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Operating System Collector SAPOSCOL: Properties, Installation, and Operation

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Symbols

Symbol	Meaning
	Caution
	Example
	Note

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1 Introduction

The operating system collector SAPOSCOL is a stand-alone program that runs in the operating system background. It runs independently of SAP instances exactly once per monitored host. SAPOSCOL collects data about operating system resources, including:

- Usage of virtual and physical memory
- CPU utilization
- Utilization of physical disks and file systems
- Resource usage of running processes

SAPOSCOL makes the data available to various applications and all SAP instances on a host using a segment of the shared memory. A CCMS agent or a dialog work process reads the data from the shared memory. You can display the data in various monitoring architecture monitors or in the operating system monitor (transactions OS07 and ST06). If the operating system data is read and sent by CCMS agents, you can display operating system data for any hosts in a central system.

1.1 Background to Origin

When the development of SAP R/3 was begun, the hardware resources on UNIX servers were so scarce that it was necessary to customize the applications to these resources.

In many areas, SAP R/3 is based on a logical, operating system-like level (such as memory management or managing the work processes). SAP R/3 could only manage these tasks if it had access to reliable performance values for the operating system, irrespective of the specific operating system. SAPOSCOL performs this task with a small usage of resources, such as CPU or memory.

2 Features

This section lists the data collected by SAPOSCOL and the platforms supported.



SAPOSCOL collects the value that the operating system provides. The operating system is responsible for the values being available and correct. Not every value is available in every operating system.

By default, SAPOSCOL collect the current data on its monitored host every ten seconds. In addition to these current values (*Snapshots*), SAPOSCOL stores average hourly values for the previous 24 hours in its shared memory segment for most monitored objects.

There are two database tables (MONI and OSMON) that are used for longer-term storage of the collected data. The data is written to these tables from the shared memory segment by the job COLLECTOR_FOR_PERFMONITOR to ensure that you can also access the data in the long-term at various aggregation levels. (See [Displaying Data for the Last 30 Days in the Operating System Monitor \[page 31\]](#)).

2.1 Monitoring Operating System Data

2.1.1 CPU

For every CPU, SAPOSCOL measure CPU usage, broken down as percentages by:

- Users
- System
- Times in which the CPU had not task to perform or was waiting for an input/output (*idle*)

Many factors could lead to an excessively high CPU utilization, and you should therefore perform a detailed analysis. If the problem was caused by too many active processes in the host system, you could, for example, transfer CPU- intensive programs to times when there is a lower system workload, or to other host systems. You could also increase the number of CPUs or upgrade the CPU(s)..



When calculating the hourly values for the last 24 hours, these values are averaged over all CPUs of a host.

Other Values Collected

- Number of CPUs
- Interrupts per second/hour
- System calls per second/hour
- Context switches per second/hour
- Average number of waiting processes for the last minute, the last five minutes, and the last fifteen minutes

This is the number of processes for each CPU that are in a wait queue before they are assigned to a free CPU. As long as the average remains at one process for each available CPU, the CPU resources are sufficient. As of an average of around three processes for each available CPU, there is a bottleneck at the CPU resources.

- o In connection with a high CPU usage, a high value here can indicate that too many processes are active on the server.
- o In connection with a low CPU usage, a high value here can indicate that the main memory is too small. The processes are then waiting due to excessive paging.
- Detail data for the processes that cause the largest CPU load:
 - o Process ID
 - o Owner of the process
 - o Command that started the process
 - o Absolute and percentage CPU utilization by the process
 - o Resident process size in kilobytes
 - o Priority of the process



The detail data for the processes with the largest CPU workload and the number of waiting processes are only available in the shared memory segment as snapshot values.

2.1.2 Memory Management

SAPOSCOL measures the following values:

- Physically available and free **main memory** in kilobytes; the minimum and maximum free main memory are also measured hourly.



As a rule of thumb, CPU bottlenecks occur for a small hardware configuration if there is less than 10MB of free physical memory. This value can vary depending on operating system and system size.

- **Paging** is the exchange of data pages between the main memory of a host and the overflow store in a paging file on the hard disk; paging occurs if the main memory is not large enough for the contexts of all running processes. SAPOSCOL measures the number of pages paged in and paged out per second with the quantities of memory paged in and paged out in kilobytes.

High paging rates indicate that the main memory is too small for the running processes. Measures that you can take are to extend the main memory, to move processes to other host systems, and to delay memory-intensive programs to times of lower system workload.



On Microsoft Windows platforms (unlike UNIX platforms), the system performs paging out as a precautionary measure even when space is not required in the working memory, meaning that this value is irrelevant and you should only consider the paging in rate. Under UNIX, on the other hand, the paging out rate is the critical value for evaluating the paging.

- **Swap Space** is storage space on the hard disk to which data that is not required is written from the main memory, so that there is space in the main memory for the program currently being executed. SAPOSCOL measures the configured and free swap space in kilobytes and the actual and maximum size of the swap space in kilobytes.

In addition, the maximum and minimum sizes of the free swap space is measured hourly. The most important values are the free and the actual swap space.



Not all types of swap space are available on all operating systems.. For this reason, in some cases, the actual swap space corresponds to the configured and maximum swap space.

2.1.3 File Systems and LAN

SAPOSCOL measures the following values:

- For all **physical hard disks** on a host:
 - o Device name of the hard disk
 - o Hard disk usage - percentage of the time in which the hard disk is being used
 - o Average wait queue length of an input/output request
 - o Wait time in milliseconds during which a request waits in the wait queue
 - o Service time in milliseconds for an input/output
 - o Transferred kilobytes per second
 - o Number of hard disk operations per second
- For all **file systems** on a host:
 - o Name of the file system
 - o Capacity of the file system in megabytes
 - o Free storage space in the file system in megabytes
- For all **LAN interfaces** on a host:
 - o Name of the LAN interface
 - o Data packets received per second
 - o Data packets sent per second
 - o Errors for received data packets per second
 - o Errors for sent data packets per second
 - o Collisions per second, in which two stations transport a packet at the same time on the same channel; this leads to the destruction of both packets and means they must be sent again

Some values are not specified in some network interfaces; for example, there may not be a value for collisions per second in a token ring architecture. The values specified here do not describe the actual network traffic. They describe the transfers performed with this interface. This means that the errors displayed here refer to the interface and not to the actual network segment.

2.2 Monitoring Selected Processes

In addition to monitoring the processes with the highest CPU usage (see [CPU \[page 7\]](#)), SAPOSCOL can also monitor any selected processes. You specify these processes using the name or the owner of the process in the configuration file `dev_proc` (see [Setting Up Process Monitoring \[page 17\]](#)). The following values are measured for each selected process name:

- Number of running processes that fulfill the conditions for process name and owner
- Total CPU usage of the above processes
- Total physical memory that is assigned to the above processes
- Total memory (physical and virtual) that is assigned to the above processes (only for Microsoft Windows platforms)



There are **no** hourly average values in the shared memory segment for the monitoring of selected processes. You can, however, monitor these values in the CCMS monitor *Operating System* (see [CCMS Monitor Operating System \[page 33\]](#)), as the Alert Monitor stores reported values for 24 hours.

2.3 Supported Operating Systems

SAPOSCOL is delivered for the following operating system platforms:

- Windows NT, Windows 2000
- AIX
- SUN/SOLARIS
- HP-UX
- LINUX
- OS/390
- OS/400
- SNI
- ALPHAOSF

3 Installation and Configuration of SAPOSCOL

The program SAPOSCOL is part of the standard delivery for all SAP systems and is therefore always installed with the system. It is possible, however, that you will have to install SAPOSCOL yourself. Possible reasons are:

- You want to monitor operating system data for hosts on which on SAP instance is running or that are not part of an SAP system, but which are important for the environment of your SAP system. In this case, ensure that a CCMS agent is running on the host.
- You want to correct an incorrect installation.
- You want to install a newer version of SAPOSCOL.



Always use the current version of SAPOSCOL.

Process Flow

SAPOSCOL is dependent on the operating system - the installation therefore varies depending on the operating system of the host to be monitored. Follow the appropriate procedure:

- [Installation Under UNIX \[page 14\]](#)
- [Installation Under Microsoft Windows \[page 15\]](#)



For more information about the installation of SAPOSCOL, see SAP Note 19227.

- By default, SAPOSCOL automatically has a valid working directory after installation. If you want to change this directory, see [Working Directory and Profile Parameters for SAPOSCOL \[page 16\]](#).
- If you want to monitor particular processes with SAPOSCOL, see [Setting Up Process Monitoring \[page 17\]](#).

3.1 Downloading SAPOSCOL

1. You can find the current version of SAPOSCOL in the *SAP Software Distribution Center* under <http://service.sap.com/swdc>. Log on using your *SAP Service Marketplace ID*.
2. SAPOSCOL is backward-compatible in relation to the SAP release. This means that the SAPOSCOL release can be higher than the SAP Basis or SAP Web AS release.

SAPOSCOL is, however, dependent on the operating system release. You should therefore select the correct SAPOSCOL version as follows:

- Provided that your operating system release is sufficiently current (see, among other things, SAP Notes about the Kernel-operating system combinations released by SAP), use the current SAPOSCOL from the following directory:

Download → Support Packages and Patches → Entry by Application Group → Additional Components → SAP Kernel → <desired Kernel: 32-BIT | 64-BIT | UNICODE> → SAP KERNEL 7.00 → SAP KERNEL 7.00 → <Operating System> → Database Independent

- If your operating system release is not sufficiently current, use the current 6.40 version. If your operating system release is also insufficiently current for the 6.40 version, use the current 4.6D_EXT version:
- If you want to install or replace SAPOSCOL on a host with no SAP system, use the 7.00 version of SAPOSCOL if possible. Depending on your operating system, you may have to install lower versions of SAPOSCOL.



For Tru64, the following special rules apply:

For TRU64 4.0x, install SAPOSCOL 4.6D.

For TRU64 5.1, install SAPOSCOL 6.40.

You should also take account of the following SAP Notes:

SAP Note	Short Text
407314	Released operating systems SAP R/3 Kernel 6.x ORACLE
407317	Released operating systems SAP R/3 Kernel 6.x INFORMIX
407320	Released operating systems SAP R/3 Kernel 6.x SAP DB
407322	Released operating systems SAP R/3 Kernel 6.x DB2/UDB
407325	Released operating systems SAP R/3 Kernel 6.x DB2/390
407328	Released operating systems SAP R/3 Kernel 6.x MS SQL
410783	Released operating systems SAP R/3 Kernel 6.x iSeries



For information about the current status of releases, see

<http://service.sap.com/platforms>.

3. Copy SAPOSCOL from the above directory to your TEMP directory. Depending on the file-name extension, decompress the archive either with the CAR tool or with SAPCAR (extension SAR). You should also take account of the following SAP Notes:
 - Unpacking .car Archives (29372)
 - The new archiving tool SAPCAR (212876)

3.2 Process of the Installation

3.2.1 Installation Under UNIX

1. SAPOSCOL reads areas of the operating system that are normally reserved for kernel processes; SAPOSCOL must therefore run under the **root** user. You should therefore change the user with the command **su root**.
2. If an SAP R/3 System is running on the host, change to the directory **/usr/sap/<SID>/SYS/exe/run**. On hosts with no SAP R/3 System, you can install SAPOSCOL in any directory.
3. If an older version of SAPOSCOL is already active on your host, stop it using the command **saposcol -k** and back up the old version with the command **cp saposcol saposcol.old**.
4. Copy the new version of SAPOSCOL:
cp <temp_dir>/saposcol saposcol
5. Assign the required authorizations to SAPOSCOL with the commands:
chgrp sapsys saposcol
chmod 4710 saposcol



As SAPOSCOL is running with root authorization, only users from the group **sapsys** (such as **<sid>adm**) should have access to it. If you are installing SAPOSCOL on hosts with no SAP system, assign the access rights in the same way using a user group (analogous to **sapsys**).

6. Change back to your original user with the command **exit**.
7. Start the new SAPOSCOL with the command **saposcol**.



To ensure that SAPOSCOL was correctly installed, enter the command **ls -l saposcol** at the UNIX input prompt in the directory **/usr/sap/<SID>/SYS/exe/run**.

The system displays the following line:

```
-rwx--x--- 1 root sapsys 779332 Aug 1 10:14 saposcol
```

This is the correct user assignment.
You set it with the command:

```
chown root saposcol
```

This is the correct user assignment.
You set it with the command:

```
chmod 4710 saposcol
```

8. If no SAP instance is running on the host, you must ensure yourself that SAPOSCOL is automatically started after a restart of the host (for example, by entering the start command in the INITTAB). If a SAP instance is running on the host, SAPOSCOL is contained in the start script.

3.2.2 Installation Under Microsoft Windows

1. Make sure that you have the current version of the file `pdh.dll` in the `System32` folder of your Microsoft Windows system directory (such as `c:\winnt\system32`). You can get the file from the FTP server `sapserv3` in the directory `/general/misc/saposcol/NT`.
2. If an older version of SAPOSCOL is already active on your host, stop this service in the system control and back up the old version of SAPOSCOL. On hosts with SAP R/3 Systems, SAPOSCOL is in the directory `\usr\sap<SID>\SYS\exe\run` or `\usr\sap\d<inst.no>\exe`.
3. Replace this with the new version.
4. Restart the SAPOSCOL service in the system control. If you are installing SAPOSCOL on the host for the first time, set up a service for SAPOSCOL with the following command:

```
ntscmgr.exe install SAPOsCol -b <path>\saposcol.exe -p service
```



- Choose a user for the service that is a local administrator on the relevant server. Only then can SAPOSCOL collect all relevant data. If there is a `sapservice<SID>` user, use this user.
- As `ntscmgr` creates services under the system user by default, change the configuration appropriately in the system control after the installation.
- For more information, see SAP Note 0436186.

3.3 Working Directory and Profile Parameters for SAPOSCOL

3.3.1 Working Directory

The SAPOSCOL working directory is the directory to which the collector writes its data and in which it searches for the log file `dev_col1` and the shared memory backup file `col1.put`. It is **not** the directory in which SAPOSCOL itself is stored.

Default SAPOSCOL Working Directory

Operating System	Path of the Working Directory
Microsoft Windows NT	<code>\\host\saploc\prfclog</code> or (if this does not exist) <code>c:\temp</code>  <code>saploc</code> must be released as a share.
UNIX	<code>/usr/sap/tmp</code> or (if this does not exist) <code>/tmp</code>

Set a profile parameter if you want to use a different directory. In this case, start SAPOSCOL with a profile (`saposcol -l pf=<file path/filename>`), where the specified file contains only the following line:

`DIR_PERF = <Path of the desired working directory>`



- If a CCMS agent is also working on the host on which the operating system collector is running, note that the profile parameter `DIR_PERF` also determines the working directory of the agent. The working directory of the agent should be a folder in the working directory of the operating system collector. For more information, see [Agents].
- As you can also access the `dev_col1` file from the SAP system, you should also maintain the profile parameter `DIR_PERF` at the same time for all SAP instances of the affected host.



Start SAPOSCOL with the command:

```
saposcol -l pf=/usr/sap/C11/SYS/profile/saposcol.pfl
```

The file `/usr/sap/C11/SYS/profile/saposcol.pfl` contains the line:

```
DIR_PERF = /usr/sap/my_saposcol_dir
```

Result: The directory `/usr/sap/my_saposcol_dir` is the SAPOSCOL working directory.

3.3.2 The Profile Parameter `exe/saposcol`

The SAP profile parameter `exe/saposcol` (which is not a SAPOSCOL profile parameter) contains the complete name of the program SAPOSCOL (which should not be confused with the SAPOSCOL working directory). To start, stop, or display the status of SAPOSCOL from the SAP system or using a CCMS agent, the parameter must point to a correctly installed SAPOSCOL.

If multiple SAP instances are running on a host, for example, each with a different SAP Basis release, ensure that each instance use the same (newest) version of SAPOSCOL.



The system XYZ and the system C11 have different SAP Basis releases, and both systems are on the same host. The profile parameter `exe/saposcol` should point to the same, current SAPOSCOL in both systems. Ensure that you set the authorizations so that the SAPOSCOL directory can be accessed by both systems, so that SAPOSCOL can be started from both systems. However, only one SAPOSCOL runs for each host at any one time.

3.4 Setting Up Process Monitoring

You can monitor the availability of selected processes with SAPOSCOL. These are displayed in the *Monitored Processes* subtree of the *Operating System* monitor and in the detailed analysis of the Operating System Monitor. The monitor displays the number of running processes and the CPU and memory usage for each name template, broken down by different users.

You can optionally set the configuration for process monitoring in the following configuration files (these files are specified in the following templates):

- File `dev_proc` in the SAPOSCOL [working directory \[page 16\]](#)
- Files of the `procmon` directory in the SAPOSCOL Working Directory. The naming convention for these templates depends on the CCMS agent with which the monitored host is connected to the central monitoring system.

CCMS Agent	Naming Convention
SAPCCMSR SAPCM3X	<code>*procmon.ini</code>
SAPCCMSR -j2ee SAPCCM4X	<code>*<SysID>_<InstNo>_procmon.ini</code>



`<SysID>` and `<InstNo>` are the system ID and the instance number of the monitored ABAP or Java instance. The J2EE Engine automatically generates suitable templates and stores these in the specified (cross-instance) directory. Since the shared memory

of the CCMS agents SAPCCMSR –j2ee and SAPCCM4X are only to contain the process monitoring tree for the monitored Engine (ABAP or Java), system ID and instance number are part of the naming convention for the templates.

The process monitoring is performed at collection intervals of one minute, by default. CCMS agents can read this data from the shared memory and display it in the SAP system.

Prerequisites

The data transfer to the central monitoring system is performed using a CCMS agent, which must also be installed on the monitored host [Agents].

Process Flow

To start monitoring selected processes, follow the procedure below:

Creating the Configuration Files

Create a template for the process monitoring (`dev_proc` or `*procmon.ini`); the template must have the following structure:

- The list of monitored processes begins with `$PROC` and ends with `$`.
- Comment lines begin with the number sign (#).
- The lines with which you specify the processes to be monitored have the following structure:

```
<Name template> [[USER=<user>] [MTE_CLASS=<MTE class>]
[MTE_NAME=<MTE name>] [CUSTOMGROUP=<attribute group>]
```

The individual parts of the line have the following meaning:

Parameter	Description	Notes
Name template	Monitored process; you can use the wildcard character asterisk (*) (see the example below); it is not possible to monitor all processes by entering only the wildcard character asterisk	mandatory max. 40 characters
User	User under whose name the process is running; you can use the wildcard character asterisk (*)	optional, max. 20 characters

Parameter	Description	Notes
MTE class	MTE class to which the nodes are to belong; you can create your own monitors in which precisely the desired processes are displayed by assigning the process names to an MTE class  To do this, use the rule CCMS_GET_MTE_BY_CLASS in a rule-based monitor, and specify the above MTE class there (see Rule Node: Rule Description and Use [external]).	optional, max. 30 characters
MTE Name	MTE name under which the monitoring object for the monitored process name is displayed in the alert monitor; if you do not set this parameter, Name Template is used as the MTE name	optional, max. 40 characters
Attribute group	Attribute group to which the attributes of a monitored process name are to belong; you can simplify the maintenance of the threshold values using an assignment to an attribute group	optional, max. 30 characters



Enter the above parameters without quotation marks; the parameter values must not contain any spaces or special characters.

SAPOSCOL reads the contents of the configuration files every five minutes. After changing these files, you do not need to change SAPOSCOL or the responsible CCMS agent.

Setting the Threshold Values

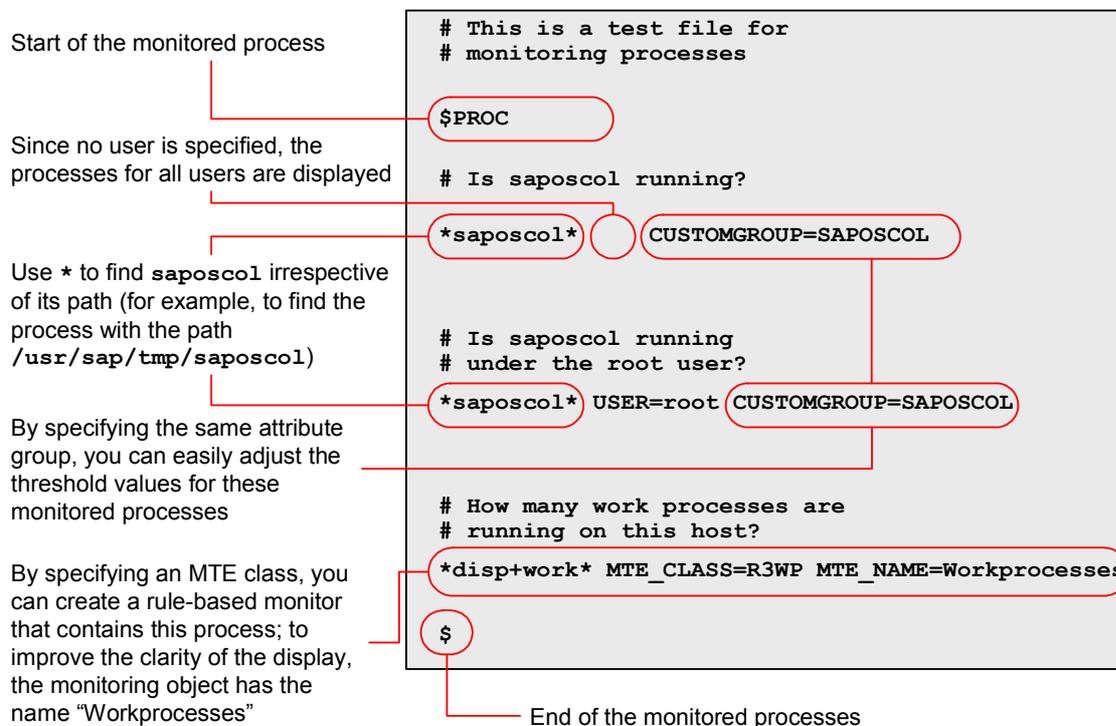
As the expected CPU and memory usage is different for each process, ensure that you adjust the threshold values of the corresponding performance attributes. The simplest way to do this is directly in the Alert Monitor itself, by selecting the relevant performance attribute and choosing *Properties*.

There are two options available to avoid accidentally changing the threshold values for other monitored processes:

- Set the threshold values individually for the MTE (to do this, choose *Edit* → *Properties* → *User for Individual MTE*)
- Use a specific attribute group in the configuration file for the desired monitored process. Your changes then affect only the processes that you have assigned to this group.

Example

Configuration File `dev_proc` for a UNIX Host



Result

The data for the monitored processes is displayed both in the *Detail analysis menu* of the operating system monitor and in the *Operating System* monitor in the *Monitored Processes* subtree (see [CCMS Monitor Operating System – Monitored Processes \[page 35\]](#)).

3.5 Deactivating Object Monitoring by SAPOSCOL

You can remove selected hard disks or file systems from the monitoring by SAPOSCOL. SAPOSCOL then collects no data for these objects.



So that disks and file systems are monitored under Microsoft Windows NT/2000, ensure that the performance counter `diskperf` is activated with the command `diskperf -Y`.

Procedure

1. Create a file with the name `dev_filter` that contains the names of the disks and file systems that are not be monitored. The file has the following format:

```

$<Device_ID>
<Device_name 1>
...
<Device_name n>

```

The device ID can be either **DISK** for disks or **FSYS** for file systems. The entries are disks or file systems that are **not** to be displayed.



- Exactly one entry is allowed per line; whether the entries are case-sensitive depends on the general specifications of the operating system.
- The asterisk wildcard character (*) is allowed; the character is permitted once for each name.
- The list can contain up to 2000 entries for each type.



The following file **dev_filter** filters out disk names that end with **Total**; it also filters out the file system **C:** and systems that begin with **D**:

```

$DISK
*Total
$FSYS
C:
D*

```

2. Save the file **dev_filter** in the working directory of SAPOSCOL (see [Working Directory \[page 16\]](#)).
3. If SAPOSCOL is already running, you should [Stopping SAPOSCOL \[page 23\]](#).
4. Delete the **coll.put** file in the working directory of SAPOSCOL.
5. Start SAPOSCOL.



The platforms OS/390 and Sun OS do **not** support the filtering of disks/file systems.

4 Controlling SAPOSCOL

After installing and starting SAPOSCOL, it automatically starts to collect operating system data for its local host and to store this data in the shared memory.

4.1 Starting and Stopping SAPOSCOL

You only need to start SAPOSCOL yourself the first time that it is started on a host (see [Installation and Configuration of SAPOSCOL \[page 12\]](#)). Thereafter, SAPOSCOL is automatically stopped and started when the host is shut down and started; this applies irrespective of whether SAP components are running on the corresponding host. A manual stop and restart is only necessary in the following conditions:

- You want to install a newer version of SAPOSCOL.
- SAPOSCOL is collecting incorrect data or the installation of SAPOSCOL is incorrect.

4.1.1 Starting SAPOSCOL

The command to start SAPOSCOL varies depending on the operating system:

- o Under UNIX, you start SAPOSCOL with the command `saposcol` (or `saposcol -1`).
- o Under Microsoft Windows NT, you start SAPOSCOL by starting the corresponding service by choosing *Start* → *Settings* → *Control Panel* → *Services* (see SAP Note 0436186).
- o You can also start SAPOSCOL in the [Operating System Monitor \[page 29\]](#).



Normally, SAPOSCOL is called without additional parameters or profiles.

`saposcol -1` corresponds to this call, where `-1` stands for start (see [Controlling SAPOSCOL from the Operating System \[page 24\]](#)).

The following occurs when the start command is executed:

1. If the call finds a SAPOSCOL segment in the shared memory, it takes over its process ID (PID) and the stored data of a SAPOSCOL that may already be running.
2. If no other SAPOSCOL is collecting data, the PID is 0, and SAPOSCOL uses the existing shared memory segment when starting. SAPOSCOL starts even if no shared memory is available.
3. The new SAPOSCOL does not start if it detects that another SAPOSCOL is collecting data.
4. After it has been started, SAPOSCOL performs an initialization during which it reserves its required space in shared memory. The program calculates the size of this space from the number of available hard disks, CPUs, file systems, and so on. SAPOSCOL writes the contents of the file `coll.put` (if it exists) to its shared memory segment.
5. The process continues running in the background, and the original program ends.

4.1.2 Stopping SAPOSCOL

The command to stop SAPOSCOL varies depending on the operating system:

- o Under UNIX, you stop SAPOSCOL with the command `sapocol -k`.
- o Under Microsoft Windows NT, you stop SAPOSCOL by stopping the corresponding service (by choosing *Start* → *Settings* → *Control Panel* → *Services*).
- o You can also stop SAPOSCOL from the [Operating System Monitor \[page 29\]](#).



Do not stop SAPOSCOL with other operating system commands, as the data in the shared memory could become corrupted. Also, in this case you cannot start a new SAPOSCOL, but receive an error message that a SAPOSCOL is already running.

The command to stop SAPOSCOL first starts a new SAPOSCOL that stop the active SAPOSCOL after a second. The following occurs:

1. The new SAPOSCOL connects to the shared memory.
2. Using the shared memory, it determines the process ID (PID) of the SAPOSCOL that is collecting data.
3. If the new SAPOSCOL finds a valid PID, it sets a flag in shared memory. When the old SAPOSCOL finds this flag, it resets the flag and deletes the PID from shared memory. If this is not complete within 20 seconds, the new SAPOSCOL stop the old SAPOSCOL.



How long a shared memory segment exists depends on the operating system. On a UNIX operating system, it is stored until SAPOSCOL deletes it. On a Microsoft Windows NT system, the shared memory is deleted by the operating system if no process is connected with it.

4. The old SAPOSCOL writes the data in the shared memory to the `coll.put` file in the working directory of SAPOSCOL. The program then ends.

When the host is restarted, the `coll.put` file is imported so that the combined data in the shared memory is available. If, for example, SAPOSCOL is stopped at 12:03 and is restarted at 14:49, the data until 12:00 is still available for the SAP system. To avoid confusion, invalid data for the time from 12:00 until 14:00 is not displayed in the overview of the last few hours in the operating system monitor.



Delete the file `coll.put`, if you stop SAPOSCOL in the context of error analysis, as the program imports the (possibly erroneous) measured values from the file to the shared memory segment if it is restarted.

4.2 Controlling SAPOSCOL from the Operating System Monitor

You can control and monitor SAPOSCOL within an SAP system using the operating system monitor (transactions ST06 and OS07). You can use the following commands to do this:

- Start and stop SAPOSCOL (to start and stop SAPOSCOL on a remote host, see [Controlling SAPOSCOL on Remote Hosts \[page 41\]](#)).
- Display `dev_coll`, the SAPOSCOL log file
- Display the current status of SAPOSCOL
- Set and delete the detailed selection (see [Minimizing the CPU Workload Caused by SAPOSCOL \[page 28\]](#)).



Ensure that the SAPOSCOL profile parameters are correctly set (see [Working Directory and Profile Parameters for SAPOSCOL \[page 16\]](#)).

Procedure

1. To call the individual functions in the table, choose *Tools* → *CCMS* → *Control/Monitoring* → *Performance Menu* → *Operating System* from the SAP Easy Access Menu.

Function	Menu Path
Control SAPOSCOL for the local host	→ <i>Local</i> → <i>Activity</i> → <i>OS Collector</i>
Control SAPOSCOL for a remote host	→ <i>Remote</i> → <i>Activity</i> , then choose the desired server on the <i>SAPOSCOL Destination</i> screen, and choose <i>OS Collector</i>

2. Choose the desired command from using the pushbuttons at the top of the screen.

4.3 Controlling SAPOSCOL from the Operating System

You can also control SAPOSCOL directly from the operating system input prompt.



SAPOSCOL must be running for you to be able to use the following commands. Start the operating system collector with the command `saposcol -l`.

Features

Control SAPOSCOL from the operating system input prompt using the following command

```
saposcol <Option> [pf=<SAPOSCOL profile path>] [-t[level]] [-z]>
```

- Normally, SAPOSCOL is called without profile path. Set a profile parameter if you want to use a different SAPOSCOL working directory (see [Working Directory \[page 16\]](#)).
- For every option, you can set a trace level using `-t[Level]`. Possible value include **1**, **2** and **3**. If you use `-z`, SAPOSCOL writes cyclical traces to avoid large trace files (see [SAPOSCOL Log Files \[page 43\]](#)).

The following options are possible:

Option	Description
<code>-l</code>	Starts SAPOSCOL
<code>-d</code>	Starts the Dialog Mode of SAPOSCOL [page 25]
<code>-k</code>	Stops the current collector
<code>-r</code>	Stops the current collector and displays the results
<code>-h</code>	Displays the possible SAPOSCOL options
<code>-s</code>	Displays the status of the collector
<code>-i<Number></code>	Sets a new interval for the collection of data in the normal mode (every <code><Number></code> seconds; the default value is 10 seconds)
<code>-v</code>	Displays the version of the collector
<code>-c</code>	Deletes the data in shared memory
<code>-t<Level></code>	Sets the trace level for debugging
<code>-z</code>	Activates cyclical tracing
<code>-o</code>	Displays all collected data from the shared memory
<code>-m</code>	Display all current data from the shared memory

4.4 Dialog Mode of SAPOSCOL

SAPOSCOL has a dialog interface `Collector>` that you can start from the operating system input prompt with the command `saposc -d`. You can enter various dialog commands here. Use the command `help` to display a list of the possible commands.

4.4.1 Displaying the Data Collected by SAPOSCOL

You can use the dialog mode to call up the data that SAPOSCOL has written to the shared memory. The most important command is `dump`, which is used to display various data collected and stored in the shared memory by SAPOSCOL, depending on parameters and options:

```
dump <parameters> <option>
```

The following parameters are possible:

Parameter	Description
CPU	CPU
Memory	Memory
Top	Largest CPU user
Disk	Hard disk
Filesystem	File system
Lan	LAN
Proc	Monitoring of selected processes

The following options are possible:

Option	Description
Single	Current value of a single selected parameter
All	Current values of all parameters accessible in this shared memory
Sum	Hourly average values for the last 24 hours of all parameters accessible in this shared memory



Note that not all of the parameters can be combined with all of the options.

There are also the following uses of the **dump** command:

Command	Description
dump config defined	Configured operating system parameters
dump config used	Currently used operating system parameters
dump hour	List of the last 24 hours; each of the 24 entries has the format hour: <0-23> of day <number> , where <number> specifies whether SAPOSCOL has consistent data for that hour: 0: No data available 1: Current hour 2: Inconsistent data <Datum (JJJJMMTT)>: Data available



To display the memory-related operating system data in the shared memory, enter the following command at the `Collector>` input prompt:

```
dump memory all
```

The following information is displayed:

```
Collector> dump memory all
Pages paged in / sec          1
Pages paged out / sec         0
KB   paged in / sec           4
KB   paged out / sec          0
freemem [KB]                  13312
physmem [KB]                   65536
swap configured [KB]           76348
swap total size [KB]           76348
swap free inside [KB]          72556
```

4.4.2 Controlling SAPOSCOL in Dialog Mode

You can control SAPOSCOL in dialog mode using the following commands at the `Collector>` input prompt:

Command	Description
detailson	Sets the details flag
detailsoff	Cancel the details flag
Interval <n>	Changes the collection interval to <n> seconds (Default = 10)
Leave	Deletes the shared memory
Kill	Stops the background process
Launch	Starts a new collector
Force	Forces a new collector to start (only in emergencies)
status stat	Displays the status of the SAPOSCOL process that is collecting data in the background

The changed values are written to the shared memory. SAPOSCOL reads these values directly before collecting additional data. Only then do the changes take effect.



If you change the collection interval, the collector switches to the new interval only after the expiration of the old interval.

Ending Dialog Mode

To leave the dialog mode of SAPOSCOL, use the command `quit` or the command `exit`.

4.5 Minimizing the CPU Workload Caused by SAPOSCOL

SAPOSCOL can use a high proportion of operating system resources, as it periodically collects data from the operating system. Which data requires the most resources during collection depends on the operating system. You have the following options to minimize the CPU usage of SAPOSCOL:

- **Delete the Details Flag**

You can control the collection of data by SAPOSCOL by having it collect certain data, the collection of which has a particularly high influence on performance, collected less frequently. Which data belongs to this group, depends on the operating system of the monitored host.

By default, the detail flag is set (*Details required* pushbutton in the operating system monitor; command `detailson` in dialog mode). To delete the detail flag, choose *Details Off* in the operating system monitor, or enter the command `detailsoff` in dialog mode. This setting applies universally.

- **Use the SAPOSCOL *Idle Mode***

If the data is not read from the shared memory during a period of five minutes, SAPOSCOL switches from normal mode to idle mode. In this mode, the collector collects data every minute instead of every ten seconds. This is sufficient for a well-founded hourly average value. If a process reads data from the shared memory during idle mode, SAPOSCOL switches back to normal mode.

5 Displaying Operating System Data

There are three possibilities that you can use to display the data that SAPOSCOL has collected:

- The [Operating System Monitor \[page 29\]](#) displays all data that SAPOSCOL collects.
- The Alert Monitor of the CCMS monitoring architecture contains two monitors that display the data from SAPOSCOL:
 - [CCMS Monitor Operating System \[page 33\]](#)
 - [CCMS Monitor Filesystems \[page 37\]](#)
- You can use the [Dialog Mode of SAPOSCOL \[page 25\]](#) to display the contents of the local shared memory segment at operating system level.

5.1 Operating System Monitor

You can use the operating system monitor to monitor the data that SAPOSCOL collects. Use the monitor for the local host (transaction ST06) or for another host (transaction OS07). For more detailed information about the operating system monitor, see the online documentation [[OS-Mon](#)].



You can also monitor operating system data using the CCMS monitor *Operating System* in transaction RZ20. However, the data displayed there is not as complete as the data displayed in the operating system monitor.

Process Flow

To call the individual functions shown in the table, choose *CCMS → Control/ Monitoring → Performance Menu → Operating System*.

Function	Menu Path	Transaction
Call operating system monitor the local server	→ <i>Local</i> → <i>Activity</i>	ST06
Call operating system monitor for another host	→ <i>Remote</i> → <i>Activity</i> ; then select the desired host on the <i>SAPOSCOL Destination</i> screen	OS07; then select the desired host on the <i>SAPOSCOL Destination</i> screen

In both cases, the system displays performance indicators for the operating system of the desired host. The system displays the description *Local* or *Remote*, the host name, and the operating system platform in the title bar of the screen. The monitor displays the results of the current measurement for the following areas:

- CPU
- Memory management
- Swap
- Hard disk (the monitor displays the hard disk with the longest response time)
- LAN (Total of all LAN interfaces of the desired host)

To display the measured values of the last 24 hours for an individual area, choose the corresponding row. For more information about the specified values, see the section [Monitoring Operating System Data \[page 7\]](#).

The following commands are also available to you in the operating system monitor:

Command	Description
<i>Refresh display</i> pushbutton	Updates the data on the screen; as SAPOSCOL collects data by default at 10 second intervals, you do not always obtain new data
<i>Detail Analysis Menu</i> pushbutton	Displays a screen on which you have the possibility to call detail data for various topics; for information about this data, see: <ul style="list-style-type: none"> • CPU [page 7] • Memory Management [page 9] • File Systems and LAN [page 10] • Monitoring Selected Processes [page 11]
<i>OS Collector</i> pushbutton	Displays a screen with SAPOSCOL log data; you can also control SAPOSOL here (see Controlling SAPOSCOL from the Operating System Monitor [page 24])
→ Goto → Performance Database → Compare all servers	See Displaying Data for the Last 30 Days in the Operating System Monitor [page 31]
→ Goto → Performance Database → Compare recent days	
→ Goto → Current data → Alert monitor	See CCMS Monitor Operating System [page 33]
→ Goto → Current data → Filesystem monitor	See CCMS Monitor Filesystems [page 37]

For information about the possible operating system monitor errors, see [Error Analysis \[page 42\]](#).

5.1.1 Displaying Data for the Last 30 Days in the Operating System Monitor

The data collected by SAPOSCOL are stored in the shared memory segment as hourly average values for 24 hours and then deleted. The following performance data for the last 30 days is also stored in database tables:

Area	Hourly Average Values	Daily Average Values [A]/ Daily Maximum Values [M]
CPU	Percentage usage for users, system, idle	Percentage usage for users, system, idle [A]
Memory	Pages paged in/paged out, quantity of memory paged in/out [KB/h], minimum/maximum/average free space	Pages paged in/out per hour [A, M], maximum/minimum swap space [A]
Disk (for the disk with the longest response time)	Level of usage, length and wait time of the queue, service time for input/output, quantity of data transferred [MB/h]	Response time [A, M]
LAN (for the interface with the highest number of packets)	Packets sent/received, errors when sending/receiving, collisions	Packets, errors, collisions [A, M for each]



The data collected by SAPOSCOL is only saved for the last 30 days for those hosts for which the indicator *Save last 30 days* is activated in transaction AL15 (*Modify SAPOSCOL Destination*) (see [Setting the SAPOSCOL Destination in the Central System \[page 40\]](#)). This is the case by default for SAP application servers and database servers.

Comparison of the Data for the Last 30 Days for a Host

1. Start the operating system monitor using transaction ST06 or OS07 as described in [Operating System Monitor \[page 29\]](#).
2. Choose → *Goto* → *Performance Database* → *Compare recent days*.
3. The <Host Name> / *Compare recent days for Server* screen appears, on which the average and maximum daily values for the selected host are displayed for the last 30 days.
4. To display the data for another host, choose the pushbutton *Previous server* or *Next server*.
5. To display the hourly average values for a day, select the desired day, and choose the *Details* pushbutton.
6. The system displays the hourly average values for the selected combination of host and date. The values for the *CPU* topic are displayed first; you can obtain values for the *Memory*, *Disk*, *LAN*, and *Filesystems* topics by (repeatedly) choosing the *More info* pushbutton.

Comparison of Data for Different Hosts

1. Start the operating system using transaction ST06 or OS07, as described in [Operating System Monitor \[page 29\]](#).
2. Choose → *Goto* → *Performance Database* → *Compare all servers*.
3. The <Date> / *Compare all servers for date* screen appears, on which the saved daily average and maximum values for the selected day are displayed for all hosts.
4. To view the data for a different date, choose the *Previous day* or *Next day* pushbuttons.
5. To display the hourly average values for any host, select the desired host and choose the *Details* pushbutton.
6. As with the previous procedure, the system displays the hourly average values for the selected combination of host and date.

5.2 Alert Monitor

The Alert Monitor is the display tool of the monitoring architecture, with which you can centrally monitor any IT landscapes. For more detailed information about the Alert Monitor, see the online documentation [**AIMon**]. There is also a document introducing the predefined monitors of the Alert Monitor [**StdMon**].

The following are the main differences to the way in which data is displayed in the operating system monitor:

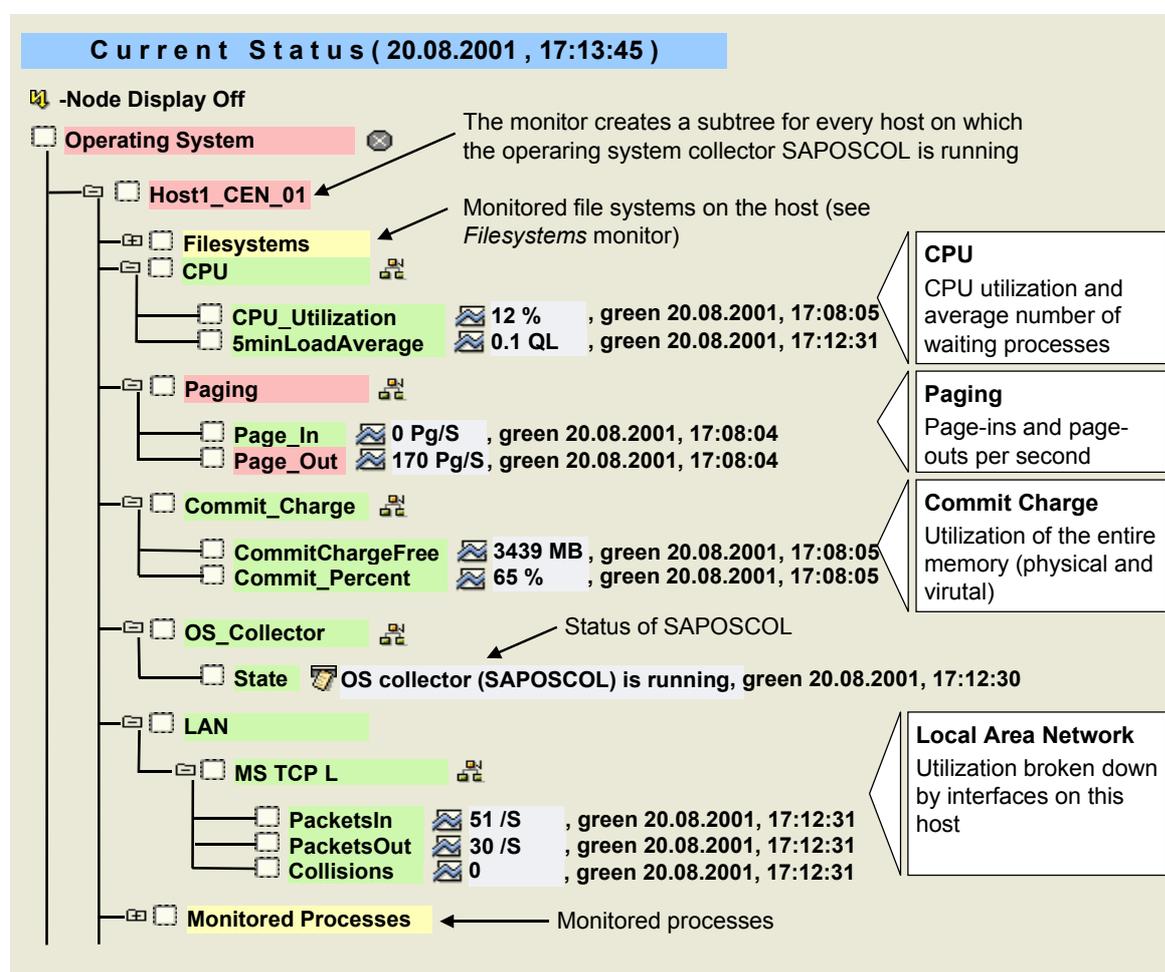
- In the Alert Monitor, you can use alerts, which report errors quickly and reliably - such as when a reported value exceeds or falls below a particular threshold value, or a component is inactive for a defined period of time. These alerts are displayed in the Alert Monitor; this reduces the workload of the system administration, as they must only watch the problem messages instead of monitoring large amounts of system data. You can also set automatic system reactions (auto-reaction methods) in the case of an alert, such as informing the administrator by e-mail, pager, or SMS.
- The data is displayed in a hierarchically organized tree, grouped by the monitored hosts. In this way, you can display the data for the various hosts without restarting the monitor.
- The display in the Alert Monitor includes a section of the data that is displayed in the operating system monitor.
- You can create your own CCMS monitors that display exactly the data that is important for your work.

5.2.1 CCMS Monitor *Operating System*

This monitor displays the data collected by SAPOSCOL in a tree structure, grouped by the different hosts and application servers on which SAPOSCOL is running. The CCMS monitor operating system is assigned as the analysis method to most nodes of this monitor.

To start the monitor, follow the procedure below:

1. Start the Alert Monitor by calling transaction RZ20, or choose *CCMS* → *Control/Monitoring* → *Alert Monitor*.
2. On the *CCMS Monitor Sets* screen, expand the *SAP CCMS Monitor Templates* monitor set.
3. From the monitor list, start the *Operating System* monitor by double clicking it.



Features

The following table provides information about the nodes of this monitor:

MTE	Description
<i>CPU</i>	Information about the CPU of a host
<i>CPU_Utilization</i>	Average usage of the CPU in a host
<i>5minLoadAverage</i>	Average number of processes on a host that must wait to be processed by the CPU
<i>Paging</i>	Information about paging rates on a host
<i>Page_In</i>	Average number of page-ins per second
<i>Page_Out</i>	Average number of page-outs per second
<i>Commit_Charge</i>	Total physical and virtual memory used by the operating system and programs (only for Microsoft Windows NT)
<i>Commit_ChargeFree</i>	Difference between the maximum available and the currently used commit charge (only for Microsoft Windows NT)
<i>Commit_Percent</i>	Percentage of the maximum available commit charge currently used (only for Microsoft Windows NT)
<i>Swap_Space</i>	Storage space on the hard disk for the paging out of data that is not currently required from the main memory (only for UNIX)
<i>Freespace</i>	Free swap space (only for UNIX)
<i>Percentage_Used</i>	Percentage usage of the swap space (only for UNIX)
<i>OS_Collector/State</i>	Status of SAPOSCOL
<i>LAN</i>	Information about a Local Area Network (LAN), broken down by the interfaces to the LAN installed on this host
<i>PacketsIn</i>	Inbound packets per second in a LAN at the host interface
<i>PacketsOut</i>	Outbound packets per second in a LAN at the host interface
<i>Collisions</i>	Collisions in the LAN
<i>Monitored Processes</i>	Monitored processes on this (see CCMS Monitor Operating System – Monitored Processes [page 35])

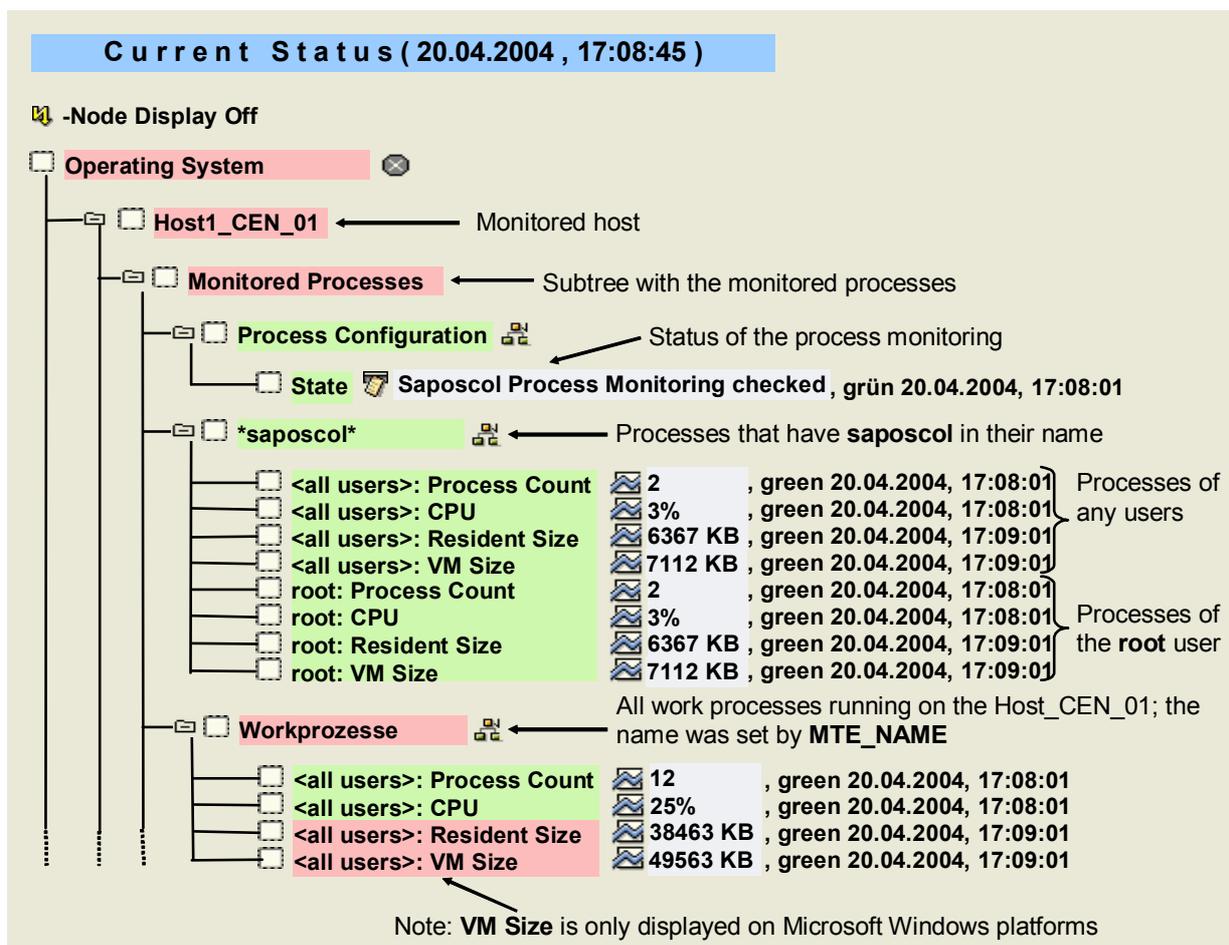
Procedure if an Alert Is Triggered

The following table provides information about what to do if an alert is triggered in this monitor:

MTE	Procedure
<i>Commit_Charge</i> <i>Commit_ChargeFree</i> <i>Commit_Percent</i>	If the available commit charge falls below the threshold value for a long period of time, you should increase the value of the entire commit charge in the operating system. Note, however, that a large virtual memory causes more paging if there is not enough main memory available.
<i>Swap_Space</i> <i>Freespace</i> <i>Percentage_Used</i>	If an alert is repeatedly generated in this subtree, you should increase the available swap space (for guidelines about the size of the swap space, see SAP Notes 0146289 and 0146528).
<i>OS_Collector/State</i>	If the operating system collector is not running on a system, you should restart SAPOSCOL.

5.2.2 CCMS Monitor *Operating System* – *Monitored Processes*

The data about the monitored processes is displayed in the CCMS monitor *Operating System* in the *Monitored Processes* subtree (see [Setting Up Process Monitoring \[page 17\]](#)):



The following table provides information about the MTEs of this monitor:

MTE	Description
<i>Process Configuration</i> <i>State</i>	Status of the process monitoring; this node exists, even if no processes are being monitored
<i>Process Count</i>	Number of running processes that fulfill the conditions for process name (superordinate node) and user (prefix of the MTE name)
<i>CPU</i>	Total of the CPU usage of the above processes, as a percentage
<i>Resident Size</i>	Total physical memory that is assigned to the above processes
<i>VM Size</i>	Total of the entire memory (physical and virtual) that is assigned to the above processes (only on Windows platforms)



After changes in the configuration files, subtrees are created for new monitored processes at the next start of the data collection methods, which run once per minute;

processes that are no longer monitored are first set to inactive after around five minutes (you can identify this due to the gray color) and then deleted after another five minutes.

5.2.3 CCMS Monitor *Filesystems*

This monitor displays a section of the CCMS monitor *Operating System*. You can use this monitor to monitor the filesystems of any application systems and host systems and to check whether there is still enough free hard disk space available.

To start the monitor, follow the procedure below:

1. Start the Alert Monitor using transaction RZ20, or choose *CCMS* → *Control/Monitoring* → *Alert Monitor*.
2. On the *CCMS Monitor Sets* screen, expand the *SAP CCMS Monitor Templates* monitor set.
3. Start the *Filesystems* monitor from the list by double clicking it.

Current Status (20.08.2001 , 17:08:45)

-Node Display Off

Filesystems

- CEN\Host1_CEN_01\...\C: (Monitored file systems on a system (here: CEN))
- CEN\Host1_CEN_01\...\D: (Monitored file systems on a system (here: CEN))
- CEN\Host1_CEN_01\...\E: (Monitored file systems on a system (here: CEN))
- CEN\Host1_CEN_01\..._Total: (Monitored file systems on a system (here: CEN))
- CEN\Host2_CEN_01\...\C: (Monitored file systems on a system (here: CEN))
- CEN\Host2_CEN_01\...\D: (Monitored file systems on a system (here: CEN))
- CEN\Host2_CEN_01\...\E: (Monitored file systems on a system (here: CEN))
- CEN\Host2_CEN_01\..._Total: (Monitored file systems on a system (here: CEN))
- C11\Host1_C11_01\...\C: (Monitored file systems on a host system (here: Host1_C11_01))
- C11\Host1_C11_01\...\D: (Monitored file systems on a host system (here: Host1_C11_01))
- C11\Host1_C11_01\...\E: (Monitored file systems on a host system (here: Host1_C11_01))
- C11\Host1_C11_01\..._Total: (Monitored file systems on a host system (here: Host1_C11_01))
- C11\Host2_C11_01\...\C: (Monitored file systems on a host system (here: Host1_C11_01))
- C11\Host2_C11_01\...\D: (Monitored file systems on a host system (here: Host1_C11_01))

Name of the file system

Name	D:	Free storage space
Free space	0 MB , red 20.08.2001 , 17:08:31	Free storage space
Percentage_Used	100 % , yellow 20.08.2001 , 17:08:31	Percentage usage

Free storage space and percentage usage of all file systems on a host system

Features

The following table provides information about the nodes of this monitor:

MTE	Description
<i>Name</i>	Name of the file system
<i>Freespace</i>	Free disk space in the file system
<i>Percentage_Used</i>	Usage of the available storage space for the file system as a percentage



You can explicitly exclude file systems from the operating system collector monitoring (see [Avoiding Objects Being Copied to the Monitoring Segment \[page 39\]](#) and [Deactivating Object Monitoring by SAPOSCOL \[page 20\]](#)).

6 SAPOSCOL and CCMS Agents

All CCMS agents can copy data from the SAPOSCOL shared memory segment to the CCMS monitoring segment and transfer it to a central monitoring system. This means that the data is visible in the CCMS monitoring architecture and is displayed both in the familiar transactions ST06 and OS07 and in the Alert Monitor (transaction RZ20). For more information about this, see the CCMS agents manual [**Agents**]. In this way, you can monitor operating system data for hosts without a running SAP Basis System. An expensive installation and configuration of RFCOSCOL is no longer required.



The central monitoring system must have a release status of at least SAP Basis 4.6B. Take account of SAP Note 371023, as Support Packages may be required.

6.1 Avoiding Objects Being Copied to the Monitoring Segment

If you are using an agent to transfer the SAPOSCOL data to a central monitoring system, you can use the transfer of the data from the SAPOSCOL shared memory segment to the CCMS monitoring segment to remove certain data that is not to be displayed. You can do this by specifying a configuration file that specifies which SAPOSCOL data is **not** to be copied to the monitoring architecture segment. In this way, you can remove file systems and components from the monitoring segment.



This is, for example, useful, if you monitor file systems with a rule-based monitor, but want to exclude certain file systems that are always 100% full from this monitoring.



The hidden data is still collected by SAPOSCOL; it is simply no longer copied to the CCMS monitoring segment and is not displayed in the [Alert Monitor \[page 32\]](#).

Every agent has the configuration file SAPCCMSR.INI in its working directory (for more information, see the CCMS agents manual [**Agents**]). In this file, enter the line **OSColFile <File path of the filter file>**.

The filter file contains information about the components and file systems that are not to be monitored. You can remove the file systems from the CCMS monitoring segment using the parameter **FilterOutFilesystem**; you can use the parameter **FilterOutComponent** to remove entire components from the CCMS monitoring segment.



The following lines are contained in the configuration file SAPCCMSR.INI :

```
### Format of entries for mechanism to filter out
### SAPOSCOL values:
OsColFile d:\usr\sap\TVB\D26\log\sapccm4x\oscol.ini
```

The specified file `oscol.ini` contains the following lines:

```
FilterOutComponent LAN
FilterOutFilesystem d:\test
```

No more values are displayed in the monitoring architecture for the file system `d:\test` or for values for the LAN.

6.2 Setting the SAPOSCOL Destination in the Central System

If you are using CCMS agents, you can display the data collected by SAPOSCOL not only for the local system, but also for remote systems. This means that all possible data for remote SAP application servers and their database servers (specified using the parameter SAPDBHOST) is available to you in the operating system monitor.

For any hosts or dedicated database servers, this applies only for the data for the last 24 hours. The data for the last 30 days is only stored if you maintain the SAPOSCOL destination:

1. Install SAPOSCOL and the appropriate CCMS agent [**Agents**] on the host.
2. Start transaction AL15 (*SAPOSCOL Destination*) in the central system.
3. Enter the SAPOSCOL destination of the remote host. If the connection uses a CCMS agent, this is the RFC destination of the CCMS agent on this host. For agent SAPCCMSR (which monitors any hosts with no SAP system), the destination has the name structure **SAPCCMSR.<Hostname>.99**.
4. To edit the destination, choose *Modify*. The *Modify SAPOSCOL Destination* screen appears. The individual fields have the following meanings:

Field	Description
<i>Text</i>	Description of the destination
<i>DB Server</i>	This indicator is activated for a database server; its values for the last 30 days are then automatically available.
<i>Save last 30 days</i>	Select this indicator if you want to save the values collected by SAPOSCOL in the operating system monitor for 30 days (see Displaying Data for the Last 30 Days in the Operating System Monitor [page 31]).

5. Save your entries.

6.3 Controlling SAPOSCOL on Remote Hosts

If a CCMS agent is running on a remote host that is registered with a central system, you can start and stop SAPOSCOL and display its `dev_col1` log file in the operating system monitor (transaction OS07) of this system.

Prerequisites

The agent of the remote host must have the following information in its profile:

- To start and stop SAPOSCOL, the agent requires the complete path of SAPOSCOL in the profile parameter `exe/saposcol`.
- To display `dev_col1`, the agent requires the working directory of SAPOSCOL in the profile parameter `DIR_PERF`

If you start or stop SAPOSCOL using a CCMS agent, the agent uses its profile to start and stop SAPOSCOL. The newly started SAPOSCOL therefore has `DIR_PERF` of the agent as its working directory. This means that the agent has a connection to exactly one version of the SAPOSCOL program, so that there is no confusion if there are multiple installed versions of SAPOSCOL.



If you first stop and then restart SAPOSCOL using an agent, the working directory of SAPOSCOL can adjust to the working directory of the agent. This means that data is not lost.



Two examples:

- The SAPCCMSR agent with the working directory `/usr/sap/agents` is to be able to start and stop `/usr/sap/tmp/saposcol`. The agent must therefore be started with a profile:

```
sapccmsr -<parameters> pf=AgentProfile.pfl
```

```
with AgentProfile.pfl:      DIR_PERF=/usr/sap/agents
                             exe/saposcol=/usr/sap/tmp/saposcol
```

SAPOSCOL therefore automatically uses `DIR_PERF` of the agent.

- The SAPCCM4X agent is to be able to start and stop `C:\usr\sap\CEN\SYS\exe\run\saposcol.exe`. SAPOSCOL has the working directory `C:\saploc\PRFCLOG`. The agent was started with:

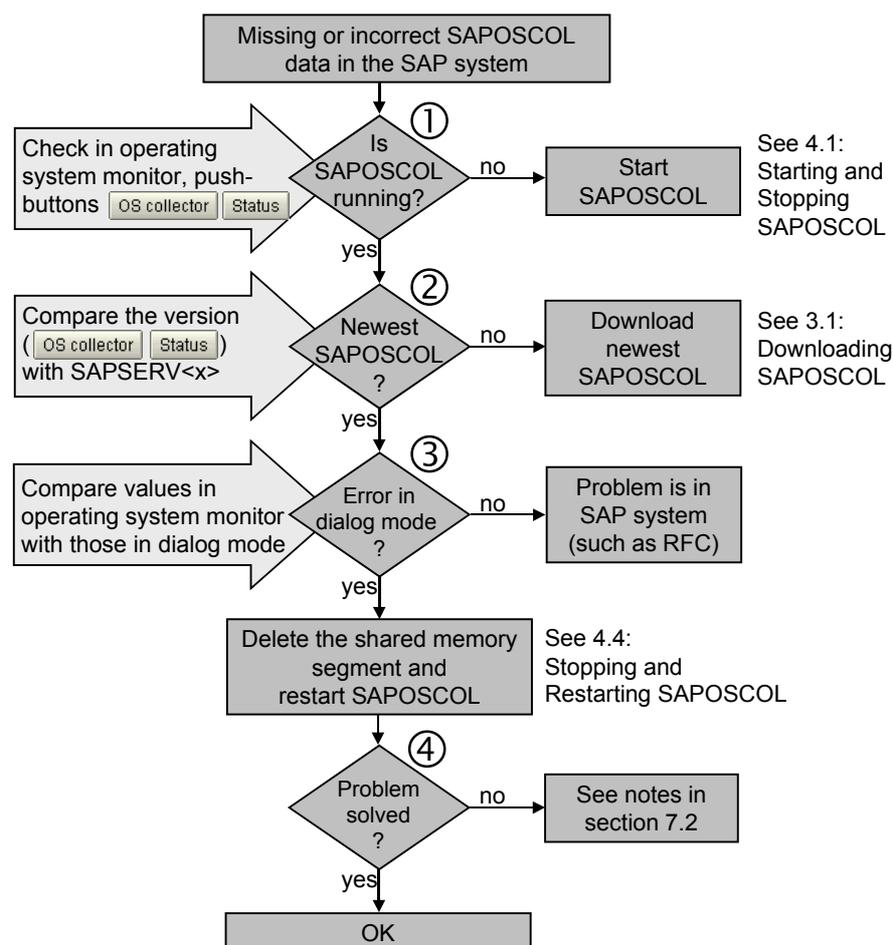
```
sapccm4x -<parameters> pf=<SAPInstanceProfile>
```

```
with <SAPInstanceProfile>:  DIR_PERF=C:\saploc\PRFCLOG
                             exe/saposcol=C:\usr\sap\BCE\SYS\exe\
                             run\saposcol.exe
```

SAPOSCOL uses `DIR_PERF` as its working directory.

7 Error Analysis

If incorrect, incomplete, or no values at all about the operating system are displayed in the [Operating System Monitor \[page 29\]](#) or in the [Alert Monitor \[page 32\]](#) of an SAP system, we recommend the following procedure:



Process Flow

1. Check whether SAPOSCOL is running on the relevant host. You can perform this check at the operating system command line by entering the command `saposcol -s` in the SAPOSCOL directory (see [Controlling SAPOSCOL from the Operating System \[page 24\]](#)). In the operating system monitor, choose the *OS collector* and *Status* pushbuttons.

If SAPOSCOL is not running, start it; for example, using the operating system monitor by choosing the *OS collector* and *Start* pushbuttons.

2. Check whether you are using the current version of SAPOSCOL. To do this, compare the version of SAPOSCOL running on your host with the current version in the *Software Catalog* at <http://service.sap.com/swcenter-main>.

If the version numbers are not identical, download the newest version (see [Downloading SAPOSCOL \[page 12\]](#)), stop the running version and start the new SAPOSCOL (see [Starting and Stopping SAPOSCOL \[page 22\]](#)).

3. Compare the values displayed values in the [Operating System Monitor \[page 29\]](#) and in the [Dialog Mode of SAPOSCOL \[page 25\]](#).

If the values are identical and the incorrect values are therefore already present in the SAPOSCOL shared memory segment, the SAP system is not the cause of the problem. In this case, restart SAPOSCOL (see [Starting and Stopping SAPOSCOL \[page 22\]](#)) and delete the shared memory segment.

4. If the problems persist after a restart, you can find notes for correcting the errors, some of which are platform-dependent under [Notes for Incorrect Data Display \[page 45\]](#).

7.1 SAPOSCOL Log Files

The following files for the function of SAPOSCOL are stored in the [Working Directory \[page 16\]](#):

- The file `coll.put`, in which SAPOSCOL writes the contents of its shared memory segment; this is performed only when SAPOSCOL is stopped and on user command.
- The configuration file for monitoring selected processes, `dev_proc` (see [Setting Up Process Monitoring \[page 17\]](#)).
- The file `dev_filter` that contains the file systems and disks that are not to be monitored by SAPOSCOL (see [Deactivating Object Monitoring by SAPOSCOL \[page 20\]](#)).
- The log file `dev_coll` that contains SAPOSCOL messages and the status of SAPOSCOL.



During error analysis of SAPOSCOL, you should also check the file `dev_coll`.

Example dev_coll

	09:10:20 25.02.2002 LOG: =====
	09:10:20 25.02.2002 LOG: = OS Collector Start
Time stamp and key word LOG: , with which every line begins	LOG: =====
	LOG: ===== Launch Collector . =====
Version number, date, and SAP Basis release of SAPOSCOL	LOG: Saposcol Version is [COLL 20.75 00/11/02 620 - 20.31 NT 98/12/15]
An existing SAPOSCOL shared memory segment is used and the contents are deleted	LOG: You can ignore : "Index of Title: [Disk Queue Length] not found" on Windows NT 4.0
	LOG: Connected to existing shared memory !
	LOG: Reused shared memory ! Clearing contents.
If a usable coll.put file is found, SAPOSCOL reads the contents into its shared memory segment	LOG: Collector started - Version: COLL 20.75 00/11/02 BIN - 20.31 NT 98/12/15
Last write access to this file	LOG: read put-file Mon Feb 25 08:59:56 2002
	LOG: Collector PID: 1636
Configuration file for process monitoring	LOG: saposcol uses C:\saploc\PRFCLOG\dev_proc for process monitoring
	LOG: Found keyword PROC
Details from the configuration file for process monitoring, dev_proc: Which processes/users are monitored?	LOG: The following processes will be monitored:
	LOG: process: *saposcol*
	LOG: process: *sapccmsr*
	LOG: process: *java*
	LOG: process: *
	LOG: for user d024817

- The log files dev_col1 and dev_col2, which are written when SAPOSCOL is started with a cyclical trace (command `saposcol -z`, see [Controlling SAPOSCOL from the Operating System \[page 24\]](#))



With the cyclical trace, the trace information is written alternately to the files dev_col1 and dev_col2:

- The trace is first written in the file dev_col1.
- When dev_col1 exceeds a specified size, the trace is written to dev_col2. The size is 50,000 lines. This number is not configurable.
- When dev_col2 exceeds this size, dev_col1 is deleted and the trace is again written to this file.

This process is continuous. This ensures that the current trace is always accessible, without a trace file being able to grow to any size.

7.2 Notes for Incorrect Data Display

Symptom	Cause	Solution
No data is displayed for the following functions of the operating system monitor: <ul style="list-style-type: none"> • <i>Compare recent days</i> • <i>Compare all servers</i> 	The saving of this data is not explicitly activated in transaction AL15.	See Displaying Data for the Last 30 Days in the Operating System Monitor [page 31]
	The database tables are not filled regularly.	Check the reports RSHOSTDB and RSHOSTDC in accordance with SAP Note 12103.
	The database table entries are deleted too early during the reorganization (up to SAP Basis 4.6A).	See SAP Note 336120
No values are displayed in the operating system monitor, or problems with the shared memory are reported.	SAPOSCOL does not have the correct authorizations (UNIX).	Set the authorizations (see Installation Under UNIX [page 14]).
	The shared memory segment with key 1002 was changed.	Check in the profiles of all instances whether the parameter <code>ipc/shm_psize_1002</code> is set and delete it.
No values are displayed for the hard disks under Microsoft Windows NT/2000.	The performance counter <code>diskperf</code> is not activated.	Activate it with the command <code>diskperf -Y</code> .
Incorrect data is displayed in the operating system monitor under Microsoft Windows NT.	The file PDH.DLL does not exist in the Microsoft Windows NT system directory.	Install the file (see Installation Under Microsoft Windows [page 15]).
The log files for the operating system (<i>OS Log</i>) and for SAPOSCOL (<i>OS Collector</i> → <i>Log File</i>) are not displayed.		See SAP Notes 189072 and 178719
<i>Hardware Info</i> is not displayed in the operating system monitor.	Not every operating system provides this function; currently, HP-UX, NT, AS400, DEC, and SUN provide the relevant data about the hardware configuration.	

Symptom	Cause	Solution
<i>Hardware Info</i> is not displayed in the operating system monitor.	If the error occurs with Microsoft Windows NT, it is usually due to the fact that <i>DIR_PERF</i> is not set or is set incorrectly.	See SAP Note 96397
The <i>compare recent days</i> function in the operating system monitor displays no values or incorrect values. However, the current values in the detail view and for <i>Previous 24 hours</i> are correct.	Error in SAPOSCOL	Import the Support Packages in accordance with SAP Note 431495.
	The job <i>SAP_COLLECTOR_FOR_PERFMONITOR</i> is not running often enough.	Ensure that the job runs at least every 24 hours.
SAPOSCOL hangs when started under HP-UX 11.0. An analysis shows that SAPOSCOL is waiting for the result of the call <code>sh -c echo lan ppa 1 display quit /usr/sbin /lanadmin -t</code> .	With version 11.00.11, the data display is changed with the driver for a gigabit ethernet card (check with <code>ps -ef grep lanadmin</code>).	Import the HP-UX patch <i>PHNE_21865</i> or a later successor patch (such as <i>PHNE_22930</i>). The name of the patch is s7000_800 11.00 1000Base-SX/T B.11.00. [02-11] cumul. Patch
SAPOSCOL and other tools for measuring the performance have a very high CPU utilization in AIX.	A change of the call <code>vmgetinfo()</code> leads to increased CPU load from tools for performance measurement (as of <i>bos.mp.4.3.3.29</i> in AIX 4.3.3) A memory leak in the routine <code>fclose()</code> leads to the termination of SAPOSCOL.	You can find corrections in http://techsupport.services.ibm.com/server/support under: <i>APAR IY16813 (vmgetinfo)</i> <i>APAR IY22308 (fclose in AIX 4.3.3)</i> <i>APAR IY22844 (fclose in AIX 5.1)</i>

8 Additional Information

- [OSMon]** Online documentation for the Operating System Monitor
- Start the SAP Help Portal (<http://help.sap.com>), and choose *Documentation* → *SAP NetWeaver* → *English*, and from there *SAP Library* → *SAP NetWeaver* → *Solution Life Cycle Management* → *Solution Monitoring* → *Monitoring in the CCMS* → *Operating System Monitor* ([direct link](#)).
- [AIMon]** Online documentation for the Alert Monitor
- Start the SAP Help Portal (<http://help.sap.com>), and choose *Documentation* → *SAP NetWeaver* → *English*, and from there *SAP Library* → *SAP NetWeaver* → *Solution Life Cycle Management* → *Solution Monitoring* → *Monitoring in the CCMS* → *The Alert Monitor* ([direct link](#)).
- [StdMon]** Predefined Monitors for the Alert Monitor
- Start the *SAP Service Marketplace*, and go to the *System Monitoring and Alert Management* area (<http://service.sap.com/monitoring>). Choose *Media Library* → *Documentation*, and choose *Predefined Monitors* from the list of documents ([direct link](#)).
- [Agents]** Documentation for the CCMS Agents
- Start the *SAP Service Marketplace*, and go to the area *System Monitoring and Alert Management* (<http://service.sap.com/monitoring>). Choose *Media Library* → *Documentation*, and then choose the document *CCMS Agents: Properties, Installation, and Operation* from the list ([direct link](#)).