

Infosys FA2

SAP ABAP & S/4HANA

Advanced Notes and Revision Guide

Subtitle: Concepts, Architecture, Migration, and Integration in S/4HANA

Author: Varshitha
Role: Senior SAP ABAP Architect
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Prepared specifically for advanced S/4HANA certification requirements.

Preface

How to Use These Notes for Infosys FA2

This document is structured to provide a multi-layered understanding. Whether you are looking for a deep-dive into S/4HANA architecture or a 5-minute revision before the exam, follow the color-coded boxes.

- **Concept Boxes:** Fundamental theory for architectural understanding.
- **Exam Tip Boxes:** Specific patterns frequently seen in Infosys FA2 questions.
- **Cheat Sheets:** Keywords and syntax for rapid recall.

Good luck, Varshitha.

Contents

Preface	1
1 ABAP for HANA	3
1.1 Core Concept	3
1.2 Technical Architecture	3
1.3 Comparison: ECC vs S/4HANA	3
1.4 Cheat-Sheet Section	4
2 UI with S/4HANA	5
2.1 SAP Fiori & UI5 Architecture	5
2.2 Internal Workflow (OData)	5
3 Customer-Specific Integration	6
3.1 BAPI (Business Application Programming Interface)	6
3.2 ALE & IDoc (Intermediate Document)	6
3.3 EDI & Direct Input	6
3.4 Comparison Table	6
4 Moving ABAP to S/4HANA	7
4.1 The Migration Process	7
4.2 Key Tools	7
5 Final Revision & Master Cheat Sheet	8
5.1 Interview Level Explanation	8

Chapter 1

ABAP for HANA

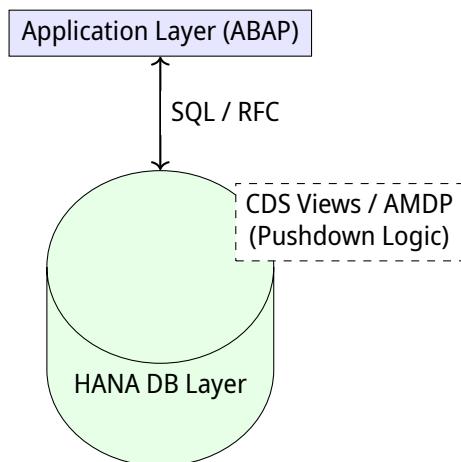
1.1 Core Concept

ABAP for HANA represents a paradigm shift from "Data-to-Code" (Classic) to "Code-to-Data" (Pushdown). In the classic world, we fetched all data into the application server and processed it. In S/4HANA, logic is pushed into the database layer (HANA) using CDS Views and AMDP.

Core Concept: Code-to-Data Pushdown

By pushing logic (filters, aggregations, calculations) into the DB, we leverage HANA's in-memory columnar store and parallel processing capabilities, drastically reducing network traffic between DB and App layers.

1.2 Technical Architecture



1.3 Comparison: ECC vs S/4HANA

Feature	ABAP (Classic)	ABAP on HANA
Execution	Application Server focused	DB Layer focused (Pushdown)
Data Access	Generic SQL (Standard)	Advanced Open SQL / CDS
Aggregations	Loop at internal table	SUM/AVG in DB layer
Bottleneck	DB Network Traffic	CPU/Memory Power

Infosys FA2 Exam Tip

FA2 often asks about the "New Open SQL" syntax. Remember: Commas between fields and '@' for host variables are mandatory in the new syntax!

1.4 Cheat-Sheet Section

Cheat Sheet: ABAP for HANA Keywords

- **CDS (Core Data Services):** DDL, DCL, and DML for data modeling.
- **AMDP (ABAP Managed Database Procedures):** Writing SQLScript inside ABAP classes.
- **IDA (In-Depth Analysis):** ALV with HANA capabilities.

Chapter 2

UI with S/4HANA

2.1 SAP Fiori & UI5 Architecture

S/4HANA moves away from SAP GUI to SAP Fiori. Fiori is a design language, while SAPUI5 is the technical framework (JavaScript based).

Core Concept: The 5 Pillars of Fiori

1. Role-based, 2. Responsive, 3. Simple, 4. Coherent, 5. Delightful.

2.2 Internal Workflow (OData)

The communication between the Fiori Frontend (Browser) and S/4HANA Backend (ABAP) happens via OData services through the SAP Gateway.



Infosys FA2 Exam Tip

Difference between SAPUI5 and Fiori: UI5 is the *toolbox* (JS library), Fiori is the *blueprint* (Design guidelines).

Chapter 3

Customer-Specific Integration

3.1 BAPI (Business Application Programming Interface)

Standardized RFC-enabled function modules used to achieve synchronous integration.

- **Business Object:** BAPIs are methods of business objects.
- **Standardized:** Always have a Return parameter. No COMMIT WORK inside (usually).

3.2 ALE & IDoc (Intermediate Document)

ALE (Application Link Enabling) is the technology for asynchronous data transfer between SAP systems.
IDoc is the data container.

Core Concept: IDoc Structure

1. **Control Record (EDIDC):** Metadata, Sender/Receiver info.
2. **Data Records (EDIDD):** Segments with actual business data.
3. **Status Records (EDIDS):** History of processing (e.g., 53=Success, 51=Error).

3.3 EDI & Direct Input

- **EDI:** Standard for external partner communication (Invoices, POs).
- **Direct Input:** High-performance data load technique bypassing screens, directly calling functional modules to update tables.

3.4 Comparison Table

Method	Sync/Async	Best Use Case
BAPI	Synchronous	Real-time validation/update
IDoc	Asynchronous	Bulk data transfer, loosely coupled
Direct Input	Asynchronous	Initial legacy data migration

Chapter 4

Moving ABAP to S/4HANA

4.1 The Migration Process

Migrating custom code to S/4HANA is not just "lifting and shifting." It requires remediation for HANA compatibility.

Core Concept: The 3 Steps of Remediation

1. **Preparation:** Use ATC (ABAP Test Cockpit) to find SAP HANA violations.
2. **Realization:** Adapt SQL for Columnar store (remove SELECT *).
3. **Simplification:** Adjust code for the Simplification List (e.g., MATNR length changes, Table replacements).

4.2 Key Tools

- **ATC (ABAP Test Cockpit):** The central tool for code quality.
- **SQLM (SQL Monitor):** To identify performance bottlenecks in productive systems.
- **SWLT (SQL Performance Tuning Worklist):** Combines ATC and SQLM results.

Infosys FA2 Exam Tip

In S/4HANA, the table **MATDOC** replaces several old tables like MSEG/MKPF for performance. This is a common FA2 question regarding the "Simplification List".

Chapter 5

Final Revision & Master Cheat Sheet

Cheat Sheet: ABAP Syntax

- Use `SELECT ... FROM ... INTO TABLE @DATA(lt_table)`
- Use COMMA between fields.
- Avoid `SELECT *`.

Cheat Sheet: Fiori Apps

- **Transactional:** Tasks.
- **Analytical:** Insights.
- **Factsheets:** 360-degree view.

Cheat Sheet: IDoc Status

- 01: Generated
- 03: Sent to Port
- 51: Application Error
- 53: Success

Cheat Sheet: Migration

- Use **ADOP** for optimization.
- MATNR is now **40 characters**.
- No **BINARY SEARCH** needed on HANA usually.

5.1 Interview Level Explanation

"In S/4HANA, we leverage the **HANA In-Memory DB** by shifting from a traditional **Data-to-Code** to a **Code-to-Data** model. This is achieved via **CDS views** and **AMDP** for functional logic. For integration, while **BAPIs** remain the gold standard for sync operations, **OData** via **SAP Gateway** is the mandatory bridge for the modern **Fiori** UI. During migration, we prioritize the **Simplification List** and use **ATC** to ensure legacy code doesn't fail on the columnar database."

End of Revision Guide

Varshitha - Senior SAP Architect