



Host-Resources MIB Definitions

This chapter describes the host resource MIBs and is used to identify the manufacturer, model, and version of a specific hardware or software product. It is suggested that these object identifiers are allocated such that all products from a particular manufacturer are registered under a subtree distinct to that manufacturer. In addition, all versions of a product should be registered under a subtree distinct to that product. With this strategy, a management station may uniquely determine the manufacturer and/or model of a product whose productID is unknown to the management station. Objects of this type may be useful for inventory purposes or for automatically detecting incompatibilities or version mismatches between various hardware and software components on a system.

Imports

```
OBJECT-TYPE          FROM RFC-1212
DisplayString        FROM RFC1213-MIB
TimeTicks, Counter, Gauge      FROM RFC1155-SMI;
host  OBJECT IDENTIFIER ::= { mib-2 25 }
hrSystem  OBJECT IDENTIFIER ::= { host 1 }
hrStorage OBJECT IDENTIFIER ::= { host 2 }
hrDevice  OBJECT IDENTIFIER ::= { host 3 }
hrSWRun   OBJECT IDENTIFIER ::= { host 4 }
hrSWRunPerf OBJECT IDENTIFIER ::= { host 5 }
hrSWInstalled OBJECT IDENTIFIER ::= { host 6 }
```

Textual Conventions

[Table 4-1](#) provides the textual conventions used for this set of MIB objects.



Note

f only local time is known, then timezone information (fields 8-10) is not present. The Host Resources System Group

I

Table 4-1 Host Resource MIB Object Text Conventions

Item	Description	Values			
Truth value	Boolean ::= INTEGER	{ true(1), false(2) }			
Memory size	Expressed in units of 1024bytes	2048			
KBytes	::= INTEGER	(0..2147483647)			
ProductID	For example, the product ID for the ACME 4860 66MHz clock doubled processor might be: enterprises.acme.acmeProcessors.a4860DX2.MHz66 A software product might be registered as: enterprises.acme.acmeOperatingSystems.acmeDOS.six(6).one(1)	N/A			
DateAndTime	::= OCTET STRING (SIZE (8 11)) This is a date-time specification for the local time of day. This data type is intended to provide a consistent method of reporting date information.	Field	Octet	Content	Range
		1	1-2	year	0..65536 ¹
		2	3	month	1..12
		3	4	day	1..31
		4	5	hour	0..23
		5	6	minutes	0..59
		6	7	seconds	0..60 ²
		7	8	deci-seconds	0..9
		8	9	direction from UTC	“+” / “-” ³
		9	10	UTC	0..11
10	11	minutes from UTC	0..59		
InternationalDisplayString	::= OCTET STRING	This data type is used to model textual information in some character set. A network management station should use a local algorithm to determine which character set is in use and how it should be displayed. Note that this character set may be encoded with more than one octet per symbol, but will most often be NVT ASCII.			

1. In network byte order
2. Use 60 for leap-second
3. In ascii notation

Host System MIBs

Implementation of this group is mandatory for all host systems.

hrSystemUptime OBJECT-TYPE

SYNTAX TimeTicks

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The amount of time since this host was last initialized. Note that this is different from sysUpTime in MIB-II [3] because sysUpTime is the uptime of the network management portion of the system.”

::= { hrSystem 1 }

hrSystemDate OBJECT-TYPE

SYNTAX DateAndTime

ACCESS read-write

STATUS mandatory

DESCRIPTION

“The host’s notion of the local date and time of day.”

::= { hrSystem 2 }

hrSystemInitialLoadDevice OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-write

STATUS mandatory

DESCRIPTION

“The index of the hrDeviceEntry for the device from which this host is configured to load its initial operating system configuration.”

::= { hrSystem 3 }

hrSystemInitialLoadParameters OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE (0..128))

ACCESS read-write

STATUS mandatory

DESCRIPTION

“This object contains the parameters (e.g. a pathname and parameter) supplied to the load device when requesting the initial operating system configuration from that device.”

```
::= { hrSystem 4 }
```

hrSystemNumUsers OBJECT-TYPE

SYNTAX Gauge

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The number of user sessions for which this host is storing state information. A session is a collection of processes requiring a single act of user authentication and possibly subject to collective job control.”

```
::= { hrSystem 5 }
```

hrSystemProcesses OBJECT-TYPE

SYNTAX Gauge

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The number of process contexts currently loaded or running on this system.”

```
::= { hrSystem 6 }
```

hrSystemMaxProcesses OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The maximum number of process contexts this system can support. If there is no fixed maximum, the value should be zero. On systems that have a fixed maximum, this object can help diagnose failures that occur when this maximum is reached.”

```
::= { hrSystem 7 }
```

The Host Resources Storage Group

Implementation of this group is mandatory for all host systems.

Registration for some storage types, for use with hrStorageType

```
hrStorageTypes      OBJECT IDENTIFIER ::= { hrStorage 1 }
```

```
hrStorageOther      OBJECT IDENTIFIER ::= { hrStorageTypes 1 }
```

hrStorageRam OBJECT IDENTIFIER ::= { hrStorageTypes 2 }

hrStorageVirtualMemory is temporary storage of swapped or paged memory

hrStorageVirtualMemory OBJECT IDENTIFIER ::= { hrStorageTypes 3 }

hrStorageFixedDisk OBJECT IDENTIFIER ::= { hrStorageTypes 4 }

hrStorageRemovableDisk OBJECT IDENTIFIER ::= { hrStorageTypes 5 }

hrStorageFloppyDisk OBJECT IDENTIFIER ::= { hrStorageTypes 6 }

hrStorageCompactDisc OBJECT IDENTIFIER ::= { hrStorageTypes 7 }

hrStorageRamDisk OBJECT IDENTIFIER ::= { hrStorageTypes 8 }

hrMemorySize OBJECT-TYPE

SYNTAX KBytes

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The amount of physical main memory contained by the host.”

::= { hrStorage 2 }

hrStorageTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrStorageEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of logical storage areas on the host.

An entry shall be placed in the storage table for each logical area of storage that is allocated and has fixed resource limits. The amount of storage represented in an entity is the amount actually usable by the requesting entity, and excludes loss due to formatting or file system reference information.

These entries are associated with logical storage areas, as might be seen by an application, rather than physical storage entities which are typically seen by an operating system. Storage such as tapes and floppies without file systems on them are typically not allocated in chunks by the operating system to requesting applications, and therefore shouldn't appear in this table. Examples of valid storage for this table include disk partitions, file systems, ram (for some architectures this is further segmented into regular memory, extended memory, and so on), backing store for virtual memory ('swap space').

This table is intended to be a useful diagnostic for 'out of memory' and 'out of buffers' types of failures. In addition, it can be a useful performance monitoring tool for tracking memory, disk, or buffer usage.”

::= { hrStorage 3 }

hrStorageEntry OBJECT-TYPE

SYNTAX HrStorageEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one logical storage area

on the host. As an example, an instance of the
hrStorageType object might be named
hrStorageType.3”

```
INDEX { hrStorageIndex }
```

```
::= { hrStorageTable 1 }
```

```
HrStorageEntry ::= SEQUENCE {
    hrStorageIndex      INTEGER,
    hrStorageType       OBJECT IDENTIFIER,
    hrStorageDescr      DisplayString,
    hrStorageAllocationUnits  INTEGER,
    hrStorageSize       INTEGER,
    hrStorageUsed       INTEGER,
    hrStorageAllocationFailures Counter
}
```

```
hrStorageIndex OBJECT-TYPE
```

```
SYNTAX INTEGER (1..2147483647)
```

```
ACCESS read-only
```

```
STATUS mandatory
```

```
DESCRIPTION
```

“A unique value for each logical storage area
contained by the host.”

```
::= { hrStorageEntry 1 }
```

```
hrStorageType OBJECT-TYPE
```

```
SYNTAX OBJECT IDENTIFIER
```

```
ACCESS read-only
```

```
STATUS mandatory
```

```
DESCRIPTION
```

“The type of storage represented by this entry.”

```
::= { hrStorageEntry 2 }
```

```
hrStorageDescr OBJECT-TYPE
```

```
SYNTAX DisplayString
```

```
ACCESS read-only
```

```
STATUS mandatory
```

```
DESCRIPTION
```

“A description of the type and instance of the storage described by this entry.”

::= { hrStorageEntry 3 }

hrStorageAllocationUnits OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The size, in bytes, of the data objects allocated from this pool. If this entry is monitoring sectors, blocks, buffers, or packets, for example, this number will commonly be greater than one. Otherwise this number will typically be one.”

::= { hrStorageEntry 4 }

hrStorageSize OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

ACCESS read-write

STATUS mandatory

DESCRIPTION

“The size of the storage represented by this entry, in units of hrStorageAllocationUnits.”

::= { hrStorageEntry 5 }

hrStorageUsed OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The amount of the storage represented by this entry that is allocated, in units of hrStorageAllocationUnits.”

::= { hrStorageEntry 6 }

hrStorageAllocationFailures OBJECT-TYPE

SYNTAX Counter

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The number of requests for storage represented by this entry that could not be honored due to not enough storage. It should be noted that as this object has a SYNTAX of Counter, that it does not have a defined initial value. However, it is recommended that this object be initialized to zero.”

::= { hrStorageEntry 7 }

Host Resources Device Group

Implementation of this group is mandatory for all host systems.

The device group is useful for identifying and diagnosing the devices on a system. The hrDeviceTable contains common information for any type of device. In addition, some devices have device-specific tables for more detailed information. Additional tables may be defined in the future for other device types.

Registration for some device types, for use with hrDeviceType

hrDeviceTypes	OBJECT IDENTIFIER ::= { hrDevice 1 }
hrDeviceOther	OBJECT IDENTIFIER ::= { hrDeviceTypes 1 }
hrDeviceUnknown	OBJECT IDENTIFIER ::= { hrDeviceTypes 2 }
hrDeviceProcessor	OBJECT IDENTIFIER ::= { hrDeviceTypes 3 }
hrDeviceNetwork	OBJECT IDENTIFIER ::= { hrDeviceTypes 4 }
hrDevicePrinter	OBJECT IDENTIFIER ::= { hrDeviceTypes 5 }
hrDeviceDiskStorage	OBJECT IDENTIFIER ::= { hrDeviceTypes 6 }
hrDeviceVideo	OBJECT IDENTIFIER ::= { hrDeviceTypes 10 }
hrDeviceAudio	OBJECT IDENTIFIER ::= { hrDeviceTypes 11 }
hrDeviceCoprocessor	OBJECT IDENTIFIER ::= { hrDeviceTypes 12 }
hrDeviceKeyboard	OBJECT IDENTIFIER ::= { hrDeviceTypes 13 }
hrDeviceModem	OBJECT IDENTIFIER ::= { hrDeviceTypes 14 }
hrDeviceParallelPort	OBJECT IDENTIFIER ::= { hrDeviceTypes 15 }
hrDevicePointing	OBJECT IDENTIFIER ::= { hrDeviceTypes 16 }
hrDeviceSerialPort	OBJECT IDENTIFIER ::= { hrDeviceTypes 17 }
hrDeviceTape	OBJECT IDENTIFIER ::= { hrDeviceTypes 18 }
hrDeviceClock	OBJECT IDENTIFIER ::= { hrDeviceTypes 19 }
hrDeviceVolatileMemory	OBJECT IDENTIFIER ::= { hrDeviceTypes 20 }

hrDeviceNonVolatileMemory OBJECT IDENTIFIER ::= { hrDeviceTypes 21 }

hrDeviceTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrDeviceEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of devices contained by the host.”

::= { hrDevice 2 }

hrDeviceEntry OBJECT-TYPE

SYNTAX HrDeviceEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one device contained by the host. As an example, an instance of the hrDeviceType object might be named hrDeviceType.3

INDEX { hrDeviceIndex }

::= { hrDeviceTable 1 }

HrDeviceEntry ::= SEQUENCE {

hrDeviceIndex	INTEGER,
hrDeviceType	OBJECT IDENTIFIER,
hrDeviceDescr	DisplayString,
hrDeviceID	ProductID,
hrDeviceStatus	INTEGER,
hrDeviceErrors	Counter

}

hrDeviceIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

A unique value for each device contained by the host. The value for each device must remain constant at least from one re-initialization of the agent to the next re-initialization.

::= { hrDeviceEntry 1 }

hrDeviceType OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

ACCESS read-only

STATUS mandatory

DESCRIPTION

“An indication of the type of device. If this value is ‘hrDeviceProcessor { hrDeviceTypes 3 }’ then an entry exists in the hrProcessorTable which corresponds to this device.

If this value is ‘hrDeviceNetwork { hrDeviceTypes 4 }’, then an entry exists in the hrNetworkTable which corresponds to this device.

If this value is ‘hrDevicePrinter { hrDeviceTypes 5 }’, then an entry exists in the hrPrinterTable which corresponds to this device.

If this value is ‘hrDeviceDiskStorage { hrDeviceTypes 6 }’, then an entry exists in the hrDiskStorageTable which corresponds to this device.”

::= { hrDeviceEntry 2 }

hrDeviceDescr OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..64))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A textual description of this device, including the device’s manufacturer and revision, and optionally, its serial number.”

::= { hrDeviceEntry 3 }

hrDeviceID OBJECT-TYPE

SYNTAX ProductID

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The product ID for this device.”

::= { hrDeviceEntry 4 }

hrDeviceStatus OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

running(2),

warning(3),

testing(4),

down(5)

}

ACCESS read-only

STATUS mandatory

DESCRIPTION

The current operational state of the device described by this row of the table. A value unknown(1) indicates that the current state of the device is unknown. running(2) indicates that the device is up and running and that no unusual error conditions are known. The warning(3) state indicates that agent has been informed of an unusual error condition by the operational software (e.g., a disk device driver) but that the device is still ‘operational’. An example would be high number of soft errors on a disk. A value of testing(4), indicates that the device is not available for use because it is in the testing state. The state of down(5) is used only when the agent has been informed that the device is not available for any use.”

::= { hrDeviceEntry 5 }

hrDeviceErrors OBJECT-TYPE

SYNTAX Counter

ACCESS read-only

STATUS mandatory

DESCRIPTION

The number of errors detected on this device. It should be noted that as this object has a SYNTAX of Counter, that it does not have a defined initial value. However, it is recommended that this object be initialized to zero.

::= { hrDeviceEntry 6 }

hrProcessorTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrProcessorEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of processors contained by the host.

Note that this table is potentially sparse: a (conceptual) entry exists only if the correspondent value of the hrDeviceType object is 'hrDeviceProcessor'."

::= { hrDevice 3 }

hrProcessorEntry OBJECT-TYPE

SYNTAX HrProcessorEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

"A (conceptual) entry for one processor contained by the host. The hrDeviceIndex in the index represents the entry in the hrDeviceTable that corresponds to the hrProcessorEntry.

As an example of how objects in this table are named, an instance of the hrProcessorFrwID object might be named hrProcessorFrwID.3"

INDEX { hrDeviceIndex }

::= { hrProcessorTable 1 }

HrProcessorEntry ::= SEQUENCE {

hrProcessorFrwID ProductID,

hrProcessorLoad INTEGER

}

hrProcessorFrwID OBJECT-TYPE

SYNTAX ProductID

ACCESS read-only

STATUS mandatory

DESCRIPTION

"The product ID of the firmware associated with the processor."

::= { hrProcessorEntry 1 }

hrProcessorLoad OBJECT-TYPE

SYNTAX INTEGER (0..100)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The average, over the last minute, of the percentage of time that this processor was not idle.”

::= { hrProcessorEntry 2 }

hrNetworkTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrNetworkEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of network devices contained by the host.

Note that this table is potentially sparse: a (conceptual) entry exists only if the correspondent value of the hrDeviceType object is

‘hrDeviceNetwork’.”

::= { hrDevice 4 }

hrNetworkEntry OBJECT-TYPE

SYNTAX HrNetworkEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one network device contained by the host. The hrDeviceIndex in the index represents the entry in the hrDeviceTable that corresponds to the hrNetworkEntry.

As an example of how objects in this table are named, an instance of the hrNetworkIfIndex object might be named hrNetworkIfIndex.3”

INDEX { hrDeviceIndex }

::= { hrNetworkTable 1 }

HrNetworkEntry ::= SEQUENCE {

hrNetworkIfIndex INTEGER

```
}

```

```
hrNetworkIfIndex OBJECT-TYPE

```

```
SYNTAX INTEGER

```

```
ACCESS read-only

```

```
STATUS mandatory

```

```
DESCRIPTION

```

```
    "The value of ifIndex which corresponds to this
    network device."

```

```
::= { hrNetworkEntry 1 }

```

```
hrPrinterTable OBJECT-TYPE

```

```
SYNTAX SEQUENCE OF HrPrinterEntry

```

```
ACCESS not-accessible

```

```
STATUS mandatory

```

```
DESCRIPTION

```

```
    "The (conceptual) table of printers local to the
    host.

```

```

    Note that this table is potentially sparse: a
    (conceptual) entry exists only if the correspondent
    value of the hrDeviceType object is
    'hrDevicePrinter'."

```

```
::= { hrDevice 5 }

```

```
hrPrinterEntry OBJECT-TYPE

```

```
SYNTAX HrPrinterEntry

```

```
ACCESS not-accessible

```

```
STATUS mandatory

```

```
DESCRIPTION

```

```
    "A (conceptual) entry for one printer local to the
    host. The hrDeviceIndex in the index represents
    the entry in the hrDeviceTable that corresponds to
    the hrPrinterEntry.

```

```

    As an example of how objects in this table are
    named, an instance of the hrPrinterStatus object
    might be named hrPrinterStatus.3"

```

```
INDEX { hrDeviceIndex }

```

```
::= { hrPrinterTable 1 }
```

```
HrPrinterEntry ::= SEQUENCE {
    hrPrinterStatus      INTEGER,
    hrPrinterDetectedErrorState OCTET STRING
}
```

hrPrinterStatus OBJECT-TYPE

```
SYNTAX INTEGER {
    other(1),
    unknown(2),
    idle(3),
    printing(4),
    warmup(5)
}
```

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The current status of this printer device. When in the idle(1), printing(2), or warmup(3) state, the corresponding hrDeviceStatus should be running(2) or warning(3). When in the unknown state, the corresponding hrDeviceStatus should be unknown(1).”

```
::= { hrPrinterEntry 1 }
```

hrPrinterDetectedErrorState OBJECT-TYPE

```
SYNTAX OCTET STRING
```

ACCESS read-only

STATUS mandatory

DESCRIPTION

“This object represents any error conditions detected by the printer. The error conditions are encoded as bits in an octet string, with the following definitions:

	Condition	Bit #	hrDeviceStatus
lowPaper	0	warning(3)	

noPaper	1	down(5)
lowToner	2	warning(3)
noToner	3	down(5)
doorOpen	4	down(5)
jammed	5	down(5)
offline	6	down(5)
serviceRequested	7	warning(3)

If multiple conditions are currently detected and the hrDeviceStatus would not otherwise be unknown(1) or testing(4), the hrDeviceStatus shall correspond to the worst state of those indicated, where down(5) is worse than warning(3) which is worse than running(2).

Bits are numbered starting with the most significant bit of the first byte being bit 0, the least significant bit of the first byte being bit 7, the most significant bit of the second byte being bit 8, and so on. A one bit encodes that the condition was detected, while a zero bit encodes that the condition was not detected.

This object is useful for alerting an operator to specific warning or error conditions that may occur, especially those requiring human intervention.”

```
::= { hrPrinterEntry 2 }
```

hrDiskStorageTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrDiskStorageEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of long-term storage devices contained by the host. In particular, disk devices accessed remotely over a network are not included here.

Note that this table is potentially sparse: a (conceptual) entry exists only if the correspondent value of the hrDeviceType object is ‘hrDeviceDiskStorage’.”

```
::= { hrDevice 6 }
```

hrDiskStorageEntry OBJECT-TYPE
 SYNTAX HrDiskStorageEntry
 ACCESS not-accessible
 STATUS mandatory
 DESCRIPTION
 “A (conceptual) entry for one long-term storage device contained by the host. The hrDeviceIndex in the index represents the entry in the hrDeviceTable that corresponds to the hrDiskStorageEntry. As an example, an instance of the hrDiskStorageCapacity object might be named hrDiskStorageCapacity.3”
 INDEX { hrDeviceIndex }
 ::= { hrDiskStorageTable 1 }

HrDiskStorageEntry ::= SEQUENCE {
 hrDiskStorageAccess INTEGER,
 hrDiskStorageMedia INTEGER,
 hrDiskStorageRemoveble Boolean,
 hrDiskStorageCapacity KBytes
 }

hrDiskStorageAccess OBJECT-TYPE
 SYNTAX INTEGER {
 readWrite(1),
 readOnly(2)
 }
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 “An indication if this long-term storage device is readable and writable or only readable. This should reflect the media type, any write-protect mechanism, and any device configuration that affects the entire device.”
 ::= { hrDiskStorageEntry 1 }

hrDiskStorageMedia OBJECT-TYPE
 SYNTAX INTEGER {

```

        other(1),
        unknown(2),
        hardDisk(3),
        floppyDisk(4),
        opticalDiskROM(5),
        opticalDiskWORM(6), -- Write Once Read Many
        opticalDiskRW(7),
        ramDisk(8)
    }
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "An indication of the type of media used in this
    long-term storage device."
 ::= { hrDiskStorageEntry 2 }

```

hrDiskStorageRemoveable OBJECT-TYPE

```

SYNTAX Boolean
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "Denotes whether or not the disk media may be
    removed from the drive."
 ::= { hrDiskStorageEntry 3 }

```

hrDiskStorageCapacity OBJECT-TYPE

```

SYNTAX KBytes
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The total size for this long-term storage device."
 ::= { hrDiskStorageEntry 4 }

```

hrPartitionTable OBJECT-TYPE

```

SYNTAX SEQUENCE OF HrPartitionEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION

```

“The (conceptual) table of partitions for long-term storage devices contained by the host. In particular, partitions accessed remotely over a network are not included here.”

::= { hrDevice 7 }

hrPartitionEntry OBJECT-TYPE

SYNTAX HrPartitionEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one partition. The hrDeviceIndex in the index represents the entry in the hrDeviceTable that corresponds to the hrPartitionEntry.

As an example of how objects in this table are named, an instance of the hrPartitionSize object might be named hrPartitionSize.3.1”

INDEX { hrDeviceIndex, hrPartitionIndex }

::= { hrPartitionTable 1 }

HrPartitionEntry ::= SEQUENCE {

hrPartitionIndex	INTEGER,
hrPartitionLabel	InternationalDisplayString,
hrPartitionID	OCTET STRING,
hrPartitionSize	KBytes,
hrPartitionFSIndex	INTEGER

}

hrPartitionIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A unique value for each partition on this long-term storage device. The value for each long-term storage device must remain constant at least from

one re-initialization of the agent to the next re-initialization.”

::= { hrPartitionEntry 1 }

hrPartitionLabel OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE (0..128))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A textual description of this partition.”

::= { hrPartitionEntry 2 }

hrPartitionID OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A descriptor which uniquely represents this partition to the responsible operating system. On some systems, this might take on a binary representation.”

::= { hrPartitionEntry 3 }

hrPartitionSize OBJECT-TYPE

SYNTAX KBytes

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The size of this partition.”

::= { hrPartitionEntry 4 }

hrPartitionFSIndex OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The index of the file system mounted on this partition. If no file system is mounted on this partition, then this value shall be zero. Note

that multiple partitions may point to one file system, denoting that that file system resides on those partitions. Multiple file systems may not reside on one partition.”

```
::= { hrPartitionEntry 5 }
```

File System Table

hrFSTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrFSEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of file systems local to this host or remotely mounted from a file server. File systems that are in only one user’s environment on a multi-user system will not be included in this table.”

```
::= { hrDevice 8 }
```

hrFSEntry OBJECT-TYPE

SYNTAX HrFSEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one file system local to this host or remotely mounted from a file server. File systems that are in only one user’s environment on a multi-user system will not be included in this table.

As an example of how objects in this table are named, an instance of the hrFSMountPoint object might be named hrFSMountPoint.3”

```
INDEX { hrFSIndex }
```

```
::= { hrFSTable 1 }
```

-- Registration for some popular File System types,

-- for use with hrFSType.

```

hrFSTypes          OBJECT IDENTIFIER ::= { hrDevice 9 }
hrFSOther          OBJECT IDENTIFIER ::= { hrFSTypes 1 }
hrFSUnknown        OBJECT IDENTIFIER ::= { hrFSTypes 2 }
hrFSBerkeleyFFS    OBJECT IDENTIFIER ::= { hrFSTypes 3 }
hrFSSys5FS         OBJECT IDENTIFIER ::= { hrFSTypes 4 }

```

DOS

```

hrFSFat            OBJECT IDENTIFIER ::= { hrFSTypes 5 }
-- OS/2 High Performance File System
hrFSSHPPFS        OBJECT IDENTIFIER ::= { hrFSTypes 6 }

```

Macintosh Hierarchical File System

```

hrFSHFS           OBJECT IDENTIFIER ::= { hrFSTypes 7 }

```

Macintosh File System

```

hrFSMFS           OBJECT IDENTIFIER ::= { hrFSTypes 8 }

```

Windows NT

```

hrFSNTFS          OBJECT IDENTIFIER ::= { hrFSTypes 9 }
hrFSVNode         OBJECT IDENTIFIER ::= { hrFSTypes 10 }
hrFSJournaled     OBJECT IDENTIFIER ::= { hrFSTypes 11 }

```

CD File systems

```

hrFSiso9660       OBJECT IDENTIFIER ::= { hrFSTypes 12 }
hrFSRockRidge     OBJECT IDENTIFIER ::= { hrFSTypes 13 }
hrFSNFS           OBJECT IDENTIFIER ::= { hrFSTypes 14 }
hrFSNetware       OBJECT IDENTIFIER ::= { hrFSTypes 15 }

```

Andrew File System

```

hrFSAFS           OBJECT IDENTIFIER ::= { hrFSTypes 16 }

```

OSF DCE Distributed File System

```

hrFSDFS           OBJECT IDENTIFIER ::= { hrFSTypes 17 }
hrFSAppleshare    OBJECT IDENTIFIER ::= { hrFSTypes 18 }
hrFSRFS           OBJECT IDENTIFIER ::= { hrFSTypes 19 }

```

Data General

hrFSDGCFS OBJECT IDENTIFIER ::= { hrFSTypes 20 }

SVR4 Boot File System

hrFSBFS OBJECT IDENTIFIER ::= { hrFSTypes 21 }

```
HrFSEntry ::= SEQUENCE {
    hrFSIndex          INTEGER,
    hrFSMountPoint     InternationalDisplayString,
    hrFSRemoteMountPoint InternationalDisplayString,
    hrFSType           OBJECT IDENTIFIER,
    hrFSAccess         INTEGER,
    hrFSBootable       Boolean,
    hrFSStorageIndex   INTEGER,
    hrFSLastFullBackupDate DateAndTime,
    hrFSLastPartialBackupDate DateAndTime
}
```

hrFSIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A unique value for each file system local to this host. The value for each file system must remain constant at least from one re-initialization of the agent to the next re-initialization.”

::= { hrFSEntry 1 }

hrFSMountPoint OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE(0..128))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The path name of the root of this file system.”

::= { hrFSEntry 2 }

hrFSRemoteMountPoint OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE(0..128))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A description of the name and/or address of the server that this file system is mounted from.

This may also include parameters such as the mount point on the remote file system. If this is not a remote file system, this string should have a length of zero.”

::= { hrFSEntry 3 }

hrFSType OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The value of this object identifies the type of this file system.”

::= { hrFSEntry 4 }

hrFSAccess OBJECT-TYPE

SYNTAX INTEGER {

readWrite(1),

readOnly(2)

}

ACCESS read-only

STATUS mandatory

DESCRIPTION

“An indication if this file system is logically configured by the operating system to be readable and writable or only readable. This does not represent any local access-control policy, except one that is applied to the file system as a whole.”

::= { hrFSEntry 5 }

hrFSBootable OBJECT-TYPE

SYNTAX Boolean

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A flag indicating whether this file system is bootable.”

::= { hrFSEntry 6 }

hrFSStorageIndex OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The index of the hrStorageEntry that represents information about this file system. If there is no such information available, then this value shall be zero. The relevant storage entry will be useful in tracking the percent usage of this file system and diagnosing errors that may occur when it runs out of space.”

::= { hrFSEntry 7 }

hrFSLastFullBackupDate OBJECT-TYPE

SYNTAX DateAndTime

ACCESS read-write

STATUS mandatory

DESCRIPTION

“The last date at which this complete file system was copied to another storage device for backup. This information is useful for ensuring that backups are being performed regularly.

If this information is not known, then this variable shall have the value corresponding to January 1, year 0000, 00:00:00.0, which is encoded as (hex)'00 00 01 01 00 00 00 00'.”

::= { hrFSEntry 8 }

hrFSLastPartialBackupDate OBJECT-TYPE

SYNTAX DateAndTime

ACCESS read-write

STATUS mandatory

DESCRIPTION

“The last date at which a portion of this file system was copied to another storage device for backup. This information is useful for ensuring that backups are being performed regularly.

If this information is not known, then this variable shall have the value corresponding to January 1, year 0000, 00:00:00.0, which is encoded as (hex)'00 00 01 01 00 00 00 00'.”

::= { hrFSEntry 9 }

Host Resources Running Software Group

Implementation of this group is optional.

The hrSWRunTable contains an entry for each distinct piece of software that is running or loaded into physical or virtual memory in preparation for running. This includes the host's operating system, device drivers, and applications.

hrSWOSIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The value of the hrSWRunIndex for the hrSWRunEntry that represents the primary operating system running on this host. This object is useful for quickly and uniquely identifying that primary operating system.”

::= { hrSWRun 1 }

hrSWRunTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrSWRunEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of software running on the host.”

```
::= { hrSWRun 2 }
```

hrSWRunEntry OBJECT-TYPE

SYNTAX HrSWRunEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for one piece of software running on the host Note that because the installed software table only contains information for software stored locally on this host, not every piece of running software will be found in the installed software table. This is true of software that was loaded and run from a non-local source, such as a network-mounted file system.

As an example of how objects in this table are named, an instance of the hrSWRunName object might be named hrSWRunName.1287”

INDEX { hrSWRunIndex }

```
::= { hrSWRunTable 1 }
```

HrSWRunEntry ::= SEQUENCE {

```
    hrSWRunIndex    INTEGER,
    hrSWRunName     InternationalDisplayString,
    hrSWRunID       ProductID,
    hrSWRunPath     InternationalDisplayString,
    hrSWRunParameters InternationalDisplayString,
    hrSWRunType     INTEGER,
    hrSWRunStatus   INTEGER
}
```

hrSWRunIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A unique value for each piece of software running on the host. Wherever possible, this should be the system’s native, unique identification number.”

::= { hrSWRunEntry 1 }

hrSWRunName OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE (0..64))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A textual description of this running piece of software, including the manufacturer, revision, and the name by which it is commonly known. If this software was installed locally, this should be the same string as used in the corresponding hrSWInstalledName.”

::= { hrSWRunEntry 2 }

hrSWRunID OBJECT-TYPE

SYNTAX ProductID

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The product ID of this running piece of software.”

::= { hrSWRunEntry 3 }

hrSWRunPath OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE(0..128))

ACCESS read-only

STATUS mandatory

DESCRIPTION

A description of the location on long-term storage (e.g. a disk drive) from which this software was loaded.

::= { hrSWRunEntry 4 }

hrSWRunParameters OBJECT-TYPE

```

SYNTAX InternationalDisplayString (SIZE(0..128))
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "A description of the parameters supplied to this
    software when it was initially loaded."
 ::= { hrSWRunEntry 5 }

```

hrSWRunType OBJECT-TYPE

```

SYNTAX INTEGER {
    unknown(1),
    operatingSystem(2),
    deviceDriver(3),
    application(4)
}
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The type of this software."
 ::= { hrSWRunEntry 6 }

```

hrSWRunStatus OBJECT-TYPE

```

SYNTAX INTEGER {
    running(1),
    runnable(2), -- waiting for resource (CPU, memory, IO)
    notRunnable(3), -- loaded but waiting for event
    invalid(4) -- not loaded
}
ACCESS read-write
STATUS mandatory
DESCRIPTION
    "The status of this running piece of software.
    Setting this value to invalid(4) shall cause this
    software to stop running and to be unloaded."
 ::= { hrSWRunEntry 7 }

```

Host Resources Running Software Performance Group

Implementation of this group is optional.

The hrSWRunPerfTable contains an entry corresponding to each entry in the hrSWRunTable.

hrSWRunPerfTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrSWRunPerfEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of running software performance metrics.”

::= { hrSWRunPerf 1 }

hrSWRunPerfEntry OBJECT-TYPE

SYNTAX HrSWRunPerfEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry containing software performance metrics. As an example, an instance of the hrSWRunPerfCPU object might be named hrSWRunPerfCPU.1287”

INDEX { hrSWRunIndex } -- This table augments information in
-- the hrSWRunTable.

::= { hrSWRunPerfTable 1 }

HrSWRunPerfEntry ::= SEQUENCE {

hrSWRunPerfCPU INTEGER,

hrSWRunPerfMem KBytes

}

hrSWRunPerfCPU OBJECT-TYPE

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The number of centi-seconds of the total system’s

CPU resources consumed by this process. Note that on a multi-processor system, this value may increment by more than one centi-second in one centi-second of real (wall clock) time.”

```
::= { hrSWRunPerfEntry 1 }
```

hrSWRunPerfMem OBJECT-TYPE

SYNTAX KBytes

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The total amount of real system memory allocated to this process.”

```
::= { hrSWRunPerfEntry 2 }
```

Host Resources Installed Software Group

Implementation of this group is optional.

The hrSWInstalledTable contains an entry for each piece of software installed in long-term storage (e.g. a disk drive) locally on this host. Note that this does not include software loadable remotely from a network server.

This table is useful for identifying and inventorying software on a host and for diagnosing incompatibility and version mismatch problems between various pieces of hardware and software.

hrSWInstalledLastChange OBJECT-TYPE

SYNTAX TimeTicks

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The value of sysUpTime when an entry in the hrSWInstalledTable was last added, renamed, or deleted. Because this table is likely to contain many entries, polling of this object allows a management station to determine when re-downloading of the table might be useful.”

```
::= { hrSWInstalled 1 }
```

hrSWInstalledLastUpdateTime OBJECT-TYPE

SYNTAX TimeTicks

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The value of sysUpTime when the hrSWInstalledTable was last completely updated. Because caching of this data will be a popular implementation strategy, retrieval of this object allows a management station to obtain a guarantee that no data in this table is older than the indicated time.”

::= { hrSWInstalled 2 }

hrSWInstalledTable OBJECT-TYPE

SYNTAX SEQUENCE OF HrSWInstalledEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“The (conceptual) table of software installed on this host.

::= { hrSWInstalled 3 }

hrSWInstalledEntry OBJECT-TYPE

SYNTAX HrSWInstalledEntry

ACCESS not-accessible

STATUS mandatory

DESCRIPTION

“A (conceptual) entry for a piece of software installed on this host.

As an example of how objects in this table are named, an instance of the hrSWInstalledName object might be named hrSWInstalledName.96”

INDEX { hrSWInstalledIndex }

::= { hrSWInstalledTable 1 }

HrSWInstalledEntry ::= SEQUENCE {

hrSWInstalledIndex INTEGER,

hrSWInstalledName InternationalDisplayString,

hrSWInstalledID ProductID,

```

        hrSWInstalledType    INTEGER,
        hrSWInstalledDate    DateAndTime
    }

```

hrSWInstalledIndex OBJECT-TYPE

SYNTAX INTEGER (1..2147483647)

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A unique value for each piece of software installed on the host. This value shall be in the range from 1 to the number of pieces of software installed on the host.”

::= { hrSWInstalledEntry 1 }

hrSWInstalledName OBJECT-TYPE

SYNTAX InternationalDisplayString (SIZE (0..64))

ACCESS read-only

STATUS mandatory

DESCRIPTION

“A textual description of this installed piece of software, including the manufacturer, revision, the name by which it is commonly known, and optionally, its serial number.”

::= { hrSWInstalledEntry 2 }

hrSWInstalledID OBJECT-TYPE

SYNTAX ProductID

ACCESS read-only

STATUS mandatory

DESCRIPTION

“The product ID of this installed piece of software.”

::= { hrSWInstalledEntry 3 }

hrSWInstalledType OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

```
        operatingSystem(2),
        deviceDriver(3),
        application(4)
    }
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The type of this software."
 ::= { hrSWInstalledEntry 4 }
```

hrSWInstalledDate OBJECT-TYPE

```
SYNTAX DateAndTime
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The last-modification date of this application as
    it would appear in a directory listing."
 ::= { hrSWInstalledEntry 5 }
```