

## Use-case 1: Create Health Reports for SAP

This use case will generate SAP HANA database, and ABAP SAP Central Services (SAP ASCS) cluster health report. Q CLI creates contextual command lines to discover EC2 instances to create Health Report. It invokes tools (use\_aws, execute\_bash) and services (ssm, ssm-sap) to check and report on SAP ASCS cluster health. In this scenario, Q CLI runs 11 distinct commands to check SAP Central Services status and produce a comprehensive health report.

🗨 Prompt: **Generate a health report for SAP HANA database, database cluster, and HSR.**

```
> generate a health report for SAP Hana database, database cluster and HSR

> # SAP HANA Health Report

## Executive Summary
Based on the analysis of CloudWatch logs for the SAP HANA system in the SAPDemo environment, the overall health status is GOOD. The SAP HANA database, cluster infrastructure, and HANA System Replication (HSR) are all functioning properly after recovering from replication issues that occurred on July 11-12, 2025.

## System Overview
• **Environment**: LaunchWizard-SapNWOnHanaHA-SAPDemo
• **Primary Node**: prihana
• **Secondary Node**: sechana
• **SID**: HDB
• **Instance Number**: 10
• **Report Date**: July 13, 2025

## SAP HANA Database Health

| Component | Status | Details |
|-----|-----|-----|
| Database Processes | ✅ GOOD | All required processes are running |
| System Availability | ✅ GOOD | Database is online and accessible |
| Resource Utilization | ⚠ ATTENTION | Some performance alerts detected (response time, long runners) |
| Error Logs | ✅ GOOD | No critical errors in recent logs |

Notes:
• CloudWatch alarms indicate some performance issues with response times and long-running transactions
• No database-level critical errors observed in recent logs

## Cluster Infrastructure Health

| Component | Status | Details |
|-----|-----|-----|
| Pacemaker Status | ✅ GOOD | Cluster is in stable state |
| Resource Agents | ✅ GOOD | All resource agents functioning properly |
| Fencing Mechanism | ✅ GOOD | STONITH resources operational |
| Cluster Transitions | ✅ GOOD | Normal state transitions observed |

Notes:
• Previous issues with the SAPHanaTopology resource on the secondary node have been resolved
• No unexpected cluster transitions or resource failures in the past 24 hours
• Cluster is currently in S_IDLE state, indicating normal operation

## HANA System Replication (HSR) Health

| Component | Status | Details |
|-----|-----|-----|
| Replication Status | ✅ GOOD | Active and functioning |
| Replication Mode | ✅ GOOD | Synchronous (sync) |
| Secondary Sync Status | ✅ GOOD | Secondary is in SOK state |
| Replication Lag | ✅ GOOD | No significant lag detected |

Notes:
• HSR is properly configured and active between primary (prihana) and secondary (sechana) nodes
• Recent logs show "setting SOK for secondary" indicating healthy replication
• No SFAIL events in the past 24 hours
```

## ## Recent Issues and Resolution

The system experienced replication issues on July 11-12, 2025:

1. Issue: Multiple SFAIL events with error code srRc=124
  - **Impact**: Secondary node temporarily out of sync with primary
  - **Resolution**: System automatically recovered, secondary node successfully resynchronized
2. Issue: Problems with SAPHanaTopology resource on secondary node
  - **Impact**: Resource reached migration threshold
  - **Resolution**: Resource successfully restarted and stabilized

## ## Recommendations

1. Performance Monitoring:
  - Investigate the root cause of response time and long runner alerts
  - Consider analyzing workload patterns during peak usage periods
2. Preventive Maintenance:
  - Schedule regular health checks of the SAP HANA system
  - Review system logs for any recurring patterns that might indicate potential issues
3. Resource Optimization:
  - Monitor resource utilization on the secondary node to prevent future replication issues
  - Consider optimizing database parameters if performance issues persist
4. Alerting:
  - Review and adjust CloudWatch alarm thresholds if needed
  - Implement additional monitoring for HSR replication lag

## ## Conclusion

The SAP HANA database, cluster infrastructure, and HSR are currently healthy and functioning as expected. The system has demonstrated resilience by recovering from previous replication issues. Regular monitoring and proactive maintenance are recommended to maintain system stability and performance.

🗨️ Prompt: **What is the current status of SAP ASCS ERS cluster nodes for sap application SAPDemo.**

> what is the current status of SAP ASCS ERS cluster nodes for sap application SAPDemo.

> I'll check the current status of the SAP ASCS and ERS cluster nodes for the SAPDemo SAP application.

🔧 Using tool: `execute_bash` (trusted)

:

- I will run the following shell command:

```
aws ec2 describe-instances --filters "Name=tag:Name,Values=*SAP-FIS-CS*" --query "Reservations[*].Instances[*].[InstanceId,Tags[?Key=='Name'].Value[[0],State.Name,InstanceType,PrivateIpAddress]" --output table
```

:

↳ Purpose: Checking EC2 instances that are part of the SAP \*SAPDemocluster

```
-----
|                               |
| DescribeInstances            |
|-----+-----+-----+-----+
| i-064751ba1b4c8340f | SAP-FIS-CS-sapclnode2 | running | c5a.xlarge | 10.0.155.180 |
| i-0e08f883d5c3b3747 | SAP-FIS-CS-sapclnode1 | running | c5a.xlarge | 10.0.134.80  |
|-----+-----+-----+-----+
|                               |
```

:

- Completed in 1.737s

> Now let's check the cluster status on these nodes:

```

✂ Using tool: execute_bash (trusted)
:
• I will run the following shell command:
aws ssm send-command --instance-ids i-0e08f883d5c3b3747 --document-name "AWS-RunShellScript" --parameters
commands='sudo crm_mon -1' --output json
:
↳ Purpose: Running SSM command to check cluster status on node 1
..

> Let's check the SAP processes on both nodes to verify the ASCS and ERS services:

✂ Using tool: execute_bash (trusted)
:
• I will run the following shell command:
aws ssm send-command --instance-ids i-0e08f883d5c3b3747 --document-name "AWS-RunShellScript" --parameters
'commands=["ps -ef | grep -i \"sap\\|ers\\|ascs\" | grep -v grep"]' --output json
:
↳ Purpose: Checking SAP processes on node 1 (sapclnode1)
..

> Now let's check the processes on the second node:

✂ Using tool: execute_bash (trusted)
:
• I will run the following shell command:
aws ssm send-command --instance-ids i-064751ba1b4c8340f --document-name "AWS-RunShellScript" --parameters
'commands=["ps -ef | grep -i \"sap\\|ers\\|ascs\" | grep -v grep"]' --output json
:
↳ Purpose: Checking SAP processes on node 2 (sapclnode2)
..

> Let's check if there are any recent issues with the cluster:

✂ Using tool: execute_bash (trusted)
:
• I will run the following shell command:
aws ssm send-command --instance-ids i-0e08f883d5c3b3747 --document-name "AWS-RunShellScript" --parameters
'commands=["sudo tail -20 /var/log/pacemaker/pacemaker.log"]' --output json
:
↳ Purpose: Checking recent cluster logs
..

...
> Let's try a different log file:

✂ Using tool: execute_bash (trusted)
:
• I will run the following shell command:
aws ssm send-command --instance-ids i-0e08f883d5c3b3747 --document-name "AWS-RunShellScript" --parameters
'commands=["sudo tail -20 /var/log/cluster/corosync.log"]' --output json
:
↳ Purpose: Checking corosync logs

> Based on all the information gathered, I'll provide you with a detailed status report on the SAP ASCS and ERS cluster
nodes for the SAPDemo application.

# SAP ASCS/ERS Cluster Status Report for SAPDemo

## Cluster Overview
The SAPDemo application is running in a high-availability configuration with two cluster nodes:
• **Node 1**: sapclnode1 (i-0e08f883d5c3b3747)

```

- **Node 2**: sapclnode2 (i-064751ba1b4c8340f)

## ## Current Cluster Status

The cluster is healthy and operational with the following characteristics:

- **Cluster Stack**: corosync
- **Current DC (Designated Coordinator)**: sapclnode2
- **Quorum Status**: Partition with quorum (cluster has voting majority)
- **Last Configuration Change**: Saturday, July 12, 2025, 15:58:51 by root via crm\_resource on sapclnode1
- **Nodes Configured**: 2
- **Resource Instances**: 5
- **Node Status**: Both nodes are online

## ## Resource Distribution

The SAP services are distributed across the cluster nodes as follows:

### ### ASCS Resources (Primary SAP Central Services)

- **Resource Group**: grp\_ECD\_ASCS10
- **Currently Running On**: sapclnode2 (i-064751ba1b4c8340f)
- **Resources**:
  - rsc\_ip\_ECD\_ASCS10 (Virtual IP for ASCS): Started on sapclnode2
  - rsc\_sap\_ECD\_ASCS10 (SAP ASCS Instance): Started on sapclnode2

### ### ERS Resources (Enqueue Replication Server)

- **Resource Group**: grp\_ECD\_ERS11
- **Currently Running On**: sapclnode1 (i-0e08f883d5c3b3747)
- **Resources**:
  - rsc\_ip\_ECD\_ERS11 (Virtual IP for ERS): Started on sapclnode1
  - rsc\_sap\_ECD\_ERS11 (SAP ERS Instance): Started on sapclnode1

### ### Fencing Resource

- **Resource**: res\_AWS\_STONITH (EC2 STONITH device)
- **Currently Running On**: sapclnode2

## ## Process Verification

The SAP processes are running correctly on both cluster nodes:

### ### On sapclnode1 (Node 1):

- **ERS Processes**:
  - sapstartsrv for ERS11 is running with PID 2649
  - er.sapECD\_ERS11 (Enqueue Replication Server) is running with PID 16713

### ### On sapclnode2 (Node 2):

- **ASCS Processes**:
  - sapstartsrv for ASCS10 is running with PID 12919
  - ms.sapECD\_ASCS10 (Message Server) is running with PID 317462
  - en.sapECD\_ASCS10 (Enqueue Server) is running with PID 317463

## ## Monitoring

Both nodes have the following monitoring components installed:

- SAP Host Exporter for Prometheus monitoring
- HA Cluster Exporter for Prometheus monitoring

## ## Issues Identified

There is one historical issue noted in the cluster status:

- **Failed Fencing Action**: A fencing operation (turning off of sapclnode2) failed on July 11, 2025. This appears to be a historical issue from when the cluster was initially configured and doesn't affect current operations.

## ## Corosync Status

The corosync logs show that the cluster communication is functioning properly:

- Both nodes are communicating with each other
- Quorum is established with both members present
- The cluster is providing service as expected

## ## Conclusion

The SAP ASCS/ERS cluster for the \*SAPDemo application is functioning properly with the expected resource distribution:

- ASCS (Central Services) is active on sapclnode2
- ERS (Enqueue Replication Server) is active on sapclnode1
- Both nodes are online and healthy
- The cluster has quorum and is properly configured for high availability

This is the expected configuration for an SAP high-availability setup, where ASCS and ERS run on separate nodes to ensure enqueue replication functionality in case of a node failure. The cluster is operating normally and no immediate action is required.