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| **image008**SAP Code Review Checklist\_ZCRC\_<Stream>\_E<SeqNo>\_<Description> | Client Name  Client Logo | |
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| **Object ID** |  |

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| **Version** | **Date** | **Reviewer** | **Revision Notes** |
| 1.0 |  | *Name of the initial reviewer* | *Initial review* |
| 1.1 |  | *Name of the reviewer* | *Reason for additional review* |
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# Review Checklist

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Naming Conventions and Declarations | | | | |
|  | Is the program name consistent with Naming convention standard |  |  |  |
|  | Are names of internal tables, variables, include, structure and subroutines etc checked for adherence to naming convention standard ? |  |  |  |
|  | Are all variable names as descriptive, meaningful and understandable as possible? |  |  |  |
|  | Comments are included after each field (tables, fields of internal tables, constants, variables, etc.) to describe the meaning or purpose of the field |  |  |  |
|  | TYPE verb is used while declaring the fields whenever feasible |  |  |  |
|  | When declaring data, type and length are not left as default |  |  |  |
|  | INCLUDES are created for data declarations and any data structure that will be used in more than one ABAP program. |  |  |  |
|  | Is keyword Constant used for non-modifiable declarations |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Program Structure | | | | |
|  | Is the program structure as per the programming standards ? |  |  |  |
|  | Is PRETTY PRINTER used for formatting the code? |  |  |  |
|  | Are the events that appear in the program in the order in which they are generally executed? |  |  |  |
|  | Is program title block as per the Coding Block |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| General | | | | |
|  | Has proper development class been attached to the program? |  |  |  |
|  | Has the proper application type been attached to the program attributes? |  |  |  |
|  | Is program title block included as the first block? |  |  |  |
|  | Have blank lines been used to separate different sections of the code? |  |  |  |
|  | Are headers used for Include Programs? |  |  |  |
|  | Are header comments used for subroutines (FORMS)? |  |  |  |
|  | Are all the variable declarations documented in the program? |  |  |  |
|  | Does each logical section of the program have descriptive comments, to indicate business reason or purpose, prior to actual code? |  |  |  |
|  | Are all FORMS placed after all non-subroutine blocks and in the order in which they are executed? |  |  |  |
|  | Does program contain standard header for modification log and documentation? |  |  |  |
|  | Is every modification documented with modification log? |  |  |  |
|  | Has dead code been removed from the program? |  |  |  |
|  | Have code changes been marked with inline comment? |  |  |  |
|  | Have subroutines been created instead of replicating the same code in many places? |  |  |  |
|  | Is Fixed Point Arithmetic attribute set, if required? |  |  |  |
|  | Is \*eject used to break up Forms which exceed one page? |  |  |  |
|  | Are sub-routines (Forms) small (< 1 page)? |  |  |  |
|  | Have Fields-symbols been assigned before using? |  |  |  |
|  | Has Online Documentation been written for the program? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Program Logic | | | | |
|  | Is the system return code SY-SUBRC checked after every data access statement? |  |  |  |
|  | Is proper format taken care of for date field? |  |  |  |
|  | Are there hard-coded information, text or literal present? |  |  |  |
|  | Is CASE statement used in place of IF where a single field is checked for >2 values? |  |  |  |
|  | When coding IF, testing conditions are nested so that the most frequently true conditions are processed first |  |  |  |
|  | Is WHILE used instead of a DO…EXIT…ENDDO loop? |  |  |  |
|  | Is CHECK used instead of IF/ ENDIF whenever possible? |  |  |  |
|  | Are CHECK, EXIT, REJECT, STOP statements used to suspend processing or skip unnecessary processing? |  |  |  |
|  | Are full conditions specified when querying from a database table instead of checking them with CHECK statements? |  |  |  |
|  | Are full conditions like min, max, count, avg etc. used in the select expression list to find the minimum, maximum, count, average list etc instead of computing them? |  |  |  |
|  | Are only required columns used instead of using SELECT \*? |  |  |  |
|  | While using JOIN in SELECT statement have all possible key fields been considered? |  |  |  |
|  | Have the following details been take care of in case the program uses Joins:   1. Joins, if used, involve header-details tables only. 2. In case the tables involved do not bear the header-detail relation, the Join does not involve more than three tables. |  |  |  |
|  | Has database SELECT for a particular database table been restricted to only once in the program wherever possible? |  |  |  |
|  | Is SHIFT … LEFT DELETING LEADING SPACE used instead of CONDENSE? |  |  |  |
|  | Are text elements being maintained in required languages? |  |  |  |
|  | Is formatting of amount and quantity fields done by using CURRENCY and UNIT options? |  |  |  |
|  | Is Boolean usage correct and simple? |  |  |  |
|  | Is clearing of work areas done, wherever required? |  |  |  |
|  | Is function key assignment as per the standards? |  |  |  |
|  | Has the code been checked for the condition of division by zero? |  |  |  |
|  | Is complete key specified in case of Select Single SQL statement? |  |  |  |
|  | Is security checking included, if specified? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Interfaces/Conversions | | | | |
| 1 | Are Input/ Output file names correct (to be as per the Technical Specification)? |  |  |  |
| 2 | Is each file being opened separately? |  |  |  |
| 3 | Are Control Report and Error/ Abend Report generated (if specified) for Interface Programs? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Internal Tables | | | | |
|  | Is the header line of internal table cleared before moving data into it? |  |  |  |
|  | MOVE-CORRESPONDING is used only when two internal tables have identical fields and only a few records have to be moved from one to the other. Otherwise MOVE is used. |  |  |  |
|  | Is SELECT….INTO TABLE statement used to populate an internal table? |  |  |  |
|  | Is LOOP … WHERE used instead of using LOOP and then CHECK? |  |  |  |
|  | When filling an internal table, READ…BINARY SEARCH / INSERT is used if the amount of data is small (<20 entries), or if the user needs read access to the internal table while it is being filled. Otherwise two step approach APPEND / SORT is preferable |  |  |  |
|  | When filling an internal table, COLLECT is used instead of READ / INSERT when number of entries greater than 1000, because COLLECT uses a hash algorithm which is independent of the number of entries and does not need to maintain a table index. |  |  |  |
|  | Has an internal table been SORTED before doing a BINARY SEARCH on it? |  |  |  |
|  | When filling an internal table, COLLECT is not used with the combination of APPEND, INSERT and/or MODIFY, because it cannot use its own hash algorithm in those circumstances. “READ TABLE TAB WITH KEY K = ‘XXX’ BINARY SEARCH” is used instead of linear search when internal table has more than 20 entries (table must have been sorted by the key specified in READ statement). |  |  |  |
|  | Key fields should be specified on the READ TABLE statement, not left as default (e.g., READ TABLE ITAB WITH KEY K =’XXX’ instead of READ TABLE ITAB). |  |  |  |
|  | Sort fields on the SORT statement should not be left as default (e.g., SORT ITAB BY FLD1 instead of SORT ITAB). |  |  |  |
|  | All variants and fields should be explicitly specified when you use MODIFY statement to modify the internal table (e.g., you should use MODIFY itab….TRANSPORTING fl f2…WHERE…instead of MODIFY itab). |  |  |  |
|  | When appending itabl to itab2, use APPEND LINES OF itabl TO itab2 instead of APPEND itab1 TO itab2. |  |  |  |
|  | When inserting itab1 to itab2, use INSERT LINES OF itab1 INTO itab2 INDEX IDX, instead of INSERT itab1 INTO itab2 INDEX IDX. |  |  |  |
|  | Was the internal table sorted before using DELETE ADJACENT DUPLICATES? |  |  |  |
|  | When deleting a record from an internal table, use DELETE ITAB WHERE condition instead of using LOOP AT <itab> / CHECK / DELETE ITAB |  |  |  |
|  | Has appropriate freeing of memory for Database/Internal table work areas been done? |  |  |  |
|  | Does the code have Nested Selects and Nested Looping that can be avoided? |  |  |  |
|  | Have the database tables whose work areas are not used, been declared? |  |  |  |
|  | Has proper use of TVARV variable been done? |  |  |  |
|  | Have all the Type conversions and Type calculations done correctly? Ex: Calculations with Date, Offsets, and Signs. |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Input Validations | | | | |
|  | Are Select-options/ Parameters correct (as per the Technical Specification)? |  |  |  |
|  | Are Selection-screen texts used? |  |  |  |
|  | Do parameter declarations include parameter type? |  |  |  |
|  | Are Select-options & Parameters validated? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Report Output | | | | |
|  | Are the columns aligned properly? |  |  |  |
|  | Does it conform to the Report – layout as given in the Specification? |  |  |  |
|  | Is TOP-OF-PAGE Check performed? |  |  |  |
|  | Is END-OF-PAGE Check performed? |  |  |  |
|  | Is the no. of lines per page declared? |  |  | X |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Menu and Screen Validation | | | | |
|  | Are menu texts in proper case? |  |  |  |
|  | Are screen titles/screen numbers meaningful/or as mentioned in the technical specification? |  |  |  |
|  | Have the standard push buttons : ‘BACK’, ‘CANCEL’, ‘CLOSE’, ‘ENTER’ activated? |  |  |  |
|  | Are all the menus/submenus/push buttons in compliance with technical specification? |  |  |  |
|  | Have screen fields been checked for logical de-activation? |  |  |  |
|  | Have the validation been done for all the input elements? |  |  |  |
|  | Has adequate value on request and help given? |  |  |  |
|  | Is the screen navigation in compliance with technical specification? |  |  |  |
|  | Have the exit commands been declared correctly? |  |  |  |
|  | Are Forms and Modules ordered as per sequence numbers? |  |  |  |
|  | Is function key assignment as per the standards? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| SAP Scripts / Smartforms | | | | |
|  | Portrait/Landscape |  |  |  |
|  | Paper size - Is the Page Format (Letter / DINA4 etc.) as per the Specification? |  |  |  |
|  | Is o/p required, if no data is found? |  |  |  |
|  | Are ALL components and sub-components (all new dictionary objects) active in smartforms |  |  |  |
|  | In the program – are the output options and control parameters handled correctly? Make sure the form can be printed on different printers according to User Settings. (User Settings should be forced to SPACE, otherwise the function module ignores the SAP configuration and prints on the default printer setup on the users machine OS) |  |  |  |
|  | Have if the smartform function calls are correctly handled? (Hardcoding of the smartform function module name, should not be done) |  |  |  |
|  | Are all the required components of one DR contained in one single transport request to avoid complications during transports? |  |  |  |
|  | When converting an existing SAP Script print program to a new SmartForm print program, ensure that all the logic is coded properly. The SAP Script checks some conditions while looping on internal tables and calls/writes data to elements from the program iteratively. The Smartform has to collect all relevant data in the interface structure and pass it to the form one shot. |  |  |  |
|  | In the smartform , while using INCLUDE texts for addresses, is the address number checked for INITIAL. Value The form returns a ‘FORMATTING ERROR’ if there is no address number and nothing comes in the output. An alternate way to handle this is to CATCH the exception at the time of calling the function module |  |  |  |
|  | Have printing options in SmartForms like ‘Simplex/Duplex printing’, ‘Print Only on first page’ been take care as per specification? |  |  |  |
|  | Have all elements (pages/windows/boxes/templates/tables/program lines/text elements) in the smartform been appropriately named? |  |  |  |
|  | Has a separate Smartstyle been created for the smartform? |  |  |  |
|  | Whilst designing the Form Layout, have the headings and other text fields been spaced properly by using defined TABS in Smartstyle rather than 'Whitespace' i.e, by using the Spacebar. |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Enhancement / SAP Modifications | | | | |
|  | Has the project been created and activated? |  |  |  |
|  | Has the user exit been put in a separate include program? |  |  |  |
|  | Are there any exit statements in the code that might take the control away from the exit routines for SAP repair? |  |  |  |
|  | Has the check been made that the enhancement shall not affect other areas? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Function Modules | | | | |
|  | Are Function modules and related logic included in separate Forms, wherever necessary? |  |  |  |
|  | Is SY-SUBRC checked after each call to a function module? |  |  |  |
|  | The exceptions of the Function Module should not be deleted but trapped with appropriate messages |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| HR ABAP | | | | |
|  | Has proper Report Category been attached to the program attributes |  |  |  |
|  | Avoid SELECT statement inside a PROVIDE…END PROVIDE |  |  |  |
|  | While using RP\_PROVIDE…. Check for PNP\_SW\_FOUND = 1 |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Error Handling | | | | |
|  | Is message Class defined in the PROGRAM / REPORT statement? |  |  |  |
|  | Is appropriate message class used? |  |  |  |
|  | While creating new messages, ensure that if no long text is maintained, the checkbox for no long text required is appropriately ticked, if need be. |  |  |  |
|  | Have ABAP code optimisation guidelines been followed? |  |  |  |
|  | The messages used should be complete and meaningful, and not broad level. Please use ‘&’ for Document Nos., Plant Codes, Material Numbers etc. when error occurs at specific value. |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Code Alignment, Spacing and Formatting | | | | |
|  | Is code alignment done using Pretty Printer? |  |  |  |
|  | Are ‘=’ and ‘TO’ aligned? |  |  |  |
|  | Are ‘TYPE’ and ‘VALUE’ in variable declarations aligned? |  |  |  |
|  | Are Internal Comments aligned ? |  |  |  |
|  | Do blank lines separate logically different coding blocks? |  |  |  |
|  | Is each variable and function coded on a separate line for MOVE and CALL statements? |  |  |  |
|  | Is the format for SQL statements correct? |  |  |  |
|  | Are key words right aligned in a select statement? |  |  |  |
|  | Are ‘ENDIF’, ‘ENDLOOP’, ‘ENDAT’ etc. commented (if necessary) to indicate the IF, LOOP etc. they belong to? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Modifications and Corrections | | | | |
|  | The program package history correctly informs and consists of at least the name, the date, the author and the change(s) made |  |  |  |
|  | The change history contains a general description of the modification |  |  |  |
|  | The delete code lines are placed in between comments |  |  |  |
|  | The Transport request number is mentioned for the deleted code lines. |  |  |  |
|  | The transport request number is mentioned fro the code lines added. |  |  |  |
|  | The documentation for the changes is up to date |  |  |  |
|  | The modification history of the document is updated with reference to the changes in brief. |  |  |  |
|  | The unit test document is completed with the new test cases. Execution log and processing are up to date |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Extended Check and Clean Up | | | | |
|  | Is extended program check completed and all errors/warnings removed? |  |  |  |
|  | Have following been removed:   1. Unused tables from TABLES statement 2. Unused variables 3. Unused text elements 4. Code segments which do nothing 5. Commented out parts of the code |  |  |  |
|  | Was SQL Trace performed ( if applicable, attach the document)? |  |  |  |
|  | Was runtime Analysis performed ( if applicable, attach the document )? |  |  |  |
|  | Have ABAP code optimisation guidelines been followed |  |  |  |
|  | Is syntax check completed |  |  |  |
|  | Is syntax check completed in case of SAP Script? |  |  |  |

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
| Transport Request and Development Class | | | | |
|  | Has the correct Development Class been assigned to the object? |  |  |  |
|  | Have all the components been saved under the same Transport Request number? |  |  |  |
|  | Does the Program Header Documentation contain the correct Transport Request No.? |  |  |  |

# Data Dictionary Objects Check List

| **Sr No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
|  | Are bespoke Tables, Views, structures, Search helps, Lock objects etc have correct naming conventions? |  |  |  |
|  | Are bespoke database tables buffering type, index as per programming standards? |  |  |  |
|  | Have correct data class and size category been assigned? |  |  |  |
|  | Have foreign key relationships been maintained for key fields? |  |  |  |
|  | Are All field definitions correct? |  |  |  |
|  | Have all the match codes/Search helps been created as per specifications? |  |  |  |
|  | Has the Lock Object been created properly ? |  |  |  |
|  | Table Maintenance Generator Requirement? |  |  |  |
|  | For transparent tables – is the client (MANDT) defined for the table? |  |  |  |
|  | For SAP tables where additional fields are required – did we utilize an append structure provided by SAP? |  |  |  |
|  | For SAP tables where additional fields are required – did we create an append structure since SAP did not provide one? |  |  |  |
|  | Are the fields in the append structure conforming to the development standards and all fields start with “ZZ”? |  |  |  |

# Test Plan Check

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
|  | Complete functionality described in Technical Specification is tested. |  |  |  |
|  | All independent paths are tested. |  |  |  |
|  | All input validation is tested. |  |  |  |
|  | All calculations are tested. |  |  |  |
|  | Visual inspection of report(s) is done. |  |  |  |
|  | Each form is tested. |  |  |  |
|  | Each transaction is tested. |  |  |  |
|  | Each screen is tested for appearance and functions. |  |  |  |
|  | All data conditions are tested: invalid and valid input, boundary values, normal values etc. |  |  |  |
|  | Correct database update is tested. |  |  |  |
|  | Test data and Expected Results are present. |  |  |  |
|  | Each interface is tested. |  |  |  |
|  | Tests are automated where possible. |  |  |  |
|  | Test Environment is described. |  |  |  |

# Technical Test Check

| **Sr. No.** | **Description** | **Followed** | **Not Followed** | **Not Applicable** |
| --- | --- | --- | --- | --- |
|  | Test plan was reviewed. |  |  |  |
|  | Each test was executed. |  |  |  |
|  | Actual Result recorded. |  |  |  |
|  | Expected Result matched with Actual Result. No errors were found. |  |  |  |
|  | Possible cause for error was pointed out. |  |  |  |

|  |  |
| --- | --- |
| **Check Successful** | Yes/No |

|  |
| --- |
| **Required Actions** |
|  |
|  |