PP PDC Interface



Release 4.6C



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Icons

lcon	Meaning
Δ	Caution
	Example
⇒	Note
\bigotimes	Recommendation
4123	Syntax
\mathbf{P}	Тір

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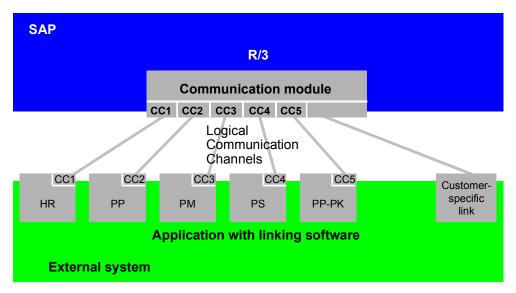
PP PDC Interface

PP PDC Interface

Overview

The R/3 modules HR, PP, PM, PS, and PP-KAN (Kanban) communicate with the subsystem via a separate communication channel that is supported by the software in the communication module. This interface software consists of two parts:

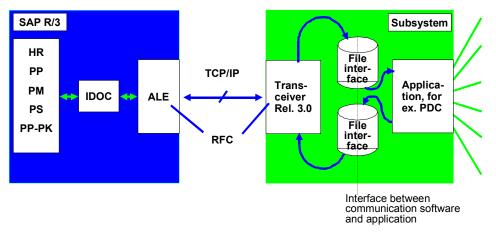
- The part resident in the R/3 System
- The part that has to be installed on the subsystem by SAP AG. This part will be referred to as Transceiver Rel. 3.0 below.



Standard interfaces between R/3 and subsystems

The software component for the subsystem is available for OSF/1, AIX, HP-UX, Solaris, Sinix, and Windows NT. Users can thus decide which hardware platform they want to select for their subsystem(s).

The subsystems linked to SAP R/3 can be run on different computers. Communication is always executed as remote function call (RFC) and is based on TCP/IP.



Overview

Communication module Release 3.0

The interfaces between the communication part and the actual application (such as PDC) use several files in a directory you can define. Data is stored in these files according to the interchange data of the IDOCs (intermediate documents).

Data Flow from R/3 to a Subsystem

Data Flow from R/3 to a Subsystem

Data is transmitted from the R/3 System to the subsystem by triggering an ABAB/4 program in R/3. You can also link this operation to certain events using the SAP workflow concept.

The ABAP program first starts its partner program in the transceiver on the subsystem end. A dataset is then routed to the communication partner via RFC. This transfer is executed on a totally isolated basis using SAP technology.

From the R/3 System, you can create the required directory tree via the Transceiver on the subsystem using a specific transaction (see the following figure).

The "work" directory assigned to the communication channel is the physical location of the interface. This is where data is transferred between the subsystem and the Transceiver. The data transfers carried out via the interface are written to a separate "log" directory. If a communication channel is operated in debug mode, the messages are stored in the "trace" directory.

The RFC Transceiver Rel. 3.0 accepts the data and stores it in the interface file. It then informs the application running on the subsystem that new data has been sent by the R/3 System and is waiting for collection.

Two transceiver operation modes can be distinguished:

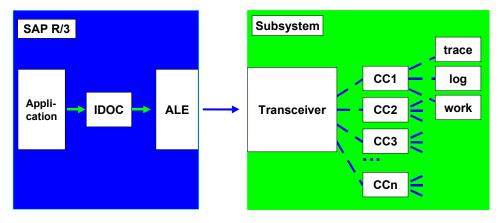
Native IDOC mode (customer-specific link)

In this mode all data (interchange data as well as segment control data) is transferred to the file interface by the transceiver. The application then must establish the segment links using the segment control data and interpret the interface file in a semantically correct way. The segment control data is necessary if there is more than one segment type in an IDOC.

• Simple IDOC mode (CC1, CC2, CC3, CC4, CC5)

To operate the transceiver in this mode, only one segment type may occur in the IDOC to be transferred. In this case, the transceiver separates interchange data and control data; only interchange data is stored in the interface file. It is thus very simple for the application to interpret the file interface.

SAP guarantees complete and correct transfer of the R/3 data to the interface file(s).



Data flow to a subsystem

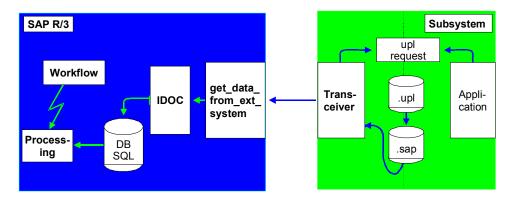
Data Flow from R/3 to a Subsystem

Data Flow from a Subsystem to SAP R/3

Data Flow from a Subsystem to SAP R/3

Data is transmitted from the subsystem to SAP R/3 by transferring a data packet to a special function module of SAP R/3. This function module accepts the data and extends it by the data required to manage it as an IDOC in the system. The message distribution level (ALE - Application Link Enabling) assures further processing. This operation is invariably initiated by the subsystem, that is, if the subsystem requires data from SAP R/3, a data request must be sent to the subsystem first. It is thus possible to transmit important messages from the subsystem to SAP R/3 directly.

SAP guarantees complete and correct transfer of the interface file data as an IDOC to the R/3 database.

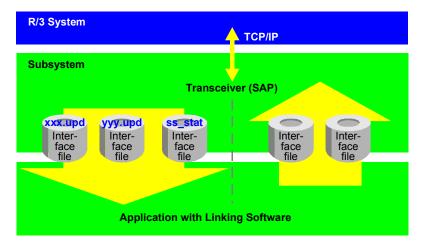


Data flow to SAP R/3

Synchronization and Decoupling Between Transceiver and Application

Synchronization and Decoupling Between Transceiver and Application

If more than one program can access a file (interface), simultaneous access must be prevented. For this reason, the following decoupling mechanism is provided in the subsystem.



Data flow between transceiver and application

Note the following: The transceiver can only write into "empty" interfaces.

Data Flow from the Transceiver to the Application [Page 13] Data Flow from the Application to the Transceiver [Page 15] Requirements for the Individual Applications [Page 16]

Data Flow from the Transceiver to the Application

Before the transceiver can write in the interface data areas, it first checks whether the corresponding file still exists. If it does, the interface is not empty and the transceiver is not able to write.

After the data has been written to the interface files, the transceiver writes a time stamp for each file in the interface status file.

The interface status file tells the application when the last data transmission from the transceiver to the interface took place.

There are three types of interface data:

Initial download <tname>.upd

An initial download has the same effect as a reset. A complete dataset is transferred to the interface for the subsystem, so that the old dataset, resident in the subsystem, can be deleted. The subsystem has to incorporate the data from the interface file in its own memory and delete the interface file afterwards.

For data records that require status tracking, the subsystem must take the status from the interface.

Delta download <tname>.app

Data from the interface file is added to the dataset in the subsystem. Two cases have to be distinguished. Either the dataset already exists in the subsystem (modify) or it is a new dataset (append). This is possible if the key fields for the tables are known. The subsystem has to incorporate the data from the interface file into its own memory and delete the interface file afterwards.

• Delete <tname>.del

The data records from the interface file should be deleted in the dataset that exists in the subsystem.

Only one of the three interface formats for an interface file can exist at any one point in time. After the data has been transferred and processed by the application, the interface file is deleted by the application.

In the case of "append", the original dataset is retained and further data is added.

In the case of "modify", the existing data records are overwritten by the new records using the same table key.

Interface status

File name: ss_stat. This file contains a time stamp for every interface file, indicating the last data transfer from the transceiver to the interface(s).

Field name	Туре	Length (fix)
<tname>.<ext></ext></tname>	CHAR	9
DATE	DATE	8
TIME	TIME	6

Data Flow from the Transceiver to the Application

Data Flow from the Application to the Transceiver

The application can only write in "empty" interfaces, that is, if a file created by the application still exists, the application has to wait until this file is fetched and deleted by the transceiver. The transceiver periodically checks the interface for <tname>.upl files and converts them into <tname>.sap files, if any are found.

To initiate a data upload (transmission of data to the R/3 System), an upload request is required in the interface. An upload request can be initiated in two ways:

• SAP R/3 requests data from the subsystem.

SAP R/3 sends an upload request to the transceiver. The transceiver then converts the request into a file (<tname>.req) and writes it in the interface. All the file contains is a time stamp (DATE and TIME), that specifies the time at which the request was created.

• The subsystem wants to transfer data to SAP R/3

A certain event (for example an alarm message) in the subsystem necessitates a data upload. In this case, the application must transfer an upload request of type <tname>.alm to the interface. Again, all the file contains is the time stamp (see above).

This functionality is designed for customer-specific solutions and is not used within the communication channels (CC1 to CC5).

The transceiver checks the interfaces for <tname>.req / <tname>.alm. If an upload request is transferred, an existing <tname>.upl is linked to a <tname>.sap (if one exists). The actual upload of <tname>.sap is then started. If the upload is carried out successfully, <tname>.sap and <tname>.req/alm are deleted.

Requirements for the Individual Applications

Requirements for the Individual Applications

The application may only write into 'empty interfaces', that is, it must first check whether the respective interface file exists. If it does, the application has to wait a period of time (about one minute) until the interface is empty and then try to write again. Data is to be stored in the conf<xy>.upl confirmation file by an atomic operating system (for example, move, rename) ensuring that the entire file appears in the interface at once. This ensures that the transceiver always fetches the data correctly.

For interfaces with a large amount of data, it is more practical to write the data records in the interface as a data packet and not separately. The transceiver guarantees that the files are fetched once per minute.

It must be possible to configure the directory containing the files for interface data and status (ss_stat) for each communication channel to ensure as much flexibility as possible at installation. *Trace-*, *log-* and *work* directories exist for each communication channel. The directories of the individual communication channels are located underneath the directory in which the Transceiver Rel. 3.0 is installed.

The files that are to be transferred to SAP R/3 are named <tname>.upl.

In the interface the following extensions are reserved for data communication:

.upd	update	
. app	append	
.del	delete	
.req	request	
.upl	upload	(transfer toR/3)
.alm	alarm	(alarm message)
.sap	for transceiver internally	
.lck	for transceiver internally	

The interface directory of a communication channel may only contain files that are directly involved in the data transfer.

SAP Data Formats

SAP Data Formats

The information in this section does only apply when using the communication module.

Only ASCII characters are sent via the RFC interface. Therefore, all data from the SAP R/3 that exists in a format other than character (Char) must be converted to ASCII.

The data types converted to CHAR are as follows:

Data type	Length (fixed)	Format in CHAR
DATE	8	YYYYMMDD
TIME	6	HHMMSS
DECn	n	n+2-digit
CHARn	n	unchanged
NUMCn	n	unchanged

Decimal numbers can be represented using data type DEC. At conversion to CHAR, a decimal point (".") is inserted in the respective position. With this data type, the sign always follows the value. For this reason the number of decimal places in CHAR has to be increased by two. Places that have not been filled are filled with zeros.



DEC 10.3 means: 10 digits before the decimal point, 1 decimal point, 3 digits after the decimal point, and a subsequent sign; that is, the respective IDOC field must have length CHAR 15.

Exception: DEC x,0

As no digits exist after the decimal point, no decimal point is set. However, you must still increase the number of digits in CHAR by two: CHAR (x+2).

For example, DEC 5,0 means: one preceding blank character, five digits before the decimal point and a subsequent sign.

For data type NUMC, only numbers (ASCII characters 30 hex to 39 hex) are allowed. The numbers are shown right-justified, spaces that are not required are filled with zeros. For data type CHAR, the information is left-justified. Spaces that are not required are filled with blanks. By default, data types DATE and TIME are filled with blanks.

Each data record must end with "CR" (0D hex) and "LF" (0A hex).

In the R/3 System, special characters in character format are dealt with according to the "ISO 8859-1" standard.

SAP Data Formats



Order number, operation sequence, operation number, and sub-operation number must appear with leading zeros in the confirmations.

Special Features of the PDC Interface on AS/400

You need the following programs for running the PDC application on AS/400:

- CODNLD (download data from the R/3 System to your host)
- COUPLD (upload data to the R/3 System)

These programs are on the R/3 kernel CD.

Downloading the data from the R/3 System to your host

To download the data you need the program CODNLD. The data passed to the program by the R/3 System is stored in the stream file system. The default path for this is

/usr/sap/<SID>/DVEBMGSinst/work. We recommend, however, that you save the data to another directory to give you a better overview. You can specify an alternative directory with the environment variable CODNLD_NDIR.

- 1. Log on to AS/400 as user <**SID**>**OFR**.
- 2. Enter the command **WRKENVVAR** (Work with Environment Variables).
- 3. In the field Name enter CODNLD NDIR.
- 4. In the field *Value* enter your chosen directory. You must have created this directory before you activate the program.
- 5. Also set all the other environment variables, such as CODNLD_DEBUG, before you start the gateway.
- 6. In the same session, start up the R/3 System or gateway that receives the previously specified value for the environment variable.
- 7. To specify the RFC destination, call transaction SM59 in the R/3 System.
- 8. In the field *Program* enter the path to CODNLD, using the IFS notation, for example /QSYS.LIB/<KERNEL>.LIB/CODNLD.PGM. <KERNEL> stands for the name of the kernel library.
- 9. Choose Gateway.
- 10. In the following dialog box enter the values for the gateway.



If you enter a path that does not exist for CODNLD_NDIR, the file Errdir.log is created in the default path. This file contains an appropriate error message.

Uploading the data to the R/3 System

To upload the data to the R/3 System you need the program COUPLD. Before you start the program, you must set the environment variables with **WRKENVVAR**. In particular, COUPLD_NDIR must have the same value as CODNLD_NDIR, so that the program can find out how it is supposed to upload the data.

Start COUPLD_NDIR in the same AS/400 session with the command

```
CALL COUPLD PARM('-r')
```

Special Features of the PDC Interface on AS/400

This makes COUPLD activate a daemon which processes any waiting upload requests. The command

CALL COUPLD PARM('-s')

stops the daemon again.



Confirmations to HR (CC1)

HR Release 3.0 enables you to link external PDC systems to SAP time management via a standard interface (CC1). This interface is designed as a bidirectional interface. HR provides data for the subsystem to carry out plausibility checks. SAP R/3 waits for the records recorded by the subsystem in SAP standard format (CC1).

The following data is used in plausibility checks:

•	perso1	personnel master
•	absen1	absence/attendance reasons
•	extwa1	external wage types

The confirmations are transferred to

•	conf11	HR confirmations
---	--------	------------------

Time Event Types [Page 22]

Data Structures in CC1 [Page 24]

Time Event Types

Time Event Types

The list below shows the valid time event types in HR:

Time event type	Function
P10	clock in
P15	start of break
P20	clock out
P25	end of break
P30	start of short business trip
P40	end of short business trip
P50	external wage type

There is no binding order for these time event types. Tracking of the attendance status is not required.

For each posting, the identification number and the date have to be checked against the *perso1* table. Checking the identification version is optional.

For time event types P10 (clock in) and P20 (clock out) an absence/attendance reason can be recorded. This reason mustbe checked against the entries in *absen1* table. The reason is only valid if

- The employee's master data for the following groups exists in the table
 - Subsystem link
 - Work schedule
 - Absence/attendance
- The entry date falls within the period of validity defined in this table.

For the time event types P30 (start of short business trip) and P40 (end of short business trip) the authorization for business trips in the personnel master must be checked.

Using time event type P50 (external wage type), information that is not related to attendance (e. g. canteen data) can be recorded. External wage types must be checked against *extwa1* table. They are only valid if

- The employee's master data for the following groups exists in the table
 - Subsystem link
 - Country
- The entry date falls within the period of validity defined for this external wage type.

In addition to the external wage type the following data must be entered:

- Number or
- Amount or

Time Event Types

• Number and amount

The subsystem is to display the unit of measure should one exist for the selected external wage type. The subsystem uses this criterion to control the confirmation type:

- Unit of measure exists
 - Number or
 - Number and amount
- Unit of measure is empty
 - Amount



Within the CC1 only the initial download is supported for all three files, that is, the complete data is always transferred to the subsystem.

The following applies to the two mail flags (IMAIL, ZMAIL) during each posting:

If the mail flag is empty (that is it is equal to 0 or blank, depending on the data type), a userdefined message text must be displayed.

It must be possible to display balance fields *INBFO1* to *INFOA* on the PDC terminal.

Overview of the fields to be filled for the individual time event types:

Time event type	Fields to be filled (see section "Data structures in CC1")	
P10	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM, ABWGR*	
P15	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM	
P20	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM, ABWGR*	
P25	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM	
P30	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM	
P40	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM	
P50	ZAUSW, TERID, LDATE, LTIME, ERDAT, ERTIM, EXLGA,	
	HRAZL, ZEINH or	
	HRBET or	
	HRAZL, ZEINH, HRBET	

optional field

Data Structures in CC1

Data Structures in CC1

Below you will find the data structures of the following tables:

<u>conf11 [Page 25]</u>	HR confirmations
<u>perso1 [Page 26]</u>	personnel master
absen1 [Page 28]	absence/attendance reasons
extwa1 [Page 29]	external wage type

Data Structure for HR Confirmations - conf11

Data Structure for HR Confirmations - conf11

Field name	Туре	Length	Text
SATZA	CHAR	3	Time event type of the confirmation
TERID	CHAR	4	Terminal ID
LDATE	DATS	8	Logical date/actual date of the confirmation
LTIME	TIMS	6	Logical time/actual time of the confirmation
ERDAT	DATS	8	Entry date of the confirmation
ERTIM	TIMS	6	Entry time of the confirmation
ZAUSW	NUMC	8	Time identification number
ABWGR	CHAR	4	Absence/attendance reason
EXLGA	CHAR	4	External wage type
HRAZL	DEC	5,2	Number for external wage type
ZEINH	CHAR	3	Unit for external wage type
HRBET	CHAR	9	Amount for external wage type

This structure is the logical interface between the subsystem and HR.

Structure for Personnel Master Data - perso1

Structure for Personnel Master Data - perso1

This structure describes an extract of the personnel master.

Field name	Туре	Length	Text
ZAUSW*	NUMC	8	Time identification number
BEGDA*	DATS	8	Start of validity of the mini master record
ENDDA*	DATS	8	End of validity of the mini master record
ZAUVE*	CHAR	1	Identification version
PERNR	NUMC	8	Personnel number
ENAME	CHAR	40	Employee's name (edited)
SNAME	CHAR	40	Employee's name (can be sorted)
INFO1	CHAR	8	Variable information field
INFO2	CHAR	8	Variable information field
INFO3	CHAR	8	Variable information field
INFO4	CHAR	8	Variable information field
INFO5	CHAR	8	Variable information field
INFO6	CHAR	8	Variable information field
INF07	CHAR	8	Variable information field
INF08	CHAR	8	Variable information field
INFO9	CHAR	8	Variable information field
INFOA	CHAR	8	Variable information field
IMAIL	CHAR	1	Mail indicator of the time evaluation error
MOABW	NUMC	2	Absence/attendance group
MOLGA	NUMC	2	Country group
BDEGR	CHAR	3	Subsystem link group
ZEITY	CHAR	1	Work schedule group
ZDGBE	CHAR	1	Authorization for business trips
ZANBE	CHAR	2	Entry check group
ZPINC	CHAR	4	Personal code
ZMAIL	CHAR	1	Mail characteristic from time record. info type

key field of the table

*

Structure for Personnel Master Data - perso1

Structure for Absence/Attendance Reasons - absen1

Structure for Absence/Attendance Reasons - absen1

This structure describes the absence/attendance reasons:

Field name	Туре	Length	Text
BDEGR*	CHAR	3	Subsystem link group
MOABW*	NUMC	2	Absence/attendance group
ZEITY*	CHAR	1	Work schedule group
ABWGR*	CHAR	4	Absence/attendance reason ID
BEGDA*	DATS	8	Start of validity
ENDDA*	DATS	8	End of validity
ATEXT	CHAR	25	Text on absence/attendance reason

key field of the table

*

Structure for External Wage Types - extwa1

Structure for External Wage Types - extwa1

Field name	Туре	Length	Text
BDEGR*	CHAR	3	Subsystem link group
MOLGA*	NUMC	2	Country group
EXLGA*	CHAR	4	External wage type
ZEINH	CHAR	3	Unit for external wage type
BEGDA*	DATS	8	Start of validity
ENDDA*	DATS	8	End of validity
LGTXT	CHAR	25	Text for external wage type
ETEXT	CHAR	25	Text for unit

This structure describes the external wage types:

* key field of the table

Confirmations to PP (CC2)

Confirmations to PP (CC2)

PP Release 3.0 enables you to link external PDC systems to SAP's PPC system via a standard interface (CC2). This interface is designed as a bidirectional interface. PP provides data for the subsystem to carry out plausibility checks. The records recorded by the subsystem are transferred to the R/3 System in SAP standard format (CC2). The following data is used for plausibility checks:

•	opera2	operations
•	workc2	work centers
•	diffe2	deviations
•	unit2	units of measure
•	unima2	alternative units of measurement
•	perop2	reference to personnel for operation
•	persol *	personnel master

The confirmations are transferred to:

•	conf21	PP confirmations (time events and time tickets)
---	--------	---

The confirmations in CC2 can either be designed as an operation time event or as an operation time ticket. An operation time event is defined as an event that belongs to the activities "setup", "processing", and "teardown" as well as all other activities that are confirmed as "variable" record types. For activity time tickets, up to 6 activities can be confirmed per time ticket. There is no differentiation between setup/process/teardown and the so-called "variable" record types.

The system expects all confirmations to be of the same type as the first confirmation of an operation (that is, related to the operation time event/operation time ticket).



Confirmations cannot be reset from within the PDC system but only via the corresponding function in the R/3 System.

You cannot make corrections by entering negative values, that is, negative values are not allowed in the following fields in CC2:

ISM01, ISM02, ISM03, ISM04, ISM05, ISM06, LMNGA, XMNGA, RMNGA

If you want to operate an integrated PDC subsystem on CC1 and CC2, the CC1 personnel master is valid for both channels. However, the subsystem must ensure that the *perso1* file is deleted by the subsystem, if it was created in CC2.

Confirmations to PP (CC2)

Record Types [Page 32]

Functionality of the PP Confirmations [Page 33]

Operation Time Events [Page 35]

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Required and Optional Fields in Confirmations [Page 38]

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Record Types

Record Types

The list below shows the record types that are valid for the operation time events in PP:

Record type	Function	Remark
R10	Start of setup	Related to time event
R20	Partial end of setup	"
R30	Setup interruption	"
R40	End of setup	"
B10	Start of processing	Related to time event
B20	Partial end of processing	"
B30	Processing interruption	"
B40	End of processing	"
A10	Start of teardown	Related to time event
A20	Partial end of teardown	"
A30	Tear down interruption	"
A40	End of teardown	"
V20	Variable record type: partial end	Related to time event
V40	Variable record type: end	"
L20	Partial end	Related to time ticket
L40	End	"

Functionality of the PP Confirmations

Functionality of the PP Confirmations

Each activity is allocated three status fields that enable the lower level system to acquire the actual status of the operation in the R/3 System. Usually, the status of an operation for which no confirmation has been generated yet, is as follows:

Status of operation opera2-STATV		=> '10002'	released
Confirmation type	opera2-STATA	=> ' '	no confirmation for operation
Final status	opera2 STATE	=> ' '	no confirmation for operation

The status fields feature the following characteristics:

a) Operation status

	-			
	STATV	= '10002'	=>	Operation released
		= 'I0104'	=>	Start of setup
		= 'I0105'	=>	Setup interruption
		= 'I0271'	=>	Partial end of setup
		= 'I0106'	=>	End of setup
		= 'I0107'	=>	Start of processing
		= 'I0108'	=>	Processing interruption
		= '10272'	=>	Partial end of processing
		= 'I0109'	=>	End of processing
		= 'I0110'	=>	Start of teardown
		= 'I0111'	=>	Teardown interruption
		= '10273'	=>	Partial end of teardown
		= 'I0112'	=>	End of teardown
		= '10009'	=>	Completely confirmed
、	0 0			

b) Confirmation type

STATA	= ''	=> no confirmation updated
	= 'L'	=> time ticket(s) updated
	= 'Z'	=> time event(s) updated

c) Final status

;	STATE	= ''	=> no confirmation updated yet
		= 'T'	=> operation status "partial end"
		= 'E'	=> operation status "end"

Each operation is allocated to an order. It is possible that the unit of measure used in the order(opera2-KMEIN) differs from the unit of measure used for the operation (opera2-MEINH). Using the quotient from UMREZ/UMREN, you can convert the unit of measure.

MEINH	=	UMREZ/UMREN	*	KMEIN
-------	---	-------------	---	-------

Functionality of the PP Confirmations

Unit of measure for operation	equals	Quotient of numerator and denominator for conversion	multi- plied by	Unit of measure for header
1 box contair	is 2 cans			
opera2-KME opera2-MEIN opera2-UMR opera2-UMR opera2-UNTI opera2-UEBI opera2-UEBI	IH: DSE EZ: 1 EN: 2 MG: 20 <[MG: 20 <[_]: 'X'			
At the end of processing, a total quantity of 20 cans or 10 boxes must have been recorded as the tolerance check is active.				must have been
he subsystem always finds the factors required to convert a unit of measure to the SI unit in the				

The subsystem always finds the factors required to convert a unit of measure to the SI unit in the *unit2* table. This applies to the units of measure used for quantities and activities. The table contains all conversions known by the R/3 System. It is only used if the above-mentioned quotient or the *opera2/unima2* tables do not cover the conversion.

The quantity tolerance fields (opera2-UNTMG and opera-UEBMG) display whether planning in PPC accounts for overdelivery or underdelivery. The following applies:

ſ	UNTMG	<=	(Sum LMNGA	<=	UEBMG
			+ Sum RMNGA)		
	Under- delivery	smaller than equal to	(Sum yield + sum reworking quantity)	smaller than equal to	Over- delivery

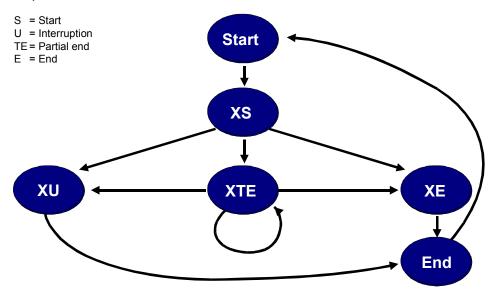
No check for underdelivery is required for partial finish confirmations. However, a check for overdelivery is required. Both values must be checked for completion confirmations. The indicators (opera2-UNTLI, opera2-UEBLI) tell the system which reaction is required when tolerances are exceeded:

UNTLI/UEBLI	= ' '	=> no reaction
	= ' '	=> output warning

Operation Time Events

Operation Time Events

The transition matrix shows transitions allowed with respect to the confirmations that are related to operation time events.



Transition matrix for confirmations in CC2 that are related to operation time events

This diagram shows the required process logic during the confirmation cycles for setup, processing and teardown. There is always an end message (XE) at the end of each confirmation cycle and a start message (XS) at the beginning. As soon as a confirmation cycle is completed a start message can be commenced again for the same activity range. The sequence of setup, processing and teardown is not important in this case. However, only one cycle may be active at a time (setup or processing or teardown).

Depending on the initial operation status, confirmations are possible according to the status diagram. At subsystem level, it is necessary to carry out operation status tracking for each operation. Usually, the initial operation status is "released" so that the status diagram is run through from the starting point. Using the 3 status fields, the current status of operations in the R/3 System can be detected. The system can read confirmations for setup, processing, and teardown at any point in time, no matter whether they are set as defualt values for the work center/operation or not. However, these confirmations cannot be carried out using "variable record types". An operation is set to "completely confirmed" when all cycles planned during setup/processing/teardown have been completed.

The work center at which an operation is carried out controls the confirmations via its standard values. You can assign up to 6 standard values (VGW01 to VGW06) to each work center.

The confirmation type for the respective standard value can be determined by assigning the standard values (fields VGS01 to VGS06). The meaning is as follows:

Operation Time Events

VGS0x	= 0	> initial
	= 1	> setup
	= 2	> processing
	= 3	> teardown
	= 9	> variable activity

The different activity types need not be confirmed.

For variable record types, you use one record to confirm up to six activities that have been defined as variable activities using the record type class for the actual work center. Unlike record type V20, record type V40 sets the status of the operation in the R/3 System to "completely confirmed". If no more remaining activity is expected for one or more activity types and the operation has not yet been completely confirmed, then V partial end (record type V20) must be confirmed for the respective activities with "no remaining activity" indicator. No special message sequences are specified for the V record types.

No standard value is set for a work center when the standard value key (VGS0X) contains value "0".

Standard values for work center can, if they are not related to setup, processing, or teardown, be set using the variable record type.

Activities that are confirmed for the work center using the variable record type must be determined at the work center itself.

As of Release 3.0D, the R/3 System supports confirmations with reference to personnel. You can then simultaneously process an operation with several different references to personnel. However, the R/3 System does not support multiple-machine operation (that is, one persons works at several operations simultaneously). Please note that messages on an operation can either **all** be carried out **with** reference to personnel or **all without** reference to personnel. You cannot mix the message sequence. The V40 message tells the R/3 System that the last person who worked at the operation has completed processing.



Message sequence: ID0000.0001, 0000.0002; B10/B20/B40 = Processing start/partial finish/finish

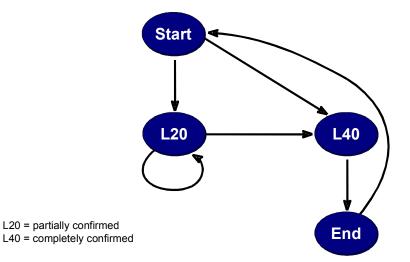
B10	0000.0001	
B10	0000.0002	
B20	0000.0001	
B20	0000.0002	
B40	0000.0001 First processing end message	
B20	0000.0002	
B40	0000.0002 Last processing end message	
V40	0000.0002 V finish tells the system that the	cycle is completed

During initialization, the *perop2* table tells the system which person is working at which operation. The *SATZA* field in the *perop2* table contains the record type of the last confirmation carried out with reference to personnel.

Operation Time Tickets

Operation Time Tickets

The transition matrix shows the allowed transitions for confirmations that are related to time tickets.



Transition matrix for confirmations in CC2 that are related to time tickets

Time tickets for operations are confirmed using partial end confirmations and completion confirmations. The last message expected by the system is the completion message.

Any desired number of partial end messages can be used. If no outstanding activity is expected for an activity, the *conf21-LEK0x* indicator in *L20* message is used to inform the R/3 System. If all activities of an operation have been performed, an *L40* message is transferred to the R/3 System. It then sets the operation status to "completely confirmed".

For messages that are related to time tickets, confirmations can be carried out with or without reference to personnel, that is, there is no distinction as in the case of time events. Thus, you can also record operation time tickets that are currently reported in a S/T/P (setup/processing/teardown) phase with reference to personnel.

Required and Optional Fields in Confirmations

Required and Optional Fields in Confirmations

When transferring confirmations to the *conf21* structure, note the following:

Required fields

Field name	Description	Check contents	Remark
SATZA	Record type of the confirmation	Valid record type?	
TERID	Terminal ID	Valid terminal ID?	
LDATE	Logical date of the confirmation	Valid date?	
LTIME	Logical time of the confirmation	Valid date?	
ERDAT	Entry date of the confirmation Valid date?		
ERTIM	Entry time of the confirmation	Valid time?	
AUFNR	Order number	Against opera2	
APLFL	Operation sequence	Against opera2	
VORNR	Operation number	Against opera2	
ARBPL	Actual work center	Against workc2	**
WERKS	Actual plant	Against workc2	Only in connection with ARBPL

* key field

Key of the

•	Operation:	AUFNR/APLFL/VORNR	
•	Sub-operation:	AUFNR/APLF	L/VORNR
•	Individual capac	ity for op.:	AUFNR/APLFL/VORNR
•	Individual cap. fo	or sub-op.:	AUFNR/APLFL/VORNR

** This field can be used to carry out a work center change if the planned work center and actual work center are not identical. A change of work center is permitted for start messages (B10, R10, A10) or confirmations that are related to time tickets.

Optional fields

Field name	Description		Record type for which the field is filled
BUDAT	Confirmation posting date	Valid date?	
ZAUSW	ID number	Against perso1	

ISM01 -	Activity to be confirmed		
ISM06 *			
ILE01 -	UoM for activity	Against unit2	"
ILE06			
LMNGA *	Confirmed yield	Numeric?	
RMNGA *	Confirmed reworking quantity	Numeric?	
XMNGA *	Confirmed scrap quantity	Numeric?	
MEINH	Unit of measurement	Against structure for units of measure unit2	
GRUND	Deviation reason	Against diffe2	
LTXA1	Text line		
LEK01 -	Indicator: No remaining	Has to be " " or	"
LEK06	action	"X"	

* Negative values are not allowed in the fields for activities and quantities.

Order networks

The opera2 structure not only contains information on the individual operation but also on the creation of networks if the operation belongs to an order that itself is part of a network. This information is contained in the *LAUFNR* field (header order of order network), the *MAUFNR* field (preceding order in order network), the *MAPLFL* field (preceding sequence), and the *MVORNR* field (preceding operation). The PDC subystem should be able to represent the predecessor/successor relationship.

Parallel Sequences

The *opera2* structure also contains information on parallel sequences. The *BEZFL* field (reference sequence => previous sequence), the *VORNR1* field (branch operation => operation after which the sequence is changed), and the *VORNR2* field (branch operation => operation of the reference sequence to which sequence is reverted) provide information on how the individual sequences are linked. The PDC subsystem should support the functionality of parallel sequences.

Data Structures in CC2

Data Structures in CC2

Below you will find the data structures of the following tables:

conf21 [Page 41]	PP confirmations (time events and time tickets)
opera2 [Page 43]	operations
workc2 [Page 46]	work centers
diffe2 [Page 47]	deviations
unit2 [Page 48]	units of measure
unima2 [Page 49]	material-related units of measure
perop2 [Page 50]	reference to personnel for operation
perso1 [Page 51]	personnel master

Data Structure for PP-Confirmations Related to Time Tickets and Time Events - conf21

Data Structure for PP-Confirmations Related to Time Tickets and Time Events - conf21

This structure is the logical interface between the subsystem and PP.

Field name	Туре	Length	Text
SATZA	CHAR	3	Record type of the confirmation
TERID	CHAR	4	Terminal ID
LDATE	DATS	8	Logical date/actual date of the confirmation
LTIME	TIMS	6	Logical time/actual time of the confirmation
ERDAT	DATS	8	Entry date of the confirmation
ERTIM	TIMS	6	Entry time of the confirmation
BUDAT	DATS	8	Posting date
ARBPL	CHAR	8	Actual work center
WERKS	CHAR	4	Actual plant
ZAUSW	NUMC	8	ID number
AUFNR	CHAR	12	Order number
APLFL	CHAR	6	Operation sequence
VORNR	CHAR	4	Operation number
UVORN	CHAR	4	Sub-operation number
SPLIT	NUMC	3	Split number
KAPAR	CHAR	3	Capacity category
LMNGA	DEC	10,3	Produced quantity
RMNGA	DEC	10,3	Confirmed reworking quantity
XMNGA	DEC	10,3	Confirmed scrap
MEINH	CHAR	3	Confirmation unit of quantity
GRUND	CHAR	4	Deviation reason
ISM01	DEC	10,3	Activity 1 to be confirmed
ILE01	CHAR	3	Unit of measurement of activity 1
LEK01	CHAR	1	End indicator for activity 1
ISM02	DEC	10,3	Activity 2 to be confirmed
ILE02	CHAR	3	Unit of measure of activity 2

LEK02	CHAR	1	End indicator for activity 2
ISM03	DEC	10,3	Activity 3 to be confirmed
ILE03	CHAR	3	Unit of measure of activity 3
LEK03	CHAR	1	End indicator for activity 3
ISM04	DEC	10,3	Activity 4 to be confirmed
ILE04	CHAR	3	Unit of measure of activity 4
LEK04	CHAR	1	End indicator for activity 4
ISM05	DEC	10,3	Activity 5 to be confirmed
ILE05	CHAR	3	Unit of measure of activity 5
LEK05	CHAR	1	End indicator for activity 5
ISM06	DEC	10,3	Activity 6 to be confirmed
ILE06	CHAR	3	Unit of measure of activity 6
LEK06	CHAR	1	End indicator for activity 6
LTXA1	CHAR	40	Confirmation text

Data Structure for Operations - opera2

This structure describes the operations.

Field name	Туре	Length	Text
RUECK*	NUMC	10	Confirmation number of the operation
AUFNR	CHAR	12	Order number
APLFL	CHAR	6	Operation sequence
VORNR	CHAR	4	Operation number
UVORN*	CHAR	4	Sub-operation number
SPLIT*	NUMC	3	Split number
KAPAR*	CHAR	3	Capacity category
BDEGR*	CHAR	3	Subsystem link group
KMEIN	CHAR	3	Unit of measure for header
UMREN	DEC	5,0	Denominator for conversion
UMREZ	DEC	5,0	Numerator for conversion
MEINH	CHAR	3	Unit of measure for operation
MGVRG	DEC	10,3	Planned quantity for operation
ASVRG	DEC	10,3	Scrap quantity of operation, planned
UNTMG	DEC	10,3	Underdelivery quantity
UNTLI	CHAR	1	Reaction to underdelivery
UEBMG	DEC	10,3	Overdelivery quantity
UEBLI	CHAR	1	Reaction to overdelivery
MRFLG	CHAR	1	Reaction to broken sequence
USR00	CHAR	20	User field for operation
USR01	CHAR	20	User field for operation
USR04	DEC	10,3	User field for operation
USE04	CHAR	3	Unit of measure for USR04
ACTI1	DEC	10,3	Planned activity 1
UNIT1	CHAR	3	Unit of measure of activity 1
ISM01	DEC	10,3	Actual activity 1
LEK01	CHAR	1	End indicator for activity 1
ACTI2	DEC	10,3	Planned activity 2
UNIT2	CHAR	3	Unit of measure of activity 2

101400	550	40.0	
ISM02	DEC	10,3	Actual activity 2
LEK02	CHAR	1	End indicator for activity 2
ACTI3	DEC	10,3	Planned activity 3
UNIT3	CHAR	3	Unit of measure of activity 3
ISM03	DEC	10,3	Actual activity 3
LEK03	CHAR	1	End indicator for activity 3
ACTI4	DEC	10,3	Planned activity 4
UNIT4	CHAR	3	Unit of measure of activity 4
ISM04	DEC	10,3	Actual activity 4
LEK04	CHAR	1	End indicator for activity 4
ACTI5	DEC	10,3	Planned activity 5
UNIT5	CHAR	3	Unit of measure of activity 5
ISM05	DEC	10,3	Actual activity 5
LEK05	CHAR	1	End indicator for activity 5
ACTI6	DEC	10,3	Planned activity 6
UNIT6	CHAR	3	Unit of measure of activity 6
ISM06	DEC	10,3	Actual activity 6
LEK06	CHAR	1	End indicator for activity 6
LMNGA	DEC	10,3	Actual yield
RMNGA	DEC	10,3	Reworking quantity
XMNGA	DEC	10,3	Actual scrap quantity
STATV	CHAR	5	Status of the operation
STATA	CHAR	1	Confirmation type
STATE	CHAR	1	End/partial end of processing confirmed
ARBPL	CHAR	8	Planned work center
WERKS	CHAR	4	Plant of planned work center
ARBPI	CHAR	8	Last actual work center
WERKI	CHAR	4	Plant of last actual work center
FSAVD	DATS	8	Earliest start date
FSAVZ	TIMS	6	Earliest start time
SSEDD	DATS	8	Latest end date
SSEDZ	TIMS	6	Latest end time
RUEST	DEC	10,3	Setup time

RSTZE	CHAR	3	End of setup time
BEARZ	DEC	10,3	Processing time
BEAZE	CHAR	3	Unit of measure for processing time
ABRUE	DEC	10,3	Teardown time
ARUZE	CHAR	3	Unit of measure for teardown time
MATNR	CHAR	18	Material number
MAKTX	CHAR	40	Short text for material
MAUFNR	CHAR	12	Preceding order in order network
MAPLFL	CHAR	6	Preceding sequence
MVORNR	CHAR	4	Preceding operation
LAUFNR	CHAR	12	Header order of order network
BEZFL	CHAR	6	Reference sequence
VORNR1	CHAR	4	Branch operation
VORNR2	CHAR	4	Return operation

key field of the table

Data Structure for Work Centers - workc2

Data Structure for Work Centers - workc2

This structure describes the work centers.

Field name	Туре	Length	Text
ARBPL*	CHAR	8	Work center
WERKS*	CHAR	4	Plant
WTEXT	CHAR	25	Text for plant
BDEGR*	CHAR	3	Subsystem link group
VGW01	CHAR	6	Name for activity 1
VGS01	NUMC	1	Record type class for VGW01
VGW02	CHAR	6	Name for activity 2
VGS02	NUMC	1	Record type class for VGW02
VGW03	CHAR	6	Name for activity 3
VGS03	NUMC	1	Record type class for VGW03
VGW04	CHAR	6	Name for activity 4
VGS04	NUMC	1	Record type class for VGW04
VGW05	CHAR	6	Name for activity 5
VGS05	NUMC	1	Record type class for VGW05
VGW06	CHAR	6	Name for activity 6
VGS06	NUMC	1	Record type class for VGW06

key field of the table

Data Structure for Deviations - diffe2

Data Structure for Deviations - diffe2

This structure describes the deviations.

Field name	Туре	Length	Text
WERKS*	CHAR	4	Plant
GRUND*	CHAR	4	Deviation reason
GRDTX	CHAR	25	Text for deviation

key field of the table

Data Structure for Units of Measure - unit2

Data Structure for Units of Measure - unit2

This structure describes the units of measure.

Field name	Туре	Length	Text
MSEHI*	CHAR	3	(SAP-internal) unit of measure
MSEHE	CHAR	3	External unit of measure
NENNR	DEC	8,0	Denominator for conversion into SI unit
ZAEHL	DEC	8,0	Numerator for conversion into SI unit
MSSIE	CHAR	3	SI unit
MSEHL	CHAR	25	Text for unit of measure

* key field of the table

Data Structure for Alternative Units of Measure - unima2

Data Structure for Alternative Units of Measure - unima2

This structure contains alternative (SAP-internal) units of measure for materials.

Field name	Туре	Length	Text
MATNR*	CHAR	18	Material number
MEINH*	CHAR	3	Alternative unit of measure (internal)
MEINS	CHAR	3	Base unit of measure (internal)
UMREZ	DEC	5,0	Counter for conversion factor
UMREN	DEC	5,0	Denominator for conversion factor

Key field of the table

Data Structure for Reference to Personnel for Operation - perop2

Data Structure for Reference to Personnel for Operation - perop2

This structure tells you which person worked at which operation when the most recent confirmation was made.

Field name	Туре	Length	Text
AUFNR	CHAR	12	Order number
APLFL	CHAR	6	Operation sequence
VORNR	CHAR	4	Operation number
RUECK*	NUMC	10	Confirmation number of operation
ARBPI	CHAR	8	Last actual work center
WERKI	CHAR	4	Plant of last actual work center
ZAUSW*	NUMC	8	ID number
PERNR	NUMC	8	Personnel number
SATZA	CHAR	3	Record type of latest confirmation
LDATE	DATS	8	Logical date of the confirmation
LTIME	TIMS	6	Logical time of the confirmation

key field of the table

Data Structure for Personnel Master Data - perso1

Data Structure for Personnel Master Data - perso1

This structure describes the personnel master.

Field name	Туре	Length	Text
ZAUSW*	NUMC	8	ID number
BEGDA*	DATS	8	Start of validity
ENDDA*	DATS	8	End of validity
ZAUVE*	CHAR	1	ID version
PERNR	NUMC	8	Personnel number
ENAME	CHAR	40	Name of employee (edited)
SNAME	CHAR	40	Name of employee (can be sorted)
INFO1	CHAR	8	Variable information field
INFO2	CHAR	8	Variable information field
INFO3	CHAR	8	Variable information field
INFO4	CHAR	8	Variable information field
INFO5	CHAR	8	Variable information field
INFO6	CHAR	8	Variable information field
INF07	CHAR	8	Variable information field
INFO8	CHAR	8	Variable information field
INFO9	CHAR	8	Variable information field
INFOA	CHAR	8	Variable information field
IMAIL	CHAR	1	Mail indicator
MOABW	NUMC	2	Absence/attendance group
MOLGA	NUMC	2	Country group
BDEGR	CHAR	3	Subsystem link group
ZEITY	CHAR	1	Work schedule group
ZDGBE	CHAR	1	Authorization for business trips
ZANBE	CHAR	2	Entry check group
ZPINC	CHAR	4	Personal code
ZMAIL	CHAR	1	Mail indicator from time recording info type

key field of the table

Confirmations to PM (CC3)

Confirmations to PM (CC3)

PM enables you to link external PDC systems to SAP's Plant Maintenance system via a standard interface (CC3). This interface is designed as a bidirectional interface. PM provides data for the subsystem to carry out plausibility checks. The records recorded by the subsystem are transferred to the R/3 System in SAP standard format (CC3). The following data is used for plausibility checks:

•	opera3	operations
•	plant3	plants
•	workc3	work centers
•	unit3	units of measure
•	activ3	activity types
•	opers3	operation status
•	persol *	personnel master

The confirmations are transferred to:

• **conf32** PM confirmations, related to time tickets

The confirmations in CC3 can only be designed as an operation time ticket.

Δ

Confirmations cannot be reset from within the PDC system but only via the corresponding function in the R/3 System.

You cannot make corrections by entering negative values, that is, negative values are not allowed in the following fields of CC3:

ISMNW, OFMNW, IDAUR, ODAUR

If you want to operate an integrated PDC subsystem on CC1 and CC3, the CC1 personnel master is valid for both channels. However, the subsystem must ensure that the *perso1* file is deleted by the subsystem, if it was created in CC3.

Record Types [Page 53]

Operation Time Tickets [Page 54]

Data Structures in CC3 [Page 55]



Record Types

Record Types

The following record types are valid for PM:

Record typ	e Function	Remark
120	Partial end of work	Related to time ticket
140	End of work	Related to time ticket

Operation Time Tickets

Operation Time Tickets

For confirmations that are related to time tickets, the last message must be "end of work". However, an unlimited number of "partial end" messages can be transmitted before the last message.

Required fields

Field name	Description	Remark
SATZA	Record type of the confirmation (see above)	
TERID	Terminal ID	
ERDAT	Entry date of the confirmation	
ERTIM	Entry time of the confirmation	
BUDAT	Posting date of the confirmation	
ISDD	Actual start date of execution	
ISDZ	Actual start time of execution	
IEDD	Actual end date of execution	
IEDZ	Actual end time of execution	
AUFNR*	Order number	
VORNR*	Operation number	
UVORN*	Sub-operation number	For sub-operations only
KAPAR*	Capacity category	For individual capacities only
SPLIT*	Split number	For individual capacities only

* Key field

Key of the

•	Operation: AUFNR/VORNR
---	------------------------

- Sub-operation: AUFNR/VORNR/UVORN
- Individual capacity for the op.:
 AUFNR/VORNR/KAPAR/SPLIT
- Individual cap. for the sub-op.: AUFNR/VORNR/UVORN/KAPAR/SPLIT

Optional Fields

All other fields from the *conf32* table.

Data Structures in CC3

Data Structures in CC3

Below you will find the data structures of the following tables:

conf32 [Page 56]	PM confirmations, related to time tickets
opera3 [Page 58]	operations
plant3 [Page 60]	plants
workc3 [Page 61]	work centers
unit3 [Page 62]	units of measure
activ3 [Page 63]	activity types
opers3 [Page 64]	operation status
perso1 [Page 51]	personnel master

If not all fields of a table are used by the communication channel, this is marked separately.

Data Structure for Time Ticket-Related PM Confirmations - conf32

Data Structure for Time Ticket-Related PM Confirmations - conf32

This structure is the logical interface between the subsystem and PM (for confirmations linked to operation time tickets).

Field name	Туре	Length	Text
SATZA	CHAR	3	Record type of the confirmation
TERID	CHAR	4	Terminal ID
LDATE	DATS	8	Logical date/actual date of the confirmation
LTIME	TIMS	6	Logical time/actual time of the confirmation
ERDAT	DATS	8	Entry date of the confirmation
ERTIM	TIMS	6	Entry time of the confirmation
BUDAT	DATS	8	Posting date of the confirmation
ARBPL	CHAR	8	Work center
WERKS	CHAR	4	Plant
ZAUSW	NUMC	8	ID number
AUFNR	CHAR	12	Order number
VORNR	CHAR	4	Operation number
UVORN	CHAR	4	Sub-operation number
SPLIT	NUMC	3	Split number
KAPAR	CHAR	3	Capacity category
PEDD	DATS	8	Forecasted end date
PEDZ	TIMS	6	Forecasted end time
LEKNW	CHAR	1	Indicator: no remaining activity
LTXA1	CHAR	40	Confirmation text (Inline line)
ISMNW *	DEC	6,1	Actual work
ISMNE	CHAR	3	Unit of the actual work
LEARR	CHAR	6	Activity type
IDAUR *	DEC	4,1	Act. duration of confirmation
IDAUE	CHAR	3	Unit of act. duration
ODAUR *	DEC	4,1	Rem. duration of operation
ODAUE	CHAR	3	Unit of rem. duration
OFMNW *	DEC	6,1	Remaining work

OFMNE	CHAR	3	Unit of the remaining work
ISDD	DATS	8	Start date of execution
ISDZ	TIMS	6	Start time of execution
IEDD	DATS	8	End date of execution
IEDZ	TIMS	6	End time of execution

Data Structure for Time Ticket-Related PM Confirmations - conf32

* Negative values are not allowed in these fields.

Data Structure for Operations - opera3

This structure describes the operations. The fields used in communication channel 3 are marked in row CC3(x).

Field name	Туре	Length	Text	CC3
RUECK*	NUMC	10	Confirmation number of the operation	х
AUFNR	CHAR	12	Order number	х
APLFL	CHAR	6	Operation sequence	х
VORNR	CHAR	4	Operation number	х
UVORN	CHAR	4	Sub-operation number	х
SPLIT*	NUMC	3	Split number	х
KAPAR*	CHAR	3	Capacity category	х
BDEGR*	CHAR	3	Subsystem link group	х
MGVRG	DEC	10,3	Standard quantity	-
ASVRG	DEC	10,3	Scrap quantity	-
MEINH	CHAR	3	Unit of measure of the operation	-
UMREN	DEC	5,0	Denominator for conversion	-
UMREZ	DEC	5,0	Numerator for conversion	-
KMEIN	CHAR	3	Unit of measure for the header	-
UNTMG	DEC	10,3	Underdelivery quantity	-
UEBMG	DEC	10,3	Overdelivery quantity	-
ACTI1	DEC	10,3	Planned activity 1	-
UNIT1	CHAR	3	Unit of measure of planned activity 1	-
ACTI2	DEC	10,3	Planned activity 2	-
UNIT2	CHAR	3	Unit of measure of planned activity 2	-
ACTI3	DEC	10,3	Planned activity 3	-
UNIT3	CHAR	3	Unit of measure of planned activity 3	-
ACTI4	DEC	10,3	Planned activity 4	-
UNIT4	CHAR	3	Unit of measure of planned activity 4	-
ACTI5	DEC	10,3	Planned activity 5	-
UNIT5	CHAR	3	Unit of measure of planned activity 5	-
ACTI6	DEC	10,3	Planned activity 6	-
UNIT6	CHAR	3	Unit of measure of planned activity 6	-

LMNGA	DEC	10,3	Planned yield	-
XMNGA	DEC	10,3	Planned scrap quantity	-
ISTAT	CHAR	5	Status of the operation	x
ISM01	DEC	10,3	Actual activity 1	-
ISM02	DEC	10,3	Actual activity 2	-
ISM03	DEC	10,3	Actual activity 3	-
ISM04	DEC	10,3	Actual activity 4	-
ISM05	DEC	10,3	Actual activity 5	-
ISM06	DEC	10,3	Actual activity 6	-
LEK01	CHAR	1	End indicator for activity 1	-
LEK02	CHAR	1	End indicator for activity 2	-
LEK03	CHAR	1	End indicator for activity 3	-
LEK04	CHAR	1	End indicator for activity 4	-
LEK05	CHAR	1	End indicator for activity 5	-
LEK06	CHAR	1	End indicator for activity 6	-
ARBPL	CHAR	8	Work center	х
WERKS	CHAR	4	Work center plant	x
ARBPI	CHAR	8	Actual work center	х
WERKI	CHAR	4	Actual work center plant	х
ISMNW	DEC	10,3	Actual work (neg. values not allowed)	x
ISMNE	CHAR	3	Unit of the actual work	х
ARBEI	DEC	6,1	Planned work	х
ARBEH	CHAR	3	Unit of the planned work	х
OFMNW	DEC	6,1	Remaining work (neg. values not allowed)	x
OFMNE	CHAR	3	Unit of measure of the remaining work	х
LEKNW	CHAR	1	Indicator: no remaining work	х
FSAVD	DATS	8	Earliest start date	х
FSAVZ	TIMS	6	Earliest start time	х
SSEDD	DATS	8	Latest end date	х
SSEDZ	TIMS	6	Latest end time	х

key field of the table

*

Data Structure for Plants - plant3

Data Structure for Plants - plant3

This structure describes the plants.

Field name	Туре	Length	Text
WERKS*	CHAR	4	Plant
WTEXT	CHAR	25	Text for plant

key field of the table

Data Structure for Work Centers - workc3

Data Structure for Work Centers - workc3

This structure describes the work centers. The fields used in communication channel 3 are marked in row CC3 (x).

Field name	Туре	Length	Text	CC3
ARBPL*	CHAR	8	Work center	х
WERKS*	CHAR	4	Plant	х
KOSTL	CHAR	10	Cost center	х
BEGDA*	DATS	8	Start of validity	х
ENDDA*	DATS	8	End of validity	х
BDEGR*	CHAR	3	Subsystem link group	х
VGW01	CHAR	6	Name for activity 1	-
MAS01	CHAR	3	Unit of measure of activity 1	-
VGS01	NUMC	1	Record type class for VGW01	-
VGW02	CHAR	6	Name for activity 2	-
MAS02	CHAR	3	Unit of measure of activity 2	-
VGS02	NUMC	1	Record type class for VGW02	-
VGW03	CHAR	6	Name for activity 3	-
MAS03	CHAR	3	Unit of measure of activity 3	-
VGS03	NUMC	1	Record type class for VGW03	-
VGW04	CHAR	6	Name for activity 4	-
MAS04	CHAR	3	Unit of measure of activity 4	-
VGS04	NUMC	1	Record type class for VGW04	-
VGW05	CHAR	6	Name for activity 5	-
MAS05	CHAR	3	Unit of measure of activity 5	-
VGS05	NUMC	1	Record type class for VGW05	-
VGW06	CHAR	6	Name for activity 6	-
MAS06	CHAR	3	Unit of measure of activity 6	-
VGS06	NUMC	1	Record type class for VGW06	-

key field of the table

Data Structure for Units of Measure - unit3

Data Structure for Units of Measure - unit3

This structure describes the units of measure.

Field name	Туре	Length	Text
MSEHI*	CHAR	3	Unit of measurement
MSEHE	CHAR	3	External unit of measurement
NENNR	DEC	8,0	Denominator for conversion into SI unit
ZAEHL	DEC	8,0	Numerator for conversion into SI unit
MSSIE	CHAR	3	SI unit
MSEHL	CHAR	25	Text for the unit of measurement

* key field of the table

Data Structure for Activity Types - activ3

Data Structure for Activity Types - activ3

This structure describes the activity types.

Field name	Туре	Length	Text
KOSTL*	CHAR	10	Cost center
LSTAR*	CHAR	6	Activity type
GJAHR*	NUMC	4	Fiscal year
LTEXT	CHAR	25	Text for the activity type

key field of the table

Data Structure for Operation Status - opers3

Data Structure for Operation Status - opers3

This structure describes the status of the operations.

Field name	Туре	Length	Text
ISTAT*	CHAR	5	Status of the operation
ITEXT	CHAR	25	Text for the status

* key field of the table

Confirmations to PS (CC4)

Confirmations to PS (CC4)

PS enables you to link external PDC systems to the SAP Project System via a standard interface (CC4). The interface is designed as a bidirectional interface. PS provides data for the subsystem to carry out plausibility checks. The records recorded by the subsystem are transferred to SAP R/3 in SAP standard format (CC4). The following data is used for plausibility checks:

•	opera4	operations
•	plant4	plants
•	workc4	work centers
•	diffe4	deviations
•	unit4	units of measure
•	activ4	activity types
•	opers4	operation status
•	persol *	personnel master

The confirmations are transferred to:

conf42 PS confirmations, related to time tickets

The confirmations in CC4 can only be designed as operation time tickets.



Confirmations cannot be reset from within the PDC system but only via the corresponding function in the R/3 System. You cannot make corrections by entering negative values, that is, negative values are not allowed in the following fields of CC4:

ISMNW, OFMNW, IDAUR, ODAUR

^{*} If you want to operate an integrated PDC subsystem on CC1 and CC4, the CC1 personnel master is valid for both channels. However, the subsystem must ensure that the *perso1* file is deleted by the subsystem, if it was created in CC4.

Record Types [Page 66]

Operation Time Tickets [Page 67]

Data Structures in CC4 [Page 69]

Record Types

Record Types

Valid record types in PS are:

Record type	Function	Remark
T20	Partial end of work	Related to time ticket
T40	End of work	Related to time ticket

Operation Time Tickets

In the case of confirmations that are linked to time tickets, the last message has to be "end of work". Before that an unlimited number of "partial end" messages can be transmitted.

Required fields

Field name	Description	Remark
SATZA	Record type of the confirmation (see above)	
TERID	Terminal ID	
LDATE	Actual date of the confirmation	
LTIME	Actual time of the confirmation	
ERDAT	Entry date of the confirmation	
ERTIM	Entry time of the confirmation	
BUDAT	Posting date of the confirmation	
ISDD	Actual start date execution	
ISDZ	Actual start time execution	
IEDD	Actual end date execution	
IEDZ	Actual end time execution	
AUFNR*	Order number	
VORNR*	Operation number	
UVORN*	Element number	For elements only
KAPAR*	Capacity category	For individual capacities only
SPLIT*	Split number	For individual capacities only

Key field

Key of the

.

- Operation: AUFNR/VORNR
 - Element: AUFNR/VORNR/UVORN
- Individual capacity for the op.: AUFNR/VORNR/KAPAR/SPLIT
- Individual cap. for the element:
 AUFNR/VORNR/UVORN/KAPAR/SPLIT

Operation Time Tickets

Optional Fields

All other fields from the *conf42* table.

Data Structures in CC4

Data Structures in CC4

Below you will find the data structures of the following tables:

conf42 [Page 70]	PS confirmations, related to time ticket
opera4 [Page 72]	operations
plant4 [Page 75]	plants
workc4 [Page 76]	work centers
diffe4 [Page 77]	deviations
unit4 [Page 78]	units of measure
activ4 [Page 79]	activity types
opers4 [Page 80]	operation status
perso1 [Page 51]	personnel master

If not all fields of a table are used by the communication channel, this is marked separately.

Data Structure for Time Ticket-Related PS Confirmations - conf42

Data Structure for Time Ticket-Related PS Confirmations - conf42

This structure is the logical structure between the subsystem and PS (for confirmations that are related to operation time tickets).

Field name	Туре	Length	Text	
SATZA	CHAR	3	Record type of the confirmation	
TERID	CHAR	4	Terminal ID	
LDATE	DATS	8	Logical date/actual date of the confirmation	
LTIME	TIMS	6	Logical time/actual time of the confirmation	
ERDAT	DATS	8	Entry date of the confirmation	
ERTIM	TIMS	6	Entry time of the confirmation	
BUDAT	DATS	8	Posting date of the confirmation	
ARBPL	CHAR	8	Work center	
WERKS	CHAR	4	Plant	
ZAUSW	NUMC	8	ID number	
AUFNR	CHAR	12	Network number	
VORNR	CHAR	4	Operation number	
UVORN	CHAR	4	Element number	
SPLIT	NUMC	3	Split number	
KAPAR	CHAR	3	Capacity category	
GRUND	CHAR	4	Deviation reason	
ABARB	NUMC	3	Degree of processing in %	
PEDD	DATS	8	Forecasted end date	
PEDZ	TIMS	6	Forecasted end time	
LEKNW	CHAR	1	Indicator: no remaining work	
LTXA1	CHAR	40	Confirmation text (Inline line)	
ISMNW *	DEC	6,1	Actual work	
ISMNE	CHAR	3	Unit of the actual work	
LEARR	CHAR	6	Activity type	
IDAUR *	DEC	4,1	Actual time of confirmation	
IDAUE	CHAR	3	Unit of actual duration	
ODAUR *	DEC	4,1	Remaining duration	

ODAUE	CHAR	3	Unit of remaining duration
OFMNW *	DEC	6,1	Remaining work
OFMNE	CHAR	3	Unit of the remaining work
ISDD	DATS	8	Start date for execution
ISDZ	TIMS	6	Start time for execution
IEDD	DATS	8	End date for execution
IEDZ	TIMS	6	End time for execution

Data Structure for Time Ticket-Related PS Confirmations - conf42

* Negative values are not allowed in these fields.

Data Structure for Operations - opera4

This structure describes the operations. The fields used in communication channel 4 are marked in row CC4 (x).

Field name	Туре	Length	Text	CC4
RUECK*	NUMC	10	Confirmation number of the operation	x
AUFNR	CHAR	12	Network number	х
APLFL	CHAR	6	Operation sequence	х
VORNR	CHAR	4	Operation number	х
UVORN	CHAR	4	Element	x
SPLIT*	NUMC	3	Split number	х
KAPAR*	CHAR	3	Capacity category	х
BDEGR*	CHAR	3	Subsystem link group	х
MGVRG	DEC	10,3	Standard quantity	-
ASVRG	DEC	10,3	Scrap quantity	-
MEINH	CHAR	3	Unit of measure of operation	-
UMREN	DEC	5,0	Denominator for conversion	-
UMREZ	DEC	5,0	Numerator for conversion	-
KMEIN	CHAR	3	Header unit of measure	-
UNTMG	DEC	10,3	Underdelivery quantity	-
UEBMG	DEC	10,3	Overdelivery quantity	-
ACTI1	DEC	10,3	Planned activity 1	-
UNIT1	CHAR	3	Unit of measure of planned activity 1	-
ACTI2	DEC	10,3	Planned activity 2	-
UNIT2	CHAR	3	Unit of measure of planned activity 2	-
ACTI3	DEC	10,3	Planned activity 3	-
UNIT3	CHAR	3	Unit of measure of planned activity 3	-
ACTI4	DEC	10,3	Planned activity 4	-
UNIT4	CHAR	3	Unit of measure of planned activity 4	-
ACTI5	DEC	10,3	Planned activity 5	-
UNIT5	CHAR	3	Unit of measure of planned activity 5	-
ACTI6	DEC	10,3	Planned activity 6	-
UNIT6	CHAR	3	Unit of measure of planned activity 6	-

Data Structure for Operations - opera4

LMNGA	DEC	10,3	Planned yield	-
XMNGA	DEC	10,3	Planned scrap quantity	-
ISTAT	CHAR	5	Status of the operation	х
ISM01	DEC	10,3	Actual activity 1	-
ISM02	DEC	10,3	Actual activity 2	-
ISM03	DEC	10,3	Actual activity 3	-
ISM04	DEC	10,3	Actual activity 4	-
ISM05	DEC	10,3	Actual activity 5	-
ISM06	DEC	10,3	Actual activity 6	-
LEK01	CHAR	1	End indicator for activity 1	-
LEK02	CHAR	1	End indicator for activity 2	-
LEK03	CHAR	1	End indicator for activity 3	-
LEK04	CHAR	1	End indicator for activity 4	-
LEK05	CHAR	1	End indicator for activity 5	-
LEK06	CHAR	1	End indicator for activity 6	-
ARBPL	CHAR	8	Work center	x
WERKS	CHAR	4	Work center plant	х
ARBPI	CHAR	8	Actual work center	х
WERKI	CHAR	4	Actual work center plant	х
ISMNW	DEC	10,3	Actual work (neg. values not allowed)	х
ISMNE	CHAR	3	Unit of the actual work	х
ARBEI	DEC	6,1	Planned work	х
ARBEH	CHAR	3	Unit of the planned work	x
OFMNW	DEC	6,1	Forecasted work (neg. values not allowed)	х
OFMNE	CHAR	3	Unit of the forecasted work	х
LEKNW	CHAR	1	End indicator for work	х
FSAVD	DATS	8	Earliest start date	х
FSAVZ	TIMS	6	Earliest start time	х
SSEDD	DATS	8	Latest end date	x
SSEDZ	TIMS	6	Latest end time	х

key field of the table

Data Structure for Operations - opera4

Data Structure for Plants - plant4

Data Structure for Plants - plant4

This structure describes the plants.

Field name	Туре	Length	Text
WERKS*	CHAR	4	Plant
WTEXT	CHAR	25	Text for plant

key field of the table

Data Structure for Work Centers - workc4

Data Structure for Work Centers - workc4

This structure describes the work centers. The fields used in communication channel 4 are marked in row CC4 (x).

Field name	Туре	Length	Text	CC4
ARBPL*	CHAR	8	Work center	х
WERKS*	CHAR	4	Plant	х
KOSTL	CHAR	10	Cost center	х
BEGDA*	DATS	8	Start of validity	x
ENDDA*	DATS	8	End of validity	х
BDEGR*	CHAR	3	Subsystem link group	x
VGW01	CHAR	6	Name for activity 1	-
MAS01	CHAR	3	Unit of measure of activity 1	-
VGS01	NUMC	1	Record type class for VGW01	-
VGW02	CHAR	6	Name for activity 2	-
MAS02	CHAR	3	Unit of measure of activity 2	-
VGS02	NUMC	1	Record type class for VGW02	-
VGW03	CHAR	6	Name for activity 3	-
MAS03	CHAR	3	Unit of measure of activity 3	-
VGS03	NUMC	1	Record type class for VGW03	-
VGW04	CHAR	6	Name for activity 4	-
MAS04	CHAR	3	Unit of measure of activity 4	-
VGS04	NUMC	1	Record type class for VGW04	-
VGW05	CHAR	6	Name for activity 5	-
MAS05	CHAR	3	Unit of measure of activity 5	-
VGS05	NUMC	1	Record type class for VGW05	-
VGW06	CHAR	6	Name for activity 6	-
MAS06	CHAR	3	Unit of measure of activity 6	-
VGS06	NUMC	1	Record type class for VGW06	-

* key field of the table

Data Structure for Deviations - diffe4

Data Structure for Deviations - diffe4

This structure describes the deviations.

Field name	Туре	Length	Text
WERKS*	CHAR	4	Plant
GRUND*	CHAR	4	Deviation reason
GRDTX	CHAR	25	Text for deviation

key field of the table

Data Structure for Units of Measure - unit4

Data Structure for Units of Measure - unit4

This structure describes the units of measure.

Field name	Туре	Length	Text
MSEHI*	CHAR	3	Unit of measurement
MSEHE	CHAR	3	External unit of measurement
NENNR	DEC	8,0	Denominator for conversion into SI unit
ZAEHL	DEC	8,0	Numerator for conversion into SI unit
MSSIE	CHAR	3	SI unit
MSEHL	CHAR	25	Text for unit of measurement

* key field of the table

Data Structure for Activity Types - activ4

Data Structure for Activity Types - activ4

This structure describes the activity types.

Field name	Туре	Length	Text
KOSTL*	CHAR	10	Cost center
LSTAR*	CHAR	6	Activity type
GJAHR*	NUMC	4	Fiscal year
LTEXT	CHAR	25	Text for activity type

key field of the table

Data Structure for Operation Status - opers4

Data Structure for Operation Status - opers4

This structure describes the status of the operations.

Field name	Туре	Length	Text
ISTAT*	CHAR	5	Status of the operation
ITEXT	CHAR	25	Text for status

key field of the table

Confirmations to PP-PK (CC5)

Confirmations to PP-PK (CC5)

During kanban processing the material supply between the material source and the demand source is controlled by so-called kanbans (for example, card and container). The relationship between a material source and a demand source with regard to the material is defined in a control cycle. A certain number of kanbans are allocated to each control cycle. Each of these kanbans contains a target quantity. During operative kanban processing, the kanbans are set to the desired status by an impulse (kanban impulse), for example, from "empty" to "full", or from "full" to "empty").

This impulse is usually generated through the import of a bar code. However, alphanumeric entries are also possible.

When the status of a kanban is set to "full", you can also optionally transfer a confirmed quantity. This value is then allocated to the kanban instead of the target quantity. If you use a background job to post a goods receipt at the same time, the system uses the confirmed quantity.

For certain types of processing an additional function is available, that makes it possible to reduce the material quantity in a kanban by a defined amount (quantity impulse). Bar code support for the entry (for example, for quantity 1) is also possible.

The data used for the plausibility check are as follows:

•	pkhd5	Kanban control cycles
•	pkps5	Kanbans
•	pkst5	Possible status of kanbans

Impulse confirmations are transferred to the transfer structure:

•	conf51	PP-PK confirmations
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Record Types [Page 82]

Data Structures in CC5 [Page 84]

Record Types

Record Types

The following record types are used:

Record type	Function	Remark
K10	Kanban impulse	Status change of kanban container
K20	Quantity impulse	Debit quantity from kanban container

The following fields must be filled, when confirmations are transferred to structure conf51:

Recor d type		Required fields	Optional fields
K10	SATZA, TERID, LDATE, LTIME, ERDAT, ERTIM, PKKEY,	X	
	PKBST,	Х	
	PKNUM, PKPOS, PKIMG		x
K20	SATZA, TERID, LDATE, LTIME, ERDAT, ERTIM,	X	
	PKNUM, ABMNG	X	

The record type is filled through the selection of an entry transaction or through the entry of an identifier.

The kanban impulse (K10) can be encrypted in 11-digit bar code that features the following structure:

Position 1-7	= PKKEY
Position 11	= PKBST

The quantity impulse (K20) can be encrypted in an 8-digit bar code that features the following structure:

Position 1-7	= PKNUM
Position 8	= ABMNG

Fields in CC5

Field name Description		Content is checked for	
SATZA	Record type of confirmation	Valid record type	

Record Types

TERID	Terminal ID	Valid terminal ID	
LDATE	Actual date of confirmation	Valid date	
LTIME Actual time of confirmation Valid time		Valid time	
ERDAT	Entry date of confirmation	Valid date	
ERTIM	Entry time of confirmation	Valid time	
PKKEY*	Kanban ident. number	Against pkps5	
PKNUM**	Control cycle number	Against pkhd5	
PKPOS	Container number	PKNUM, PKPOS against pkps5	
PKBST	Target status	PKSFG***, PKBST against pkst5	
PKIMG	Actual quality	Numeric value	
ABMNG	Debited quantity	Numeric value	

- * If you make manual entries, you should use the *PKNUM* field (or the *MATNR* field, the *WERKS* field, and the *PRVBE* field, see also definition of the *PKNUM* field) and the *PKPOS* field (secondary key), rather than the *PKKEY* field (primary key). The *pkPS5* data structure is then used to determine the value with which the *PKKEY* field is filled.
- ** If you want to make manual entries in the *PKNUM* field (primary key), it is advisable to fill the *MATNR* field, the *WERKS* field, and the *PRVBE* field (secondary key) instead. You can then use *pkhd5* data structure to determine the value for the *PKNUM* field.
- *** As a rule, the value of the *PSKFG* field is a blank when checking the value of the *PKBST* field in the *pkst5* table. In this case, the system checks for existence of the entry **pkst5**-**pkbstg=blank**, **pkst5-pkbst=pkbst**.

The system fills the *TERID* field, the *LDATE* field, the *LTIME* field, the *ERDAT* field, and the *ERTIM* field in the background.

Data Structures in CC5

Data Structures in CC5

Below you will find the data structure of the following tables:

conf51 [Page 85]	Kanban confirmations	
pkhd5 [Page 86]	Kanban control cycles	
pkps5 [Page 87]	Kanban container	
pkst5 [Page 88]	Possible status for kanban containers	

Data Structure for Kanban Confirmations - conf51

Data Structure for Kanban Confirmations - conf51

This structure is the logical interface betwee	een the subsystem and PP-PK.
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Field name	Туре	Length	Text
SATZA	CHAR	3	Record type of confirmation
TERID	CHAR	4	Terminal ID
LDATE	DATS	8	Actual date of confirmation
LTIME	TIMS	6	Actual time of confirmation
ERDAT	DATS	8	Entry date
ERTIM	TIMS	6	Entry time
PKKEY	NUMC	10	Kanban ident. number
PKNUM	NUMC	7	Control cycle number
PKPOS	NUMC	3	Container number
PKBST	CHAR	1	Target status
PKIMG	DEC	10,3	Actual quantity
ABMNG	DEC	10,3	Debited quantity

Data Structure for Kanban Control Cycles - pkhd5

Data Structure for Kanban Control Cycles - pkhd5

This structure describes the kanban control cycles.

Field name	Туре	Length	Text
PKNUM*	NUMC	7	Control cycle number
MATNR	CHAR	18	Material number
WERKS	CHAR	4	Plant
PRVBE	CHAR	10	Supply area
PKSFG	CHAR	4	Status sequence

* key field of the table. The combination MATNR, WERKS, PRVBE forms the corresponding secondary key.

Data Structure for Kanban Container - pkps5

Data Structure for Kanban Container - pkps5

This structure describes the kanban container.

Field name	Туре	Length	Text
PKKEY*	NUMC	10	Kanban ident. number
PKNUM	NUMC	7	Control cycle number
PKPOS	NUMC	3	Container location

key field of the table

Data Structure for Possible Container Status - pkst5

Data Structure for Possible Container Status - pkst5

This structure describes the possible container status.

Field name	Туре	Length	Text
PKSFG*	CHAR	4	Status sequence
PKBST*	CHAR	1	Container status

* key field of the table