

SAP S/4HANA Work Process Monitoring and Runtime Error Investigation

Project Overview

This portfolio project demonstrates the use of SAP Basis monitoring and troubleshooting tools to analyse system activity, assess work process availability, and investigate recurring runtime errors within an SAP S/4HANA sandbox environment.

Environment

- SAP S/4HANA Sandbox Environment
- SAP GUI
- SAP Basis Administration Tools
- Single Application Server Environment

Tools Used

- SM66 – Global Work Process Overview
- SM50 – Local Work Process Monitoring
- ST22 – Runtime Error Analysis

Screenshot 1 – SM66 Global Work Process Overview

Application Server Instance	Number	Type	Process ID	WP Status	"On Hold"	Work Process Failures	LockedSem.	Requ...	CPU Time	Time	Priority	Wait Priority	Name of Pr
MCD_04	0	BTC	4.785	Waiting					02:24:34				
MCD_04	1	DIA	4.786	Waiting					03:05:31			Low	
MCD_04	2	DIA	4.787	Waiting					02:05:25			Medium	
MCD_04	3	BTC	4.788	Waiting					01:36:53				
MCD_04	4	DIA	4.592	Running					00:47:36		High		CL_SERVE
MCD_04	5	DIA	31.649	Waiting		3			00:21:59			Low	
MCD_04	6	UPD	4.791	Waiting					00:00:14				
MCD_04	8	BTC	4.793	Waiting					01:35:38				
MCD_04	10	BTC	27.814	Waiting		3			00:22:08				
MCD_04	11	BTC	26.972	Waiting					00:43:31				
MCD_04	12	SPO	4.797	Waiting					00:02:49				
MCD_04	13	UPD2	4.798	Waiting					00:00:05				
MCD_04	16	DIA	17.556	Waiting					00:00:06			Low	
MCD_04	17	BTC	30.864	Waiting					00:07:23				
MCD_04	18	BTC	29.621	Waiting					00:08:02				

The investigation began with a review of global work process activity using transaction SM66.

The objective was to identify active work processes and determine whether there were any indications of process congestion, abnormal workload distribution, or long-running activities that could affect system performance.

Observation

The SM66 overview displayed active work processes across the application server. Work processes were observed in normal operational states, with no indication of system-wide work process saturation, excessive backlog, or abnormal resource utilisation.

Next Action

Proceed to local work process monitoring to verify dialog work process availability at the application server level.

Screenshot 2 – SM50 Local Work Process Monitoring

AdministrationEditGotoListSettingsSystemHelpMCD (1) 100

SAP

Work Processes of AS Instance I_MCD_04

Active Work Processes

Last Update31.05.2026, 22:38:35
Total Number of Work Processes15
Dialog Update5 / 4 (Total/Free) , Average Load = (0,245 / 0,204 / 0,208)
Background Update1 / 1 (Total/Free)
Spool7 / 7 (Total/Free) , Average Load = (0,075 / 0,122 / 0,106)
Update Task 31 / 1 (Total/Free) , Average Load = (0,005 / 0,001 / 0,001)

	Number	Type	Process ID	WP Status	"On Hold"	WP Failures	LockedSem.	Requ...	CPU Time	Time	Priority	Wait Priority	Name of Program Being Executed by the Work
☐	0	BTC	4.785	Waiting					02:24:37				
☐	1	DIA	4.786	Waiting					03:05:42			Low	
☐	2	DIA	4.787	Waiting					02:05:38			Low	
☐	3	BTC	4.788	Waiting					01:36:56				
☐	4	DIA	4.592	Waiting		4			00:47:54			Medium	
☐	5	DIA	31.649	Waiting		3			00:22:12			Low	
☐	6	UPD	4.791	Waiting					00:00:14				
☐	7	DIA	23.826	Running					00:00:03		High		CL_SERVER_INFO=====CP
☐	8	BTC	4.793	Waiting					01:35:43				
☐	10	BTC	27.814	Waiting		3			00:22:11				
☐	11	BTC	26.972	Waiting					00:43:35				
☐	12	SPO	4.797	Waiting					00:02:49				
☐	13	UPD2	4.798	Waiting					00:00:05				
☐	17	BTC	30.864	Waiting					00:07:27				
☐	18	BTC	29.621	Waiting					00:08:06				

Transaction SM50 was used to review work process activity at the application server level.

Particular attention was given to dialog (DIA) work processes, as these directly support user transactions and system interaction.

Observation

Dialog work processes remained available during the review period. No evidence of dialog process exhaustion or resource bottlenecks was identified. The availability of dialog processes suggested that user transaction processing capacity remained healthy.

Next Action

Since work process capacity appeared healthy, the investigation continued with runtime error analysis to determine whether application-level issues were contributing to system exceptions.

Screenshot 3 – ST22 Runtime Error List

The screenshot displays the SAP ST22 Runtime Error List interface. The top section shows the 'Parameters' tab with 'Standard' and 'Own selection' options. The 'Standard' section shows 'Today' with 96 Runtime Errors and 'Yesterday' with 2803 Runtime Errors. The 'Own selection' section includes fields for Time Restriction Mode, Date, Time, Host, Work Process Index, User (KRISWILL), Client, To be stored, Runtime Error, Canceled Program, and Exception.

The bottom section shows the 'List of Selected Runtime Errors' with a table of 2699 errors. The table columns are Date [System], Time [Syst., Application Server, User, Cile., Ke Runtime Error, Exception, and Canceled Program. The first row is highlighted, showing a date of 31.05.2026, time of 07:00, application server of MCD_04, user of BASIS, and a runtime error of 100 C GEN_PROGRAM_NOT_EXISTS.

Date [System]	Time [Syst.	Application Server	User	Cile.	Ke Runtime Error	Exception	Canceled Program
31.05.2026	07:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:07:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:06:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:06:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:05:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:05:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:04:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:04:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:03:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:02:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:01:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:01:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:00:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	23:00:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	22:59:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????
31.05.2026	22:59:00	MCD_04	BASIS	100	C GEN_PROGRAM_NOT_EXISTS		?????

Transaction ST22 was reviewed to identify recurring runtime dumps within the system.

The analysis revealed a significant number of repeated runtime errors classified as GEN_PROGRAM_NOT_EXISTS.

Observation

A total of 2,699 recurring runtime dumps were recorded. The frequency and repetition of the error suggested a persistent technical issue rather than an isolated execution failure.

Next Action

Open the runtime dump and review the detailed error analysis to determine the nature of the exception.

Screenshot 4 – ST22 Runtime Error Analysis

The screenshot displays the SAP ST22 Runtime Error Analysis interface. The top menu bar includes 'Runtime Errors', 'Edit', 'Goto', 'System', and 'Help'. The main title bar reads 'Runtime Error Long Text'. The left sidebar shows a tree view with categories like 'Runtime Error', 'System Environment', 'User and Transaction', 'User View', 'ABAP Developer View', and 'BASIS Developer View'. The main content area shows details for a runtime error:

Category	ABAP programming error
Runtime Errors	GEN_PROGRAM_NOT_EXISTS
ABAP Program	???
Application Component	Not assigned
Date and Time	31.05.2026 23:07:00 (INDIA)

Below the table, there are three sections for analysis:

- Short Text:** Program " " does not exist.
- What happened?:** Generation of ABAP program " " had to be interrupted because it contains a statement that cannot be generated.
- What can you do?:** Note which actions and entries caused the error to occur. Consult your SAP administrator.

The runtime dump was analysed using the Error Analysis section within ST22.

Observation

The analysis showed that SAP attempted to process a program object that could not be generated or located by the system. The runtime dump was classified as GEN_PROGRAM_NOT_EXISTS.

Assessment

The investigation confirmed that work process availability was not contributing to the reported issue. Analysis of the runtime dump indicated that the exception originated within the application layer rather than from system resource constraints.

The repeated occurrence of GEN_PROGRAM_NOT_EXISTS suggests that SAP was unable to generate or access the required program object during execution. Potential causes may include inactive repository objects, program generation inconsistencies, transport-related issues, or application-specific configuration problems requiring further investigation.

Technical Interpretation

The investigation followed a structured elimination approach. Initial analysis focused on work process health using SM66 and SM50. Once work process availability was confirmed, attention shifted to application-level diagnostics using ST22.

The recurring nature of the runtime dump, combined with the absence of work process bottlenecks, indicates that the issue is more likely related to program generation or object availability within the SAP application layer than to Basis resource limitations.

Potential Business Impact

If unresolved, recurring runtime dumps of this nature could lead to transaction failures, application instability, increased support workload, and reduced user productivity.

Recommended Next Steps

- Identify the affected ABAP program or repository object.
- Review detailed dump information within ST22.
- Verify object activation and generation status.
- Review recent transports and system changes.
- Regenerate affected program objects where appropriate.
- Monitor ST22 after corrective actions to confirm resolution.

Project Outcome

The investigation followed a structured troubleshooting methodology using standard SAP Basis administration tools.

Work process analysis performed in SM66 and SM50 confirmed that dialog process capacity remained available throughout the review period. Further investigation in ST22 identified recurring GEN_PROGRAM_NOT_EXISTS runtime dumps, which were classified as an application-level issue rather than a work process availability issue.

The exercise demonstrated the ability to analyse system activity, investigate runtime exceptions, apply logical troubleshooting techniques, and document findings in a professional and structured manner.

Skills Demonstrated

- SAP Basis Administration
- SAP System Monitoring
- Work Process Monitoring (SM50/SM66)
- Runtime Error Analysis (ST22)
- Technical Troubleshooting
- Incident Investigation
- Preliminary Cause Analysis
- SAP GUI Navigation
- Technical Documentation