```

Follow these manual steps to move the repository out of the SYS\$COMMON area and complete the post installation configuration tasks:

- o Delete the sys\$common:[WBEM\_Services.var...] directory tree.
- o Deassign the WBEM\_VAR system logical.
- o Run this procedure again.

Perform the recommended steps, as in the following example:

```
$ DELETE SYS$COMMON:[WBEM_SERVICES.VAR]*.*;*
$ DELETE SYS$COMMON:[WBEM_SERVICES]VAR.DIR;*
$ DEASSIGN/SYS WBEM_VAR
$ RUN SYS$SYSROOT:[WBEM_SERVICES]WBEM_SERVICES$CONFIG
```

After you start the configuration procedure, go to Section A and follow the steps described there, starting with step 2.

2. After displaying the initial configuration utility banner, the utility informs you where it will store the configuration files and repository and asks if you want to change the location.

The configuration files and repository will be placed in the following location:  
SYS\$SPECIFIC:[WBEM\_Services].

Do you want to change this location (Yes/No) [No]?:

The repository is a compiled version of the CIM class schema. This example assumes you accept the current location.

3. As shown in the following example, the utility informs you that all configuration questions have been answered and asks whether you want to continue.

If the utility determines that the repository schema has not changed, the utility informs you and continues. The utility does not need to upgrade the repository.

If the utility determines that the current repository needs upgrading, or if the utility does not find a repository (perhaps WBEM Services for OpenVMS had been installed but not configured), the utility displays a message informing you that the repository will be upgraded or created and that this will take 10 to 15 minutes depending on your processor and disk I/O speed. In the following example, the utility needs to create the repository tree.

The utility also creates the SYS\$STARTUP:WBEM\_Services\$Startup.com, SYS\$STARTUP:WBEM\_Services\$Shutdown.com, and SYS\$SYSROOT:[WBEM\_SERVICES]WBEM\_Services\$Define\_Commands.com command files. The SYS\$STARTUP:WBEM\_Services\$Startup.com file defines system logicals for the WBEM Services for OpenVMS environment.

All configuration questions have been answered.

Do you want to continue (Yes/No) [Yes]?:

```
%WBEMCONFIG-I-CREREPBEGIN, Create Repository Begins...
%WBEMCONFIG-I-CREREPCOMPLETE, Create Repository Complete.
This utility creates:
    SYS$STARTUP:WBEM_Services$Startup.com
which should be added to SYS$STARTUP:SYSTARTUP_VMS.COM.
```

```
This utility creates:
    SYS$STARTUP:WBEM_Services$Shutdown.com
which should be added to SYS$STARTUP:SYSHUTDWN.COM.
```

```
This utility creates:
    SYS$SYSROOT:[wbem_services]WBEM_Services$Define_Commands.com
which users who use this product can add to their login.com.
```

4. The utility now asks you whether to start the CIMSERVER:

Do you want to start the CIMServer now (Y/N) {Y}?:

CIMSERVER must be running so that your system can use such applications as Instant Capacity, Pay per use, and gWLM. You can start CIMSERVER now, or you can perform other post-installation or post-upgrade tasks first and then start CIMSERVER. If you choose to start CIMSERVER now, the utility displays the progress and operating system information, as in the following example:

```
%RUN-S-PROC_ID, identification of created process is 21A00599
%WBEMCIM-I-STARTUPWAIT, Waiting for CIMServer to start... 120 seconds remaining.
%WBEMCIM-S-CSSTARTED, CIMServer successfully started.
OperatingSystem Information
  Host: boston.hp.com
  Name: OpenVMS
  Version: V8.3-1H1
  UserLicense: Unlimited user license
```

Number of Users: 1 users  
Number of Processes: 29 processes  
OSCapability: 64 bit  
LastBootTime: Jul 31, 2007 10:52:55 (-0400)  
LocalDateTime: Aug 3, 2007 10:14:58 (-0400)  
SystemUpTime: 256923 seconds = 2 days, 23 hrs, 22 mins, 3 secs

5. To ensure that CIMSERVER starts automatically at each reboot, add the following line to the SYS\$MANAGER:SYSTARTUP\_VMS.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Startup.com**

To have CIMServer shut down automatically with the operating system, add the following line to the SYS\$MANAGER:SYSSTARTUP:SYSHUTDOWN.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Shutdown.com**

All users who use this product should also add the following line to their LOGIN.COM file:

**\$ @SYS\$STARTUP:WBEM\_Services\$Define\_Commands.com**

6. In an OpenVMS Cluster, each member that will run WBEM Services for OpenVMS needs its own repository. Therefore, you must perform the WBEM Services for OpenVMS configuration procedure on each of those cluster members.

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**NOTE:** HP recommends that you do not remove the WBEM Services for OpenVMS product even if you do not have a need for it. If you attempt to use the PRODUCT REMOVE command to remove this product, you might see a message similar to the following. This message is automatically displayed for any product that is required with OpenVMS. The consequences of removing WBEM Services for OpenVMS might not be as severe as implied by the message unless other software is using the product on your server.

```
%PCSI-E-HRDREF, product HP I64VMS WBEMCIM V2.61 is referenced by HP I64VMS OPENVMS V8.3-1H1
```

```
The two products listed above are tightly bound by a software dependency.  
If you override the recommendation to terminate the operation, the  
referenced product will be removed, but the referencing product will have  
an unsatisfied software dependency and may no longer function correctly.  
Please review the referencing product's documentation on requirements.
```

```
Answer YES to the following question to terminate the PRODUCT command.  
However, if you are sure you want to remove the referenced product then  
answer NO to continue the operation.
```

```
Terminating is strongly recommended. Do you want to terminate? [YES]
```

---

## 6. Installation & Configuration of Instant Capacity (iCAP) on OpenVMS Systems

Post installation & configuration of OpenVMS V8.3-1H1, WBEMCIM V2.61-A070728 kits, install the following update patches with /SAVE\_RECOVERY\_DATA qualifier (so that in case of the patches not functioning properly, we can revert to the previous state) in the order mentioned below and reboot the system.

```
HP I64VMS VMS831H11_PCSI V1.0  
HP I64VMS VMS831H11_UPDATE V2.0
```

The above-mentioned OpenVMS V8.3-1H1 patches need to be installed for the following fixes:

- nPAR Provider fix for dynamic profile write error;

- C Runtime Library channel leak fix;
- iCAP and nPAR fixes to support Hyperthreading on Montecito.

---

NOTE: Update patches make functional changes to the system and requires reboot in order to have the images in the kit to fully take effect.

This kit will make functional changes to your system. Before installing this kit you should make a backup copy of your system disk. If you do not make a copy of your system disk you will not be able to restore your system to a pre-kit installation state.

Do you want to continue? [YES]

Installing this patch kit requires a reboot.

Hewlett Packard strongly recommends that you reboot your system immediately after installation of this kit. The images in this kit will not fully take effect until the system is rebooted. However, if you do not re-boot immediately after kit installation, the system may become unstable and may not function as expected.

If you have other nodes in your VMS cluster, they must also be rebooted in order to make use of the new image(s). If it is not possible or convenient to reboot the entire cluster at this time, a rolling re-boot (kit installation and reboot on one node at a time) may be performed.

---

Before configuring the iCAP software, start the CIMSERVER process by executing the following command procedure:

**\$ @SYS\$STARTUP:WBEM\_Services\$Startup.com**

Define the WBEM Services logical with the following command:

**\$ @SYS\$COMMON:[WBEM\_SERVICES]WBEM\_Services\$Define\_Commands.com**

Ensure that the CIM Server is running and verify the list of Providers installed by entering the following command:

**\$ CIMPROVIDER -L -S**

An output similar to the following is displayed:

MODULE	STATUS
OperatingSystemModule	OK
ComputerSystemModule	OK
ProcessModule	OK
ProcessorProviderModule	OK
IPProviderModule	OK

Execute the following command procedure in order to configure the iCAP software:

**\$ @SYS\$MANAGER:ICAP\$CONFIG.COM**

Note that, this procedure will stop and restart the CIMSERVER process during the configuration. The procedure will enquire if you want to configure GiCAP (Answer **NO** since GiCAP is not supported on OpenVMS V8.3-1H1), system-contact's e-mail address, configuration change notification and start the iCAP software.

A sample configuration output is provided below for your reference:

```
$ @SYS$MANAGER:ICAP$CONFIG.COM

hp OpenVMS Industry Standard 64

Instant Capacity on Demand (iCAP) configuration utility

***** W A R N I N G *****

This procedure stops and restarts the CIMSERVER
process. ALL WBEM provider modules will be
unavailable for a short period of time during the
configuration.

***** W A R N I N G *****

%DCL-I-SUPERSEDE, previous value of SRC_MOF$ has been superseded
%ICAP-I-CHECK, Checking for iCAP configuration requirements
%ICAP-I-CHEDONE, Check Done requirements OK

Are you satisfied with the backup of your WBEMCIM repository (Yes/No)? : y
%ICAP-I-UNREGNPAR, Unregistering at 30-OCT-2008 08:04:57.32
Disabling provider module...
Provider module disabled successfully.
Deleting provider module...
Provider module deleted successfully.
Disabling provider module...
Provider module disabled successfully.
Deleting provider module...
Provider module deleted successfully.
Disabling provider module...
Provider module disabled successfully.
Deleting provider module...
Provider module deleted successfully.
Disabling provider module...
Provider module disabled successfully.
Deleting provider module...
Provider module deleted successfully.
Disabling provider module...
Provider module disabled successfully.
Deleting provider module...
Provider module deleted successfully.
%ICAP-I-UNREGDON, Unregistering iCAP/nPAR modules done at 30-OCT-2008 08:05:47.90
%ICAP-I-STOPCIM, Stopping the cimserver process.
%WBEMCIM-I-SHUTDOWN, Shutting down WBEM Services for OpenVMS.....
%WBEMCIM-I-SHUTDOWNPROV, Shutting down WBEM Providers...
%WBEMPROVIDERS-I-SHUTDOWN, Info:Shutting down WBEMPROVIDERS.
%WBEMCIM-I-SHUTDOWNCS, Shutting down CIMServer.exe...
CIM Server stopped.
%WBEMCIM-I-CSEXITSTS, CIMServer.exe exit status=%X00000001.
%ICAP-I-RESCIM, Restarting the cimserver process.
%RUN-S-PROC_ID, identification of created process is 00000474
%WBEMCIM-I-STARTUPWAIT, Waiting for CIMServer to start... 120 seconds remaining.
%WBEMCIM-S-CSSTARTED, CIMServer successfully started.
OperatingSystem Information
  Host: part0.ind.hp.com
  Name: OpenVMS
  Version: V8.3-1H1
  UserLicense: Unknown
  Number of Users: 1 users
  Number of Processes: 18 processes
  OSCapability: 64 bit
  LastBootTime: Oct 30, 2008 6:33:16 (00000)
  LocalDateTime: Oct 30, 2008 2:36:04 (00000)
  SystemUpTime: 4294953064 seconds = 49710 days, 2 hrs, 31 mins, 4 secs
%WBEMCIM-I-STARTPROV, Starting WBEM Providers...
%WBEMPROVIDERS-I-STARTING , Info:Starting WBEMPROVIDERS.
%WBEMPROVIDERS-I-WAIT, Info:Waiting for 1 Minute for the Inventory to Initialize
%RUN-S-PROC_ID, identification of created process is 00000475
%iCAP-I-CRENAM, Creating root/cimv2/npar namespace
%ICAP-I-BEGUPDREP, Begin updating WBEMCIM repository at 30-OCT-2008 08:07:20.49

%ICAP-I-ENDUPDREP, End updating WBEMCIM repository at 30-OCT-2008 08:08:44.58
%ICAP-I-REGNPAR, Registering iCAP Mofs at 30-OCT-2008 08:08:44.58

%ICAP-I-REGDone, Registering iCAP Mofs Done at 30-OCT-2008 08:09:24.46
```

```

Registering iCAP Command Language Definition file...
Command Language Definition file successfully registered
Enter (Y)es to configure this system with GiCAP support (N):
Would you like to set the System-Contact's E-mail Address? (Y/N): y
Enter the System-Contact's E-mail Address: xyz@hp.com

```

The contact e-mail address has been set to xyz@hp.com.

```

Would you like to turn configuration change notification on? (Y/N): y
Configuration change notification has been turned on.

```

```

Would you like to start the iCAP software now? (Y/N): y
%RUN-S-PROC_ID, identification of created process is 00000480

```

```
%ICAP-I-EXIT, Exiting ICAP configuration elapsed time 0:05:40.64
```

Check if all the iCAP related Providers are installed and running by entering the following command:  
**\$ CIMPROVIDER -L -S**

An output similar to the following is displayed:

MODULE	STATUS
OperatingSystemModule	OK
ComputerSystemModule	OK
ProcessModule	OK
ProcessorProviderModule	OK
IPProviderModule	OK
HP_NParProviderModule	OK
HP_iCODProviderModule	OK
HP_iCAPProviderModule	OK
HP_GiCAPProviderModule	OK

To verify that the Instant Capacity software is installed and configured, run the following OpenVMS commands:

```

$ @SYSS$MANAGER:ICAP$CLI_UTILS.COM CONFIG_CHECK
$ show log ICAP$CONFIGURED

```

```
"ICAP$CONFIGURED" = "TRUE" (LNM$JOB_nnnnnnnn)
```

## 7. Troubleshooting

- Quick Check
- ICAP\_SERVER doesn't start on reboot of a partition in a complex
- iCAP command doesn't work in a mixed environment due to HP-UX OS upgrade
- HTTP Error (500 Internal Server Error)

### 7.1. Quick Check

Check if the WBEM Services is running and all the iCAP related providers are configured with the following commands:

```
$ SHOW SYSTEM/PROCESS=CIMSERVER
```

An output similar to the following is displayed:

```

OpenVMS V8.3-1H1 on node PART0 25-FEB-2009 03:26:56.17 Uptime 12 01:34:27
  Pid  Process Name  State  Pri  I/O  CPU  Page flts  Pages
00000C42 CIMSERVER  HIB    10  1041866  0 00:07:00.87  7572  4259 M

```

```

$ @SYSS$COMMON:[WBEM_SERVICES]WBEM_SERVICES$DEFINE_COMMANDS.COM
$ CIMPROVIDER -L -S

```

An output similar to the following is displayed:

```
MODULE                                STATUS
OperatingSystemModule                OK
ComputerSystemModule                 OK
ProcessModule                         OK
ProcessorProviderModule               OK
IPProviderModule                     OK
HP_NParProviderModule                OK    << needed by icap
HP_iCODProviderModule                 OK    << needed by icap
HP_iCAPProviderModule                OK    << needed by icap
HP_GiCAPProviderModule                OK    << needed by icap (for GiCAP functionality)
```

Verify that the Instant Capacity software is installed and configured, run the following OpenVMS commands:

### **\$ SHOW SYSTEM/PROCESS=ICAP\_SERVER**

An output similar to the following is displayed:

```
OpenVMS V8.3-1H1 on node PART0 25-FEB-2009 03:28:44.19 Uptime 12 01:36:15
  Pid  Process Name  State Pri  I/O  CPU  Page flts  Pages
00000471 ICAP_SERVER      HIB   10  465890  0 00:01:07.25  1408  1894
```

### **\$ @SYS\$MANAGER:ICAP\$CLI\_UTILS.COM CONFIG\_CHECK**

#### **\$ show log ICAP\$CONFIGURED**

```
"ICAP$CONFIGURED" = "TRUE" (LNM$JOB_nnnnnnnn)
```

## 7.2. ICAP\_SERVER doesn't start on reboot of a partition in a complex

ICAP\_SERVER process should start automatically post reboot of a partition in a complex; it takes a few minutes, as it needs to wait for ERRFMT to write some data. Wait for a few minutes, even after that if ICAP\_SERVER doesn't get started, then check if the HP TCP/IP & HP WBEMCIM services is configured properly and running. HP TCP/IP & HP WBEMCIM services should be running post reboot in order to run the ICAP\_SERVER. Ensure that the following lines are appended to the SYS\$STARTUP:SYSTARTUP\_VMS.COM file in order get the HP TCP/IP & HP WBEMCIM services started automatically post reboot.

```
$ @SYS$STARTUP:TCPIP$STARTUP.COM
$ @SYS$STARTUP:WBEM_Services$Startup.com
```

## 7.3. iCAP command doesn't work in a mixed environment due to HP-UX OS upgrade

Customer might find some OPCOM messages like "failed to update the dynamic profile" displayed on the VMS partition for all iCAP commands after a HP-UX partition was upgraded. Prior to upgrading, customer is advised to read the documentation and if it states that all partitions must be upgraded, they should contact HP to validate if the HP-UX patch is compatible with the VMS version.

## 7.4. HTTP Error (500 Internal Server Error)

```
$ icap show status
ERROR:   The following low-level error occurred:

HTTP Error (500 Internal Server Error).
```

This error typically occurs when the CIMSERVER process has exhausted some resource. Pagefile quota and i/o channels are two resources that have had problems in the past. If this error is seen the CIMSERVER process should be examined with `$ SHOW PROCESS /CONTINUOUS hit <Q>` command. The i/o channels in use can be examined using SDA.

If CIMSERVER runs out of channel than a newer version of DECC\$SHR.EXE is needed. If the CIMSERVER process "Total number of channels" assigned is very close to the sysgen parameter CHANNELCNT, the CIMSERVER will loop or hang. As a workaround customer is advised to stop and restart the CIMSERVER.

## 8. CLI Support on OpenVMS

OpenVMS provides a CLI (command-line interface) to the Instant Capacity software. The HP-UX command syntax can be implemented using foreign command symbols. The DCL ICAP command provides DCL command support.

### 8.1. HP-UX Style Commands

The HP-UX command syntax can be used on OpenVMS systems by defining foreign command symbols to the iCAP images. Add the following three symbol declarations to your LOGIN.COM file or to the SYLOGIN file to define commands that use the HP-UX syntax:

```
$ icapmodify  == $ICAP_MODIFY
$ icapnotify  == $ICAP_NOTIFY
$ icapstatus  == $ICAP_STAT
```

Command options are specified as described in the HP-UX documentation for each command.

## 8.2. OpenVMS Command Mapping

The following table shows the HP-UX iCAP commands and their OpenVMS equivalents.

**Table: HP-UX and OpenVMS Command Equivalents**

HP-UX Style	OpenVMS Style
icapstatus	icap show status
icapstatus -s	icap show status/snapshot
icapmodify -C <codeword>	icap apply "codeword"
icapmodify -c <address>	icap set email/contact="address"
icapmodify -f <address>	icap set email/from="address"
icapmodify -i <id>	icap set system_id "id"
icapmodify -r	icap reconcile
icapmodify -w <days>	icap set warning_days "days"
icapmodify -a	icap activate /cpu=/defer/ticap
icapmodify -d	icap deactivate /cpu/defer
icapmodify -s	icap set active_cpu n
icapnotify -a	icap set asset/state=on/off
icapnotify -n	icap set notification/state=on/off
icapmanage -i -u <rule_file>	icap manage install <rule_file>
icapmanage -C <codeword>	icap manage codeword <codeword>
icapmanage -a -g <group_name>	icap manage add group <group_name>
icapmanage -r -g <group_name>	icap manage remove group <group_name>
icapmanage -T <host>[,<host>]...[-g <group_name>]	icap manage test <host,host,...> [/group=<group_name>]
icapmanage -a -m <member_name>:<host>[,<host>]... -g <group_name>	icap manage add member <member_name> /host_list=(host,host,...) [/group=<group_name>]
icapmanage -r -m <member_name>	icap manage remove member <member_name>
icapmanage -s -g <group_name> [-b] [-v]	icap manage status <group_name> [/BRIEF] [/FULL]
icapmanage -R [<host>[,<host>]...] [-U <rule_file>]	icap manage report <host,host,...> <rule_file>
icapmanage -x <host>	icap manage extract <host>

## 8.3. DCL ICAP Commands

The ICAP command supports six command options to perform iCAP operations on OpenVMS systems.

### ICAP ACTIVATE

Name

ICAP ACTIVATE - Immediately activates additional cores on the system. (HP-UX equivalent: icapmodify -a )

Format

ICAP ACTIVATE /CPU=n [/DEFER] [/TICAP]

#### Qualifiers

/CPU=n Specifies the number of additional cores to activate. This qualifier is required.

[/DEFER] Defers the activation until the next reboot. (HP-UX equivalent: -D option)

[/TICAP] Authorize the use of temporary capacity to satisfy this activation request. (HP-UX equivalent: -t option )

### **ICAP APPLY**

#### Name

ICAP APPLY - Apply an iCAP codeword. (HP-UX equivalent: `icapmodify -C` )

#### Format

ICAP APPLY "*codeword*"

#### Parameter

"*codeword*" An iCAP codeword obtained from the HP Utility Pricing Solutions portal. Enclose the codeword in double quotation marks.

### **ICAP DEACTIVATE**

#### Name

ICAP DEACTIVATE - Deactivates cores on the system. (HP-UX equivalent: `icapmodify -d` )

#### Format

ICAP DEACTIVATE /CPU=n [*qualifiers*]

#### Qualifiers

/CPU=n Specifies the number of cores to deactivate. This qualifier is required.

/DEFER Defers the deactivation until the next shutdown. (HP-UX equivalent: -D option)

### **ICAP RECONCILE**

#### Name

ICAP RECONCILE - Activates or deactivates cores (subject to compliance limits) to bring the system to a state where the intended active number of cores are active. (HP-UX equivalent: `icapmodify -r` )

#### Format

ICAP RECONCILE

### **ICAP SET**

#### Name

ICAP SET - Sets various iCAP management variables.

#### Format

ICAP SET *parameter* [*qualifiers*]

#### Parameters

ACTIVE\_CPU Sets the number of active cores and the number of intended active cores.  
(HP-UX equivalent: `icapmodify -s` )

	<p>Format</p> <pre>ICAP SET ACTIVE_CPU <i>count</i></pre> <p>Value</p> <p><i>count</i>: the number of cores to set active in the npartition.</p>
ASSET	<p>Sets the asset reporting email on or off. (HP-UX equivalent: <code>icapnotify -a</code> )</p> <p>Format</p> <pre>ICAP SET ASSET [<i>qualifier</i>]</pre> <p>Qualifiers</p> <p><code>/STATE=<i>state</i></code>: specify ON or OFF for the state qualifier value.</p>
EMAIL	<p>Sets the system contact email addresses. (HP-UX equivalent: <code>icapmodify -c</code> )</p> <p>Format</p> <pre>ICAP SET EMAIL <i>qualifiers</i></pre> <p>Qualifiers</p> <p><code>/CONTACT</code>: The email address that receives the configuration change notifications and exception reports. <code>/FROM</code>: The From address for the email sent from the iCAP system.</p>
NOTIFICATION	<p>Sets the iCAP change configuration email notifications on or off. (HP-UX equivalent: <code>icapnotify -n</code> )</p> <p>Format</p> <pre>ICAP SET NOTIFICATION [<i>qualifier</i>]</pre> <p>Qualifiers</p> <p><code>/STATE=<i>state</i></code>: specify ON or OFF for the state qualifier value.</p>
SYSTEM_ID	<p>Sets the system identification used for iCAP asset reporting. (HP-UX equivalent: <code>icapmodify -I</code> )</p> <p>Format</p> <pre>ICAP SET SYSTEM_ID "<i>id</i>"</pre> <p>Value</p> <p><i>id</i>: A user-defined string to identify this system when tracking or reporting usage. Specify a null string ("") to set the system ID to the default value. The default value is the local hostname.</p>
WARNING_DAYS	<p>Sets the temporary capacity warning period to the number of days specified. (HP-UX equivalent: <code>icapmodify -w</code> )</p> <p>Format</p> <pre>ICAP SET WARNING_DAYS <i>days</i></pre> <p>Value</p>

*days*: the number of days of temporary capacity before temporary capacity expiration warning email is sent to the system contact.

## ICAP SHOW

### Name

ICAP SHOW - Show the status and settings of the iCAP software on the OpenVMS system.  
(HP-UX equivalent: `icapstatus`)

### Format

ICAP SHOW STATUS [*qualifiers*]

### Parameter

STATUS Show the iCAP status and system settings to the standard output device.

### Qualifiers

/SNAPSHOT Creates a string of snapshot information containing encrypted audit data and displays the string to the standard output device. (HP-UX equivalent: `icapstatus -s`)

## ICAP\_SERVER

### Name

ICAP\_SERVER - iCAP server process.

### Description

The `ICAP_SERVER` process performs the same functions as the `icapd` daemon process on HP-UX systems. For more information, see the HP-UX `icapd` manpage. To ensure compliance, the `ICAP_SERVER` is always running on OpenVMS systems in an iCAP complex.

For more information, refer the [HP Instant Capacity User's Guide for Versions 8.x](#).

## 9. Reference Documentation

The following list provides links to some references:

- [HP Instant Capacity User's Guide for Versions 8.x](#)
- [HP OpenVMS Version 8.3-1H1 for Integrity Servers Upgrade and Installation Manual](#)
- [HP WBEM products](#)
- [HP Utility Pricing Solutions portal](#)