**Batch Data Communication (BDC) in SAP ABAP**

**Batch Data Communication (BDC)** is a technique in SAP ABAP used to **automate data transfer** from external systems or legacy data into SAP. It simulates manual user input (transactions) to process data in batches.

**1. BDC Methods in SAP ABAP**

There are **three primary methods** to implement BDC:

| **Method** | **Description** | **Use Case** |
| --- | --- | --- |
| **1. Call Transaction (BDC\_INSERT)** | Directly executes a transaction in the background. | Fast processing, no session logs. |
| **2. Session Method (BDC\_OPEN\_GROUP, BDC\_INSERT, BDC\_CLOSE\_GROUP)** | Creates a session in SM35 for later processing. | Scheduled batch jobs, error handling. |
| **3. Legacy BDC (SHDB Recording)** | Uses transaction recorder (SHDB) to generate code. | Quick prototyping, simple data uploads. |

**2. How BDC Works**

**Step-by-Step Process**

1. **Record a Transaction** (using **SHDB**)
   * Simulate manual data entry to generate BDC code.
2. **Prepare Data**
   * Format data into a structure compatible with BDC (BDCDATA table).
3. **Execute BDC**
   * Use CALL TRANSACTION or SESSION METHOD to process data.
4. **Error Handling**
   * Capture logs in BDCMSGCOLL or SM35 (for sessions).

**3. BDC Table Structures**

**Key Tables**

| **Table** | **Purpose** |
| --- | --- |
| BDCDATA | Stores screen fields and values. |
| BDCMSGCOLL | Logs BDC execution messages. |
| TBDC | Stores BDC session headers (SM35). |

**BDCDATA Structure**

| **Field** | **Description** |
| --- | --- |
| PROGRAM | SAP program name. |
| DYNPRO | Screen number. |
| DYNBEGIN | Marks the start of a new screen. |
| FNAM | Field name (e.g., MKPF-BLDAT). |
| FVAL | Field value (e.g., 20240101). |

**4. Example: BDC Using CALL TRANSACTION**

abap

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DATA: lt\_bdcdata TYPE TABLE OF bdcdata,

ls\_bdcdata LIKE LINE OF lt\_bdcdata.

\* 1. Start screen (MM01 - Create Material)

ls\_bdcdata-program = 'SAPLMGMM'.

ls\_bdcdata-dynpro = '0060'.

ls\_bdcdata-dynbegin = 'X'.

APPEND ls\_bdcdata TO lt\_bdcdata.

CLEAR ls\_bdcdata.

\* 2. Enter material number

ls\_bdcdata-fnam = 'RMMG1-MATNR'.

ls\_bdcdata-fval = 'MAT1001'.

APPEND ls\_bdcdata TO lt\_bdcdata.

CLEAR ls\_bdcdata.

\* 3. Execute transaction

CALL TRANSACTION 'MM01'

USING lt\_bdcdata

MODE 'N' "Background mode (A = Display, N = No display)

UPDATE 'S' "S = Synchronous, A = Asynchronous

MESSAGES INTO lt\_messages.

\* 4. Check errors

LOOP AT lt\_messages INTO DATA(ls\_msg).

WRITE: / ls\_msg-msgtyp, ls\_msg-msgv1.

ENDLOOP.

**5. Example: BDC Using Session Method**

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DATA: lv\_group TYPE apqi-groupid VALUE 'ZMAT\_UPLOAD'.

\* 1. Open a BDC session

CALL FUNCTION 'BDC\_OPEN\_GROUP'

EXPORTING

client = sy-mandt

group = lv\_group

user = sy-uname

keep = 'X' "Keep session after execution

EXCEPTIONS

OTHERS = 1.

\* 2. Insert BDC data

CALL FUNCTION 'BDC\_INSERT'

EXPORTING

tcode = 'MM01'

TABLES

dynprotab = lt\_bdcdata.

\* 3. Close session

CALL FUNCTION 'BDC\_CLOSE\_GROUP'

EXCEPTIONS

OTHERS = 1.

\* 4. Execute session in SM35

WRITE: / 'Session created:', lv\_group.

**6. BDC vs. Other Data Transfer Methods**

| **Method** | **Use Case** | **Pros** | **Cons** |
| --- | --- | --- | --- |
| **BDC** | Legacy data uploads, simple automation | Easy to record (SHDB), works for most SAP transactions | Slow for large volumes, no direct DB updates |
| **LSMW (Legacy System Migration Workbench)** | Mass data migration | Handles complex mappings, logging | Steeper learning curve |
| **BAPI / IDoc** | System-to-system integration | Structured, supports validations | Requires custom development |
| **Direct SQL (ADBC)** | High-speed data processing | Fastest method | Bypasses SAP checks (risky) |

**7. Best Practices for BDC**

1. **Use SHDB for Recording**
   * Avoid manual BDC coding; record transactions first.
2. **Error Handling**
   * Always check BDCMSGCOLL or SM35 logs.
3. **Performance Optimization**
   * Use CALL TRANSACTION in MODE 'N' for background processing.
4. **Avoid Hardcoding**
   * Use dynamic field names (e.g., FNAM = 'MKPF-BLDAT').
5. **Test in Staging**
   * Run BDC in test mode (MODE 'A') before production.

**8. Troubleshooting BDC**

| **Issue** | **Solution** |
| --- | --- |
| **Transaction not executing** | Check BDCDATA structure (missing DYNBEGIN). |
| **Field not found** | Verify field name in FNAM (use F1 help in SAP). |
| **Session not processing** | Check SM35 for errors (missing BDC\_CLOSE\_GROUP). |
| **Data not updating** | Ensure UPDATE = 'S' in CALL TRANSACTION. |

**9. Useful Transactions**

| **T-Code** | **Purpose** |
| --- | --- |
| **SHDB** | Record BDC sessions. |
| **SM35** | Monitor/execute BDC sessions. |
| **SCAT** (Legacy) | Alternative to SHDB (older SAP versions). |