

# Infosys FA2

## SAP ABAP & S/4HANA

Advanced Notes and Revision Guide

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

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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.

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# Chapter 1

## ABAP for HANA

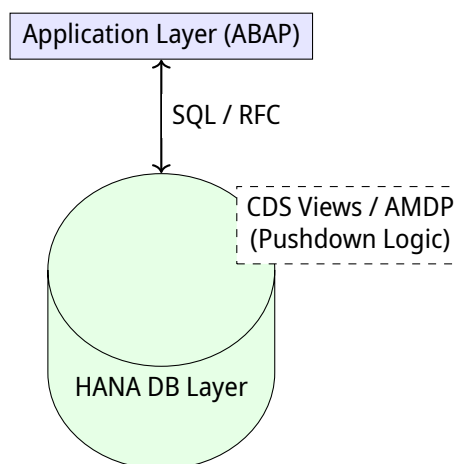
### 1.1 Core Concept

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*