SOA – Integration of QM Systems (IQM)

“Know-How” Guide

<table>
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<th>Name</th>
<th>Alteration Reason</th>
<th>Version</th>
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<td>Draft</td>
<td>1.0</td>
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<td>15.04.2009</td>
<td>Karthikeyan.L Solution Management (SAP Labs, India)</td>
<td>Initial review</td>
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<td>Karthikeyan.L Solution Management (SAP Labs, India)</td>
<td>Final Review</td>
<td>3.0</td>
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Please note that all the screenshots embedded in this document were up-to-date at the time of creation but are subject to change over a period of time. Please check the SDN [http://sdn.sap.com](http://sdn.sap.com) for the latest update.
1 Introduction

This document provides an implementation guide of how to configure and utilize the inspection results recording scenario by using the enterprise services from the ES bundle "Integration of QM Systems (IQM)". The scenario described herein is similar to the scenario for exchanging inspection lot data and results using the existing QM-IDI interface, though not identical. The document is intended for partners who want to get certified on ES bundles and for consultants who are involved in the implementation of enterprises services for SAP QM at customer projects.

Also included are sections where to find more information about Service Oriented Architecture (SOA) in general and ES from QM offering in detail.

1.1 Abbreviations used

IQM – Integration of Quality Management Systems (ES Bundle)
EIP – Easy inspection Planning (ES Bundle)
ES – Enterprise Services
SDN – SAP Developer Network
ESR - Enterprise Service Repository
UI – User Interface
QI – Quality Inspector
QM-IDI – QM Inspection Data Interface
2 General Information about SOA at SAP

The Enterprise Services Workplace (ES Workplace) was developed to provide customers and partners an environment to discover, test-drive and run all the enterprise services shipped ready-to-use by SAP together with its Business Suite applications. The Enterprise Services Wiki (ES Wiki) was also created to browse through a comprehensive portfolio of business scenarios SOA-enabled by the SAP Business Suite and learn about the value SOA adds to their business processes.

2.1 ES Workplace

The Enterprise Service Repository (ESR) is accessible through the SAP Developer Network (SDN). Users must create their own SDN account to access the ES Workplace pages. These pages are only visible when logged on to the SDN. If logged in, please access the below path:

www.sdn.sap.com/ Home > Service-Oriented Architecture > Explore Enterprise Services

This is the entry point for all information related to the Enterprise Services. The Test Drive ES item provides access to the test system to be used. In this Discovery system you can access the ES via “SOAMANAGER” and test them in a real time after receiving log-in ID credentials. (See 3.4 for more information)

Transaction Code: SOAMANAGER
This helps to access the ES details and documentation.

You can access the ES via the various process components mentioned in this page. You can view the list of process components mentioned as below:

As of now QM have 3 process components: 1. Inspection Master Data Management, 2. Quality Issue processing and 3. Material Inspection processing
Click “Material Inspection processing”, for example, will give you the details below:

**MATERIAL INSPECTION PROCESSING**

**PROCESS COMPONENT**

**Definition**

The processing of quality inspection steps that have to be performed to check whether a material fulfills its specified requirements. The process steps involved are:

- The creation of the inspection
- The documentation of the inspection results
- The making of the inspection decision

**Technical Data**

<table>
<thead>
<tr>
<th>Software Component Version</th>
<th>ESM ERP 604</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name</td>
<td>MaterialInspectionProcessing</td>
</tr>
<tr>
<td>Namespace</td>
<td><a href="http://sap.com/60/ESM/ERP">http://sap.com/60/ESM/ERP</a></td>
</tr>
</tbody>
</table>

**Business Context and Use**

The processing of quality inspection steps that need to be taken to check if a material fulfills the specified requirements. This includes the following process steps:

- Inspection creation
- Documentation of inspection results
- Usage Decision

**Integration**

This process component communicates directly with other process components. It does not use message-based communication.

**Structure**

- MaterialInspectionProcessing, process component view diagram

Click the link under the Structure to view the Process component view Diagram of the ES.
2.2 ES WIKI

The Enterprise Services Packages Wiki, a section of the SDN/BPX Wiki, exist to explain what ES Packages are in general and to provide detailed documentation of the services offered for specific ES Packages. Before using following link registration for SDN (http://sdn.sap.com) is required:


You can find the list of ES Bundles available and “what is new”:

Please note that, IQM and EIP bundles are listed under ERP Corporate Services
2.3 List of SAP Notes

Generally, in order to use the IQM Services the customer needs to have ECC 6.0 and service packages like ECC-SE-603 or ECC-SE-604 installed or activated (please also read section 3 and 4). Please note that ECC-SE 602 and 603 are add-ons and can be installed on an ECC 6.0 system without any Enhancement Packages. But ECC-SE 604 is not a stand alone add-on and has to be installed together with Enhancement Package 4 and needs to get activated. The user will have to setup a list of the services he would like to use and for each service verify the “Shipment release” in the documentation. This will help to identify which Enhancement Package version to install.

Please note that for effective execution of the ES, you may need to install additional SAP Notes related to the ES, since certain functionalities and corrections are made available via the SAP Notes. Dependent on the ES that is going to be used, it might be required that you check the availability of SAP Notes for that particular service (SAP Notes on ES level). You can get the latest SAP Notes information from SAP Service Marketplace . The most important notes are mentioned where the ES is explained in detail (see section 5.2.3)

Please use the below path to get the list of SAP Notes:

http://service.sap.com/notes and use QM-ES as Application area and click “Search”. You will get the list of SAP Notes belonging to ES of QM Bundles.
Please click on the SAP Note needed and you will get the detailed information. You can also download the corrections there.

Scroll down and you will find the Related Notes section. Some Notes need prerequisites by implementing some other notes. Then you need to implement the requested Notes before implementing the needed note.
2.4 GDT Catalogue

For the possible entries in the input field, you can use the guidance given in the GDT catalogue. This guide also explains the input field with detailed descriptions.

You can find the GDT catalogue in the below link:

https://www.sdn.sap.com/irj/sdn/explore-es > DOWNLOADS > SAP Global Data Types Catalog

In the GDT catalogue, you can also search the fields via their technical name (listed in the service).
For Material Inspection type code:

Type "inspectiontypecode" and you will get the page number and browse through it. The suggested input help for the field can be used while using the services.

Please note, the non-listed input help codes are **NOT** supported, even though they are available in SAP ERP.
3 QM ES Bundles

Enterprise Services (ES) bundles are collections of enterprise services that can be used to extend the functionality of SAP ERP 6.0 or other solutions of the SAP Business Suite. The ES bundles are not shipped separately but all ES are made available with the Service packages for SAP ERP 6.0, e.g. ECC-SE-604 for Enhancement Package 4 and provide a set of enterprise services along with documentation of how to extend and reconfigure processes in a business scenario.

SAP ERP QM has two ES bundles named “Integration of QM systems and Easy Inspection planning”.

3.1 Information on IQM Bundle

The IQM ES bundle provides enterprise services for the exchange of inspection lot data, inspection results, and quality notification data between the Quality Management (QM) application in SAP ERP 6.0 and external quality management systems.

For more information on IQM, please use the below link:


You can access the list of ES via the below path:

You can use the link: Process Components in Integration of Quality Management Systems in the above page to view the list of the process components within this bundle.
Click: **Material Inspection Processing** for example to bring the ES in that process component.

You can also use the link: **Enterprise Services in Integration of Quality Management Systems** in the same page to view the list of the ES within this bundle directly.
You can also find many use cases, which can be built with these ES in the main page.

**Note:**

It is **NOT** mandatory to use **ALL the ES in ORDER** to run through the use cases. You can use the ES as an individual entity and build the use cases, but also note, some ES need a prerequisite like to do the results recording for the inspection points and you need to have a prior inspection point defined. So you need to use the create service before the actual results recording via ES.
3.2 Information on EIP Bundle

The IQM ES bundle provides enterprise services for the exchange of inspection lot data, inspection results, and quality notification data between the Quality Management (QM) application in SAP ERP 6.0 and external quality management systems.

For more information on EIP, please use the below link:


You can use the link: **Enterprise Services in Easy Inspection Planning** in the same page to view the list of the ES within this bundle.
3.3 Retrieve information about ES

This section will help you to retrieve information about ES and its parameters in SDN. In GDT Catalogue, you can only get information about the input fields. This section covers more to it.

As mentioned in 3.2, you can get the list of ES within a bundle.

Then click on any ES, for example

Click: Create Material Inspection Sample
Click View this enterprise service will give you the detailed information of the ES. Here you can find the following important information:

1. Detailed Field Description
2. WSDL (ESR)
3. WSDL (Back-end)

Click "Detailed field description" to get the detailed input and output fields.
Click on any one of the fields listed will take you to the detailed level of information regarding that particular field. For Example: Typecode

**InspectionSampleTypeCode**

DATA TYPE

**Technical Data**

<table>
<thead>
<tr>
<th>Software Component Version</th>
<th>ESA ECC-SE 604</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name</td>
<td>InspectionSampleTypeCode</td>
</tr>
<tr>
<td>Namespace</td>
<td><a href="http://sap.com/oi/SAPGlobal/GDT">http://sap.com/oi/SAPGlobal/GDT</a></td>
</tr>
<tr>
<td>WSDL</td>
<td>Click <a href="http://sap.com/oi/SAPGlobal/GDT">here</a> for XSD/WSDL</td>
</tr>
</tbody>
</table>

**Base Type**

This data type is derived from the `InspectionSampleTypeCode` data type in namespace "http://sap.com/oi/SAPGlobal/GDT".

**Detailed Description And Value Ranges**

The `InspectionSampleTypeCode` data type is structured as follows:

- Attribute: `InspectionSampleTypeCode`
- Attribute: `InspectionSampleTypeCode.SchemaAgencyID` (data type)
- Attribute: `InspectionSampleTypeCode.SchemaAgencyID.AgencyIdentificationCode` (data type)

Click on the `InspectionSampleTypeCode` and get more information like possible entries etc....
And scrolling down you will find the possible entries for that field and its descriptions.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receiving Inspection - Supplier Delivery</td>
<td>A sample that is taken during a supplier delivery to be used for a receiving inspection</td>
</tr>
<tr>
<td>10</td>
<td>In-Process Control</td>
<td>A sample that is taken during an in-process control</td>
</tr>
<tr>
<td>11</td>
<td>Calibration Inspection</td>
<td>A sample that is taken during a calibration inspection</td>
</tr>
<tr>
<td>12</td>
<td>Recurring Inspector</td>
<td>A sample that is taken during a recurring inspection</td>
</tr>
<tr>
<td>13</td>
<td>Invoice Inspection</td>
<td>A sample that is taken during a invoice inspection</td>
</tr>
<tr>
<td>2</td>
<td>Receiving Inspection - Customer Return</td>
<td>A sample that is taken during a customer return to be used for a receiving inspection</td>
</tr>
<tr>
<td>3</td>
<td>Receiving Inspection – Pretested Product</td>
<td>A sample that is taken after the product has been manufactured to be used for a receiving inspection</td>
</tr>
<tr>
<td>4</td>
<td>Receiving Inspection - Stock Transfer</td>
<td>A sample that is taken during a stock transfer to be used for a receiving inspection</td>
</tr>
<tr>
<td>5</td>
<td>Final Inspection - Production</td>
<td>A sample that is taken after production is used for a final inspection</td>
</tr>
<tr>
<td>6</td>
<td>Receiving Inspection - Model Check</td>
<td>A sample that is taken during a model check to be used for a receiving inspection</td>
</tr>
<tr>
<td>7</td>
<td>Receiving Inspection - Pre Check</td>
<td>A sample that is taken during a pre check to be used for a receiving inspection</td>
</tr>
</tbody>
</table>

You can use the above values for your input field to execute the ES.

### 3.4 How to test a ES

The following section will help you know more about testing the ES via SAP GUI. After logging on to the system, use transaction code “SOAMANAGER” which leads to the SOA MANAGEMENT, where the available web services can be browsed and the Web Service endpoints can be found. The following screens will guide you step by step.

**Example:**

**Function:** Read Quality Notification

**ES:** QualityIssueNotificationByIDQueryResponse_In

![SOA Management (Q35:004)](image)
Go to Service Administration tab

![SOA Management (Q35;004)](image)

- **Single Service Configuration**
  - Administer and configure web services and service consumers
- **Simplified Service Configuration**
  - Configure web service providers intended for simple web service consumers
- **Business Scenario Configuration**
  - SOA configuration of multiple service providers and service groups
- **Logical Receiver Determination**
  - Define rules for routing a service call to a provider system
- **Publication Rules**
  - Create publication rules for service providers and service groups
- **User Account Management**
  - Manage user accounts and their assignment to provider systems, individual service providers, and service groups
- **SOA Configuration Request Queue Management**
  - Manage the request queue for the configuration of profiles, destinations and services

Click “Single Service Configuration” link.

For the list of ES related to Quality Issue Notification, please pass the following input fields:

- **Search pattern**: *Qualityissue*
- **Fields**: Both Names

![Web Service Administration](image)

And click **Go** to get the list of ES.
You can use the Scroll Down to find the ES needed. Select the ES line and Click Apply Selection button.

The detailed information for that ES will be displayed.

Click: Open Web Service navigator for selected binding
Enter the Login credentials of the system you are working with and click “OK”.

Click “Input parameters”
So enter the available Notification number in the field given and click “Result”:

```
| QualityIssueNotificationByIdQuery_sync
| QualityIssueNotificationSelectionById
| ID:
| schemeAgencyId: Is null
| simpleContent: 4741
```

The execution will take place in the background and the output will be displayed as shown below.
When you scroll down to the end of the screen, you can find the XML files and log files. You can also download these XML files using 

Incase of error, you can find the respective error in the output section and log will also be created.
4 Set up of the Technical Environment

4.1 System requirements

The below system requirements are to be taken care before testing or consuming the ES.

4.1.1 SAP ERP system requirements

The primary requirement is to have an SAP ERP 6.0 (SAP ERP 6.0, formerly known as SAP ERP 2005) system with Enhancement Package 4 installed. The service package needed is ECC-SE-604. There are no further restrictions than the system must be configured for Quality Management (see section 5.4.2)

4.1.2 Other system requirements

SAP NetWeaver 7.0 (Only if SAP MII is the platform)
5 ES Bundle Scenario - Results Recording

This section will provide information on ES bundle scenario - Results Recording and the ES used in it. You can also find the input help for the ES used here. The entire scenario was explained with a process flow.

5.1 Process flow

The Results recording scenario consists of many stages, for which a list of services need to be executed. First the user needs to have a list of inspection operations and then he can proceed with new inspection points & physical samples creation if needed. Then he can do the Results recording together with defects recording. Once all the results have been recorded, he can validate the inspection point / physical samples. Finally he can make the Usage Decision for the inspection lot. The above will be explained in detail in the section 5.3.2.

Please find the same in a process flow:
5.2 List of Enterprise Services

Following services need to be executed for the Results Recording scenario:

<table>
<thead>
<tr>
<th>Service operation name</th>
<th>Technical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find Material Inspection Subset Operation by Elements</td>
<td>ECC_MATINSPSUBOP001QR</td>
</tr>
<tr>
<td>Read Material Inspection</td>
<td>ECC_MATINSPIDQR</td>
</tr>
<tr>
<td>Change Material Inspection</td>
<td>ECC_MATINSPCHGRC</td>
</tr>
<tr>
<td>Create Material Inspection Sample</td>
<td>ECC_MATERIALINSPSAMPLECRTRC</td>
</tr>
<tr>
<td>Create Material Inspection Subset</td>
<td>ECC_MATINSPSUBCRTRC</td>
</tr>
<tr>
<td>Find Subset Operation Inspection Activity Basic Data by Elements</td>
<td>ECC_MATINSPSUBOPACT001QR</td>
</tr>
<tr>
<td>Read Subset Operation Inspection Activity</td>
<td>ECC_MATINSPSUBOPACTIDQR</td>
</tr>
<tr>
<td>Record Subset Operation Inspection Activity Result</td>
<td>ECC_MATINSPSUBOPACTRRECRC</td>
</tr>
<tr>
<td>Read Quality Issue Category Catalogue Category</td>
<td>ECC_QUALITYISSUEECATIDQR</td>
</tr>
<tr>
<td>Create Subset Operation Inspection Activity Finding</td>
<td>ECC_MATINSPSUBOPACTFCRTRC</td>
</tr>
<tr>
<td>Create Material Inspection Subset Decision</td>
<td>ECC_MATINSPSUBDECCRTRC</td>
</tr>
<tr>
<td>Create Material Inspection Decision</td>
<td>ECC_MATINSPDECCRTRC</td>
</tr>
</tbody>
</table>

5.3 Landscape of scenario

5.3.1 Systems

To develop content for the Results Recording scenario described in this guide, we have used MII for the UI and the following system:

System: HU2 (SAP’s Discovery system)

Client : 800

The above mentioned system is an example system with ESR. It may change according to your landscape as per section 2.1, you will get your own log-in credentials.

Note: The entire master data mentioned in the section 5.3.2 belongs to HU2 system
5.3.2 Detailed description of the Process flow and required services

**Note:**

The following is General mandatory Input. Please provide the input values without fail, where ever applicable.

- ProcessingConditions:
  - QueryHitsMaximumNumberValue: ☑ Is Null
  - UnlimitedQueryHitsIndicator: ☑ True ☐ Is Null

And SKIP the Message Header details.

5.3.2.1 Get Inspection Worklist

In the first step the user needs to have a worklist of inspection lot for the specified period of time to proceed for Results recording. The list should only contain inspection lot operations from open inspection lots (not yet completed). The system worklist should display inspection operations as well as inspection points / physical samples belong to the inspection operations.

**ES needed:** Find Material Inspection Subset Operation by Elements

What the ES will do: Obtains inspection lot operation worklist including inspection points and physical samples

Technical Name of the ES: **ECC_MATINSPSUBOP001QR**

**Required Input Fields:**

- **Plant (PlantID):** Provide the corresponding Plant number

- **Material (SelectionByMaterialInternalID):** Provide the corresponding Material Number.

- **InclusionExclusionCode**: ...

<table>
<thead>
<tr>
<th>Code List Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static SAP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Exclusion</td>
</tr>
<tr>
<td>I</td>
<td>Inclusion</td>
</tr>
</tbody>
</table>

- **IntervalBoundaryTypeCode**: [...]

IOM_How to Guide_v3
Note: Please note the lower boundary material number should be lesser than Upper boundary in terms of Alphabetical order

For E.g. .... If you are searching from material ADE to GHD, use ADE in the lower boundary and GHD in the upper boundary . The vice versa won’t work.

The above 4 specific fields are common for the below input fields also.

Work Center (SelectionByWorkCentreID) : Give the corresponding Work Center Number.

Inspection Start Date (SelectionByDueDate) : Give the corresponding Date. Select from the calendar or enter in the Date format. E.g : 2/27/2009 10:39:39 AM

Or if you know the inspection lot number, then use the below field directly:

Inspection lot number : Provide the corresponding lot number

Possible Output:

The output will be the list of Inspection lots and the operations with Inspection points or physical samples (which ever applicable) . It will can display the inspection point identifier, which is useful in the inspection point creation. It will be explained later.

Note : Input for the Work Center and Material fields is case-sensitive. For example, for Material you must enter QS300 and not qs300.

Note : When giving the Work Centre as a only selection criteria and you are not getting the list of inspection lots , please implement the following SAP notes . 1117016, 1159482, 1165585, and 1224715
5.3.2.2 Display and Change Inspection lot

A) If the user like to see more details of the particular inspection lot, the read and change service need to be executed for displaying the Inspection lot,

ES needed: Read Material Inspection

What the ES will do: Reads the data of an inspection lot

Technical Name of the ES: ECC_MATINSPIDQR

Required Input Fields:

- Inspection lot number: Provide the corresponding lot number

MaterialInspectionSelectionByID

| ID [...]|  

The output details can be displayed. This includes many fields. The following are some of them:

1. Creation and change dates
2. System status and user status
3. Due dates
4. Short Text etc..

B) If the user like to change the inspection lot, the change service need to be executed.

ES needed: Change Material Inspection

What the ES will do: Change the data of an inspection lot

Technical Name of the ES: ECC_MATINSPCHGRC

Required Input Fields:

- Inspection lot number: Provide the corresponding lot number

MaterialInspection ID:

| DueDate [...] : Provide the needed Start Date of the inspection lot
| LotSizeQuantity [...] : Change the Required Qty and provide the Unit code. Give the corresponding ISO Code of the UOM . Refer T Code : CUNI
| Description [...] : Provide the Short text and Language code
| DetailedText [...] : Provide the Long text and Language code

Possible Output:
The respective inspection lot is read and changed with success message.
5.3.2.3 New Physical Sample and Inspection Point Creation

A) New Physical Sample Creation:

If the user likes to create a new physical sample for the inspection lot (which is configured for Sample Drawing), please use the below information.

ES needed: Create Material Inspection Sample

What the ES will do: Creates a new physical sample record and an inspection point with reference to the physical sample number for the existing inspection lot

Technical Name of the ES: ECC_MATERIALINSPSAMPLECRTRC

Required Input Fields:

- Inspection lot number (MaterialInspectionID[...]) : Provide the corresponding lot number
- Material (MaterialInternalID [...] ) : Give the corresponding Material Number.
- Plant (PlantID [...] ) : Give the corresponding Plant number
- Physical Sample type (TypeCode [...]):

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receiving Inspection - Supplier Delivery</td>
<td>A sample that is taken during a supplier delivery to be used for a receiving inspection.</td>
</tr>
<tr>
<td>2</td>
<td>Receiving Inspection - Customer Return</td>
<td>A sample that is taken during a customer return to be used for a receiving inspection.</td>
</tr>
<tr>
<td>3</td>
<td>Receiving Inspection - Finished Product</td>
<td>A sample that is taken after the product has been manufactured to be used for a receiving inspection.</td>
</tr>
<tr>
<td>4</td>
<td>Receiving Inspection - Stock Transfer</td>
<td>A sample that is taken during a stock transfer to be used for a receiving inspection.</td>
</tr>
<tr>
<td>5</td>
<td>Final Inspection - Production</td>
<td>A sample that is taken after production to be used for a final inspection.</td>
</tr>
<tr>
<td>6</td>
<td>Receiving Inspection - Model Check</td>
<td>A sample that is taken during a model check to be used for a receiving inspection.</td>
</tr>
<tr>
<td>7</td>
<td>Receiving Inspection - Pre Check</td>
<td>A sample that is taken during a pre check to be used for a receiving inspection.</td>
</tr>
<tr>
<td>8</td>
<td>Receiving Inspection - Logistics Unit</td>
<td>A sample that is taken from a logistics unit to be used for a receiving inspection.</td>
</tr>
<tr>
<td>9</td>
<td>Final Inspection - Customer Shipment</td>
<td>A sample that is taken before customer shipment to be used for a final inspection.</td>
</tr>
</tbody>
</table>

Sample Category (CategoryCode [...]):

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Primary Sample</td>
<td>Sample that is taken directly from the material to be examined.</td>
</tr>
<tr>
<td>2</td>
<td>Pooled Sample</td>
<td>Sample that consists of a mixture of at least two primary samples</td>
</tr>
<tr>
<td>3</td>
<td>Reserve Sample</td>
<td>Sample that must be stored for a specific time period for documentation purposes</td>
</tr>
</tbody>
</table>

Short text (Description [...]) : Add the required text

Quantity (Quantity [...]) : Needed Quantity
UoM(_UNITCODE[...]):
Give the corresponding ISO Code of the UOM.
Refer T Code: CUNI
Refer the below screen shot.

Sample Container (_INSPECTIONCONTAINERTYPECODE[...]):
Give the corresponding Container number from the configuration table. It is user defined. So no standard codes. See the below picture.

You can also use the Function Module "QST04_TQ42_READ" to know detail about the physical sample container.

Possible Output:
A physical sample no. "****** " will be created.

Note: If you couldn't find a inspection point for the physical sample created, please implement the following SAP Notes “1151451 ,1159285 , 1180169 and 1180885 “. It also contains additional correction which adds some additional plausibility checks to ensure consistency of import parameters. SAP Note “1180885" has perquisites of the following SAP Notes “1151451 and 1159285 “.
B) New Inspection Point Creation:

If the user like to create a new inspection point for the operation in the inspection lot (which contains the inspection plan assigned with inspection point identifier), please use the below information.

In ERP Configuration:

![ERP Configuration Image]

The detailed level:

![Detailed Level Image]

Inspection point identifier assigned in the inspection plan:
The inspection point identifier attached to the inspection plan and used by the inspection lot should be called for the Inspection point creation.

Please follow the below steps to create new inspection point:

A. Use the Service “Find Material Inspection Subset Operation by Elements” to get the details about the identifier for the specific inspection lot. The below field in the output contains the information.

- **Subset**
  - **ID:**
  - **TypeCode:**
    - #SimpleContent: 225

B. Pass this field in the Function Module: QAFD_TQ79T_READ to get the details of inspection point identifiers.

**Note:** As of now, there is no ES to fetch the details of inspection point identifiers.

**Input:**

<table>
<thead>
<tr>
<th>Test for function group</th>
<th>QAFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function module</td>
<td>QAFD_TQ79T_READ</td>
</tr>
</tbody>
</table>

**Import parameters** | **Value**
---------------------|---------
1_SLMBEZ              | 225     |
1_SPRACHE             | EN      |
You can use the above fields to create the new inspection point, with the ES. The same is explained below.

**ES needed:** Create Material Inspection Subset

**What the ES will do:** Creates a new inspection point with reference to existing inspection lot

**Technical Name of the ES:** ECC_MATINSPSUBCRTRC

**Required Input Fields:**

- **Inspection lot number** (MaterialInspectionID[...]) : Provide the corresponding lot number
- **Operation** (Operation ID [...] ) : Give the corresponding Operation Number
- **Text Length 18** (MediumSignificantDescription[...]) : If it is configured in the identifier, then you must provide the input as text with 18 characters length.
- **Text Length 10** (ShortSignificantDescription[...]) : : If it is configured in the identifier , then you must provide the input as text with 10 characters length.
- **Number Length 10** (MediumSignificantCounterValue [...] ) : If it is configured in the identifier, then you must provide the input as number with 10 characters length.
- **Number Length 10** (ShortSignificantCounterValue [...] ) : If it is configured in the identifier, then you must provide the input as number with 3 characters length.
Possible Output:

A new Inspection point is created and provide you the SubsetID.

Notes:

1. Date and time of the identifier are NOT mapped into the fields in the ES. It will take the corresponding system date and time. If the identifier is configured, the ES will automatically create the value.

2. In this case, since we are passing the value from the "Find Material Inspection Subset Operation by Elements" ES, we need to have at least one inspection point already created. Otherwise, the service won’t return with the Identifier. This problem exists, because as of now we don’t have ES to read Inspection plan attached to the Inspection lot. The ES Bundle Easy Inspection plan will have that ES. In that case, we can use "Read Material inspection "ES and get the Inspection Bill of Operations ID and use that information in the Bill of Operations read service to get the Identifier.

3. You cannot create physical samples for the inspection lot configured for inspection points and the vice versa is also not possible. However, for physical sample creation, in background an inspection point will be created with reference to it which can be used for results recording.

4. This ES can only be used for inspection point type 'free inspection points'.

5.3.2.4 Get Inspection Characteristics

After selecting the inspection operation (and inspection point), the user wants to see which inspection characteristics must be inspected for this particular inspection operation. These characteristics can be displayed with the worklist, which must also indicate which characteristics are still to be processed and which ones have already been completed (characteristic status).

ES needed: Find Subset Operation Inspection Activity Basic Data by Elements

What the ES will do: Obtains the inspection characteristics for the selected inspection point, if existing, or for the selected inspection lot/operation

Technical Name of the ES: ECC_MATINSPSUBOPACT001QR

Required Input Fields:

Inspection lot number (MaterialInspectionID ): Provide the corresponding lot number

Inspection Point Number (SubsetID ): Provide the corresponding inspection point number, please use the below steps:

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID number

Operation Number (SubsetOperationID ): Provide the Operation number of the inspection lot to which you require the list of characteristics.

Note: Incase the Inspection lot doesn’t contain Subsets, please set to the “0 “. The same you will be getting when you execute the ES “Find Material Inspection Subset Operation by Elements”.

Possible Output:

A list of Inspection characteristics for the selected inspection point / physical sample and operation.
5.3.2.5 Record Inspection Results

After selecting the required inspection characteristic from the list, the user will proceed with results recording. The results recording deals with two major type of characteristics, Qualitative and Quantitative. The system does not allow character values for the result field of a quantitative inspection characteristic. For qualitative characteristics, the values can be passed from the given selected sets table. The selected sets table brings the codes based on the system configuration and master data.

Before proceeding with results recording, please read the following carefully.

Notes:

1. Identifying Qualitative or Quantitative Characteristics:

The “MeasureResultRecordingRequiredIndicator” given by service “Read Subset Operation Inspection Activity” contains this information. In case of quantitative character, it is set to “true”.

2. No of Samples to be recorded:

The number of results to be recorded depends on SampleSizeQuantity of node Inspection Activity and SingleValueResultRecordingRequiredIndicator given by service “Read Subset Operation Inspection Activity”.

The number of results is restricted by the SampleSizeQuantity of the entity Inspection Activity. If there is more than one result to be recorded (SingleValueResultRecordingRequiredIndicator is TRUE),

3. Close Indicator - with multiple results recording:

When the character is set for multiple samples, the close indicator will work only if you provide all the necessary results. Partial entry with Close Indicator as true will not work. The status of the characteristics goes to different status like Closed and Valuated as of now.

4. Change State ID:

During results recording, the service expects a change state ID if you are changing the existing result. However it is NOT required for new recording for the first time. To get a ID, execute the ES “Record Subset Operation Inspection Activity Result” and pass the change state ID into the results recording service.

5. For selected sets:

Querying selected sets is different from querying Codes for a specific catalog type. In the service “Read Quality Issue Category Catalogue Category” for the field “ProfileIssueCategoryFilterCode” a concatenate values of plant and selected set must be provided.
6. Field explanations in the Read Catalog service:

QualityIssueCategoryTypeCode - Catalog type  
ParentQualityIssueCategoryID - Code Group Name  
QualityIssueCategoryID - Code  
QualityIssueCategoryName – Name of the Code  
QualityIssueCategoryFilter code –Selected set (a concatenated value of plant and selected set)

5.3.2.5.1 For Qualitative Characteristics

To do results recording for qualitative characteristic, please follow the below steps:

A ) Read the inspection activity for getting the details of the characteristics.

ES needed: Read Subset Operation Inspection Activity

What the ES will do: Read the inspection characteristics details

Technical Name of the ES: ECC_MATINSPSUBOPACTIDQR

Required Input Fields:

Inspection lot number (MaterialInspectionID): Provide the corresponding lot number

Inspection Point Number (SubsetID): Provide the corresponding inspection point number. Please use the below steps:

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID number

Operation Number (SubsetOperationID): Provide the corresponding operation number number

Characteristic (SubsetOperationInspectionActivityID): Provide the corresponding number of the characteristic inside the operation

For Eg:

```
- MaterialInspection SubsetOperation Inspection Activity By ID Query Sync:
  - ID:
    - schemeAgencyID: # Is Null
    - #simpleContent: 4000000000
  - SubsetID:
    - schemeD: # Is Null
    - schemeAgencyID: # Is Null
    - #simpleContent: 10000002
    - SubsetOperationID: 0010
    - SubsetOperationInspectionActivityID: 20
```
Possible Output:

The details of that particular Inspection characteristic for the selected inspection point / physical sample and operation will be displayed. Note the below details from the output which is required to pass the value in the next step.

- CharacteristicAttributeQualityIssueCategoryCatalogueID
  - #simpleContent: [Value]

- CharacteristicAttributeParentQualityIssueCategoryID
  - CharacteristicAttributeParentQualityIssueCategoryName: [Value]
  - CharacteristicAttributeQualityIssueCategoryFilterCode:
    - #simpleContent: [Value]

From here we can identify that, the attached Selected set is SURFACE1 from plant 1000. We can use the “Read Quality Issue Category Catalogue Category “service to get the possible codes in the results recording service. Note the “MeasureResultRecordingRequiredIndicator” , to identify the nature of the Characteristics.

**Note**: If there is no entry before, the output will not contain the Change State ID.

B ) Get possible codes :

**ES needed**: Read Quality Issue Category Catalogue Category

**What the ES will do**: Read the codes in the selected sets

**Technical Name of the ES**: ECC_QUALITYISSUECATIDQR

**Required Input Fields**:

**Catalog type** (QualityIssueCategoryCatalogueCategorySelectionByID): Provide the corresponding catalog type

**E.g. Catalog types from ERP**:

<table>
<thead>
<tr>
<th>Characteristic attributes</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Task</td>
</tr>
<tr>
<td>2</td>
<td>Decision</td>
</tr>
<tr>
<td>3</td>
<td>Event</td>
</tr>
<tr>
<td>4</td>
<td>Cause</td>
</tr>
<tr>
<td>5</td>
<td>Result of defects</td>
</tr>
<tr>
<td>6</td>
<td>Activity (QI)</td>
</tr>
<tr>
<td>7</td>
<td>Defect type</td>
</tr>
<tr>
<td>8</td>
<td>Activity (PPI)</td>
</tr>
<tr>
<td>9</td>
<td>Object part</td>
</tr>
<tr>
<td>10</td>
<td>Overview of damage</td>
</tr>
<tr>
<td>11</td>
<td>Coding</td>
</tr>
<tr>
<td>12</td>
<td>Defect Locations</td>
</tr>
</tbody>
</table>

**Selection set** (ProfileIssueCategoryFilterCode): Pass the value from A section output.

**Language** : EN
Possible Output:

You will get all the possible codes under that selected sets. You can use one of them in the results recording service, which is explained below.

Note: If the system displays all the codes (not only released codes and the selected sets for the plant) please implement the following SAP Note “1177086”.

C) Record Results:

ES needed: Record Subset Operation Inspection Activity Result

What the ES will do: Record the results for the specified inspection characteristics

Technical Name of the ES: ECC_MATINSPSUBOPACTRRECRC

Required Input Fields:

Inspection lot number (MaterialInspectionID): Provide the corresponding lot number

Change State ID: Provide only if you are changing the results.

Inspection Point Number (SubsetID): Provide the corresponding inspection point number. Please use the below steps:
1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.
2. Get the corresponding Subset ID number

Operation Number (OperationID): Provide the corresponding Operation number

Characteristic Number (InspectionActivityID): Provide the corresponding Characteristic number

Closing the Characteristics (CloseIndicator): True for Single entry and False for partial entry in the Multiple results. True if you are providing the results for all the samples.

Result Number: (Result – Element – ID): Give “00000001” for the first one and “00000002” for the second one and go on.
Catalog (CharacteristicAttributeParentQualityIssueCategoryID): Provide the corresponding catalog name from the catalog type “1”, which you got from the “Read Subset Operation Inspection Activity” service.

Code (CharacteristicAttributeQualityIssueCategoryID): Provide the corresponding code which you got from the “Read Quality Issue Category Catalogue Category” service.

No of Samples Inspected (InspectedNumberValue [...]): Provide the number according to the sample size.

Note: Please leave this, if you are recording for the multiple samples and single entry. Only Enter this value for Summarized recording, where the sample size may be more than “1”, but need only one result entry.

Valuation of the Characteristics (AcceptanceStatusCode [...]): Use the below Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>Accepted</td>
<td>The business transaction transmitted by the communication partner has been accepted.</td>
</tr>
<tr>
<td>AJ</td>
<td>Pending</td>
<td>A decision regarding the business transaction transmitted by the communication partner has not (yet) been made.</td>
</tr>
<tr>
<td>RE</td>
<td>Rejected</td>
<td>The business transaction transmitted by the communication partner has been rejected.</td>
</tr>
</tbody>
</table>

Note: For multiple results recording, enter the “+” button in the input structure and add more results.

Possible Output:

The results recording will be done and set the proper status.
5.3.2.5.2  For Quantitative Characteristics

To do results recording for quantitative characteristic, please follow the below steps:

A ) Read the inspection activity for getting the details of the characteristics.

ES needed: Read Subset Operation Inspection Activity

What the ES will do: Read the inspection characteristics details

Technical Name of the ES: ECC_MATINSPSUBOPACTIDQR

Required Input Fields:

Inspection lot number (MaterialInspectionID): Provide the corresponding lot number

Inspection Point Number (SubsetID): Provide the corresponding inspection point number. Please use the below steps:

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID number

Operation Number (SubsetOperationID): Provide the corresponding operation number number

Characteristic (SubsetOperationInspectionActivityID): Provide the corresponding number of the characteristic inside the operation

For Eg:

```
- MaterialInspectionSubsetOperationInspectionActivityByIDQuery_sync:
  - MaterialInspectionSubsetOperationInspectionActivitySelectionByID:
    - ID:
      - schemeAgencyID: ☑ is Null
        #simpleContent: 40000000656
    - SubsetID:
      - schemeAgencyID: ☑ is Null
        #simpleContent: 1000002
      - SubsetOperationID: 0010
    - SubsetOperationInspectionActivityID: 20
```

Possible Output:

The details of that particular Inspection characteristic for the selected inspection point/physical sample and operation will be displayed. Note the “MeasureResultRecordingRequiredIndicator”, to identify the nature of the Characteristics.

Note: If there is no entry before, the output will not contain the Change State ID.
B) Record Results:

ES needed: **Record Subset Operation Inspection Activity Result**

What the ES will do: **Record the results for the specified inspection characteristics**

Technical Name of the ES: **ECC_MATINSPSUBOPACTRRECRC**

**Required Input Fields:**

- Inspection lot number (**MaterialInspectionID**): Provide the corresponding lot number
- Change State ID: Provide only if you are changing the results.
- Inspection Point Number (**SubsetID**): Provide the corresponding inspection point number. Please use the below steps:
  1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.
  2. Get the corresponding Subset ID number
- Operation Number (**OperationID**): Provide the corresponding Operation number
- Characteristic Number (**Inspection Activity ID**): Provide the corresponding Characteristic number for the operation
- Closing the Characteristics (**CloseIndicator**): True for Single entry and False for partial entry in the Multiple results. True if you are providing the results for all the samples.
- Result Number: (**Result – Element – ID**): Give “00000001” for the first one and “00000002” for the second one and go on.

```
Operation (test.types.OperationInner)
  ID (String) 0010

InspectionActivity (test.types.InspectionActivityInner)
  ID (String) 0050
  CloseIndicator (Boolean) False
  ActualIndividualMaterialID (test.types.ProductID) SKIP

Result (test.types.Result[])
  elementType (test.types.Result)
    ID (String) 00000001
    Measure (test.types.Measure) SKIP

ResultValue (Measure): Give the corresponding value. You can get the specification from “Record Subset Operation Inspection Activity Result” service.
```
UOM (UnitCode) : Give the ISO code of the Unit of Measurement of the characteristics.

No of Samples Inspected (InspectedNumberValue) : Provide the number according to the sample size.

**Note**: Please leave this, if you are recording for the multiple samples and single entry. Only Enter this value for Summarized recording, where the sample size may be more than “1”, but need only one result entry.

Valuation of the Characteristics (AcceptanceStatusCode) : Use the below Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>Accepted</td>
<td>The business transaction transmitted by the communication partner has been accepted.</td>
</tr>
<tr>
<td>AJ</td>
<td>Pending</td>
<td>A decision regarding the business transaction transmitted by the communication partner has not (yet) been made.</td>
</tr>
<tr>
<td>RE</td>
<td>Rejected</td>
<td>The business transaction transmitted by the communication partner has been rejected.</td>
</tr>
</tbody>
</table>

**Note**: For multiple results recording, enter the “+” button in the input structure and add more results.

Possible Output:

The results recording will be done and put into the proper status.
5.3.2.6  Record Defect

If the user finds a problem, he needs to record a defect against the character.

ES needed:  Create Subset Operation Inspection Activity Finding

What the ES will do:  Creates a defect for an inspection lot characteristic

Technical Name of the ES:  ECC_MATINSPSUBOPACTFCRTRC

Required Input Fields:

Inspection lot number (MaterialInspectionID ): Provide the corresponding lot number

Inspection Point Number (SubsetID ): Provide the corresponding inspection point number .Please use the below steps :

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number , you will be getting the list of Subset ID numbers . You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID number

Operation Number (OperationID ): Provide the corresponding Operation number

Characteristic Number (Inspection Activity ID ): Provide the corresponding Characteristic number for the operation

Finding : Please use the below Chart

<table>
<thead>
<tr>
<th>DefectTypeQualityIssueCategoryCatalogueID [...]</th>
<th>Catalog type “ 9”, so Enter 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>DefectTypeParentQualityIssueCategoryID [...]</td>
<td>Use the required Code Group</td>
</tr>
<tr>
<td>DefectTypeQualityIssueCategoryID [...]</td>
<td>Use the Code inside that code Group</td>
</tr>
<tr>
<td>DefectLocationQualityIssueCategoryCatalogueID [...]</td>
<td>Catalog type “ E”, so Enter E</td>
</tr>
<tr>
<td>DefectLocationParentQualityIssueCategoryID [...]</td>
<td>Use the required Code Group</td>
</tr>
<tr>
<td>DefectLocationQualityIssueCategoryID [...]</td>
<td>Use the Code inside that code Group</td>
</tr>
</tbody>
</table>

Note : Please read the restriction in 5.2.3

Defect Qty (DefectNumbervalue): Provide the corresponding quantity

Systematic Indicator:  TRUE
Description for the defect:

Possible Output:

The defects recording will be done. You can view the defects as like below in the ERP.
5.3.2.7 Valuate Inspection Point / Physical Sample

A) Inspection Point:

After the user processed all inspection characteristics of an inspection point, he wants to valuate (= complete) this inspection point to indicate that the particular event was tested ok or not ok.

Note: Make sure all the characteristics have been results recorded and valuated.

ES needed: Create Material Inspection Subset Decision

What the ES will do: Provide valuation for the selected inspection points

Technical Name of the ES: ECC_MATINSPSUBDECCRTBC

Required Input Fields:

Inspection lot number (MaterialInspectionID): Provide the corresponding lot number

Inspection Point Number (SubsetID): Provide the corresponding inspection point number. Please use the below steps:

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID number

Decision (Decision): Use the below chart and the configuration details.

<table>
<thead>
<tr>
<th>ParentQualityIssueCategoryID [...]</th>
<th>Use the Code Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityIssueCategoryID [...]</td>
<td>Use the Code inside that Code Group</td>
</tr>
<tr>
<td>IssueCategoryFilterCode[...]</td>
<td>Concatenate value of Plant and the above code</td>
</tr>
</tbody>
</table>

Note:

Please check the configuration and pass the proposed valuation codes under Plant level settings for the respective plant. If it is not there, you can use the Selected sets from Catalog type “3”. Even though it is configured and proposed, you can use other codes also.
For Example:

Below are the values:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ParentQualityIssueCategoryID [... ]</td>
<td>SMP00001</td>
</tr>
<tr>
<td>QualityIssueCategoryID [... ]</td>
<td>100</td>
</tr>
<tr>
<td>IssueCategoryFilterCode [... ]</td>
<td>1100SAMPLE</td>
</tr>
</tbody>
</table>

**Note**: You can also use the others codes under the same Selected set also.

**Possible Output:**

The valuation for the inspection point has been done.
B) Physical Sample:

After the user processed all inspection characteristics of a physical sample, he wants to valuate (= complete) it to indicate that the particular sample during the event was tested ok or not ok.

Note: Make sure all the characteristics have been results recorded and valuated.

ES needed: Create Material Inspection Subset Decision

What the ES will do: Provide valuation for the selected physical sample

Technical Name of the ES: ECC_MATINSPSUBDECCRTRC

Required Input Fields:

Inspection lot number (MaterialInspectionID): Provide the corresponding lot number

Inspection Point Number (SubsetID): Provide the corresponding inspection point of the physical sample. Please use the below steps:

1. Use the ES “Find Material Inspection Subset Operation by Elements” by providing only the inspection lot number, you will be getting the list of Subset ID numbers. You have to use SubsetIDs given by the service because these IDs are converted from inspection operation id and inspection point id.

2. Get the corresponding Subset ID of the physical sample.

Decision (Decision): Use the below Chart and the configuration details.

<table>
<thead>
<tr>
<th>ParentQualityIssueCategoryID [...]</th>
<th>Use the Code Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityIssueCategoryID [...]</td>
<td>Use the Code inside that code Group</td>
</tr>
<tr>
<td>IssueCategoryFilterCode [...]</td>
<td>Concatenate value of Plant and code</td>
</tr>
</tbody>
</table>

Note:

Please check the configuration and pass the proposed valuation codes under Plant level settings for the respective plant. If it is not there, you can use the Selected sets from Catalog type “3”. Even though it is configured and proposed, you can use other codes also.
For Example:

Below are the values:

<table>
<thead>
<tr>
<th>ParentQualityIssueCategoryID [...]</th>
<th>SMP00001</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityIssueCategoryID [...]</td>
<td>100</td>
</tr>
<tr>
<td>IssueCategoryFilterCode [...]</td>
<td>1100SAMPLE</td>
</tr>
</tbody>
</table>

**Note:** You can also use the others codes under the same Selected set also.

**Possible Output:**

The valuation for the physical sample has been done.
5.3.2.8   Decide on Product Usage

The user will review a list of inspection lots ready for a usage decision and decide on the corresponding product's usage for the inspection lot.

ES needed:  **Create Material Inspection Decision**

What the ES will do:  **Updates the inspection lot with the usage decision**

Technical Name of the ES:  **ECC_MATINSPECCRTRC**

**Prerequisites:**

- You have recorded the results and the defects for the inspection lot.
- You must provide the appropriate UD status code.
- You can’t force the characteristics and the UD with ES, like doing in the SAP ERP system. This means that you cannot execute this function if required characteristics are still open.

**Required Input Fields:**

Inspection lot number  (**MaterialInspectionID**): Provide the corresponding inspection lot number

Usage Decision  (**Decision**): Please use the below chart

| **ParentQualityIssueCategoryID** [...] | **Catalog type “3” for UD, so Enter 3** |
| **QualityIssueCategoryID** [...] | **Use the required Code Group** |
| **IssueCategoryFilterCode** [...] | **Use the Code inside that code Group** |
| **QualityScoreOrdinalNumberValue** [...] | **Use “0”** |

Detailed Text :

- **Detailed Text**  □ is Null
- **languageCode**: **EN** □ is Null
- **#simpleContent**: **Test UD** □ is Null

**Possible Output:**

The Usage Decision of the Inspection lot has been done with a success massage.
5.3.3 Restrictions of QM-Services

A) ES : Record Subset Operation Inspection Activity Result

The service as of now does NOT support the characteristics with following parameters:

- If the characteristics are configured for individual samples
- Has “No Manual Valuation”
- Documentation required in control parameters:

B) ES : Create Subset Operation Activity Finding

The service as of now does NOT support causes for a defect code and affected Quantity.
5.4 Configuration in SAP ERP

5.4.1 Introduction

Configuration of related Quality Management settings in SAP ERP can be done in Transaction Code "QCC0". Please find the below basic configurations required to make the above explained Results Recording Scenario to run effectively.

5.4.2 Configuration in SAP ERP QM application

<table>
<thead>
<tr>
<th>IMG Menu</th>
<th>Quality Management → Basic Settings → Maintain Settings at plant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction Code</td>
<td>QCC0</td>
</tr>
</tbody>
</table>

Select the respective plant:

Ensure the Proposal for inspection point valuation has been filled:
Maintain the necessary Inspection point identifiers and the user fields. Use free inspection points for normal inspection and defined inspection point type for other specific inspection.
Maintain the necessary Inspection types and assign to Material Master’s “QM View “. This will help us to create different types of inspection lots.

Please note the Task list usage, which will be used in the session 5.4.3 for Inspection plan creation.
**IMG Menu**

| Quality Management → Quality Inspection → Sample Management → Define Physical Sample Types |

**Transaction Code** QCC0

Maintain the necessary physical sample type.

**IMG Menu**

| Quality Management → Quality Inspection → Sample Management → Define Physical Sample Container |

**Transaction Code** QCC0

Note: The above are some of the configurations required for this scenario. Please check the Solution Manager for more configuration documents.
5.4.3 Master Data Requirements

The below master data preparation is a sample and it was created in the HU2 system (A master system with ESR). You can create the same in your system and use them for testing purposes. Use the below information for your master data preparation.

Basic Master data:

Create Material 1:
T Code : MM01
Material Number : XXXXX1
QM View: Assign the inspection type 01 or 04 (for ordinary inspection from good receipts) which can be assigned with inspection points

Create Material 2:
T Code : MM01
Material Number : XXXXX2
QM View: Assign the inspection type 89 (for creating manual inspection lots with physical samples)

Create Work Center:
T Code : CRQ1
Work center : WXXX
Plant : XXXX
Work Center Category : 0003 (Labor)

Create Sampling Procedure:
T Code : QDV1
Sampling Procedure Number : SPXXX
Sampling type : Fixed Sample
Sample Number : “n”
Valuation Mode : Manual Valuation
Create Inspection Characteristics:

A) Qualitative

T Code : QS21
MIC : QLXX
Plant : XXXX
Qualitative : True
Status : Released
Type - Characteristics Attribute : True
Sampling Procedure : True
Results Confirmation : Single or Summarized
No Documentation : True
Short Text : XXXXXXXXXX
Search fields : XXXXXXXXXX

A) Quantitative

T Code : QS21
MIC : QNXX
Plant : XXXX
Quantitative : True
Status : Released
Type – Lower and Upper Spec.limit : True
Sampling Procedure : True
Results Confirmation : Single or Summarized
No Documentation : True
Short Text : XXXXXXXXXX
Search fields : XXXXXXXXXX
Create Sampling Drawing Procedure:

This is required for the creation of inspection lots with Physical samples.

T Code : QPV2

Sample Drawing Procedure : SDPXXX

Sample Drawing Item :

Primary Sample :

Sample Container : Choose from the list …For E.g. Beaker

Size Factor : 1

Fixed Number : 4

Pooled Sample :

Sample Container : Choose from the list …For E.g. Beaker

Size Factor : 1

Fixed Number : 2

Maintain Catalog:

This is has to be maintained, so that we can use the code during Defects recording and use the selected sets during Results recording for the Qualitative and making UD.

T Code : QS41 ( Catalog )

Catalogs Need to be maintained: 1, 3, 9 and E

T Code : QS51 ( Selected Sets )

Plant : XXXX

Catalogs Need to be maintained: 1, 3
Create Inspection Plan:

The inspection plan has to be created for the material and can be used in inspection lot creation. For this scenario we need to create two different inspection plan to realize.

For Material 1:

T Code : QP01
Material : XXXXX1
Plant : XXXX
Group : GR1

Header :

Usage : 5 (as per the Configuration for inspection type 01 or 04 …. See page 56)
Status : 4 (Released)
Inspection point: As per the Configuration (See page 55)

Operations :

Work Center : WXXX
Control Key : QM01
Description: XXXXXXXX

Inspection Characteristics :

MIC : QLXX and QNXX
Sampling Procedure: QM01
Description: XXXXXXXX
Specification limits: for Quantitative Characteristics
Selected Sets: for Qualitative Characteristics
For Material 2:

T Code : QP01
Material : XXXXX2
Plant : XXXX
Group : GR2

Header :

Usage : 3 ( as per the Configuration for Inspection type 89 …. See page 56)
Status : 4 ( Released )
Sample Drawing Procedure : SDPXXX

Operations :

Work Center : WXXX
Control Key : QM01
Description: XXXXXXXX

Inspection Characteristics :

MIC : QLXX and QNXX
Sampling Procedure: QM01
Description: XXXXXXXX
Specification limits: for Quantitative Characteristics
Selected Sets: for Qualitative Characteristics

Create Inspection lot for Material 1:

T Code : MB31 or MIGO ( Do the Good Receipts )
Movement type : 101
Create Inspection lot for Material 2:

T Code : QA01
Material : XXXXX2
Plant : XXXX
Insp .lot Origin: 89

Results Recording :

T Code : QA32 or QE51n
Material : XXXXX1 or XXXXX1
Plant : XXXX

Choose the respective inspection lot and proceed on with results recording in the Back-end. With ES , pass the information as explained.
5.5 Realization in SAP MII - (Example UI)

SAP MII is one of the best platforms to consume the ES. This section will describe how the enterprise services can be consumed in SAP MII. The consumption of the web services in SAP MII is done in the Business Logic Editor of SAP MII. You can create queries which wrap the ES.

A sample Transaction in MII:


Inside this transaction, you define a web service which provides the interface between ECC and SAP MII. By right mouse click on the object “WebService_0” you can configure this object.
a) Enter the URL for the corresponding web service in SAP MII which you can get from the SOAManager. You need to enter also the user and password for the ECC system.

![Web Service Wizard](image)

b) Configure object in SAP MII Link Editor

![Link Editor](image)

In this window, you map the input of the enterprise service and the output of the fields in SAP MII. The Mapping for the Service “Find Material Inspection Subset Operation by Elements” is shown above.

The complete transaction in SAP MII can be stored as a .trx file.

In similar fashion; all the required transaction can be made to consume the enterprise services and map the output fields in SAP MII to get the required display.
5.5.1 Set up of UI

A content project was created by SAP to show case the QM ES from the IQM Bundle and delivered in SDN. SAP MII was used as user interface. The Screens shown here is only a model which can be modified accordingly.
Please download the above said content from the below link:

https://www.sdn.sap.com/irj/scn/manufacturing-tools  ->  Quality Control with SAP xMI (Using SOA)

This content represents an excellent show case for the ES bundle "Integration of QM Systems". You can use the content to support quality inspection and quality control along the supply chain. Although it is not a composite application, this application provides a lean user interface (UI) to retrieve, enter, and display the inspection results on the shop floor using the SAP enterprise services.
6 Additional Information and Links

Please find more information on Interaction and Certification with the below link for **ES Bundle certification**. This page will guide you to accomplish your certification.

https://www.sdn.sap.com/irj/sdn/icc?rid=/webcontent/uuid/00096f38-fe25-2b10-3f97-c84d0a449714

Also use the below link to find more information on Business Process Management. You can find the process samples developed with the help of ES. It can guide you to develop a scenario with the help of ES. Use these process samples as reference models and familiarize yourself with the business process management paradigm.

https://www.sdn.sap.com/irj/sdn/nw-bpm?rid=/webcontent/uuid/006a16ad-a3ad-2b10-4e9a-af2ee5820848

And more information on Simple samples in the below Wiki page:

http://esworkplace.sap.com/socoview(bD1lbiZjPTAwMSZkPW1pbg==)/render.asp?packageid=DE0426DD9B0249F19515001A64D3F482&id=EBF08F-D8067241F787448B3-E887DA04E