HP OpenVMS Guest VM Provider

Provider overview

Description

The HP OpenVMS Guest VM Provider is a Web-Based Enterprise Management (WBEM) instance provider. It provides information about a HPVM Guest on supported HP Integrity Servers, running HP OpenVMS. This provider is compliant with the Common Information Model (CIM) 2.7.2 Schema, as defined by the Distributed Management Task Force (DMTF). The provider requires HP WBEM Services for OpenVMS installed on the system.

You can query for information about a guest on a managed system using a management application that is compliant with the CIM 2.7.2 schema; for example, HP Systems Insight Manager. The Common Information Model (CIM) is an extensible, object-oriented data model that contains information about different parts of an enterprise.

The OpenVMS Guest VM Provider implements the System and Computer System classes, as defined in the DMTF CIM 2.7.2 revision. In addition to the properties that belong to the standard CIM classes, the OpenVMS Guest VM Provider serves information that is specific to HP, by implementing an HP-specific CIM HPVM_Host class, derived from the standard DMTF Computer System class.

The following Managed Object Format (MOF) class is handled by the OpenVMS Guest VM Provider:

- o HPVM_Host

    HPVM_Host (subclass of CIM_ComputerSystem) represents information about the OpenVMS guest running on the HPVM host machine, such as status, version information, model information, hostname, etc.

The MOF class mentioned above is a HP-specific extension to the CIM Schema, and is registered in the "root/cimv2/hpvm" namespace.

- o There is one HPVM_Host instance for each OpenVMS guest running on the HPVM host machine.

For the HPVM_Host class mentioned above, the OpenVMS Guest VM Provider supports the following standard CIM Operations:

- o enumerateInstanceNames()
- o enumerateInstances()
- o getInstance()

Although invokeMethod() is supported the methods return no useful information. The methods return useful information in the host version of the provider and are documented there.

The following CIM operations are not supported by the OpenVMS Guest VM Provider:

- o createInstance()
- o deleteInstance()
- o modifyInstance()

Requirements

The provider requires HP WBEM Services for OpenVMS.

- o HP I64VMS WBEMPROVIDERS V1.7-16 (May 2009)

Release history

- o HP I64VMS WBEMPROVIDERS V2.0-4 (June 2010)
- o HP I64VMS WBEMPROVIDERS V2.1-4 (August 2010)
- o HP I64VMS WBEMPROVIDERS V2.2-3 (February 2011)

| Supported managed resources | This provider provides information about the guest operating system and the host on which it runs.

Note that the OpenVMS Guest VM Provider provides only the information. It does not provide any management, diagnostic or configuration capabilities for the above resources. |

Setting up this provider

| Installing this provider | The installation of HP WBEM Providers will set up this provider. Ensure HP WBEM Services is already installed.

On installation, executable binaries, configuration files and MOF definition and registration files will be available in their respective directory, as follows: |

- The CIM MOF file, containing the definitions of the HP-specific MOF classes, (namely HPVM_Host.mof) will be available in SYS$COMMON:[WBEMPROVIDERS.MOF]. This directory will also include the provider registration file, namely VMGUESTPROVIDERR.MOF. Note: All the HP-specific MOF classes will be registered under the "root/cimv2" namespace.

- The SYS$SPECIFIC:[WBEMPROVIDERS] directory will contain the configuration files of the WBEM Providers Product.

- The WBEM Services SYS$SPECIFIC:[WBEM_Services]CIMSERVER_STARTUP.LOG log file will contain logs generated during the execution of this provider. By editing the "Severity" property in the SYS$SPECIFIC:[WBEMPROVIDERS]FMLOGGERCONFIG.TXT file different levels of messages in the cimserver.log can be generated. The valid values are TRACE, DEBUG, INFORMATIONAL, WARNING, ERROR, CRITICAL, STOPLOGGING.

  There are no special installation instructions; the provider will be installed by default with HP WBEM Services for OpenVMS.

| Configuring this provider | This provider does not accept specific configuration adjustments (beyond standard WBEM support). |

Using this provider

| Schema supported by this provider | The "Description" section explains in brief the MOF class supported by the OpenVMS VM Guest Provider. The following tables list all the supported properties corresponding to this MOF class, along with the properties inherited from the standard CIM MOF classes, as per CIM 2.7.2 schema specifications. |

| Tools supported by this provider | An alternative to using WBEM to retrieve information provided by this provider is to use a command line interface tool called hpvminfo to return information. This tool is defined by running the command procedure @SYS$COMMON:[WBEMPROVIDERS]HPVM_DEFINE_COMMANDS.COM

Following is a description of the command and options. Options with capital letters must be enclosed in quotes.

hpvminfo ["-V"|"-M"|"-X"] [-v] ["-S"]

Information can be presented in several formats. The -M option displays in a machine-readable format, while the -X option displays in the XML format.

Options

No options can be specified more than once.

hpvminfo recognizes the following command-line options and arguments: |

-v   Displays the version number of the hpvminfo command. The version number is displayed first, followed by the information specified by other options.

-V   Displays detailed information about the VM Host and guests (verbose mode). For whole disks used by guests, the SCSI timeout information is displayed.

The -V, -M, and -X options are mutually exclusive.

-M   Displays verbose information in a machine-readable format.

Individual fields are separated by one of three delimiters:

+ The colon (:) separates each field and resource type.

+ The semicolon (;) separates subfields of a resource type.

+ The comma (,) separates individual items in a list of similar items.

The -V, -M, and -X options are mutually exclusive.

-X   Displays verbose information in the XML format.

The -V, -M, and -X options are mutually exclusive.

-S   Displays all information accessible through the supported interfaces.

Table 1: HPVM_Host Properties (Guest Information):

Table 1 describes the properties of the HPVM_Host CIM class. It has three columns. The first is the property name (including type and units), the second is the property inheritance (indicating which class or superclass defines the property), and the third is the property's value and data source. Each row describes a property.

Property name	Property inheritance	Property value (and data source)
uint8 Role	Local	If the provider is running on a guest, the result will be "Guest". If the provider is running on a system that does not have HPVM installed, the result will be "Other".
string Name [Key]	Inherited from CIM_ManagedSystemElement	The hostname or IP address for this host system. This can be used as a correlatable ID to find to find additional information about the host system in the root/cimv2/hpvm namespace.
string Status	Inherited from CIM_ManagedSystemElement	A string indicating the current status of the object. Various operational and non-operational statuses are defined. This property is deprecated in lieu of OperationalStatus, which includes the same semantics in its enumeration. This change is made for 3 reasons: 1) Status is more correctly defined as an array. This overcomes the limitation of describing status via a single value, when it is really a multi-valued property (for example, an element may be OK AND Stopped. 2) A MaxLen of 10 is too restrictive and leads to unclear enumerated values. And, 3) The change to a uint16 data type was discussed when CIM V2.0 was defined. However, existing V1.0 implementations used the string property and did not want to modify their code. Therefore, Status was grandfathered into the Schema. Use of the Deprecated qualifier allows the maintenance of the existing property, but also permits an improved definition using OperationalStatus.
uint32 ProviderPatchVersion	Local	The patch part of the version number for the HPVM provider software.
string NameFormat	Inherited from CIM_System	The format of the name for this computer system. This will always be "IP" for this class.
uint16[] Dedicated	Inherited from CIM_ComputerSystem	Whether this computer systems is a special-purpose system. This value is set to "Not Dedicated" if running on a guest.
uint16[] OperationalStatus	Inherited from CIM_ManagedSystemElement	The operational status value for this host with respect to the installed Integrity Virtual Machine (HPVM) software. The system OperationalStatus may be obtained by querying for the correlated CIM_ComputerSystem in the root/cimv2/hpvm namespace. The only value this property is set to is OK. Only one element will be in the array.
uint32 ProviderMajorVersion	Local	The major part of the version number for the HPVM provider software.

string ProviderVersion	Local	The full version string for the HPVM provider software.
string ElementName	Inherited from CIM_ManagedElement	The hostname of this system. This may have the same value as the Name property.
string CreationClassName [Key]	Inherited from CIM_System	CreationClassName indicates the name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified.
string[] StatusDescriptions	Inherited from CIM_ManagedSystemElement	Strings describing the various OperationalStatus array values. For example, if "Stopping" is the value assigned to OperationalStatus, then this property may contain an explanation as to why an object is being stopped. Note that entries in this array are correlated with those at the same array index in OperationalStatus.
uint32 ProviderMinorVersion	Local	The minor part of the version number for the HPVM provider software.

table 2: intrinsic methods for all the CIM classes supported by CPU Instance Provider

Table 2 describes the intrinsic methods supported by this provider. It has three columns. The first is the method name, the second is a description of the provider's actions based on invoking that method, and the third is a list of any exceptions that could result from invoking the method. Each row describes a method.

Method name	Description	Exceptions thrown
enumerateInstances	Returns all instances of class with values of supported properties. (See tables above.)	
enumerateInstanceNames	Returns object path of all instances of class.	
getInstance	Returns an instance that matches the keys with values of supported properties. (See tables above.)	
modifyInstance	This operation is not supported by the OpenVMS VM Guest Provider. This is indicated to the client, via exceptions.	CIMNotSupportedException
deleteInstance	This operation is not supported by the OpenVMS VM Guest Provider. This is indicated to the client, via exceptions.	CIMNotSupportedException
createInstance	This operation is not supported by the OpenVMS VM Guest Provider. This is indicated to the client, via exceptions.	CIMNotSupportedException

indications generated by this provider   This Provider does not currently generate any indications.

Related Documentation
- **WBEM information**
  - For a CIM tutorial, go to http://www.dmtf.org/education/tutorials
  - For information about HP WBEM Services go to http://h71000.www7.hp.com/openvms/products/wbem/wbem_index.html.
  - HP WBEM Providers Release Notes bundled with the WBEM Providers kit.

o   HP WBEM Providers Installation and Administrator's Guide bundled with the WBEM Providers kit.

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