PM-PCS Interface (PM-EQM-SF-MPC)

HELP.PMEQMIFPCS

Release 4.6B

SAP™

Copyright

© Copyright 2000 SAP AG. All rights reserved.

No part of this brochure may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft®, WINDOWS®, NT®, EXCEL®, Word® and SQL Server® are registered trademarks of Microsoft Corporation.

IBM®, DB2®, OS/2®, DB2/6000®, Parallel Sysplex®, MVS/ESA®, RS/6000®, AIX®, S/390®, AS/400®, OS/390®, and OS/400® are registered trademarks of IBM Corporation.

ORACLE® is a registered trademark of ORACLE Corporation, California, USA.

INFORMIX®-OnLine for SAP and Informix® Dynamic Server™ are registered trademarks of Informix Software Incorporated.

UNIX®, X/Open®, OSF/1®, and Motif® are registered trademarks of The Open Group.

HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Laboratory for Computer Science NE43-358, Massachusetts Institute of Technology, 545 Technology Square, Cambridge, MA 02139.

JAVA® is a registered trademark of Sun Microsystems, Inc. , 901 San Antonio Road, Palo Alto, CA 94303 USA.

JAVASCRIPT® is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

SAP, SAP Logo, mySAP.com, mySAP.com Marketplace, mySAP.com Workplace, mySAP.com Business Scenarios, mySAP.com Application Hosting, WebFlow, R/2, R/3, RIVA, ABAP, SAP Business Workflow, SAP EarlyWatch, SAP ArchiveLink, BAPI, SAPPHIRE, Management Cockpit, SEM, are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other products mentioned are trademarks or registered trademarks of their respective companies.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax
	Tip

Contents

PM-PCS Interface (PM-EQM-SF-MPC) 5
Technical Objects 6
Transferring Measurement and Counter Readings 7
Master Data Call via User Interface 10
Converting the Object Key 11
Implementation 12
Notes about the Function Modules 15
Function Module MEASUREM_DOCUM_RFC_SINGLE_001 16
Function Module MEASUREM_DOCUM_RFC_SINGLE_002 21
Function Module MEASUREM_POINT_RFC_SINGLE_002 24
Function Module FUNC_LOCATION_RFC_002 27
Data Elements 32

PM-PCS Interface (PM-EQM-SF-MPC)

PM-PCS Interface (PM-EQM-SF-MPC)

Purpose

You can use this interface to transfer measurement and counter readings from feeder systems into the R/3 System. In the R/3 System, data is saved in measurement documents and can be used by both the PM (Plant Maintenance) and CS (Customer Service) application components.

Purpose in the R/3 System:

- Performance-based, planned maintenance enables you to plan maintenance activities based on counter readings that are maintained for your technical objects [Page 6].
- In the case of condition-based maintenance, maintenance-relevant events are recognized by an external system. By transferring these events to the PM-PCS interface, malfunction notifications can be created in the R/3 System.
- You can use measurement documents to record information that is necessary for plant safety, job safety and environmental protection.
- From Release 4.0, you can also use measurement documents as the basis for consumption billing for real estate management.

Implementation Considerations

Possible feeder systems:

- Portable data entry systems
- Process Control Systems (PCS)
- Building control systems
- SCADA systems (Supervisory Control And Data Acquisition Systems)

Technical Objects

Definition

In the R/3 System, you represent the systems to be maintained as technical objects. Technical objects are managed in the master data of the R/3 System as functional locations and pieces of equipment.

A functional location is an organizational unit within Logistics that structures the maintenance objects of a company according to functional, process-oriented or spatial criteria.

A functional location represents the place at which a maintenance activity is to be performed.

A piece of equipment is an individual, physical object that is to be maintained as an autonomous unit.

Structure

Functional locations are structured hierarchically to represent the structure of the system to be maintained. Functional locations of different hierarchies can be linked to one another. In this way, you can represent the global network structure of a technical system, the links between different technical systems and the dependencies between individual functional locations.

A piece of equipment can be installed at a functional location or in a superior piece of equipment for a certain period of time. In the course of its useful life, it can be used at different installation locations.

Equipment can also be assigned hierarchically, enabling you to represent pieces of equipment that have a more complex structure. Pieces of equipment can also be linked to one another. In this way you can represent the global network structure of a technical system and the dependencies between the individual pieces of equipment.

Transferring Measurement and Counter Readings

Purpose

The PM-PCS interface transfers filtered data from a process control system (PCS) to the R/3 System. Measurement documents are created automatically in the R/3 System for the measurement and counter readings.

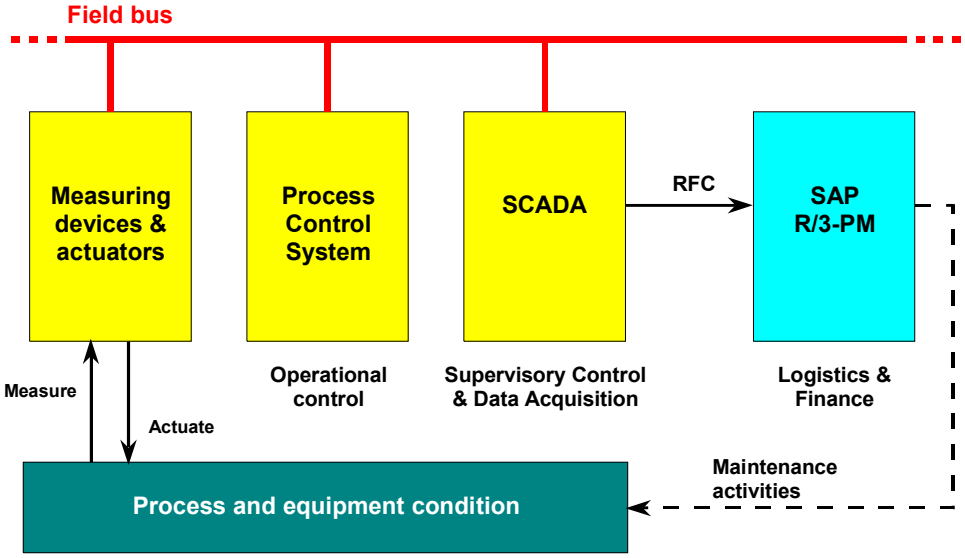
You should implement this interface if you want to use measurement documents in the R/3 System as the basis for performing maintenance activities or for documenting information.

Process Flow

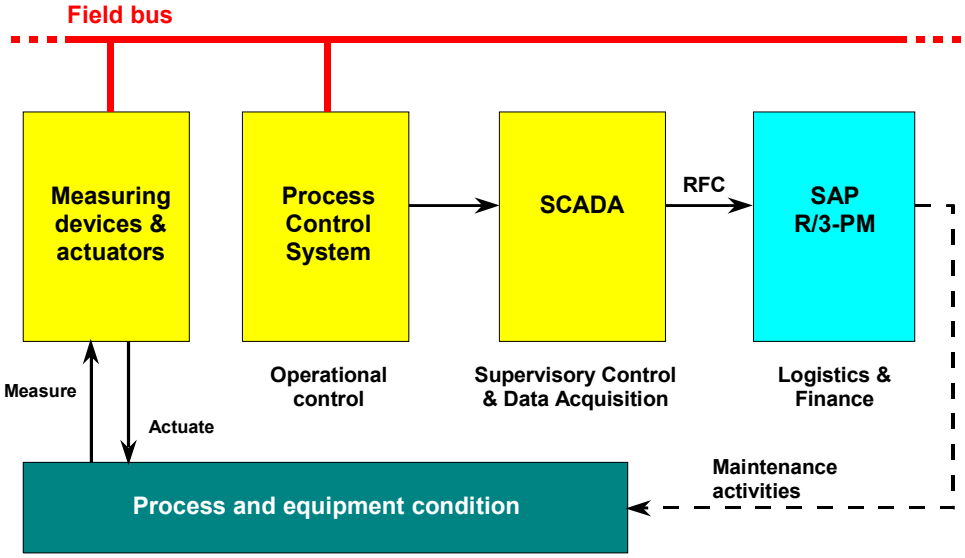
Process control systems provide a wealth of data that arises within a particular process, building, or infrastructure. SCADA systems perform a filter function in these circumstances. They filter out the maintenance-relevant data and, in this way, prevent the R/3 System from being flooded with process data.

In addition, SCADA systems enable communication between one or more process control systems and the R/3 System.

SCADA System Connected Directly to the Field Bus -> PCS does not require a SCADA interface

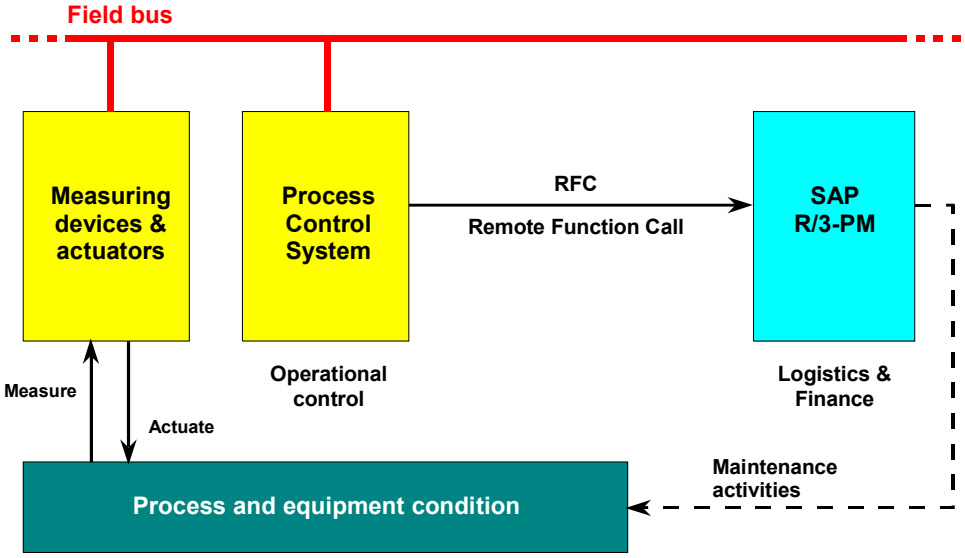


SCADA System as Middleware Between PCS and R/3 System

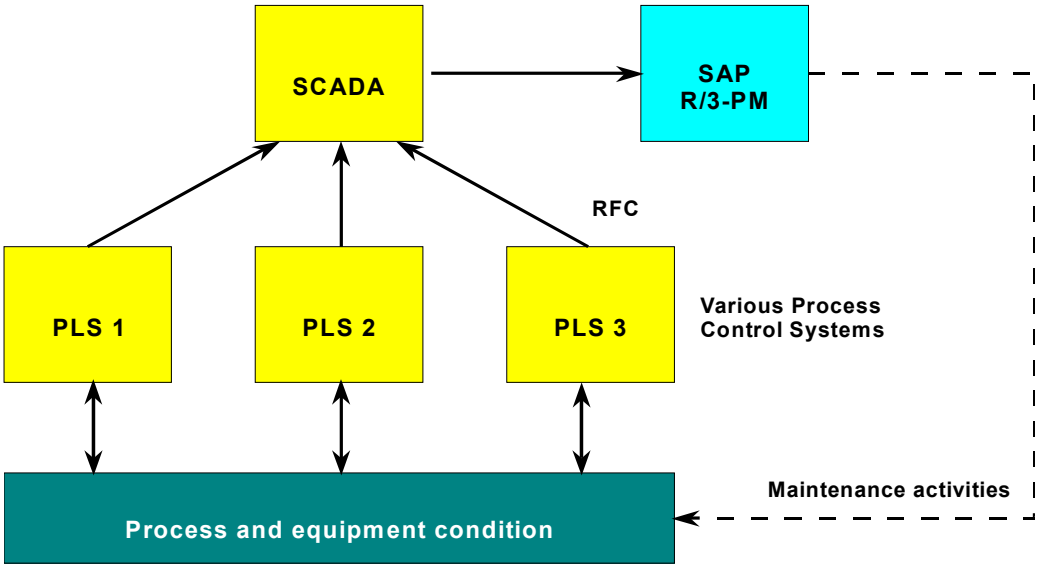


Some process control systems have their own necessary filter and interface functions, which means that they can be connected directly to the R/3 System without the requirement of an intermediate connection to a SCADA system.

Direct Connection Between PCS and R/3 System



SCADA System as the Integrator of Various PCS



Master Data Call via User Interface

Use

Both process control systems (PCS) and Supervisory Control and Data Acquisition Systems (SCADA) often provide a graphical user interface, for example:

- Process and Instrumentation Diagrams (P&ID)
- Site and installation plans in 2D and 3D (GIS and CAD systems)

You can access directly the master data of the technical objects [Page 6] from this user interface (for example, by double-clicking). When doing this, the PM-PCS interface enables a dialog transaction to be started for the specified technical object in the R/3 System. The transaction is started on the same PC but in a second window.

First of all, the master record of the technical object is simply displayed. You can switch to the change mode at any time. You can use the menu functions to access the technical object's logistics and business environment.

Converting the Object Key

Use

Generally, the same object is managed in different systems under different keys. Use For example, a measuring point with the number 4711 in the R/3 System corresponds to the data address P-1001 in the process control system.

The conversion of the object key of the external system into the R/3 key is generally performed using an assignment table. This table can either be located in the external system or in the R/3 System.

In the case of the PM objects “Functional location” and “Measuring point”, the object key of the external system can be stored on the part of R/3 as a standard attribute (secondary index) of the R/3 object. This means that when the corresponding RFCs are called up, the SAP primary key does not have to be transferred.

Implementation

Use

Generally, logging is required in the following areas for monitoring an interface between two systems:

- In the source system (PCS/SCADA):

  For performing the retrospective entry of events that occurred during a phase when the target system was not available.

- In the target system (SAP R/3):
  - For saving all incoming events, if processing does not take place simultaneously.
  - For monitoring event processing, if this takes place in separate steps (transactions), as with Workflow.
  - For monitoring database updates (asynchronous update in the R/3 System).

However, in the case of the PM-PCS interface, R/3 logging is not necessary.

Prerequisites

- Event processing in the R/3 System takes place simultaneously.

  Each event results directly in an entry in an R/3 application table, meaning that each event generates a measurement document in the R/3 System.

- Event processing in the R/3 System takes place in a single transaction.

  If a malfunction report is generated, then this should happen together with the creation of a measurement document in an R/3 transaction.

- The update of the R/3 application table occurs simultaneously.

Activities

Normal Operating Situation

The only logging is in the source system (PCS/SCADA). There, the R/3 measurement document number is logged for each event that is transferred. This enables the completeness of the transfer to be checked at any time.

When the document number is returned to the source system from the R/3 System, the database has already been updated. This is also the case when a malfunction report is created in addition to the measurement document.

When the R/3 System is not Available

The source system must deal with the following scenarios of the R/3 System not being available:

- The measuring point, for which the event should be transferred, is currently locked in the R/3 System.

  In the source system log, the exception POINT_LOCKED, that is returned by the R/3 System, is logged for the event record.

- The R/3 System is not currently available.

  The exception ZZ_SAP_NOT_AVAILABLE is written in the log.

- For some reason, event processing in the R/3 System takes too long.

  The exception ZZ_SAP_TIME_OUT is written in the log. Confirmation from the R/3 System is no longer being waited for; the work process in the source system is released.

The PM-PCS interface enables the automatic completion of event transfer. For this, the log in the source system must be continuously monitored. Where necessary, events are transferred to the R/3 System again. The source system recognizes events that have not yet been transferred by the missing R/3 document number in the log.

- After the exceptions POINT_LOCKED and ZZ_SAP_NOT_AVAILABLE, the repeated transfer of the event is not critical because event processing has not taken place.
  - After the exception ZZ_SAP_TIME_OUT, it should be checked whether the event is being processed in duplicate after its repeated transfer to the R/3 System (duplicate records).

Recognizing and Avoiding Duplicates (Duplicate Records)

Duplicates are not immediately recognizable in the R/3 System because usually **every** incoming event results in the creation of a new measurement document. For this reason, the source system must transfer each event with a customer-specific document ID. The R/3 System is able to recognize the repeated transfer of an event that has already been processed from this document ID, and can therefore avoid duplicate processing.

Therefore, the recognition of duplicates in the R/3 System is controlled on the basis of additional, customer-specific information. From Release 3.1I, the necessary enhancements for doing this are included for the PM-PCS interface.

- Transfer of a customer-specific document ID:

  For this, you can create a field, ZZ_CUST_ID, of any format in the Customizing include CI_IMRG that has been prepared.

- Activation of duplicate recognition:

  When you call up the R/3 function module MEASUREM_DOCUM_RFC_SINGLE_001, set the parameter CHECK_CUSTOM_DUPREC = X.

- Response of the R/3 System after recognizing duplicates:

  The function module sets the indicator CUSTOM_DUPREC_OCCURED = X. The function module returns the number of the measurement document that already existed instead of a new measurement document number. This number is logged for the event in the source system as in the normal operating situation.

Notes about the Function Modules

Use

All individual functions are performed in the R/3 System using RFC-enabled function modules (Remote Function Call). These function modules were first delivered with Release 3.0E.

The function modules for measurement documents and measuring points are able to return the complete object data to the calling application from Release 3.1. This is because the inclusion of floating point fields (Format FLTP) in the structures and tables of the RFC interfaces was not previously supported.

From Release 3.1I / 4.0B, you can use the following Customer Exits for measuring points and measurement documents:

- IMRC0001 runs before the update and enables you to define particular field contents in measurement points and measurement documents, to generate workflow events and to update customer-specific tables.
- IMRC0002 and IMRC0003 make available menu exits in the online processing of measuring points and measurement documents, so that you can trigger customer-specific functions or call up customer-defined screens.

You can also create the Customizing includes CI_IMPTT or CI_IMRG to extend the tables IMPTT (measuring point) or IMRG (measurement document) respectively, to include customer-defined fields. For each of the three mentioned Customer exits, you then maintain control of the customer-specific fields.

Prerequisites

Because all individual functions can be called up using RFC, the calls can also be made by OLE (Object Linking and Embedding) (using SAP's WDTFUNCS.OCX).

All function modules are online interfaces. In case the R/3 System is ever unavailable, the measurement values to be transferred in the process control system or in the SCADA system must be able to be buffered.

Function Module MEASUREM_DOCUM_RFC_SINGLE_001

Task

RFC Measurement document: Individual processing, Create

Use

This RFC enables the following remote calls for creating measurement documents:

- Remote dialog (WITH_DIALOG_SCREEN = 'X')
- API without Dialog (WITH_DIALOG_SCREEN = ' ')

The session “Create with dialog” can be used for the correction of incorrect data records (compare with processing in the foreground for incorrect batch input sessions).

You can use the parameter CREATE_NOTIFICATION to determine whether another maintenance notification should be created for the measurement document.

If a notification is to be created, a notification type that is set in Customizing of the target system can be assigned, using the parameter NOTIFICATION_TYPE. The standard notification type *M2 = Malfunction report* is preassigned.

Additionally, the notification can be assigned a priority that also has to be set in Customizing of the target system.

The following data can be copied into the notification from the measurement document or the measuring point:

- Measuring point object of the measuring point (functional location or equipment)
- The field *Assembly* for the measuring point (should be included in the bill of material of the measuring point object)
- Measurement time in the field *Malfunction start* (date and time) of the notification
- Counter-reader in the field *Notifier* of the notification
- Short text
- Valuation code, as long as its catalog type is the same as the catalog type defined in Customizing for *Problems* (V_TQ80_C-FEKAT) of the respective notification type.

Notes

- If a unique value has been maintained in the field *Measurement position* of the measuring point, the measuring point can also be identified by the measurement position. In this case, use the parameter SECONDARY_INDEX.

The following is valid for the parameters RECORDED_VALUE and RECORDED_UNIT:

- Both parameters have to be transferred in external format:

- RECORDED_VALUE is transferred in CHAR format. If the field contains decimal places, these must be separated using a comma or period according to the setting in the user master.
- RECORDED_UNIT is interpreted depending on the logon language and is case sensitive.

- If the parameter RECORDED_UNIT is transferred blank, the system assumes that the unit of measurement of the measuring point MEASUREMENT_POINT should be used.

If the measurement document table IMRG has been extended to include customer-specfic fields by creating the Customizing include CI_IMRG, these fields can be filled using the parameter USER_DATA.

If the parameter CHECK_CUSTOM_DUPREC has been transferred with 'X', the system checks whether a measurement that has not been canceled already exists for the measuring point and time stamp (READING_DATE + READING_TIME).

If this is the case, a new measurement document is not created. Instead, the system returns the parameter CUSTOM_DUPREC_OCCURED with 'X'. In the parameters MEASUREMENT_DOCUMENT, COMPLETE_DOCUMENT and NOTIFICATION, the data of the already-existing measurement documents is returned. For this reason, the exception TIMESTAMP_DUPREC cannot be set, also not for counters.

If you want to allow more than one measurement document per time stamp (second), you must create the Customizing include CI_IMRG with the field ZZ_CUST_ID. You can define the field ZZ_CUST_ID with any format. It is then available automatically in the database table IMRG and in the parameter USER_DATA, and is used during the above-mentioned DupRec-check as a refinement of the time stamp. This means that in the field ZZ_CUST_ID, you are able to transfer an internal counter per measuring point and time stamp, an extension of the time stamp in micro/nanoseconds, or the number of the original document from the feeder system.

Import Parameters

Parameter	Type	Length	Short text
MEASUREMENT_POINT	CHAR	12	Measuring point (primary key)
SECONDARY_INDEX	CHAR	20	Secondary index: Position no. of measuring point
READING_DATE	DATS	8	Date of measurement
READING_TIME	TIMS	6	Time of measurement
SHORT_TEXT	CHAR	40	Short text for measurement document
READER	CHAR	12	Counter reader of measurement reading
ORIGIN_INDICATOR	CHAR	1	Origin indicator [Page 32]
READING_AFTER_ACTION	CHAR	1	X = Measurement after appropriate action
RECORDED_VALUE	CHAR	22	Measurement reading in entry unit [Page 32]
RECORDED_UNIT	CHAR	6	Unit of measurement for document entry
DIFFERENCE_READING	CHAR	1	X = MeasReading is counter reading difference
CODE_CATALOGUE	CHAR	1	Catalog type of the valuation code
CODE_GROUP	CHAR	8	Code group of valuation code
VALUATION_CODE	CHAR	4	Valuation code
CODE_VERSION	CHAR	6	Version number of valuation code
USER_DATA			Customer-specific data
CHECK_CUSTOM_DUPREC	CHAR	1	X = Customer-specific DupRec-check

WITH_DIALOG_SCREEN	CHAR	1	X = RFC with dialog screen
COMMIT_WORK	CHAR	1	X = Trigger COMMIT WORK at ABAP level
WAIT_AFTER_COMMIT	CHAR	1	X = Wait for database update
CREATE_NOTIFICATION	CHAR	1	X = Create PM notification
NOTIFICATION_TYPE	CHAR	2	Notification type
NOTIFICATION_PRIO	CHAR	1	Notification priority

Export Parameters

Parameter	Type	Length	Short text
MEASUREMENT_ DOCUMENT	CHAR	20	Measurement document (primary key)
COMPLETE_DOCUMENT	See IMRG structure	See IMRG structure	Complete measurement document
NOTIFICATION	CHAR	12	Notification (primary key)
CUSTOM_DUPREC_OCCURED	CHAR	1	X = Customer-defined DupRec occured

IMRG Structure

Name	Type	Length	Short text
AEDAT	DATS	8	Date on which the object was last changed
AENAM	CHAR	12	Name of the user who last changed the object
CANCL	CHAR	1	Cancel indicator
CDIFF	FLTP	16	Counter reading difference in SI-units
CDIFFI	CHAR	1	Indicator to show that the corresponding field contains a value
CNTRG	CHAR	1	Indicator: Counter-reading document
CNTRR	FLTP	16	Counter reading in SI-units
CNTRRI	CHAR	1	Indicator to show that the corresponding field contains a value
CODCT	CHAR	1	Catalog type - Valuation code for the measurement reading
CODGR	CHAR	8	Code group - Valuation code for the measurement reading
CVERS	CHAR	6	Version number
DETAILERG	NUMC	8	Development reserve: Format NUMC, Length 8
DOCAF	CHAR	1	Indicator: Measurement document included after corresponding task
ERDAT	DATS	8	Date on which the object was created
ERNAM	CHAR	12	Name of the user who created the object
ERUHR	TIMS	6	Time at which the object was created
EXCHG	CHAR	1	Indicator to show that the register was exchanged
GENER	CHAR	1	Origin indicator
IDATE	DATS	8	Date of measurement
IDIFF	CHAR	1	Indicator to show that the counter reading was entered as a difference
INVTS	NUMC	11	Internal time stamp format: 99.999.999.999 - seconds
ITIME	TIMS	6	Time of measurement
KZLTX	CHAR	1	Long text indicator

LVORM	CHAR	1	Deletion flag
MANDT	CLNT	3	Client
MBEWERTG	CHAR	1	Valuation of test result
MDOCM	CHAR	20	Measurement document
MDTXT	CHAR	40	Measurement document text
MERKNR	NUMC	4	Inspection characteristic number
MLANG	LANG	1	Language key
POINT	CHAR	12	Measuring point
PREST	CHAR	1	Processing status
PROBENR	NUMC	6	Number of the partial sample
PRUEFLOS	NUMC	12	Inspection lot number
READG	FLTP	16	Measurement reading / total counter reading in SI-units
READGI	CHAR	1	Indicator to show that the corresponding field contains a value
READR	CHAR	12	Counter reader of the measurement reading
RECDU	UNIT	3	Unit of measurement for document entry
RECDV	FLTP	16	Measurement reading in unit of entry
RECDVI	CHAR	1	Indicator to show that the corresponding field contains a value
ROOTD	CHAR	20	Source document for measurement reading transfer
TOLID	NUMC	8	Object ID of the production resource/tool
TOLTY	CHAR	2	Object type of the CIM resource for production resource/tool
TOTEX	CHAR	1	Indicator to show that the total counter reading was set externally
VLCOD	CHAR	4	Valuation code
VORGLFNR	NUMC	8	Current node number from order counter APLZL
WOOB1	CHAR	22	Object number of the order operation / confirmation counter, etc.
WOOBJ	CHAR	22	Object number of the order etc.
CI_IMRG			Customer-specific data

Exceptions

Parameter	Short text
NO_AUTHORITY	No authorization
POINT_NOT_FOUND	Measuring point (table IMPTT) not found
INDEX_NOT_UNIQUE	Secondary index is not unique
TYPE_NOT_FOUND	Measuring point category not found
POINT_LOCKED	Measuring point blocked by dialog user
POINT_INACTIVE	Measuring point inactive -> no document entry
TIMESTAMP_IN_FUTURE	Measurement time point lies in the future
TIMESTAMP_DUPREC	A counter reading already exists
UNIT_UNFIT	Unit of measurement does not suit dimension to be measured
VALUE_NOT_FLTP	RECORDED_VALUE cannot be read as floating point number
VALUE_OVERFLOW	Measurement range exceeded/not reached
VALUE_UNFIT	Counter reading does not suit monotone development
VALUE_MISSING	Measurement/counter reading missing
CODE_NOT_FOUND	Valuation code not defined
NOTIF_TYPE_NOT_FOUND	Notification type not defined or not authorized
NOTIF_PRIO_NOT_FOUND	Priority not defined
UPDATE_FAILED	Database update failed (during WAIT_AFTER_COMMIT)

Function Module MEASUREM_DOCUM_RFC_SINGLE_002

Task

RFC Measurement document: Individual processing, Change/Display or Read

Use

This RFC enables the following remote calls:

- Remote dialog (WITH_DIALOG_SCREEN = 'X')
  - Remote dialog in display mode (EDIT_MODE = ' ')
  - Remote dialog in change mode (EDIT_MODE = 'X')
- Remote reading of measurement document data (WITH_DIALOG_SCREEN = ' ')

Notes

Apart from when an EXCEPTION occurs, the measurement document data (structure IMRG) is always returned.

After a remote dialog in change mode, the redundant fields of the measurement document in the calling system can be synchronized.

Import Parameters

Parameter	Type	Length	Short text
MEASUREMENT_ DOCUMENT	CHAR	20	Measurement document number
WITH_DIALOG_SCREEN	CHAR	1	X = RFC with dialog screen
EDIT_MODE	CHAR	1	X = Call in change mode
COMMIT_WORK	CHAR	1	X = Trigger COMMIT WORK at ABAP level
WAIT_AFTER_COMMIT	CHAR	1	X = Wait for database update

Export Parameters

Parameter	Type	Length	Short text
IMRG_BA	See IMRG structure	See IMRG structure	Work area returned from transaction
UPDATE_SUCCESS	CHAR	1	X = Update performed

IMRG Structure

Name	Type	Length	Short text
AEDAT	DATS	8	Date on which the object was last changed
AENAM	CHAR	12	Name of the user who last changed the object
CANCL	CHAR	1	Cancel indicator
CDIFF	FLTP	16	Counter reading difference in SI-units

CDIFFI	CHAR	1	Indicator to show that the corresponding field contains a value
CNTRG	CHAR	1	Indicator: Counter-reading document
CNTRR	FLTP	16	Counter reading in SI-units
CNTRRI	CHAR	1	Indicator to show that the corresponding field contains a value
CODCT	CHAR	1	Catalog type - Valuation code for the measurement reading
CODGR	CHAR	8	Code group - Valuation code for the measurement reading
CVERS	CHAR	6	Version number
DETAILERG	NUMC	8	Development reserve: Format NUMC, Length 8
DOCAF	CHAR	1	Indicator: Measurement document included after corresponding task
ERDAT	DATS	8	Date on which the object was created
ERNAM	CHAR	12	Name of the user who created the object
ERUHR	TIMS	6	Time at which the object was created
EXCHG	CHAR	1	Indicator to show that the register was exchanged
GENER	CHAR	1	Origin indicator
IDATE	DATS	8	Date of measurement
IDIFF	CHAR	1	Indicator to show that the counter reading was entered as a difference
INVTS	NUMC	11	Internal time stamp format: 99.999.999.999 - seconds
ITIME	TIMS	6	Time of measurement
KZLTX	CHAR	1	Long text indicator
LVORM	CHAR	1	Deletion flag
MANDT	CLNT	3	Client
MBEWERTG	CHAR	1	Valuation of test result
MDOCM	CHAR	20	Measurement document
MDTXT	CHAR	40	Measurement document text
MERKNR	NUMC	4	Inspection characteristic number
MLANG	LANG	1	Language key
POINT	CHAR	12	Measuring point
PREST	CHAR	1	Processing status
PROBENR	NUMC	6	Number of the partial sample
PRUEFLOS	NUMC	12	Inspection lot number
READG	FLTP	16	Measurement reading / total counter reading in SI-units
READGI	CHAR	1	Indicator to show that the corresponding field contains a value
READR	CHAR	12	Counter reader of the measurement reading
RECDU	UNIT	3	Unit of measurement for document entry
RECDV	FLTP	16	Measurement reading in unit of entry
RECDVI	CHAR	1	Indicator to show that the corresponding field contains a value
ROOTD	CHAR	20	Source document for measurement reading transfer
TOLID	NUMC	8	Object ID of the production resource/tool
TOLTY	CHAR	2	Object type of the CIM resource for production resource/tool
TOTEX	CHAR	1	Indicator to show that the total counter reading was set externally
VLCOD	CHAR	4	Valuation code
VORGLFNR	NUMC	8	Current node number from order counter APLZL
WOOB1	CHAR	22	Object number of the order operation / confirmation counter, etc.
WOOBJ	CHAR	22	Object number of the order etc.
CI_IMRG			Customer-specific data

Exceptions

Parameter	Short text
NO_AUTHORITY	No authorization
DOCUMENT_NOT_FOUND	Measurement document (table IMRG) not found
POINT_NOT_FOUND	Corresponding measuring point not available
UPDATE_FAILED	Database update failed (during WAIT_AFTER_COMMIT)

Function Module MEASUREM_POINT_RFC_SINGLE_002

Task

RFC Measuring point: Individual processing, Change/Display or Read

Use

This RFC enables the following remote calls:

- Remote dialog (WITH_DIALOG_SCREEN = 'X')
  - Remote dialog in display mode (EDIT_MODE = ' ')
  - Remote dialog in change mode (EDIT_MODE = 'X')
- Remote read of measuring point data (WITH_DIALOG_SCREEN = ' ')

Notes

1. Apart from when an EXCEPTION occurs, the measuring point data (structure IMPT) is always returned.

   After a remote dialog in change mode, the redundant fields of the measuring point in the calling system can be synchronized.

2. If a unique value has been maintained in the field *Measurement position* for the measuring point, the measuring point can also be identified by the measurement position. In this case, use the parameter SECONDARY_INDEX.

Import Parameters

Parameter	Type	Length	Short text
MEASUREMENT_POINT	CHAR	12	Measuring point (primary key)
SECONDARY_INDEX	CHAR	20	Secondary index: Position no. of measuring point
WITH_DIALOG_SCREEN	CHAR	1	X = RFC with dialog screen
EDIT_MODE	CHAR	1	X = Call in change mode
COMMIT_WORK	CHAR	1	X = Trigger COMMIT WORK at ABAP level
WAIT_AFTER_COMMIT	CHAR	1	X = Wait for database update

Export Parameters

Parameter	Type	Length	Short text
IMPT_BA	See IMPT structure	See IMPT structure	Work area returned from transaction
UPDATE_SUCCESS	CHAR	1	X = Update performed

IMPT Structure

Name	Type	Length	Short text
AEDAT	DATS	8	Date on which the object was last changed
AENAM	CHAR	12	Name of the user who last changed the object

ANZDZ	INT2	5	Number of decimal places
ATDIM	INT2	5	Exponent in the screen display
ATFOR	CHAR	4	Data type of the characteristic
ATINN	NUMC	10	Internal characteristic
ATINNR	CHAR	1	Indicator: Characteristic originates from the reference measuring point
ATNAM	CHAR	30	Characteristic name
ATVOR	CHAR	1	Indicator: Negative readings allowed
AUSWAHLMENGE	CHAR	8	Selected set
BEGRU	CHAR	4	Authorization group for the technical object
CDSUF	CHAR	1	Indicator to show that the valuation code for the measurement document is sufficient
CJUMP	FLTP	16	Counter overflow reading in SI-units
CJUMPI	CHAR	1	Indicator to show that the corresponding field contains a value
CODCT	CHAR	1	Catalog type - Valuation code for the measurement reading
CODGR	CHAR	8	Code group - Valuation code for the measurement reading
CODGRR	CHAR	1	Indicator: Code group originates from the reference measuring point
DECIM	INT2	5	Number of decimal places when representing figures
DESIR	FLTP	16	Target value for the measuring point
DESIRI	CHAR	1	Indicator to show that the corresponding field contains a value
DESIRR	CHAR	1	Indicator: Target value originates from the reference measuring point
DSTXT	CHAR	40	Additional short text for the measuring point
DSTXTR	CHAR	1	Indicator: Additional short text originates from the reference measuring point
ERDAT	DATS	8	Date on which the object was created
ERNAM	CHAR	12	Name of the user who created the object
EXPON	INT2	5	10-digit exponent for floating point representation
INACT	CHAR	1	Indicator to show that the measuring point is deactivated
INDCT	CHAR	1	Indicator to show that the measuring point is a counter
INDRV	CHAR	1	Indicator to show that the counter runs backwards
INDTR	CHAR	1	Indicator to show that a measurement reading transfer is intended
IRFMP	CHAR	1	Indicator to show that the measuring point is a reference measuring point
KZLTX	CHAR	1	Long text indicator
LOCAS	CHAR	18	Assembly for locating the measuring point
LVORM	CHAR	1	Deletion flag
MANDT	CLNT	3	Client
MLANG	LANG	1	Language key
MPOBJ	CHAR	22	Object number of measuring point object
MPTYP	CHAR	1	Measuring point category
MRMAX	FLTP	16	Upper measurement range limit or maximum total counter reading

MRMAXI	CHAR	1	Indicator to show that the corresponding field contains a value
MRMIN	FLTP	16	Lower measurement range limit or minimum total counter reading
MRMINI	CHAR	1	Indicator to show that the corresponding field contains a value
MRNGU	UNIT	3	Measurement range unit
MSEHI	UNIT	3	Unit of measurement
POINT	CHAR	12	Measuring point
PSORT	CHAR	20	Item number of the measuring point at the object (sort field)
PSORTR	CHAR	1	Indicator: Item number originates from the reference measuring point
PTTXT	CHAR	40	Description of the measuring point
PYEAR	FLTP	16	Annual performance in SI-units
PYEARI	CHAR	1	Indicator to show that the corresponding field contains a value
REFMP	CHAR	12	Reference measuring point
TRANS	CHAR	12	Measuring point from which the measurement reading transfer occurs
CI_IMPTT			Customer-specific data

Exceptions

Parameter	Short text
NO_AUTHORITY	No authorization
POINT_NOT_FOUND	Measuring point (table IMPTT) not found
INDEX_NOT_UNIQUE	Secondary index is not unique
TYPE_NOT_FOUND	Measuring point category not found
UPDATE_FAILED	Database update failed (during WAIT_AFTER_COMMIT)

Function Module FUNC_LOCATION_RFC_002

Task

RFC at functional location: Individual processing, Change/Display or Read

Use

This RFC enables the following remote calls for functional locations:

- Dialog transaction (WITH_DIALOG_SCREEN = 'X')
  - Display mode (EDIT_MODE = ' ')
  - Change mode (EDIT_MODE = 'X')
- Just reading of location data (WITH_DIALOG_SCREEN = ' ')

Notes

1. Apart from when an EXCEPTION occurs, the location data (view IFLO) is always returned.

   After a remote dialog in change mode, the redundant fields of the location in the calling system can be synchronized.
2. If a unique value has been maintained in the sort field of the functional location, the location can also be identified by the sort field. In this case use the parameter SECONDARY_INDEX and create an index with the following fields for the table ILOA:
   - EQFNR
   - OWNER
3. If alternative labeling of functional locations is active in your system, you can also identify the functional location using the parameter FUNC_LOCATION_LABEL and LABELLING_SYSTEM.

   You can therefore represent in parallel the location labels of different partner systems in the R/3 System and use them when calling up the R/3 System to identify the functional locations.

Import Parameters

Parameter	Type	Length	Short text
FUNC_LOCATION	CHAR	30	Key field for functional location
SECONDARY_INDEX	CHAR	30	Secondary index: Sort field (IFLO-EQFNR)
WITH_DIALOG_SCREEN	CHAR	1	X = RFC with dialog screen
EDIT_MODE	CHAR	1	X = Call in change mode

Export Parameters

Parameter	Type	Length	Short text

Function Module FUNC_LOCATION_RFC_002

IFLO_BA	See IFLO structure	See IFLO structure	Work area returned from transaction
UPDATE_SUCCESS	CHAR	1	X = Update performed

IFLO Structure

Name	Type	Length	Short text
ABCKZ	CHAR	1	ABC indicator for the technical object
ABCKZI	CHAR	1	Data origin for the field 'ABC indicator'
ADRNR	CHAR	10	Address number
ADRNRI	CHAR	1	Data origin for the field 'Address'
AEDAT	DATS	8	Date on which the object was last changed
AENAM	CHAR	12	Name of the user who last changed the object
ANLNR	CHAR	12	System main number
ANLNRI	CHAR	1	Data origin for the fields ‘System main no.' and 'sub-no.'
ANLUN	CHAR	4	System sub-number
ANLUNI	CHAR	1	Indicator: Data origin
AUFNR	CHAR	12	Settlement order
AUFNRI	CHAR	1	Data origin for the field 'Settlement order'
BEBER	CHAR	3	Plant section
BEBERI	CHAR	1	Data origin for the field 'Plant section'
BEGRU	CHAR	4	Authorization group for the technical object
BUKRS	CHAR	4	Company code
BUKRSI	CHAR	1	Data origin for the field ' Company code'
CR_OBJTY	CHAR	2	CIM resource object type
DATAB	DATS	8	Start-up date of the functional location
DAUFN	CHAR	12	Standing order number
DAUFNI	CHAR	1	Data origin for the field 'Standing order number'
EINZL	CHAR	1	Single installation of equipment at the functional location
EINZLI	CHAR	1	Data origin for the field 'Authorization group'
EQFNR	CHAR	30	Sort field
EQFNRI	CHAR	1	Data origin for the field 'Sort field'
ERDAT	DATS	8	Date on which the object was created

ERNAM	CHAR	12	Name of the user who created the object
FLTYP	CHAR	1	Type of functional location
GSBER	CHAR	4	Business area
GSBERI	CHAR	1	Data origin for the field ' Business area '
IEQUI	CHAR	1	Installation of equipment at functional location allowed
IEQUII	CHAR	1	Data origin for the field ‘Installation of equipment allowed'
ILOAN	CHAR	12	Location and account assignment for the maintenance object
INGRP	CHAR	3	Maintenance planner group
INGRPI	CHAR	1	Data origin for the field 'Maintenance planner group'
ISTYP	CHAR	1	Object type for Industry Solution (IS)
IWERK	CHAR	4	Maintenance planning plant
IWERKI	CHAR	1	Data origin for the field 'Maintenance planning plant'
KOKRS	CHAR	4	Controlling area
KOKRSI	CHAR	1	Data origin for the field 'Controlling area'
KOSTL	CHAR	10	Cost center
KOSTLI	CHAR	1	Data origin for the field 'Cost center'
KZLTX	CHAR	1	Long text indicator
KZMLA	CHAR	1	Indicator: Text segment in primary language
LGWID	NUMC	8	Object ID of the PM work center
LGWIDI	CHAR	1	Data origin for the field 'PM work center’
LVORM	CHAR	1	Development reserve: Format CHAR, Length 1
MANDT	CLNT	3	Client
MAPAR	CHAR	30	Development reserve: Format CHAR, Length 30
MAPARI	CHAR	1	Development reserve: Format CHAR, Length 1
MLANG	LANG	1	Primary language for object text
MSGRP	CHAR	8	Room
MSGRPI	CHAR	1	Data origin for the field 'Room number'
OBJNR	CHAR	22	Object number
OWNER	CHAR	1	Object reference indicator
PLTXT	CHAR	40	Description of functional location
PLTXU	CHAR	40	Description of functional location in capital letters
PM_OBJTY	CHAR	2	Object type of the CIM resource for PM work center
POSNR	CHAR	4	Item at the superior functional location

PPSID	NUMC	8	Object ID of the PPS work center
PPSIDI	CHAR	1	Data origin for the field ‘PPS work center’
PREMS	CHAR	10	Point of consumption
PROID	NUMC	8	Work Breakdown Structure element (WBS element)
PROIDI	CHAR	1	Data origin for the field ‘WBS element'
PSTAE	CHAR	4	Development reserve: Format CHAR, Length 4
RBNR	CHAR	9	Catalog profile
RBNR_I	CHAR	1	Data origin for the field 'Catalog profile'
SPART	CHAR	2	Division
SPARTI	CHAR	1	Data origin for the field 'Division'
SPRAS	LANG	1	Language key
STNAM	CHAR	12	Development reserve: Format CHAR, Length 12
STORT	CHAR	10	Location of the maintenance object
STORTI	CHAR	1	Data origin for the field ‘Location’
SUBMT	CHAR	18	Construction type material of the technical object
SUBMTI	CHAR	1	Data origin for the field 'Construction type'
SWERK	CHAR	4	Maintenance plant
SWERKI	CHAR	1	Data origin for the field 'Maintenance plant'
TPLKZ	CHAR	5	Functional location structure indicator
TPLMA	CHAR	30	Superior functional location
TPLNR	CHAR	30	Functional locations
TRPNR	CHAR	30	Reference functional location
VKORG	CHAR	4	Sales organization
VKORGI	CHAR	1	Data origin for the field 'Sales organization'
VTWEG	CHAR	2	Distribution channel
VTWEGI	CHAR	1	Data origin for the field 'Distribution channel'
CI_IFLOT			Customer-specific data

Exceptions

Parameter	Short text
NO_AUTHORITY	No authorization
INDEX_NOT_UNIQUE	Secondary index is not unique
LOCATION_NOT_FOUND	Functional location not found

LOCATION_LOCKED	Functional location blocked by dialog user

Data Elements

Use

- Data element IMRC_RECDV, Measurement reading in entry unit

  Domain IMRC_FLTPS

  Dependencies:

  When you enter the document, the system makes an identical record in the database of the measurement reading entered, together with its associated unit of measurement due to verification purposes. The system then converts the measurement reading on the basis of its SI-unit and records this in the database as well.
  All further processing is then performed on the basis of the measurement reading after conversion to its SI-unit.

- Data element IMRC_GENER, Origin indicator

  Definition:

  The system enters in this field the information on the origin of the measurement document.

  Checks:

Lower limit	Upper limit	Description of value
A		Transfer from API, without dialog
D		Entry in normal dialog
I		Entry via batch input
M		Migration R/2 -> R/3
Q		Automatic creation by QM application
R		Manual transfer from QM application
T		Automatic creation by measurement reading transfer
1		Customer variant 1