Linux Operations for SAP Basis Administration

SAP Basis Infrastructure & Operating System Support

This portfolio demonstrates Linux operating system activities commonly performed in SAP Basis administration, including capacity monitoring, SAP instance validation, SAP HANA verification, filesystem analysis, and operational troubleshooting.

CASE STUDY 1

Filesystem Capacity Check (df -h)

Objective

Verify filesystem utilization and identify potential storage risks before they impact SAP or SAP HANA operations.

Operational Scenario

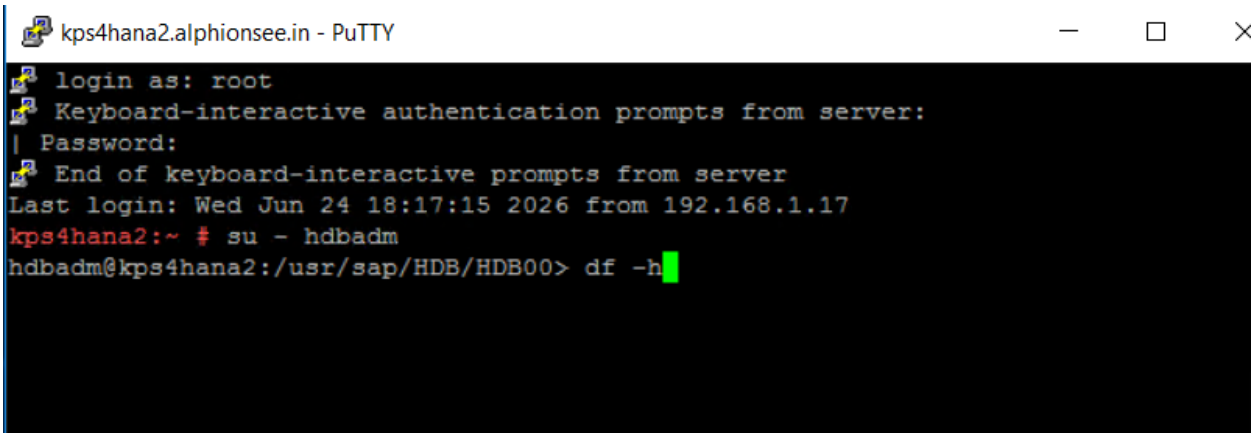
As part of routine SAP Basis operational monitoring, filesystem capacity was reviewed to ensure sufficient free space remained available for database and application operations.

Investigation

Command Executed:

df -h

Screenshot 1 – Linux Server Login



Filename: step-1-linux-login.png

Capture:

• PuTTY session

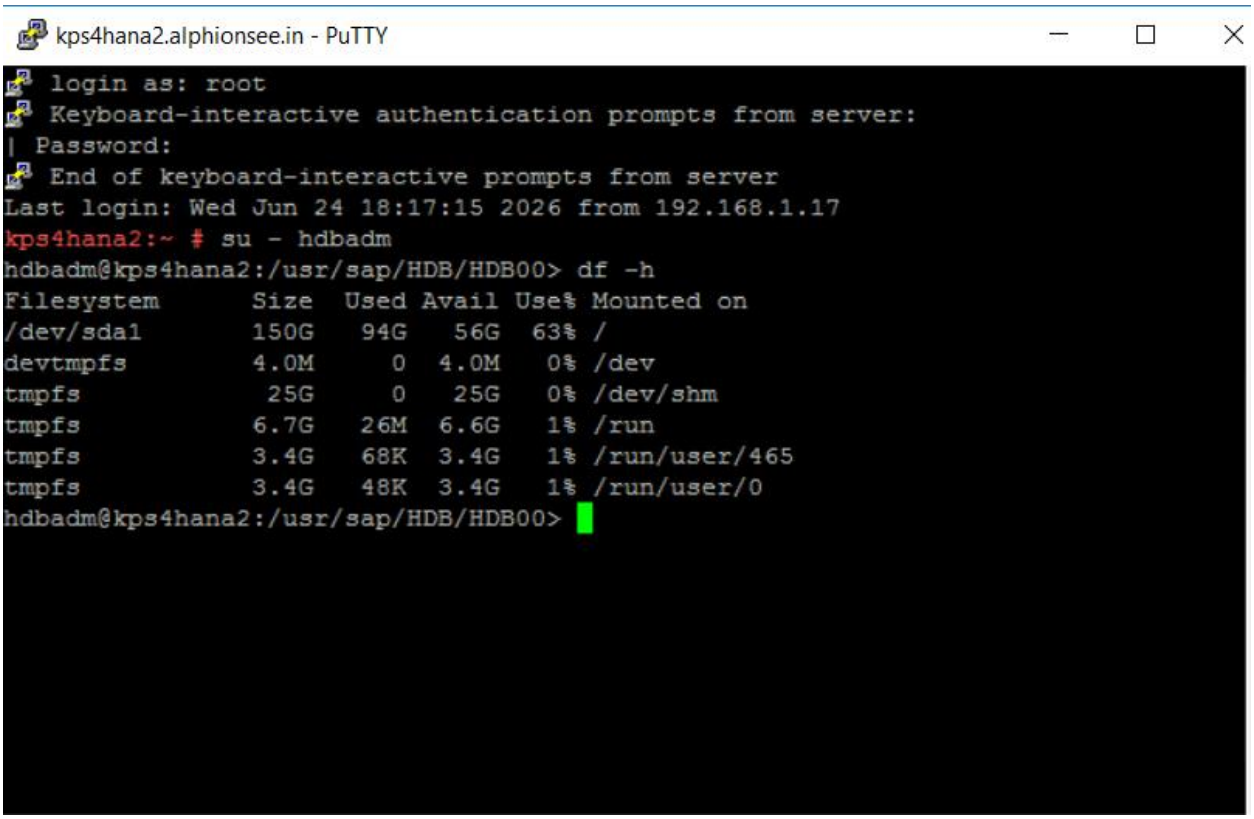
• Connected Linux server

• Command prompt

Purpose:

Provides evidence of successful Linux server access.

Screenshot 2 – Filesystem Capacity Results



Filename: step-2-df-h-results.png

Capture:

Filesystem: /dev/sda1

Size: 150G

Used: 94G

Available: 56G

Utilization: 63%

• **Mounted Volumes**

Purpose:

Provides evidence of filesystem capacity validation.

Findings

Filesystem utilization was reviewed using the df -h command after accessing the SAP HANA administrative account (hdbadm). The primary filesystem (/dev/sda1) reported

63% utilization with 56 GB of available free space. No storage-related risks or capacity constraints were identified during the review.

Analysis

Filesystem utilization percentages were reviewed to identify potential storage risks.

Particular attention was given to filesystems approaching 80%, 90%, or 95% utilization thresholds because excessive storage consumption can impact SAP and SAP HANA operations.

The reviewed filesystems were operating within acceptable utilization levels and no corrective action was required.

Skills Demonstrated

• Linux Administration

• Capacity Monitoring

• Infrastructure Operations

• SAP Basis Support

CASE STUDY 2

SAP HANA Service Status Verification (sapcontrol)

Objective

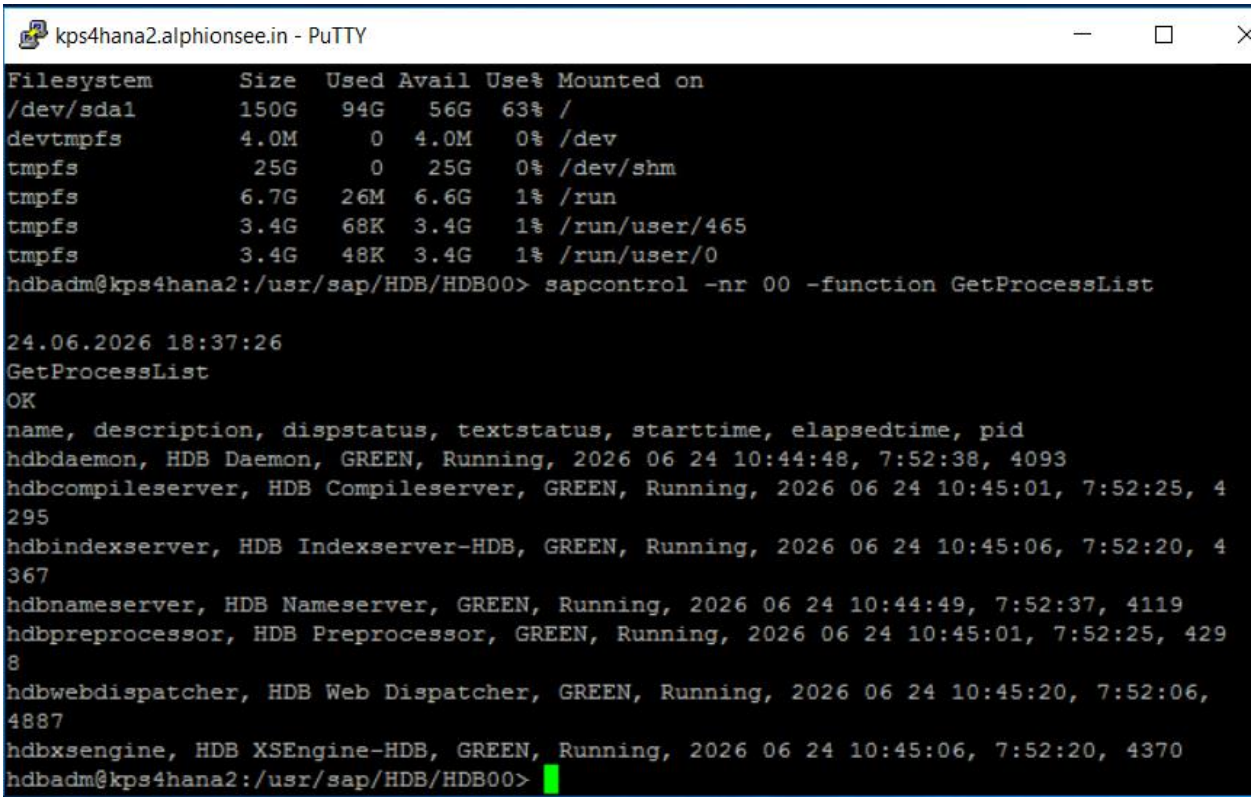
Verify SAP application instance availability and process health.

Investigation

Command Executed:

sapcontrol -nr 00 -function GetProcessList

Screenshot 3 – SAP Instance Status



Filename: step-3-sapcontrol-status.png

Capture:

- sapcontrol command execution
- HDB Daemon
- HDB Compileserver
- HDB Indexserver
- HDB Nameserver
- HDB Preprocessor
- HDB Web Dispatcher
- GREEN status indicators

Purpose:

Provides evidence of SAP instance and SAP HANA service availability validation using the sapcontrol utility.

Analysis

The sapcontrol utility was used to review the operational status of SAP services.

Particular attention was given to the dispstatus and textstatus columns because service availability directly impacts SAP system accessibility and business processing.

All reviewed services reported GREEN and Running status, indicating that the SAP HANA instance was operational at the time of analysis.

Findings

hdbdaemon GREEN

hdbcompileserver GREEN

hdbindexserver GREEN

hdbnameserver GREEN

hdbpreprocessor GREEN

hdbwebdispatcher GREEN

hdbxsengine GREEN

The SAP instance process list was reviewed using the sapcontrol utility. All critical SAP HANA services reported GREEN status and Running operational state. No service failures, communication issues, or abnormal conditions were identified during the review.

Business Impact

Service availability directly affects SAP application accessibility and database operations.

Routine validation of SAP services helps identify potential issues before they impact production users and business processes.

Skills Demonstrated

• SAP Basis Administration

• SAP HANA Administration

• Service Monitoring

• System Health Checks

CASE STUDY 3

SAP HANA Process Verification

Objective

Verify SAP HANA database processes at the operating system level and confirm database process availability.

Operational Scenario

As part of routine SAP Basis operational monitoring, SAP HANA processes were reviewed from the Linux operating system to validate that critical database services were active and available for business processing.

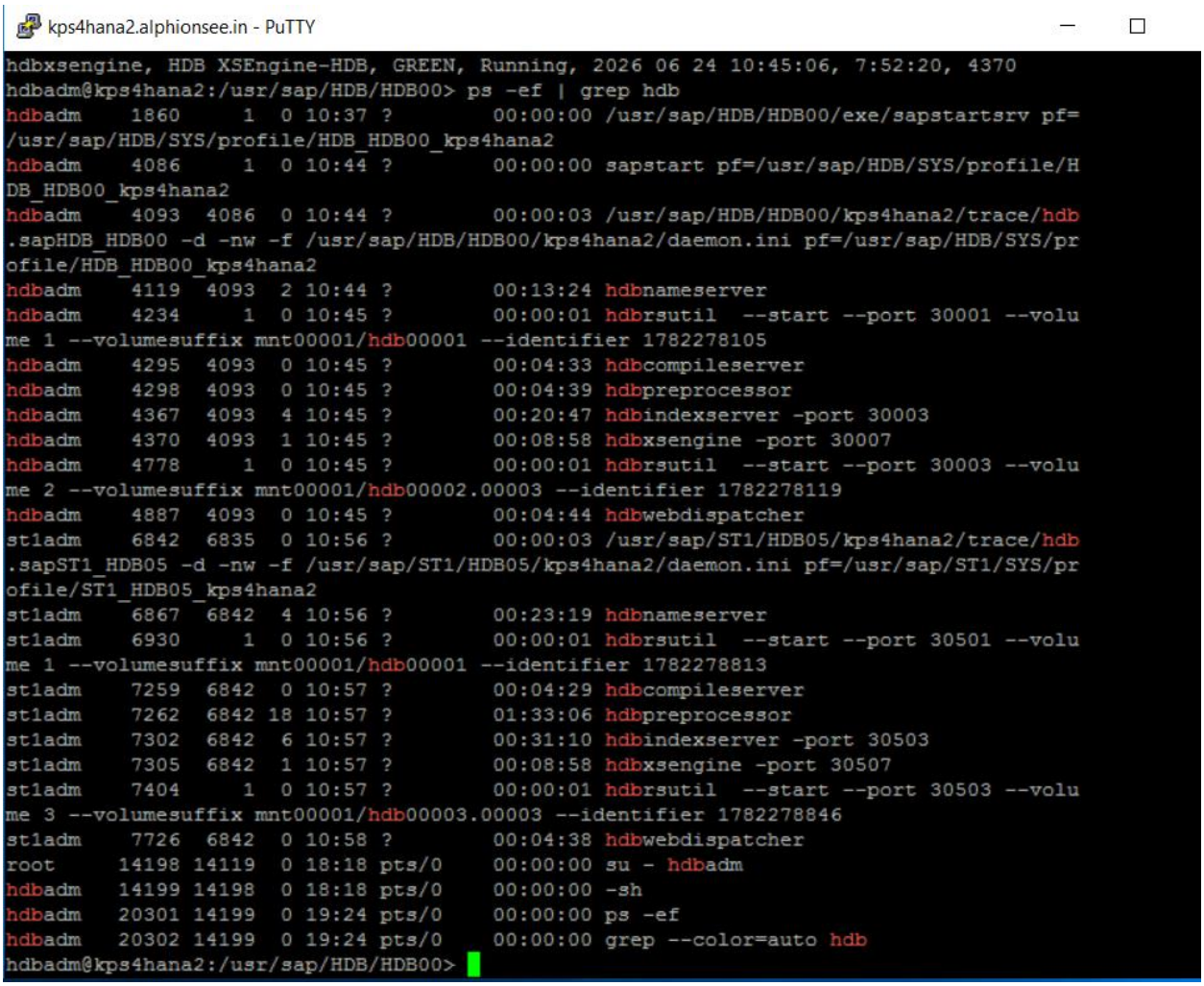
Investigation

The Linux process list was reviewed using the following command:

Command Executed:

ps -ef | grep hdb

Screenshot 4 – SAP HANA Process Verification



Filename: step-4-hana-process-check.png

Capture:

• hdbdaemon

• hdbnameserver

• hdbindexserver

• hdbcompileserver

• hdbpreprocessor

• hdbwebdispatcher

• Additional HANA processes

Purpose:

Provides evidence of SAP HANA process validation at the operating system level.

Analysis

The Linux process list was reviewed to verify that critical SAP HANA services were running.

Particular attention was given to the hdbdaemon, hdbnameserver, and hdbindexserver processes because these services are essential for SAP HANA database operation and availability.

Findings

Critical SAP HANA database processes were present and operational.

Services including hdbdaemon, hdbnameserver, hdbindexserver, hdbcompileserver, hdbpreprocessor, and hdbwebdispatcher were identified within the operating system process list.

No missing or failed database processes were observed during the review.

Business Impact

SAP HANA process availability directly affects database accessibility and SAP application functionality.

Operating system process verification provides an additional layer of monitoring that supports early detection of service failures and helps maintain system availability.

Skills Demonstrated

• SAP HANA Administration

• Linux Administration

• Process Monitoring

• System Validation

CASE STUDY 4

SAP HANA Service Health Check

Objective

Verify the operational status of SAP HANA database services and validate service availability at the operating system level.

Operational Scenario

As part of routine SAP Basis monitoring activities, SAP HANA services were reviewed to confirm that critical database components were operational and available for business processing.

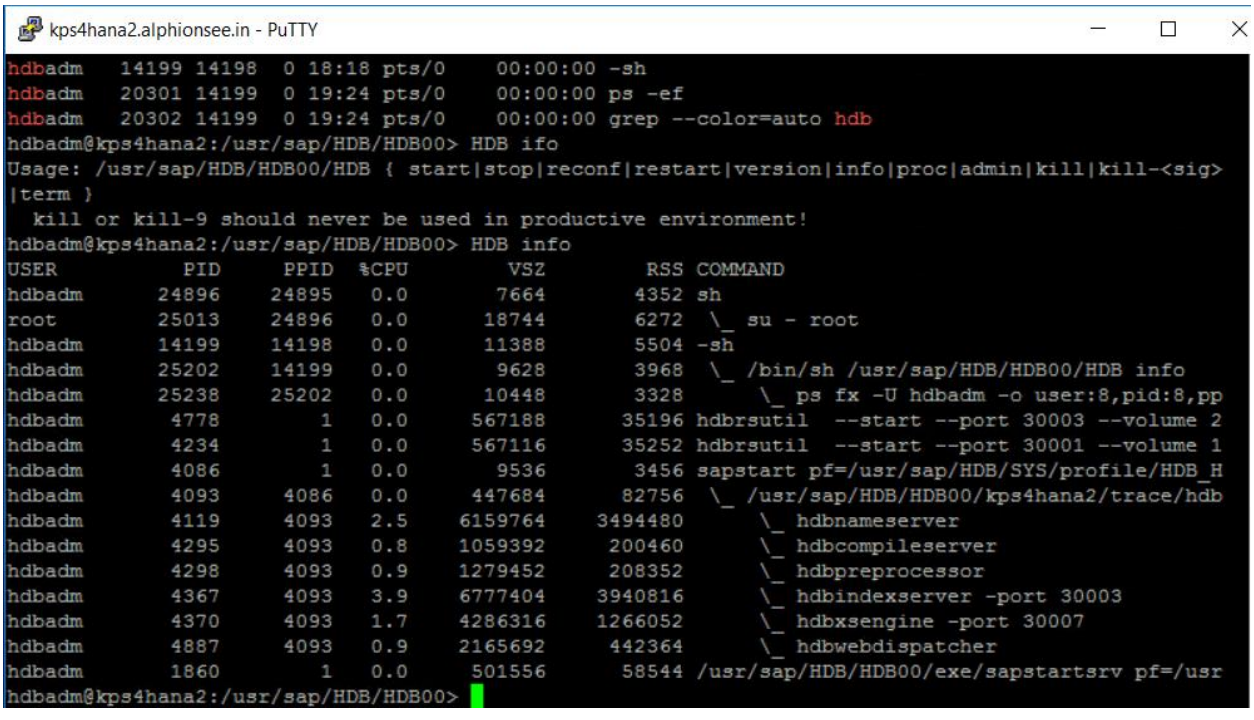
Investigation

The SAP HANA service status was reviewed using the following command:

Command Executed:

HDB info

Screenshot 5 – SAP HANA Service Health Check



Filename: step-5-hdb-info.png

Capture:

• hdbnameserver

• hdbindexserver

• hdbcompileserver

• hdbpreprocessor

• hdbwebdispatcher

• HANA service tree

Purpose:

Provides evidence of SAP HANA service availability validation.

Analysis

The HDB info utility was used to review SAP HANA service status and process hierarchy.

Particular attention was given to the nameserver, indexserver, compileserver, preprocessor, and webdispatcher services because these components are required for normal SAP HANA database operations.

The review confirmed that all critical services were active and operational at the time of analysis.

Findings

SAP HANA service status was successfully reviewed using the HDB info command.

Critical services including hdbnameserver, hdbindexserver, hdbcompileserver, hdbpreprocessor, and hdbwebdispatcher were identified within the service hierarchy.

No missing services or abnormal process conditions were identified during the review.

Business Impact

SAP HANA service availability is essential for database accessibility, application processing, and business continuity.

Routine service validation supports proactive monitoring and helps identify issues before they affect end users.

Operational Validation

To increase confidence in the investigation, the SAP HANA service status identified using **HDB info** was independently cross-checked using the **sapcontrol** utility.

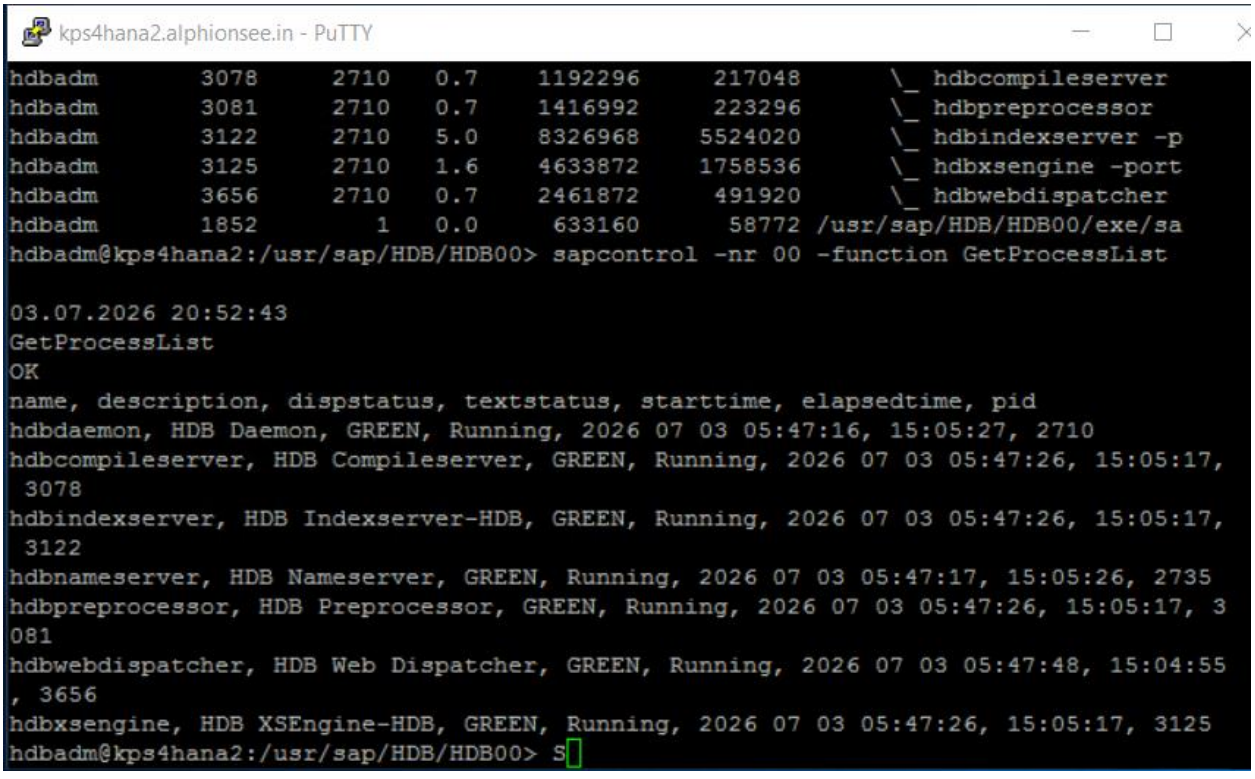
Both administrative tools reported consistent operational results, confirming that the SAP HANA instance and its critical services were running normally. Cross-validating service status using multiple administrative utilities is a common SAP Basis operational practice that helps verify system health before maintenance activities and supports more reliable troubleshooting.

Commands Executed

```
HDB info

sapcontrol -nr 00 -function GetProcessList
```

Screenshot 6 – Cross-Checked Instance Status via HDB info & sapcontrol



Filename`step-6-cross-validation.png`

Capture

- HDB info output
- sapcontrol output
- GREEN process status
- Running SAP HANA services
- Matching service information

Purpose

Provides evidence that SAP HANA service availability was independently validated using both **HDB info** and **sapcontrol**, confirming consistent operational status across two administrative utilities.

Technical Observation

Both administrative utilities returned consistent operational information.

The **HDB info** command confirmed that the SAP HANA service hierarchy was active, while **sapcontrol** independently reported all critical SAP HANA processes in **GREEN** and **Running** status.

No inconsistencies were identified between the operating system service information and the SAP instance status during the investigation.

Skills Demonstrated

• SAP HANA Administration

• SAP Basis Administration

• Service Monitoring

• Technical Operations

CASE STUDY 5

Filesystem Usage Investigation

Objective

Identify directories consuming significant storage space and investigate potential filesystem growth risks.

Operational Scenario

As part of routine SAP Basis operational monitoring, filesystem utilization was analyzed to identify directories contributing to storage growth and support proactive capacity management within the SAP HANA environment.

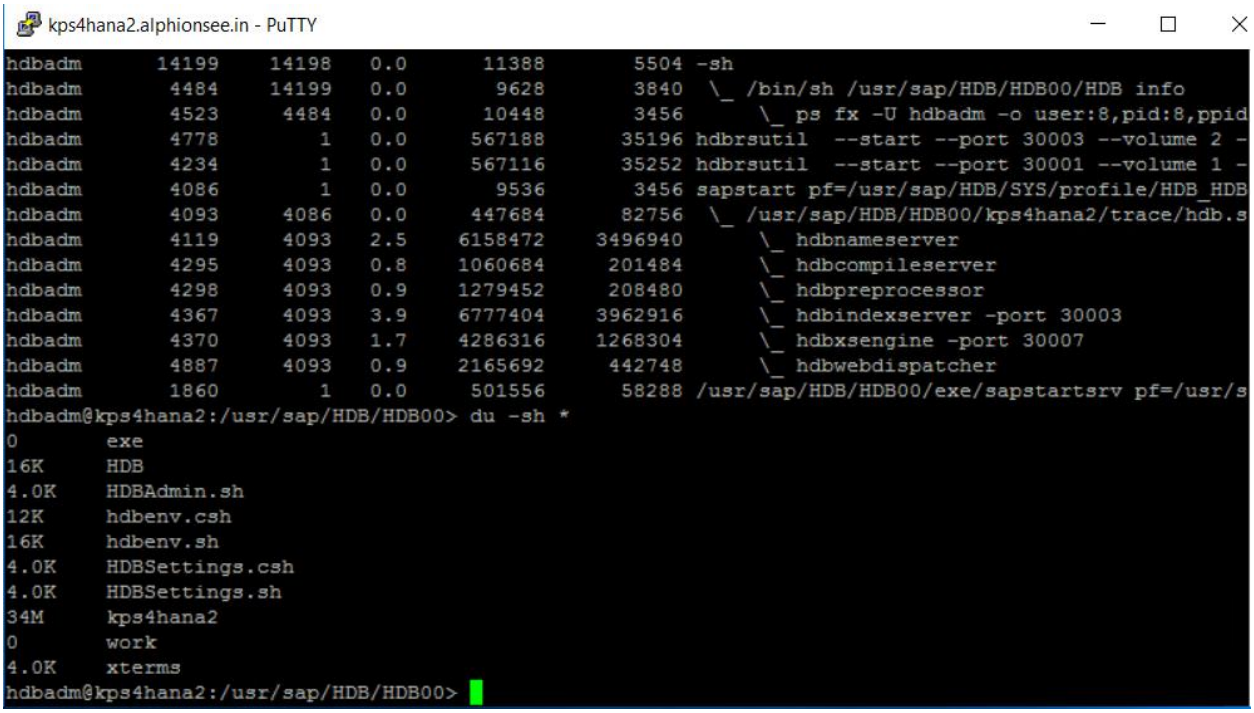
Investigation

The following command was executed to review directory sizes:

Command Executed:

du -sh *

Screenshot 7 – Filesystem Usage Analysis



Filename: step-7-du-results.png

Capture:

• Directory sizes

• High-consumption folders

• Storage utilization breakdown

• SAP HANA-related directories

Purpose

Provides evidence of filesystem usage analysis and storage investigation activities.

Analysis

Directory utilization was reviewed to identify locations consuming significant storage resources.

Particular attention was given to SAP HANA directories, trace files, logs, configuration files, and operational folders because these areas can contribute to filesystem growth and capacity-related issues.

Findings

Filesystem consumption patterns were reviewed, and large directories were identified for ongoing monitoring.

The largest directory identified during the review was kps4hana2. No abnormal storage growth or immediate capacity concerns requiring corrective action were identified.

Business Impact

Understanding filesystem growth patterns support proactive capacity planning and help prevent storage-related service disruptions.

Routine storage analysis contributes to SAP system stability, operational reliability, and infrastructure health.

Skills Demonstrated

• Linux Administration

• SAP Basis Administration

• Storage Analysis

• Capacity Management

• Filesystem Monitoring

• Infrastructure Operations

• SAP HANA Support

CASE STUDY 6

SAP HANA Log Review & Troubleshooting

Objective

Review SAP HANA trace logs for warning, error, and informational messages to support operational monitoring and incident investigation.

Operational Scenario

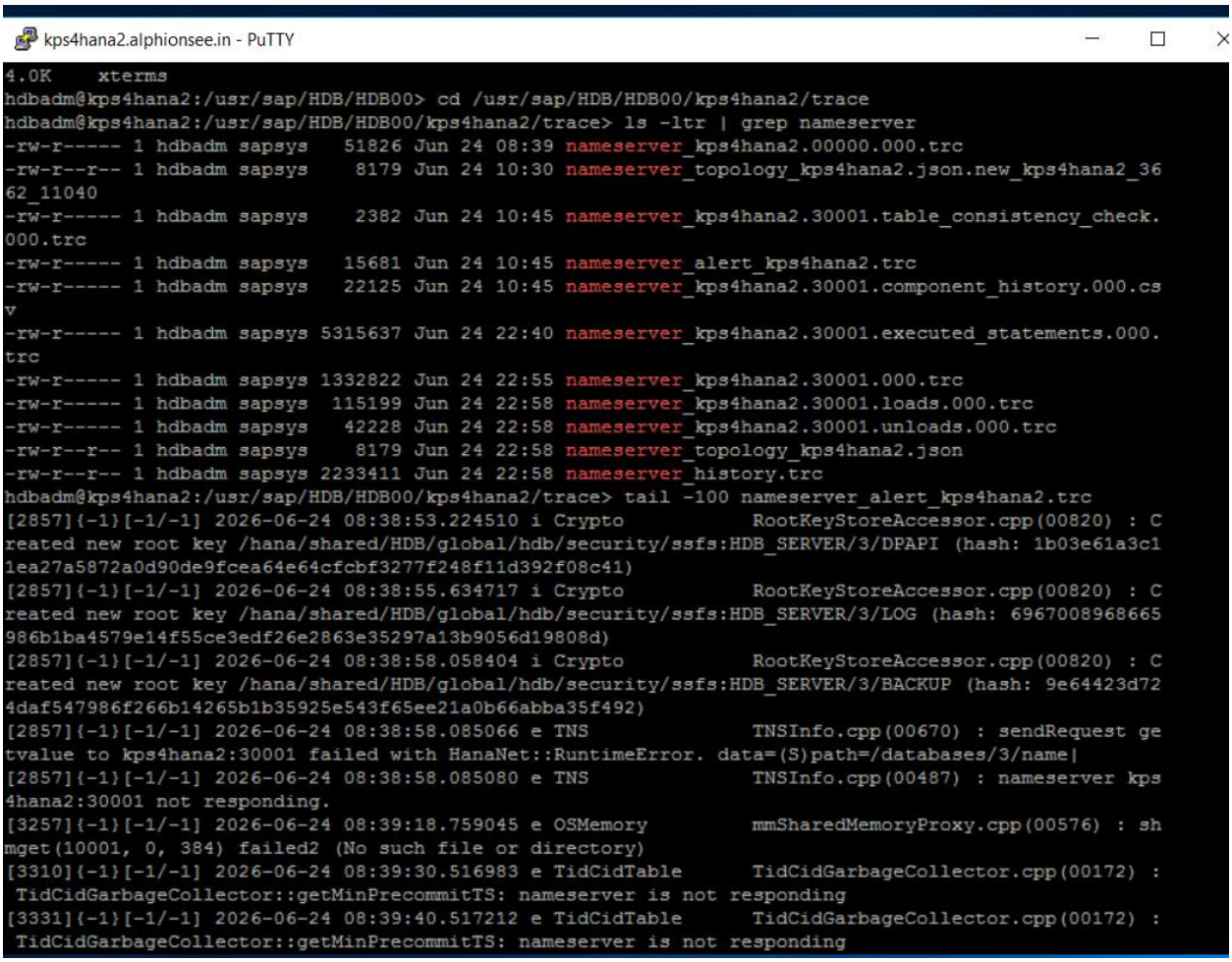
As part of routine SAP Basis operational support, SAP HANA trace files were reviewed to identify potential warnings, errors, and abnormal system behavior that could affect database availability or performance.

Investigation

Command Executed:

tail -100 nameserver_alert_kps4hana2.trc

Screenshot 8 – SAP HANA Log Review



Filename: step-8-log-review.png

Capture:

- nameserver_alert.trc
- Recent log entries
- Warning messages
- Error messages
- Timestamps
- Operational events

Purpose

Provides evidence of SAP HANA log analysis and troubleshooting activities.

Analysis

The SAP HANA nameserver trace file was reviewed to identify warnings, errors, and operational messages.

Particular attention was given to alert entries, service-related events, and abnormal system behavior because these records can provide early indication of issues affecting database operations.

Findings

The SAP HANA trace directory was reviewed to identify relevant nameserver log files. The nameserver alert trace was analyzed using the tail command to examine recent operational events, warnings, and error messages.

The review confirmed active logging and identified routine system events. No critical issues requiring immediate escalation were observed during the review period.

Business Impact

Routine trace file analysis supports proactive monitoring, early issue detection, and operational stability within SAP HANA environments.

Routine validation of SAP services helps identify potential issues before they impact system availability and business processes.

Skills Demonstrated

• SAP Basis Administration

• SAP HANA Administration

• Troubleshooting

• Log Analysis

• Incident Investigation

• System Monitoring

Summary of Skills Demonstrated:
Linux Administration, SAP Basis Administration, SAP HANA Administration, Filesystem Monitoring, Capacity Management, Service Monitoring, Process Validation, System Health Checks, Log Analysis, Troubleshooting, Incident Investigation, Technical Operations, Infrastructure Monitoring.