



hp WBEM solutions



hp technical
data sheet
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hp-ux operating system CIM provider

provider overview

description

The Operating System provider makes available operating system information such as operating system type, version, last boot up time, local date and time, number of users, swap space size, and free physical memory. The Operating System provider instruments the CIM_OperatingSystem class and PG_OperatingSystem subclass. Not all properties of the CIM_OperatingSystem are currently supported. This provider does not support the Reboot and Shutdown methods of the CIM_OperatingSystem class. The PG_OperatingSystem subclass adds the SystemUpTime and OperatingSystemCapability properties.

- SystemUpTime is a convenience property. It provides direct access to this value, versus having client/providers calculate the value from LastBootUpTime and the LocalDateTime.
- OperatingSystemCapability indicates whether the OS itself is 32-bit or 64-bit capable.

This provider is for use by clients as part of a basic understanding of the identity of the managed system on which it is running (typically a server or appliance). The current implementation is for HP-UX only.

requirements

The provider requires HP WBEM Services for HP-UX.

release history

Initial release with HP WBEM Services for HP-UX, version 1.0. Re-released with HP WBEM Services for HP-UX, version 1.1.

supported managed resources

Managed systems running HP WBEM Services for HP-UX.

setting up this provider

installing this provider

The Operating System provider is contained within an operating system provider module (it is the only provider within that module). The provider module is bundled with HP WBEM Services for HP-UX including:

- Schema MOF file: PG_OperatingSystem20.mof (in /etc/opt/wbem/mof)
- Provider registration MOF file: PG_OperatingSystem20R.mof (in /etc/opt/wbem/mof)
- Provider module executable: libOSProvider.sl (in /opt/wbem/providers/lib, and is the target of the /opt/wbem/lib/libOSProvider.1 symbolic link)

The HP-UX Operating System provider is registered to support the "root/cimv2" namespace as an instance provider. There are no special installation instructions; the provider will be installed by default with HP WBEM Services for HP-UX.

configuring this provider

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

using this provider

schema supported by this provider

This provider supports the CIM_OperatingSystem and PG_OperatingSystem classes. Tables 1 through 4 describe the properties and methods supported by the provider.

Table 1: CIM_OperatingSystem properties

Table 1 describes the properties of the CIM_OperatingSystem 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.

<i>Property name</i>	<i>property inheritance</i>	<i>property value (and data source)</i>
string Caption	Inherited from CIM_ManagedElement	<u>HP-UX</u> : Returns the string "The current Operating System".
string Description	Inherited from CIM_ManagedElement	<u>HP-UX</u> : Returns the string "This instance reflects the Operating System on which the CIMOM is executing (as distinguished from instances of other installed operating systems that could be run)."
datetime InstallDate	Inherited from CIM_ManagedSystemElement	<u>HP-UX</u> : Not implemented.
string Status	Inherited from CIM_ManagedSystemElement	<u>HP-UX</u> : Returns "Unknown" (although if the OS is running enough for CIMOM to function, may consider "OK", but would need to distinguish it from "Degraded" or "Stopping").
string CSCreationClassName [Key]	Local to CIM_OperatingSystem	<u>HP-UX</u> : Always returns string "CIM_UnitaryComputerSystem".
string CSName [Key]	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the system name (fully qualified if possible). Gets the fully qualified system name from the gethostbyname() system call, or if that fails, uses the hostname obtained from the gethostname() system call.
string CreationClassName [Key]	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns "CIM_OperatingSystem" (even for PG_OS, since actually the same instance, thus the same keys, just additional properties).
string Name [Key]	Inherited from CIM_ManagedSystemElement (and made one of 4 keys of CIM_OperatingSystem)	<u>HP-UX</u> : Returns the name of this system from the sysname field of the uname() system call.
Uint16 OSType	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns 8 (defined by DMTF as the value to set for HP-UX).
string OtherTypeDescription	Local to CIM_OperatingSystem	<u>HP-UX</u> : Not implemented
string Version	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the release information from the uname() system call (for example, B.11.20).
datetime LastBootUpTime	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns boot_time field from pstat() system call (local time with GMT offset).
datetime LocalDateTime	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns information from time() system call (local time with GMT offset).
Uint16 CurrentTimeZone	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns information from time() system call (local time with GMT offset)
uint32 NumberOfLicensedUsers	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns number of licensed users from interpreting the version string of the uname() system call (0 if unlimited or 128 or 256).

<i>Property name</i>	<i>property inheritance</i>	<i>property value (and data source)</i>
uint32 NumberOfUsers	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the number of ut_usrs from getutent calls.
uint32 NumberOfProcesses	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the number of active processes from the pstat() system call.
uint32 MaxNumberOfProcesses	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns max_proc from the pstat() system call.
uint64 TotalSwapSpaceSize (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the sum of KB available across all swap from the swapinfo -q command.
uint64 TotalVirtualMemorySize (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the sum of KB available across all swap from the swapinfo -q command (same as SwapSize).
uint64 FreeVirtualMemory (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the sum of KB free across all swap from the swapinfo -at command.
uint64 FreePhysicalMemory (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns information from the pstat() system call (psd_free).
uint64 TotalVisibleMemorySize (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns information from the pstat() system call; physical memory adjusted for page size.
uint64 SizeStoredInPagingFiles (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns 0 (no paging files).
uint64 FreeSpaceInPagingFiles (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns 0 (no paging files).
uint64 MaxProcessMemorySize (in KiloBytes)	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the sum of the data, text, and stack sizes retrieved via the kmtune command or gettuneinfo() call.
boolean Distributed	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns FALSE.
uint32 NumberOfUsers	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the number of ut_usrs from getutent calls.
uint32 MaxProcessesPerUser	Local to CIM_OperatingSystem	<u>HP-UX</u> : Returns the _SC_CHILD_MAX value from sysconf() system call.

Table 2: PG_OperatingSystem properties

Table 2 describes the properties of the PG_OperatingSystem 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 or data source. Each row describes a property.

The PG_OperatingSystem class inherits properties of superclass CIM_OperatingSystem (as described in Table 1 and not repeated here).

<i>property name</i>	<i>property inheritance</i>	<i>property value (and data source)</i>
uint64 SystemUpTime (in seconds)	Local to PG_OperatingSystem	HP-UX: Returns a value calculated from current time and boot up time.
string OperatingSystemCapability	Local to PG_OperatingSystem Defined as a String (vs. enum) for maximum flexibility across OS capability representations.	HP-UX: Returns "32 bit" or "64 bit" (number of bits used by the kernel for pointers).

Tables 3 and 4 describe the intrinsic and extrinsic methods for CIM_OperatingSystem and inherited by PG_OperatingSystem. There are no local methods within PG_OperatingSystem. The GetInstance operation is supported on both classes (returning only CIM_ properties for CIM_OperatingSystem). Enumerate operations only return instances on the PG_ subclass (as the CIMOM will invoke subclass providers on enumerations). The provider current registers as an instance provider and a method provider.

Table 3: intrinsic methods for CIM_OperatingSystem and PG_OperatingSystem

Table 3 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.

<i>method name</i>	<i>description</i>	<i>exceptions thrown</i>
enumerateInstances	Returns all instances of class (expect one unless additional installed OSs) with all properties.	None
enumerateInstanceNames	Returns object path of all instances of class (expect one unless additional installed OSs) with key properties.	None
getInstance	Returns the requested instance (with all properties).	CIM_ERR_INVALID_PARAMETER (if wrong class or wrong number of keys or wrong keys) CIM_ERR_NOT_FOUND (from CIMOM) if no instance.
modifyInstance	Returns Not Supported.	CIM_ERR_NOT_SUPPORTED
deleteInstance	Returns Not Supported.	CIM_ERR_NOT_SUPPORTED
initialize	Not Supported.	None
terminate	Not Supported.	None
createInstance	Returns Not Supported.	CIM_ERR_NOT_SUPPORTED

table 4: extrinsic methods for CIM_OperatingSystem

Table 4 describes the extrinsic 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.

<i>Method name</i>	<i>description</i>	<i>exceptions thrown</i>
Reboot	Reboot the operating system	<u>HP-UX</u> : Not implemented
Shutdown	Shutdown the operating system	<u>HP-UX</u> : Not implemented

- **Indications generated by this provider**
This provider does not currently generate any indications.
- **Associations provided by this provider**
This provider does not currently support any associations.

links to more information

- Additional HP WBEM solutions data
<http://www.hp.com/large/infrastructure/management/wbem/>
- **Additional provider documentation**
There is currently no additional documentation for this provider beyond this information.
See also man pages for information on the various commands and system calls noted in the descriptions above.
- **WBEM information**
For a CIM tutorial, go to <http://www.dmtf.org/education/cimtutorial.php>.
For information about HP WBEM Services for HP-UX, see software.hp.com and hp.com (the Network and Systems Management areas).
- **Managed resource documentation**
Information regarding the HP-UX operating system can be found in the man pages and manuals of that operating system.
- **Client information**
The `osinfo` command bundled with HP WBEM Services for HP-UX is a client making use of the Operating System provider.
- **Support contacts**
The HP-UX Operating System provider is supported as part of HP WBEM Services for HP-UX.

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