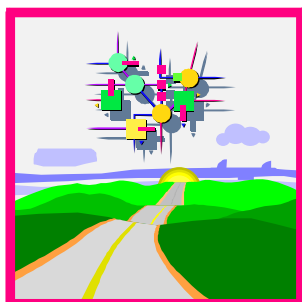Version 1.0   12/17/99

R/3 Shop Floor Control: Plant Data Collection (PDC)

PP-PDC

Interface description
from R/3 Release 4.6A

Copyright

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Information

Information on certification and a list of certified partners is available on the Internet at http://www.sap.com under Complementary Software Program CSP.

History

Version 1.0   Released   12/17/99

CONTENTS

0 Introduction

PP-PDC (PDC = Plant Data Collection) is an interface for **R/3 Shop Floor Control**. It is used to connect subsystems (PDC systems) for the entry of time tickets and time events. Subsystems for this interface can be certified by SAP as part of the Complementary Software Program (CSP). A list of partners who have already certified for the previous interface (CC2) is available on the Internet at http://www.sap.com under Complementary Software Program CSP. In future, this will also include partners certified for the new interface (PP-PDC). Information is also available there on the **certification procedure**. The present specification constitutes the basis for certification.

The previous interface (from Release 3.0A) was called "Communication Channel 2 (CC2)". The new interface is supplied with **Release 4.6A**. The functions of the previous CC2 interface (from Release 3.0A) will be supported in parallel to the new PP-PDC interface (from Release 4.6A) until the next but one main release. Certification of the new PP-PDC interface is based on Release 4.6B including Support Package 01.

The new interface has been implemented as far as possible as an **asynchronous R/3-BAPI interface** which dispenses with the transceiver which was required for the previous CC2 interface.

The new interface (PP-PDC) provides a number of **new business functions** that were not available in the previous interface, namely:

- New business transactions (PDCH, PDCO)
- Customer enhancement PDCDOWN1
- Automatic calculation of target activities
- Event for triggering the delta download

Unit 1 presents the architecture and describes the business side of the interface, including not only the functions themselves but also details of how they are integrated into R/3 Shop Floor Control. For those who are already familiar with the previous interface (CC2), the enhancements and modifications that are linked with the new interface are also listed.

Unit 2 describes the business process of production order confirmation.

Unit 3 describes the technical details of the interface and the subsystem requirements that have to be satisfied for certification. It begins with a list of the individual technical interfaces and a detailed description of their structures. This is followed by an overview of all the tests that have to be performed by the subsystem in order to deliver data that is consistent from the viewpoint of R/3 Shop Floor Control.

Unit 4 contains a glossary of the most important terms, while the appendix (**Chapter 5**) contains some general information including a comparison of the field names in the new and the old interfaces.

1 Functional description of the PP-PDC interface

1.1 Description of the interface

The PP-PDC interface is a standard interface linking subsystems that enables confirmations relating to production orders to be entered. The interface is based on the PDC interface that was developed in Release 3.0 for Communication Channel 2 (CC2).

The new PP-PDC interface provides an extended set of business functions and is an asynchronous R/3 BAPI interface.
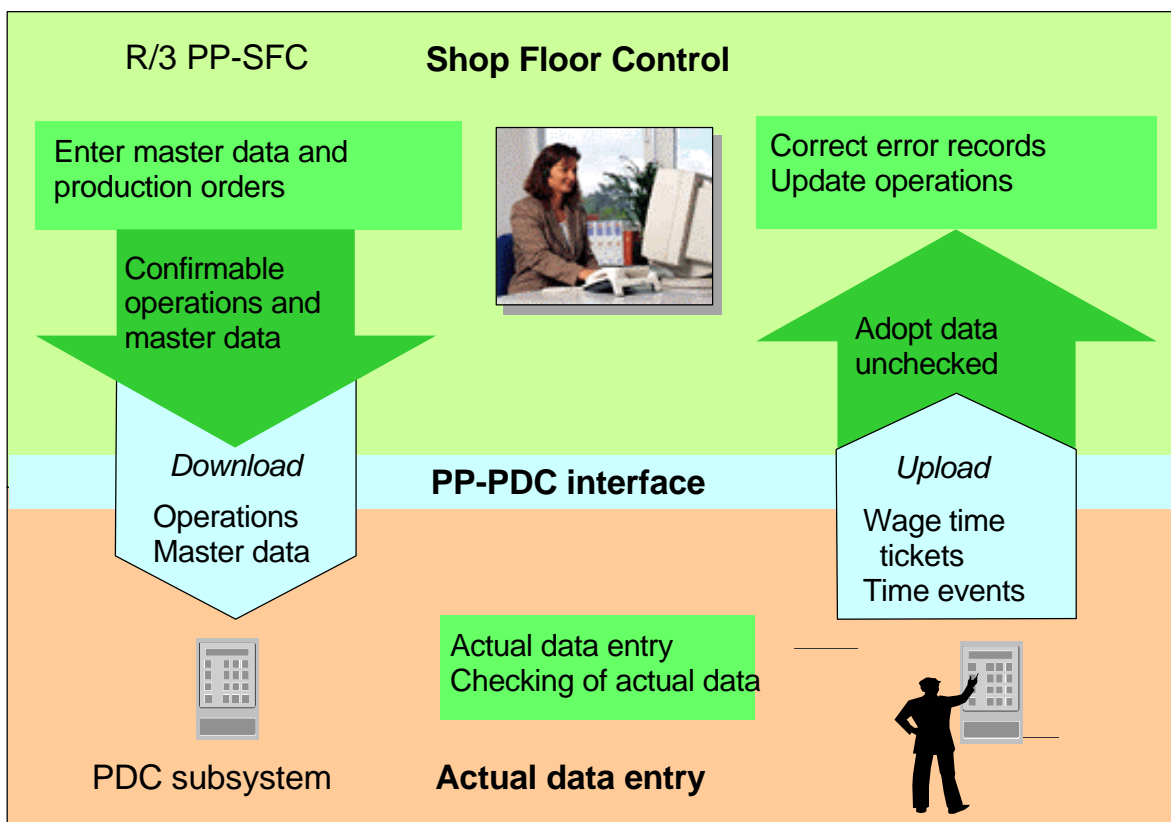
1.1.1 Interface technology

From a technical point of view, the interface has been designed as a collective data interface subject to transaction management. Communication between subsystem and R/3 system occurs via IDocs, assisted by R/3 ALE technology. The transceiver, which is still required in connection with CC2 on R/3 systems prior to Release 4.6, is dispensed with. All data exchange between the systems involved is asynchronous. Alternatively, confirmations from the subsystem to the R/3 system can also be transferred synchronously. Asynchronous data exchange forms the basis for certification of the PP-PDC interface. Information on ALE technology and on BAPIs is found in the SAP library for Release 4.6B by choosing:

- Basis -> Middleware (BC-MID) -> ALE Introduction and Administration
- Basis -> Middleware (BC-MID) -> ALE Programming Guide
- Basis -> Middleware (BC-MID) -> BAPI (BC-MID-API) -> BAPI User Manual
- Basis -> Middleware (BC-MID) -> BAPI (BC-MID-API) -> Reference to BAPI Programming Guide

- Cross-Application Components -> Business Framework Architecture (CA-BFA) -> Application Link Enabling (BC-MID-ALE) -> ALE Brief Introduction

1.1.2 Using the PP-PDC interface

The actual data for an operation can be transferred to the R/3 system both as a time ticket and as a time event. With time tickets entry of the actual data is **related to time duration**, whereas with time events it relates to a **particular point in time**. One of the occasions when the use of PDC systems in the shop floor area is appropriate is when technical resources, such as hand-held devices with data transfer by radio, which cannot communicate directly with an R/3 system, are used to enter the actual data.

With the PP-PDC interface, it is possible to make operation data relating to production orders and PDC-relevant master data (work centers, units of measure, reasons for variance) from the R/3 system available for display and preliminary checking (**download**).

A major feature of the subsystem is its offline capability. For this reason a download of display and test data for confirmable operations from the R/3 system to the subsystem takes place periodically. Master data is transferred to the subsystem as required.

Actual data that has been entered in PDC systems can be transferred to the R/3 system for further processing (**upload**). In the R/3 system the transferred actual data results in an update of the order progress. Subsequent functions are triggered here, for example, modification of a work center's remaining capacity requirements, backflush of components, automatic posting of goods receipt, valuation of confirmed activities for actual costs, the transfer of payment-relevant actual data to an HR system and so on.

1.1.3 Allocation of tasks between SAP and partners

SAP provides software on the R/3 side. SAP defines the interface and enables partner products to be certified for this interface. The partners make available any hardware and software components which are necessary to operate the subsystem.

The subsystem performs data checks locally and also stores the entered data locally. Flagged time tickets and time events are transferred to the R/3 system in response to an upload request from the R/3 system. This data is transferred to a clipboard immediately without any checking of the transferred data. The result is that rapid communication can take place between the subsystem and the R/3 system. Checking of the data and its further processing in the R/3 system occurs only subsequently.

1.1.4 Architecture of the interface

The following data transfers are required for the PP-PDC interface processes as downloads (R/3 System -> Subsystem) and uploads (Subsystem -> R/3 System) in order for the R/3 system and the subsystem to communicate with each other:

⇓ Download of operation data

⇓ Download of master data

- Work centers
- Units of measure
- Reasons for variance

⇓ Download of upload request

- Time tickets
- Time events

⇧ Upload of confirmations
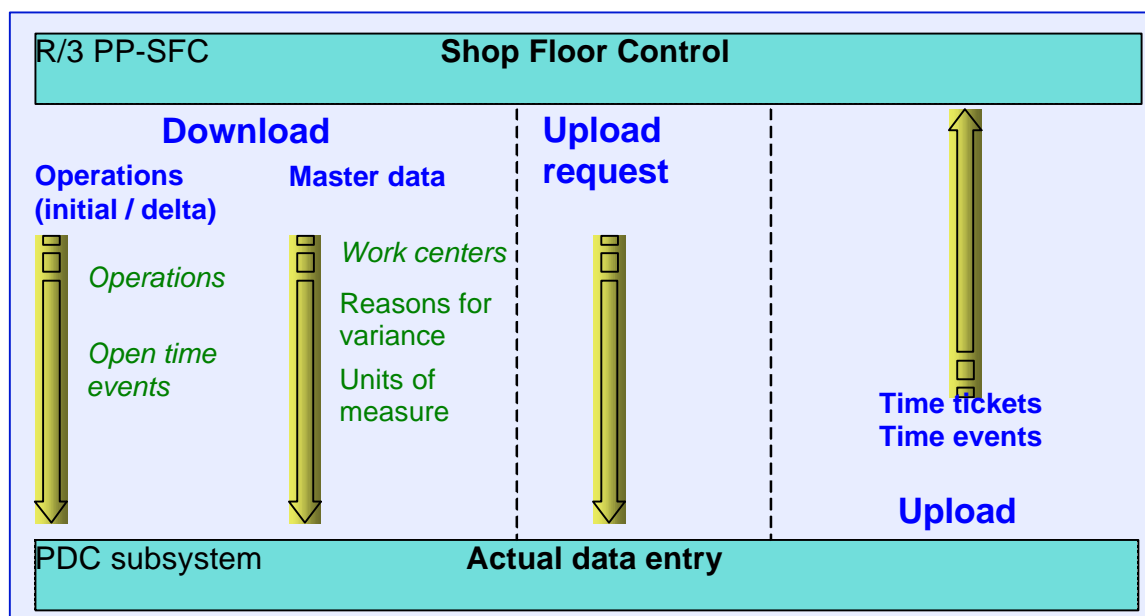
1.1.4.1 Download

When operations are downloaded, a distinction is made at the PP-PDC interface between an initial download and a delta download. These two downloads are alternative ways of supplying the subsystem with current data about operations.

With an **initial download**, all PDC-relevant operations in the R/3 system are selected. The following conditions have to be satisfied for this:

- The operation belongs to a production order whose order type is marked as PDC-relevant. This indicator has to be set in the order type-dependent parameters in Customizing for Shop Floor Control prior to creation of the production orders (Customizing for Shop Floor Control, by choosing Master Data -> Order -> Define Order Type-Dependent Parameters).
- The operation is defined at a PDC-dependent work center. A work center is deemed to be PDC-relevant if a grouping has been defined for it for the subsystem linking (work center maintenance: *Basic Data* tab, *Subsystems* pushbutton).

- The operation and/or the complete production order has been released. If this is the case, the system status for the operation is "Released".
- The production order is not technically completed, that is, system status "technically completed" is not set for the production order.
- The production order must neither be locked nor flagged for deletion. If either of these is the case it will be clear from the system status.

As it is possible for operations to have already been processed at the time of an initial download and perhaps to have been confirmed via personnel-related time events, during the initial download the subsystem must be informed which open time pairs exist for each operation, that is, which persons have up to now reported only start time events. This information is provided along with the operation data in an additional interface table.

If any flags for a delta download exist at the time of the initial download, the flags are deleted for the operations transferred.

With the **delta download**, flags are selected for PDC-relevant operations for which flags have been written during the creation or amendment of production orders. In this way, the volume of data transferred during a delta download is drastically reduced compared with the initial download.

An alteration in the production order can have the effect of altering the status of an operation from "PDC-relevant" to "not PDC-relevant". For this reason, information on such operations must be forwarded to the subsystem via the delta download in order that these operations are deleted as soon as possible in the subsystem. For this purpose, the keys of the operations affected are transferred in an additional interface table.

The following changes in the production order can result in a download request being written:

- Any change in the operation data. This can
  - occur either directly, for example, through alteration of the control key or the work center, or
  - indirectly, for example, through alteration of the planned quantity, the start or finish date in the order header with subsequent rescheduling.
- Changes in operation status, for example, activation or canceling
  - released
  - deleted
- Changes in the order status, e.g. activation or canceling
  - locked
  - technically completed
  - completed
  - deletion flag
  - deleted
- Alteration of special order header data
  - priority
  - tolerance definitions relating to goods receipt

Master data can also be transferred to the subsystem. This generally occurs on a one-off basis and on request, as master data is seldom changed or supplemented retrospectively. This includes:

- Data for PDC-relevant work centers
- Possible reasons for variance
- Conversion factors between different units of measure

The download of operation and master data is initiated from the R/3 system. The operation data is generally transferred once to the subsystem via the "initial download". After this, "delta downloads" are performed, whereby new and altered operations are transferred to the subsystem in short cycles in periodically scheduled **batch jobs**.

Execution of such a job for a delta download can also be started with an **event**. This event is transmitted when the future change record for the delta download is written (SAP_PP_PDC_NEW_ORDCOM_ENTRY).

Like the initial download of operations, the master data download occurs once at the start of the productive operation. After that, this is only repeated on request, for example, after alterations or additions to the master data.

Grouping facilities are available for the data that can be downloaded from the R/3 system to the subsystem for checking purposes, via the PDC group. Where several PDC systems are used, individual systems can be supplied in a selective fashion:

- The PDC group of the relevant planned work center is transferred with the operation data during the download. In this way, the operations can be passed to the relevant PDC systems, **filtered** by PDC group. If several PDC groups are assigned to one work center, the operation data is copied accordingly.
- PDC groups can be defined for **personnel numbers and the work center.** No link can be created through this means between work center and person. The same PDC groups can be used for both objects.
- PDC group is also available as filter object for the download of the **work center master data**.

No measures need to be taken on the subsystem side to support groupings and filters. The relevant settings are made in the R/3 system.

1.1.4.2 Upload

The data transferred to the subsystem from the R/3 system makes it possible to check the actual data entered in the subsystem immediately. The checked data is stored in the subsystem and is flagged for a data transfer. If the R/3 system requests it (**upload request**), it is uploaded from the system to the R/3 system (**upload**).

The data transferred is **temporarily stored** in the AFPR0 table until it is updated. The update can occur synchronously directly after the transfer (setting in Customizing, see Section 1.3.3) or asynchronously following the start of the CORUPROC1 program (schedule in a background job). In the selection mask for program CORUPROC1 there are parameters enabling the update to be processed in parallel so as to improve performance (number of parallel work processes, number of confirmations per work process, logon/server group). The standard parallel processing and decoupling options (Customizing for Shop Floor Control under Operations -> Confirmation -> Define Execution Time of Confirmation Processes -> *and* Operations -> Confirmation -> Define Parallel Processing Type of Confirmation Processes) are available for the processing of subsequent confirmation processes (automatic goods movements, calculation of actual costs, HR data transfer).

When uploading confirmation data, the user can choose between the "time tickets" and "time events" methods. For each operation the user can specify a different confirmation type, so that both methods can be used to confirm different operations in parallel.

Similarly upload requests for time tickets or time events are sent by the R/3 system to the subsystem by periodically scheduled **batch jobs**. In response to an upload request, the subsystem must send all the time tickets and time events already entered that have been flagged for data transfer to the R/3 system. In the certification scenario the subsystem should not transfer any data to the R/3 system without these requests.

The option to use upload requests means it is possible for all the job scheduling for the PP-PDC interface to be performed in the R/3 system.

1.1.5 Scope of certification

The following interface functions fall within the **scope of certification**:
- Receive download of master data (see Section 3.2.1);
- Receive download of operations (see Section 3.2.2);
- Receive upload request (see Section 3.2.3);
- Execute upload of confirmations (see Section 3.2.4).

The following checks by the PDC system are **relevant to certification**:
- Complete required entry fields (see Section 3.3.1);
- Transmit valid record types (see Section 3.3.2.1);
- Identify operation through unique key (see Section 3.3.2.2);
- Check chronological order with time event confirmations (see Sections 2.2.2 and 3.3.2.3);
- Check validity of work center (see Section 3.3.2.4);
- Check validity of confirmed activity or business process (see Section 3.3.2.5);
- Check validity of reasons for variance (see Section 3.3.2.6);
- Check validity of unit of measure (see Section 3.3.2.7).

The following checks can be performed in the PDC system but **do not fall within the scope of certification**:
- Conversion of the confirmed units of measure where these deviate from plan (see Section 3.3.3.1);
- Check sequence of operations for time tickets(see Sections 2.2.1 and 3.3.3.2);
- Check adherence to under- and overdelivery tolerances (see Section 3.3.3.3);
- HR integration (that is, check validity of HR data etc. (see Section 3.3.3.4);

1.2 Business enhancements with Release 4.6A

1.2.1 SAP enhancements

1.2.1.1 Customer enhancement PDCDOWN1

A function exit is available in the SAP enhancement PDCDOWN1 for the download of operation data. With the aid of this function exit additional conditions can be set for a download of operation data relating to production orders. The function exit can, for example, be used if an operation has to fulfil additional customer-specific conditions.

1.2.1.2 New business transactions

The following new business operations in Status Management are provided for additional checking of production orders and operations for PDC relevance:

- PDCH   PDC download of order data
- PDCO   PDC download of operation data

This means it is possible to specify, using system and user status, whether orders and operations should be transferred or not.

It is possible, for example, with the aid of business transaction PDCO to prevent operations already confirmed from being transferred to the PDC system by download. This enables a significant reduction in the volume of data during a download of operations, as it is standard practice within SAP that operations are no longer transferred to the PDC system once their status is "technically completed". To prevent transfer with business operation PDCO, the following definitions must be entered in Status Management:

1. A user status needs to be set via business transaction RMVR.
2. For this user status it is necessary to specify that business operation PDCO is not allowed.

1.2.1.3 Automatic determination of target activities

When entering wage time tickets and time events in the PDC system, it is possible to dispense with entry of activities. Instead, the target activities can be determined on the basis of the quantity confirmed and the standard values in the production order (see Section 3.2.4.1).

1.2.1.4 Event for triggering the delta download

Except where scheduling a background job, execution of a delta download job can also be started with event SAP_PP_PDC_NEW_ORDCOM_ENTRY. This event is transmitted during writing of the future change record for the delta download.

1.2.2 Technical alterations

The new interface provided from Release 4.6A is, like the previous interface, based on IDocs. However, a transceiver is no longer available for the new interface. A subsystem must be able to receive and send IDocs for the new interface. This is in keeping with the SAP-wide interface philosophy as applied to the Business Framework Architecture.

1.3 Additional functions

1.3.1 Multi-client capability

"Multi-client capability" refers to the possibility of connecting several R/3 systems to a single subsystem for the purposes of Shop Floor Control. It is then irrelevant whether the R/3 systems are only in different clients or whether they are installed in separate systems. Rather, what is relevant is that every system is uniquely assigned to a "logical system" (see glossary).

This requires that every data record, which is downloaded onto the subsystem using the interface with an IDoc, contains the name of its originating system (logical system). To enjoy the full support of the multi-client capability, the subsystem must flag all the data that it receives by download for the R/3 system with the logical system. This is already predetermined by the structures described below.

If a confirmation is entered at the PDC terminal, then the logical system to which the operation is assigned can be determined in the operation data records. As a result the target system uploading the confirmation for this operation is also known.

On the subsystem side, the permutation of "logical system" and "operation" must be unique.

1.3.2 Multi-language capability

When master data (for example, work center, reason for variance) is downloaded, descriptive short texts are also transmitted. The multilingual nature of these texts is ignored during the download. The texts are always provided in the language in which the batch job for the download concerned has been scheduled. It is not possible to supply the subsystem with texts of different languages.

1.3.3 Settings in Customizing

In Communication Parameters (Customizing for Shop Floor Control by choosing Operations -> Confirmation -> PDC Data Transfer -> Define Communication Parameters), the following can be specified:

- Time of update of the transmitted confirmations (automatically after transmission or later with scheduling in a background job).
- Scope of the data transmitted (work centers, variances, units of measure, material-dependent units of measure).

In addition, an aid for scheduling of the PP-PDC interface programs in background jobs is available in Customizing (Customizing for Shop Floor Control by choosing Operations -> Confirmation -> PDC Data Transfer -> Schedule Background Jobs for PP-PDC). Definition of a variant is necessary for programs that have selection parameters.

1.4 Delimitation

1.4.1 Other production order confirmation interfaces

Other ways in which completion confirmations can be entered are via
- SAP standard dialogs, such as
    - Time tickets
- Single or multiple entry
- Fast entry
    - progress confirmation
    - time events
    - order confirmation
- PDC interface CC2
- Customer-specific dialogs using the methods for business object BUS2116 "Production order confirmation" for proposal of the actual data to be confirmed and for checking and posting of actual data

Note

If the operation data provided during entry is not sufficient to display and validate the actual data, then, for example, the Production Optimization Interface (POI) interface can be used to fetch additional order data from the R/3 system and transfer it into the subsystem. Information on the POI interface can be found in the SAP Library for Release 4.6B by choosing:

LO - Logistics General -> LO - Supply Chain Planning Interfaces -> Production Optimization Interface (POI).

1.4.2 Canceling confirmations

If it is subsequently established that confirmations have been entered in the PDC system with incorrect data and have been updated in the R/3 system, then this posting can be reversed via a "cancel document" confirmation.

The cancellation can either be carried out:
- In the R/3 system using dialog transaction "Cancel confirmation" or
- Using the "Cancel" method of BOR object BUS2116 "Production order confirmation".

It is not possible to cancel the posting via the PP-PDC interface. It is also not possible to enter a new confirmation with negative quantities in place of the cancel document.

If the cancellation involves BAPIs (business object BUS2116), the procedure is as follows:
1. In the confirmation an external key that is held in the PDC system is specified (field EX_IDENT, wage time tickets - see 3.2.4.1, time events - see 3.2.4.2).
2. The confirmations determined for a confirmation number using the **GetList** method.
3. The confirmation counter for a confirmation, for which the external key agrees with the value entered in the PDC system, is determined from the confirmations found.
4. The **Cancel** method is called using the confirmation number and the confirmation counter determined, and the confirmation is canceled.

1.4.3 Trigger points

If any trigger points that are assigned to the confirmed operation are to be triggered on the basis of confirmations, this is only possible if the confirmation is updated in the SAP dialog. The reason for this is the unpredictability of any dialog steps that are caused by a given trigger point.

If, on updating the confirmations transferred by upload, it is determined that a trigger point should be triggered, all confirmations that are processed together in a work process (see Section 1.1.4.2, parallel processing of update) are marked as incorrect and made available for correction.

Since an R/3 dialog transaction is then involved in the correction, the confirmations can be updated here without any problems, so that the trigger points are also triggered.

It is therefore recommended that only in exceptional cases should trigger points be defined when the PP-PDC interface is used for PDC-relevant operations.

If no functionally relevant dialogs are necessary, trigger points can be invoked from the upload with the aid of modification note 187836.

1.4.4 Reference to HR

The PP-PDC interface covers only the entry and processing of confirmations for production order operations.

If personnel time events without an order reference (for example, clock-in/clock-out) are entered on a subsystem and transferred to an R/3 system, this is the task of the HR-PDC interface, which is already available from Release 4.5.

If the personnel and time recording ID numbers entered are to be checked in the subsystem against the HR master data in the HR system during entry of the production order confirmations, then an excerpt from the HR master data must previously be transferred from the R/3 system to the subsystem. This can only be performed over the HR-PDC interface, as the HR master data is not included in the scope of the PP-PDC interface.

Personnel-relevant time events for production order operations are initially considered from the PP viewpoint in the context of pair formation, i.e. a pair formation with a start time event and the related end time event take place initially on the basis of the master data of the work center concerned. However, the time events can be transferred to HR with program CORUPROC for the purposes of pair formation. To use this option, the option of transferring time events to HR must be activated in the confirmation parameters (standard setting, Customizing for Shop Floor Control by choosing Operations -> Confirmation -> Define Confirmation Parameters).

Once the time events have been passed to HR, a HR pair formation is performed. This is generally more accurate than a PP pair formation as personal work schedules are considered Any deviations in durations determined in HR compared with the PP pair formation can be transmitted to the PP system as an additional activity confirmation using program RPTIST00. The time is then evaluated in the HR system. This entails all time event types permitted for HR in both interfaces being processed together and HR time tickets being generated for incentive wages.

This integration of HR with Logistics ensures that payment-relevant working times for employees only have to be entered once, namely in Logistics.

1.4.5 Recognition of time zones

Where operations for an order are performed in different plants, these plants can be in different time zones. The PP-PDC interface supports the entry of confirmations covering more than one time zone (UTC = Universal time coordinated). However, evaluations which are based on these confirmations are not supported.

2 Production order confirmation process

One production order confirmation provides the basis for a number of subsequent processes and documents the status of processing of operations. A confirmation serves here to provide the user, e.g. a production scheduler, with a picture of the actual situation. For example, he can determine

- The yield and scrap quantities produced for each operation
- The dates on which the work was actually started and finished
- The work center where the operation was carried out
- Who was involved in performing the operation
- The actual extent of the activities required

On the basis of the checked and entered actual data, some subsequent processes take place.

```
                        ┌─────────────────────┐
                        │  Actual data entry  │
                        └─────────────────────┘
                                  │
  ┌──────────────┐      ◄─────────┼─────────►      ┌─────────────────────┐
  │ Order update │                │                │ HR data transfer **)│
  └──────────────┘                │                └─────────────────────┘

   ┌────────────────────────┐  ◄──┼──►   ┌─────────────────────────┐
   │ Adjustmt of capac.reqts│      │      │ Determination of actual │
   └────────────────────────┘      │      │ costs*)                 │
                                   │      └─────────────────────────┘

      ┌─────────────────────────┐ ◄┼►  ┌────────────────────────┐
      │ Automatic goods receipt)*│  │   │ Expctd yield variance  │
      └─────────────────────────┘  │   └────────────────────────┘

        ┌────────────────┐   ◄─┼─►   ┌──────────────────────┐
        │ Backflush *)   │     │      │ Trigger point control│
        └────────────────┘    / \     └──────────────────────┘
                             /   \
        ┌────────────────┐  ▼     ▼ ┌───────────────────────────┐
        │ Clearing of open│         │ Production resource/tool  │
        │ reservations   │         │ confirmation              │
        └────────────────┘         └───────────────────────────┘
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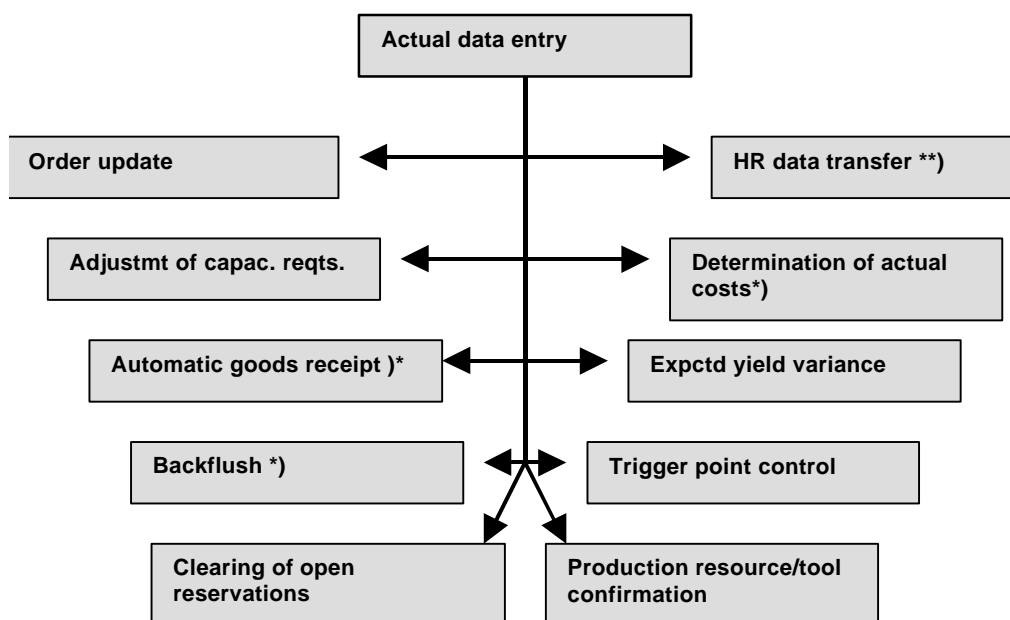
Notes on the diagram

*)   For these processes of the production order confirmation, you can define in Customizing whether the process concerned is carried out immediately in the dialog, is started immediately from the update task or is flagged for a periodically scheduled batch job.

**)   The process of HR data transfer can in principle only take place asynchronously, that is, at first only requests for this process are written.

2.1 Confirmation types

To enter confirmations for an operation relating to a production order, several confirmation types are available. These are identified via the **record type:**

- Time ticket
- Time event
- Activity confirmation

Entry of both time tickets and time events for one operation is not permitted. A different confirmation type can be used for each operation. If there already is a confirmation for an operation, then all further confirmations must be of the same type.

The activity confirmation can be combined with the time ticket and also with the time event.

Time ticket

Record type	Description
L00	Automatic final confirmation
L20	Partial confirmation
L40	Final confirmation

With time tickets, entry of actual data is related to **time durations**.

Mainly the processed actual quantities and activities are entered. A personnel reference can be created by entering the personnel or time recording ID number. It is also possible to specify an actual work center that is different from the planned work center or to enter actual dates for the start and finish of execution. The following data can be confirmed:

- Quantities
- Activity data
- Dates
- HR data
- Work center
- Posting date
- Reason for variance
- Long text

With a time ticket, a distinction must be made between a **partial confirmation** and a **final confirmation**. This is done either through a user decision (record type L20 or L40) or through a decision by the system (record type L00). The individual record types have the following meaning:

- L00 **Automatic final confirmation**
  The R/3 system decides on the basis of the "possible" quantity for the operation and the total quantity confirmed whether a partial or a final confirmation is appropriate. The "possible" quantity corresponds to the yield confirmed for predecessor operations that have been finally confirmed or, if no finally confirmed predecessor exist, the planned order quantity.
  - If the quantity confirmed is less than the "possible" quantity, then the confirmation is saved as a partial confirmation.
  - If the quantity confirmed is equal to or greater than the "possible" quantity, then the confirmation is saved as a final confirmation.

- L20 **Partial confirmation**
  A confirmation should be entered as a partial confirmation when the person entering it knows that more confirmations relating to the same operation are still to be entered either by himself or by other persons. Partial confirmations are used as indicators of progress in processing operations.

- L40 **Final confirmation**
  A confirmation should be entered as a final confirmation when the confirmation concerned is the final confirmation relating to a given operation. However, the system still allows additional confirmations to be entered after a final confirmation.

2.1.2 Time events

Record type	Description
R10	Start of setup
R20	Partial end of setup
R30	Setup interruption
R40	End of setup
B10	Start of processing
B20	Partial end of processing
B30	Processing interruption
B40	End of processing
A10	Start of teardown
A20	Partial end of teardown
A30	Teardown interruption
A40	End of teardown
V20	Partial confirmation of variable activity
V40	Final confirmation of variable activity

With time events, entry of actual data is related to a **particular point in time**. With a time event, the time of the start, partial finish, interruption or finish is confirmed primarily for one of the operation segments setup, processing or teardown. With partial end, interruption or end time events, confirmed quantities can also be entered for the processing segment.

2.1.2.1 *Pair formation*

With partial end, interruption or end time events, **pair formation** occurs for all segments. The relevant previous time event is found and the operating/working time is determined on the basis of the available capacity at the work center. This determination is based on the capacity that is relevant for scheduling. When the operating/working time is calculated, the break time can be determined in different ways. **Without shift model** (that is, standard available capacity is used), the break time is distributed proportionately to the operating/working times determined. When a **shift model** with defined breaks is used (assignment at the work center), accurate break planning is possible as is performed within HR. In general, when a shift model is used, no breaks are calculated for times outside the operating time.

When the R/3 HR system is in use, a separate pair formation is performed in HR for the data received from Shop Floor Control. This is based on the HR master data (for example, personnel breaks in HR, but machine breaks in PP). In this way, the elapsed time between two points in time can be ascertained in a staff-specific manner. If any variance is detected compared with the duration from the pair formation in Logistics, then the amount by which the activity has been over-or under-posted can be corrected via an additional **activity confirmation**. These activity confirmations are generated in the HR system and can be transferred either synchronously or asynchronously to the R/3 Shop Floor Control system (see Section 1.4.4).

2.1.2.2 *Activity confirmations*

In the definition of costing data for the work center, the operating/working times determined can be assigned to the activities of the operation. In this way, actual costs can also be posted on the basis of the confirmed points in time. Up to six activities can be assigned to each work center. The record type group

(variable activity, setup, processing, teardown) is used to specify the type of confirmation for the corresponding activity. However, confirmations for the various activities are not mandatory.

For activities which cannot be derived from these durations, the time events "partial confirmation of variable activity" and "final confirmation of variable activity" are available with record types "V20" and "V40" respectively. Up to six confirmable activities can be confirmed per data record. These activities must be defined at the work center as variable activities.

Time events for setup, processing and teardown can always be confirmed, even when no activity is assigned to the relevant record type group at the work center.

2.1.2.3 *Personnel-related confirmations*

A reference to an individual can also be created for time events through entry of the personnel or time recording ID number. With a final confirmation, the following points should be noted:

- No reference to personnel
  An operation is deemed to have been finally confirmed when the end time event for the segment that is scheduled to be the last operation segment has been entered. You can tell when a segment is the last one scheduled for an operation from the planned duration of the next operation segment (setup, processing, teardown). For example, if the planned duration of the operation segment teardown is 0, then the operation is set to completely confirmed with a B40 message (end of processing).
  An operation is deemed to have been completely confirmed after a V40 completion confirmation.

- With reference to personnel
  Once again, an operation is deemed to have been finally confirmed when a "V40" confirmation has been entered. This is necessary as the R/3 system cannot determine which end time event of which person constitutes the last confirmation for a given operation. Hence this must be stated explicitly through a closing confirmation of record type "V40". Such a closing confirmation can also occur without entry of any activity quantity. Entry of a personnel or time recording ID number is also optional here.

2.1.3 Activity confirmation

Record type	Description
V00	Activity confirmation

An activity confirmation is purely for entering activity.
The activity confirmation should be used here to correct entered actual activities and to enter actual activities retrospectively rather than at the same time as the confirmation of the quantities produced. This is especially the case where the actual activity data is generated in an external system and only reaches the R/3 system at a later time, whereas actual quantities and actual dates are entered in real-time in the R/3 system. In this way, for example, capacities can be adjusted immediately and goods receipt and backflush can be posted immediately.

With this confirmation type you cannot confirm other actual data such as quantities and dates. It is also not possible to influence the confirmation status of the confirmed operation through the activity confirmation. Only if the very first confirmation for an operation is an activity confirmation is the status "partially confirmed" set for the operation.

The activity confirmation is not part of the PP-PDC interface. It can therefore only be implemented via the "**CreateActConfMultiple**" method of BOR object **BUS2116** "Production order confirmation".

2.2   Status transfers

Time tickets

The diagram below shows the permitted status transfers in the context of time ticket-related confirmations.
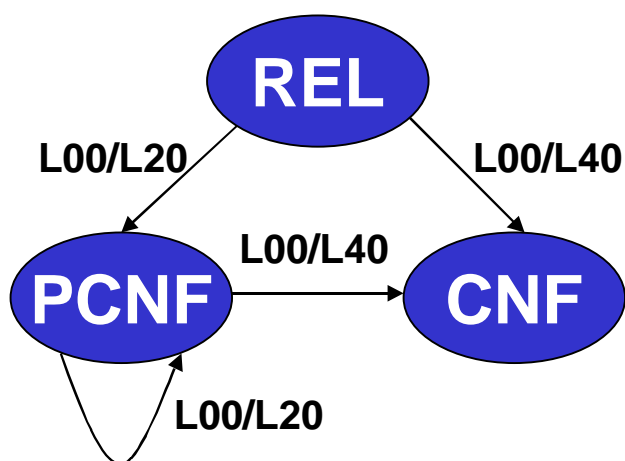
With time tickets, a distinction is made between partial confirmations (L20) and final confirmations (L40), whereby a final confirmation is expected as the last confirmation. Any number of partial confirmation can come one after the other. When record type L00 is used, the system decides whether a partial or a final confirmation applies (see Section 2.1.1).

2.2.2 Time events

The diagram below shows the permitted transfers in confirmations for time events (setup, processing and teardown).

XS   = Start
XU   = Interruption
XTE = Partial finish
XE   = Finish
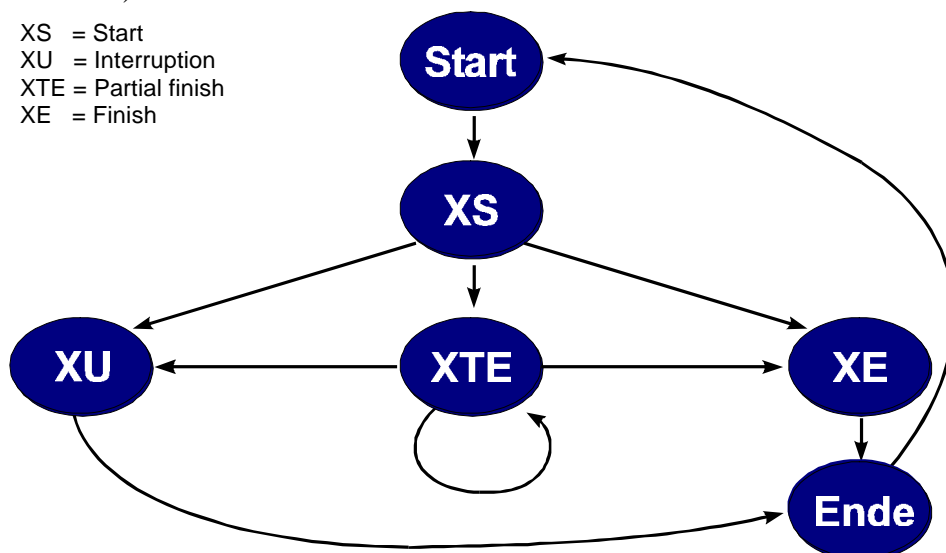
At the end of a confirmation cycle there is always a final confirmation (XE) whereas at the beginning there is always a start confirmation (XS). Once a confirmation cycle is closed, a new start confirmation can be entered for the same activity area. The sequence of setup, processing and teardown is totally unimportant here, however, only one cycle (setup, processing or teardown) may be active at a given point in time.

The initial operation status determines which of the confirmations in the diagram are possible. At the level of the subsystem it is necessary that the operation status can be traced for each operation. Normally the initial operation status is "released", so the status diagram runs starting from the start point. The current status of operations in the SAP system can be read with the aid of status fields STATUS, INDICATOR_TT_OR_TE and INDICATOR_FIN_OR_PART in structure BAPI_PP_PDC_OPERA2. An operation is set to "finally confirmed" when all the cycles which were planned in the area of setup/processing/teardown are complete (see "Personnel-related confirmations" 2.1.2.3).

3 Technical Description of the PP-PDC Interface

3.1 List of interfaces

Download of master data	
Dialog transaction	CI43
Program for dialog	CIBDSTTA
Program for batch	SAPPPC22

> ➢ Download of work centers
> ➢ Download of reasons for variance
> ➢ Download of generally applicable units of measure
> ➢ Download of material-dependent units of measure

Download of operations (initial / delta download)	
Dialog transaction	CI42N
Program for dialog	CIBDOP_DOWN_PP
Program for batch	CIBDOP_DOWN_PP

> ➢ Initial download
> ➢ Delta download

Upload request	
Dialog transaction	CI45N
Program for dialog	CIBDCONF_REQUEST
Program for batch	CIBDCONF_REQUEST

> ➢ Upload request for time tickets
> ➢ Upload request for time events

Upload of confirmations

> ➢ Upload of time tickets
> ➢ Upload of time events

3.2   Description of the interface structures

The PP-PDC is designed as an asynchronous BAPI interface. For every upload and download there is an associated IDoc with message and IDoc type. The subsystem must be able to receive and send IDocs. With the exception of IDocs for upload requests, every IDoc contains a number of data records of the same type. Moreover a method has been defined for a business object or interface type for each of uploads, upload requests, downloads of operations and work centers.

In the description of the structures which follows, in each case only the BAPI structures are listed. The corresponding segment structures are built in a similar fashion. The numbering shows in each case which BAPI structure belongs to which segment structure. However, all the segment structure fields are of data type CHAR. For some BAPI structure data types a conversion is necessary. For example, QUAN(13,3) is converted to CHAR(15), as the decimal point must be considered.

The key fields are marked in the "K" column (= Key) with an "X".

All units of measure are provided in the internal format.

3.2.1 Download of master data

3.2.1.1 Download of work centers

Connection for work centers	
BOR object:	RCVPRORDCF
Method	ReceiveWorkCenter
Message type	PPCC2RECWORKCENTER
IDoc type	PPCC2RECWORKCENTER01
Segment structure name	E1BP_PDC_WORKCENTER
BAPI structure name	BAPI_PDC_WORKCENTER

The PDC-relevant work centers are provided as IDocs. A work center is deemed to be PDC-relevant if at least one PDC group is assigned to it via the function "Subsystem connection" in Work Center Maintenance.

The entire dataset that is valid at the time of the download is always sent to the subsystem. It is not possible when changes occur at individual work centers to only download data for those work centers.

If different cost center assignments have been made to a work center over several periods, then the download will only consider the cost center assignment which is valid at the time of the download. If necessary, when there is a change in period the work center download may therefore need to be performed more than once.

The structure used here is as follows:

BAPI_PDC_WORKCENTER	K	Type	L	D	Download for work centers
Field Name	**K**	**Type**	**L**	**D**	**Meaning**
SOURCE_SYS	X	CHAR	10	0	Logical system
WORK_CNTR	X	CHAR	8	0	Work center
PLANT	X	CHAR	4	0	Plant
SUBSYSTEM_GROUPING		CHAR	3	0	PDC group
WORK_CNTR_DESCR		CHAR	40	0	Short text on work center
VALID_START		DATS	8	0	Validity start date of current cost center link
VALID_END		DATS	8	0	Validity end date of current cost center link
CO_AREA		CHAR	4	0	Controlling area of current cost center link
COST_CNTR		CHAR	10	0	Cost center of current cost center link
ACTI1_TEXT		CHAR	20	0	Activity 1: activity text
ACTI1_UNIT		UNIT	3	0	Activity 1: activity unit
ACTI1_UNIT_ISO		CHAR	3	0	Activity 1: ISO code unit of measure
NOACTI1		CHAR	1	0	Activity 1: indicator: do not show activity text
RECORD_GRP1		NUMC	1	0	Activity 1: record type group
ACTI2_TEXT		CHAR	20	0	Activity 2: activity text
ACTI2_UNIT		UNIT	3	0	Activity 2: activity unit
ACTI2_UNIT_ISO		CHAR	3	0	Activity 2: ISO code unit of measure
NOACTI2		CHAR	1	0	Activity 2: indicator: do not show activity text
RECORD_GRP2		NUMC	1	0	Activity 2: record type group
ACTI3_TEXT		CHAR	20	0	Activity 3: alternative activity text
ACTI3_UNIT		UNIT	3	0	Activity 3: activity unit
ACTI3_UNIT_ISO		CHAR	3	0	Activity 3: ISO code unit of measure
NOACTI3		CHAR	1	0	Activity 3: indicator: do not show activity text
RECORD_GRP3		NUMC	1	0	Activity 3: record type group
ACTI4_TEXT		CHAR	20	0	Activity 4: activity text
ACTI4_UNIT		UNIT	3	0	Activity 4: activity unit
ACTI4_UNIT_ISO		CHAR	3	0	Activity 4: ISO code unit of measure
NOACTI4		CHAR	1	0	Activity 4: indicator: do not show activity text
RECORD_GRP4		NUMC	1	0	Activity 4: record type group
ACTI5_TEXT		CHAR	20	0	Activity 5: alternative activity text
ACTI5_UNIT		UNIT	3	0	Activity 5: activity unit
ACTI5_UNIT_ISO		CHAR	3	0	Activity 5: ISO code unit of measure
NOACTI5		CHAR	1	0	Activity 5: indicator: do not show activity text
RECORD_GRP5		NUMC	1	0	Activity 5: record type group
ACTI6_TEXT		CHAR	20	0	Activity 6: activity text
ACTI6_UNIT		UNIT	3	0	Activity 6: activity unit
ACTI6_UNIT_ISO		CHAR	3	0	Activity 6: ISO code unit of measure
NOACTI6		CHAR	1	0	Activity 6: indicator: do not show activity text
RECORD_GRP6		NUMC	1	0	Activity 6: record type group
CO_BUSPROC		CHAR	12	0	Business process
CO_BUSPROC_NAME		CHAR	20	0	General description for business process
COST_DRIVER		UNIT	3	0	Activity unit CO-ABC for business process
COST_DRIVER_ISO		CHAR	3	0	Activity unit CO-ABC under ISO for business process

The following fixed values have been defined for the record type group (fields RECORD_GRP1 to RECORD_GRP6):

Value	Meaning
0	Variable activity
1	Setup
2	Processing
3	Teardown

The indicators NOACTI1 to NOACTI6 are used to specify that an activity should not be shown in the subsystem (NOAXTx = 'X').

All units of measure are provided in the internal format.

3.2.1.2 *Download of reasons for variance*

Connection for deviation causes	
Message type	DIFFE2
IDoc type	DIFFE2
Segment structure name	E1DIFF1

The entire dataset for "Reaons of variance" is always sent to the subsystem. It is not possible to download individual entries which have changed.

The structure used here is as follows:

E1DIFF1				Download of reasons for variance
Field Name	K	Type	L	Meaning
WERKS	X	CHAR	4	Plant
GRUND	X	CHAR	4	Reason for variance
GRDTX		CHAR	25	Description of cause of deviation
SOURCE_SYS	X	CHAR	10	Logical system

Alternatively, the possible "reasons for variance" can also be provided synchronously using the standard method "GetList" of business object "Helpvalues".
This requires the following parameterization:

- ObjType = BUS2116
- Method = CreatePredefTimeTicketMultiple
- Parameter = Timetickets
- Field = DEV_REASON

3.2.1.3 *Download of generally applicable units of measure*

Connection for generally applicable units of measure	
Message type	UNIT2
IDoc type	UNIT2
Segment structure name	E1UNIT1

The "generally applicable units of measure" refer to units of measure that can be defined in the R/3 system via the "General Settings" menu option in Customizing. The entire dataset for "generally applicable units of measure" is always sent to the subsystem. It is not possible to download individual entries that have changed.

The structure used here is as follows:

E1UNIT1				Download of generally applicable units of measure
Field Name	**K**	**Type**	**L**	**Meaning**
MSEHI	X	CHAR	3	Unit of measure (internal key)
MSEHE		CHAR	3	Unit of measure (external key)
NENNR		CHAR	10	Denominator for conversion to SI unit
ZAEHL		CHAR	10	Counter for conversion to SI unit
MSSIE		CHAR	3	SI unit (internal key)
MSEHL		CHAR	25	Text for unit of measure
ANDEC		CHAR	3	Number of places behind the decimal point
SOURCE_SYS	X	CHAR	10	Logical system

Alternatively, the "generally applicable units of measure" can also be provided synchronously using the standard method "GetList" of business object "Helpvalues". However, in this case no information is provided regarding the relationship of the relevant unit of measure to the assigned SI unit.

This requires the following parameterization:
- ObjType = BUS2116
- Method = CreatePredefTimeTicketMultiple
- Parameter = Timetickets
- Field = CONF_QUAN_UNIT

3.2.1.4 *Download of material-dependent units of measure*

Connection for material-dependent units of measure	
Message type	UNIMA2
IDoc type	UNIMA2
Segment structure name	E1UNIM1

"Material-dependent units of measure" refers to units of measure which are held in the R/3 system for each material as alternative units of measure, whereby convertibility to the base unit of measure for the material is defined via counter and denominator. The entire dataset for "material-dependent units of measure" is always sent to the subsystem. It is not possible to download individual entries that have changed.

The structure used for the download of material-dependent units of measure is as follows:

E1UNIM1				Download of material-dependent units of measure
Field Name	**K**	**Type**	**L**	**Meaning**
MATNR	X	CHAR	18	Material
MEINH	X	CHAR	3	Alternative unit of measure of material (internal key)
MEINS		CHAR	3	Base unit of measure of material (internal key)
UMREZ		CHAR	7	Counter for conversion of alternative unit of measure to stockkeeping unit
UMREN		CHAR	7	Denominator for conversion of alternative unit of measure to stockkeeping unit
SOURCE_SYS	X	CHAR	10	Logical system

All units of measure are provided in the internal format.

3.2.1.5 *Download of HR mini-master record*

Connection for personnel time events	
BOR object:	RCVPMINIMD
Method	ReceiveMiniMasterData
Message type	HRCC1DNPERSO
IDoc type	HRCC1DNPERSO01
Segment structure name	E1BPCC1DNPERSO
BAPI structure name	BAPICC1DNPERSO

As the download of the HR mini-master record does not fall within the scope of the PP-PDC interface for Shop Floor Control which is described here, but can only be performed from the HR-PDC interface, please refer to the description of the HR-PDC interface for R/3 Time Management for more detailed information on this.

3.2.2 Download of operations

Connection for operations	
BOR object:	RCVPRORDCF
Method	ReceiveProdOrder
Message type	PPCC2RECORDER
IDoc type	PPCC2RECORDER01
Segment structure names	1. E1PPCC2RECORDER
	2. E1BP_PP_PDC_OPERA2
	3. E1BP_PP_PDC_OPERA1
	4. E1BP_PP_PDC_OPENEVENT
BAPI structure names	1. BAPI_PP_PDC_PARAM
	2. BAPI_PP_PDC_OPERA2
	3. BAPI_PP_PDC_OPERA1
	4. BAPI_PP_PDC_OPENEVENT

When it comes to the **scope of data downloaded** for operations, a distinction must be made between the initial download and the delta download. This is performed via an interface parameter, the basis for which is the INIT field in BAPI structure BAPI_PP_PDC_PARAM.

- If the indicator in the INIT field is set, then the download is an initial download, i.e. the transferred operation data completely replaces any operation data that already exists in the subsystem.
  In an initial download, the operation data is provided in a table using BAPI structure BAPI_PP_PDC_OPERA2.
  The table with BAPI structure BAPI_PP_PDC_OPERA1 is not used here.
  The table with BAPI structure BAPI_PP_PDC_OPENEVENT contains information on the open time pairs for all partially confirmed operations, which have been confirmed using time events.

- On the other hand, if the indicator in the INIT field is not set, then the download is a delta download i.e. only the following data for operations is transferred:
  - data which has been defined as PDC-relevant in the R/3 system for the first time, for example, through release of the operation,
  - data whose PDC-relevant data has been subsequently altered in the R/3 system, for example, quantity or dates of the operation;
  - data that due to alterations no longer counts as PDC-relevant, for example, through "Technical Closing" of the order.

  The operations in the subsystem must be modified in line with this data.

  In a delta download, the operation data is provided in a table using BAPI structure BAPI_PP_PDC_OPERA2. This table contains only operations which are already known to the subsystem but have been altered subsequently in the R/3 system. However it also contains new operations which are not yet known to the subsystem.
  The table with BAPI structure BAPI_PP_PDC_OPERA1 on the other hand contains the keys of the operations to be deleted in the PDC system as these are no longer PDC-relevant after an alteration in the R/3 system.
  The table with BAPI structure BAPI_PP_PDC_OPENEVENT is not used for delta downloads.

During the download, both **operations** and **suboperations** are considered. Suboperations are handled here the same way as operations. Hence, where operations are referred to below, this term is also intended to cover suboperations also. The confirmation number that is assigned on creation of the operation in the R/3 system and cannot be altered subsequently is sufficient to uniquely identify an operation. The number of the operation, however, cannot be used for unique identification as this can be altered subsequently in the R/3 system.

The structures used during the download of operations are as follows:

BAPI_PP_PDC_PARAM			Indicator initial / delta download	
Field Name	K	Type	L	Meaning
INIT		CHAR	1	Indicator initial download ("X" = initial download)

BAPI_PP_PDC_OPERA2				Operation data for PDC download (insert or update records)
Field Name	K	Type	L	D	Meaning
SOURCE_SYS	X	CHAR	10	0	Logical system
CONF_NO	X	NUMC	10	0	Confirmation number of the operation
ORDERID		CHAR	12	0	Order
SEQUENCE		CHAR	6	0	Sequence
OPERATION		CHAR	4	0	Operation
SUB_OPER		CHAR	4	0	Suboperation
SUBSYSTEM_GROUPING		CHAR	3	0	Grouping for subsystem connection
MATERIAL		CHAR	18	0	Material
MATL_DESC		CHAR	40	0	Material description
ROUT_QUAN_UNIT		UNIT	3	0	Unit of measure of the plan
ROUT_QUAN_UNIT_ISO		CHAR	3	0	ISO code unit of measure
ORD_QUAN_UNIT		UNIT	3	0	Unit of measure for in-house production
ORD_QUAN_UNIT_ISO		CHAR	3	0	ISO code unit of measure
BASE_QUAN_UNIT		UNIT	3	0	Base unit of measure
BASE_QUAN_UNIT_ISO		CHAR	3	0	ISO code unit of measure
HDR_NOMINATOR		DEC	5	0	Counter for conversion to base unit of measure
HDR_DENOMINATOR		DEC	5	0	Denominator for conversion to base unit of measure
LEADING_ORDERID		CHAR	12	0	Collective order: leading order
SUPERIOR_ORDERID		CHAR	12	0	Collective order: directly superior order
SUPERIOR_SEQUENCE		CHAR	6	0	Collective order: sequence of the directly superior order
SUPERIOR_OPERATION		CHAR	4	0	Collective order: operation of the directly superior order
REFERENCE_SEQUENCE		CHAR	6	0	Parallel sequence: reference sequence of a sequence
BRANCH_OPERATION		CHAR	4	0	Parallel sequence: branch operation
RETURN_OPERATION		CHAR	4	0	Parallel sequence: return operation
OPER_DESCRIPTION		CHAR	40	0	Operation short text
OPER_QUAN_UNIT		UNIT	3	0	Unit of measure for operation
OPER_QUAN_UNIT_ISO		CHAR	3	0	ISO code unit of measure
OPER_QUANTITY		QUAN	13	3	Operation quantity
PLANNED_SCRAP		QUAN	13	3	Scrap quantity for operation
NOMINATOR		DEC	5	0	Counter for convn of operation qty unit to header unit
DENOMINATOR		DEC	5	0	Denominator for convn of opn qty unit to header unit
UNDERDELIVERY_QUANTITY		QUAN	13	3	Quantity of underdelivery tolerance in operation qty unit
CHECK_UNDERDELIVERY		CHAR	1	0	Check of underdelivery tolerance in order
OVERDELIVERY_QUANTITY		QUAN	13	3	Qty of overdelivery tolerance in operation qty unit
CHECK_OVERDELIVERY		CHAR	1	0	Check of overdelivery tolerance in order
MESSAGE_TYPE		CHAR	1	0	Message type for checking of operation order
USERFIELD_CH20_1		CHAR	20	0	20 character user field
USERFIELD_CH20_2		CHAR	20	0	20 character user field
USERFIELD_UNIT		UNIT	3	0	User field: unit quantity field
USERFIELD_UNIT_ISO		CHAR	3	0	ISO code unit of measure
USERFIELD_QUAN		QUAN	13	3	User field for quantity (length 10,3)
ACTIVITY_UNIT_1		UNIT	3	0	Activity 1: unit of measure of activity to be confirmed
ACTIVITY_UNIT_1_ISO		CHAR	3	0	Activity 1: ISO code unit of measure
ACTIVITY_QUANTITY_1		QUAN	13	3	Activity 1: entire activity quantity to be confirmed
ACTIVITY_UNIT_2		UNIT	3	0	Activity 2: unit of measure of activity to be confirmed
ACTIVITY_UNIT_2_ISO		CHAR	3	0	Activity 2: ISO code unit of measure
ACTIVITY_QUANTITY_2		QUAN	13	3	Activity 2: entire activity quantity to be confirmed
ACTIVITY_UNIT_3		UNIT	3	0	Activity 3: unit of measure of activity to be confirmed

ACTIVITY_UNIT_3_ISO	CHAR	3	0	Activity 3: ISO code unit of measure
ACTIVITY_QUANTITY_3	QUAN	13	3	Activity 3: entire activity quantity to be confirmed
ACTIVITY_UNIT_4	UNIT	3	0	Activity 4: unit of measure of activity to be confirmed
ACTIVITY_UNIT_4_ISO	CHAR	3	0	Activity 4: ISO code unit of measure
ACTIVITY_QUANTITY_4	QUAN	13	3	Activity 4: entire activity quantity to be confirmed
ACTIVITY_UNIT_5	UNIT	3	0	Activity 5: unit of measure of activity to be confirmed
ACTIVITY_UNIT_5_ISO	CHAR	3	0	Activity 5: ISO code unit of measure
ACTIVITY_QUANTITY_5	QUAN	13	3	Activity 5: entire activity quantity to be confirmed
ACTIVITY_UNIT_6	UNIT	3	0	Activity 6: unit of measure of activity to be confirmed
ACTIVITY_UNIT_6_ISO	CHAR	3	0	Activity 6: ISO code unit of measure
ACTIVITY_QUANTITY_6	QUAN	13	3	Activity 6: entire activity quantity to be confirmed
CO_BUSPROC_1	CHAR	12	0	Business process: identification
BUSPROC_UNIT_1	UNIT	3	0	Bus. proc.: unit of measure of activity to be confirmed
BUSPROC_UNIT_1_ISO	CHAR	3	0	Business process: ISO code unit of measure
BUSPROC_QUANTITY_1	QUAN	13	3	Business process: quantity to be confirmed
WORK_CNTR	CHAR	8	0	Work center
PLANT	CHAR	4	0	Plant
EARL_SCHED_START_DATE	DATS	8	0	Earliest scheduled start: execute (date)
EARL_SCHED_START_TIME	TIMS	6	0	Earliest scheduled start: execute (time)
LATE_SCHED_FIN_DATE	DATS	8	0	Latest scheduled finish: execute (date)
LATE_SCHED_FIN_TIME	TIMS	6	0	Latest scheduled finish: execute (time)
SETUP_TIME_UNIT	UNIT	3	0	Unit setup time
SETUP_TIME_UNIT_ISO	CHAR	3	0	ISO code unit of measure
SETUP_TIME	QUAN	7	1	Duration of setup
PROCESS_TIME_UNIT	UNIT	3	0	Processing time unit
PROCESS_TIME_UNIT_ISO	CHAR	3	0	ISO code unit of measure
PROCESS_TIME	QUAN	7	1	Duration of processing
TEARDOWN_TIME_UNIT	UNIT	3	0	Unit teardown
TEARDOWN_TIME_UNIT_ISO	CHAR	3	0	ISO code unit of measure
TEARDOWN_TIME	QUAN	7	1	Duration of teardown
STATUS	CHAR	5	0	Individual status of an object
INDICATOR_TT_OR_TE	CHAR	1	0	Time ticket or time event
INDICATOR_FIN_OR_PART	CHAR	1	0	Partial finish status or finish status
CONFIRMED_YIELD	QUAN	13	3	Total yield confirmed in operation unit of measure
CONFIRMED_SCRAP	QUAN	13	3	Total scrap confirmed in operation unit of measure
CONFIRMED_REWORK	QUAN	13	3	Total rework confirmed in operation unit of measure
CONFIRMED_ACTIVITY_1	QUAN	13	3	Activity 1: activity quantity already confirmed
NO_REMN_ACTIVITY_1	CHAR	1	0	Activity 1: indicator: no remng units of prodn expctd
CONFIRMED_ACTIVITY_2	QUAN	13	3	Activity 2: activity quantity already confirmed
NO_REMN_ACTIVITY_2	CHAR	1	0	Activity 2: indicator: no remng units of prodn expctd
CONFIRMED_ACTIVITY_3	QUAN	13	3	Activity 3: activity quantity already confirmed
NO_REMN_ACTIVITY_3	CHAR	1	0	Activity 3: indicator: no remng units of prodn expctd
CONFIRMED_ACTIVITY_4	QUAN	13	3	Activity 4: activity quantity already confirmed
NO_REMN_ACTIVITY_4	CHAR	1	0	Activity 4: indicator: no remng units of prodn expctd
CONFIRMED_ACTIVITY_5	QUAN	13	3	Activity 5: activity quantity already confirmed
NO_REMN_ACTIVITY_5	CHAR	1	0	Activity 5: indicator: no remng units of prodn expctd
CONFIRMED_ACTIVITY_6	QUAN	13	3	Activity 6: activity quantity already confirmed
NO_REMN_ACTIVITY_6	CHAR	1	0	Activity 6: indicator: no remng units of prodn expctd
CONFIRMED_BUS_PROC_1	QUAN	13	3	Confirmed quantity for business process
NO_REMN_BUS_PROC_1	CHAR	1	0	No remaining quantity expected for business process
CONFIRMED_WORK_CNTR	CHAR	8	0	Actual work center
CONFIRMED_PLANT	CHAR	4	0	Actual plant

The fixed values for fields CHECK_UNDERDELIVERY and CHECK_OVERDELIVERY are explained in Section 3.3.3.3. The fixed values for field MESSAGE_TYPE are explained in Section 3.3.3.2.

Operation status (STATUS) can have the following values:

Value	Meaning
I0002	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
I0272	Partial end of processing
I0109	End of processing
I0110	Start of teardown
I0111	Teardown interruption
I0273	Partial end of teardown
I0112	End of teardown

Example

Before the start of processing, an operation has the status "operation released" (I0002). In the course of processing, the status changes after a "B10" confirmation to "Start of processing" (I0107) and after a "B40" confirmation to "End of processing" (I0109). However, the status only provides useful information if only one person is working on the operation.

The INDICATOR_TT_OR_TE field shows which types of confirmation have been entered for the operation:

Value	Meaning
	No completion confirmations have yet been entered
L	Time tickets have been entered
Z	Time events have been entered

The INDICATOR_FIN_OR_PART field shows whether any partial or final confirmations have already been entered for the operation:

Value	Meaning
	No completion confirmations have yet been entered
T	Operation is partially confirmed
E	Operation is completely confirmed

All units of measure are provided in the internal format.

BAPI_PP_PDC_OPERA1		Operations for PDC download (delete records)		
Field Name	**K**	**Type**	**L**	**Meaning**
SOURCE_SYS	X	CHAR	10	Logical system
CONF_NO	X	NUMC	10	Confirmation number of the operation
ORDERID		CHAR	12	Order
SEQUENCE		CHAR	6	Sequence
OPERATION		CHAR	4	Operation
SUB_OPER		CHAR	4	Suboperation
SUBSYSTEM_GROUPING		CHAR	3	Grouping for subsystem connection

BAPI_PP_PDC_OPENEVENT		Open time pairs per operation and person		
Field Name	**K**	**Type**	**L**	**Meaning**
SOURCE_SYS	X	CHAR	10	Logical system
CONF_NO	X	NUMC	10	Confirmation number of the operation
SUBSYSTEM_GROUPING		CHAR	3	Grouping for subsystem connection
PERS_NO	X	NUMC	8	Personnel number
TIMEID_NO		NUMC	8	Time recording ID number
RECORDTYPE	X	CHAR	3	Record type of confirmation
LOGDATE		DATS	8	Logical date
LOGTIME		TIMS	6	Logical time
WORK_CNTR		CHAR	8	Actual work center
PLANT		CHAR	4	Actual plant

The fixed values for the RECORDTYPE field are explained in Section 3.3.2.1.

3.2.3 Upload request

Connection for upload request	
BOR object:	RCVPRORDCF
Method	RequestProdOrdConf
Message type	PPCC2REQCONF
IDoc type	PPCC2REQCONF01
Segment structure name	E1PPCC2REQCONF
BAPI structure name	BAPI_PP_PDC_PARAM

The upload request is made using IDocs. These are usually generated through a periodically scheduled background job which uses the CIBDCONF_REQUEST program. This means it is possible to control the times at which uploads should be performed within the R/3 system.

The reason for adopting this approach is that it must be possible for a system to define the times at which both downloads and uploads occur.

After the arrival of the IDoc the subsystem has to send the requested completion confirmations to the R/3 system which is requesting the data.

Only two parameters are defined for controlling whether wage time tickets, time events or both types of confirmation are requested. These are:
- ReqTimeTicket   time tickets are requested
- ReqTimeEvent   time events are requested

The following fields are relevant to the upload request:

BAPI_PP_PDC_PARAM			Request wage time tickets / time events
Field Name	**Type**	**L**	**Meaning**
REQTT	CHAR	1	Request wage time tickets
REQTE	CHAR	1	Request time events
SOURCE_SYS	CHAR	10	Logical system

3.2.4 Upload

The actual data entered in the subsystem is transferred to the R/3 system during the upload. The data is passed unchecked as "requested confirmations" to the AFRP0 table. Further processing of this data can be initiated as follows:

- **Asynchronously** by batch job. Here the CORUPROC1 program is scheduled in a regular cycle.
- **Synchronously**, that is, triggered by the upload. To use this option, the *immediate update* indicator must be set in the communication parameters (Customizing for Shop Floor Control by choosing Operations -> Confirmation -> PDC Data Transfer -> Define Communication Parameters).

In the certification scenario, the upload always takes place after the R/3 system has sent an upload request to the subsystem. A distinction must be made here between the two confirmation types "time ticket" and "time event", for which different methods must be employed during an upload.

With the upload it is possible to confirm confirmations relating to capacity splits as well as confirmations for operations. However, the subsystem is not supplied with the capacity split default data during a download, so that no validation of confirmations relating to capacity splits can be performed in the subsystem. These functions do not fall within the scope of certification.

With reference to the upload fields, note the following (time tickets, time events):

- The operations are identified either via field CONF_CO (completion confirmation number) or fields ORDERID, SEQUENCE and OPERATION or ORDERID, SEQUENCE, OPERATION and SUB_OPER (suboperation).
- The time at which confirmation takes place is determined by the LDATE and LTIME fields.
- The record type of the confirmation is contained in the RECORDTYPE field. The fixed values for this field are listed in Section 3.3.2.1.
- Persons are identified using the personnel number in field PERS_NO or with the time recording ID number in field TIMEID_NO.
- The person entering the confirmation and the date and time of entry are recorded in the PDC system in fields EX_CREATED_BY, EX_CREATED_DATE and EX_CREATED_TIME.
- The EX_IDENT field is a Globally Unique Identifier (GUID), which is held in hex code. The entry in the EX_IDENT field identifies the confirmation uniquely in the PDC system. If the facilities for cancellation are implemented in the PDC system, the EX_IDENT entry is necessary to uniquely identify the confirmation to be cancelled in the SAP system (cancellation process - see Section 1.4.2).
- Indicators TARGET_ACTI1 to TARGET_ACTI6 can be used to specify that the planned activities are determined and confirmed on the basis of the quantity confirmed and the standard values in the production order. The same applies to indicator TARGET_BUS_PROC for the confirmed quantity of the business process.
- Field FIN_CONF is not interpreted.
- All units of measure are provided in the internal format.

As well as the table containing the actual confirmations, the methods used for the upload provide the opportunity to post goods movements. If no goods movements entries are made during the upload, then during the update of confirmations in the R/3 system the backflushes and automatic goods receipts are determined and posted or flagged for posting the same way as previously.

Note

Only operations are made available to the subsystem through the download. Planned goods movements and backflush components of a production order are excluded. Hence the option of transferring goods movements during an upload should only be used when the goods movements have been determined prior to the upload using the methods "GetTimeTicketProposal" or "GetTimeEventProposal" of BOR object BUS2116 "Production order confirmation". Individual data, such as the batch or storage location, can then be altered or supplemented in the subsystem. It is also possible to take individual goods movements which are not to be posted out of the upload of planned goods movements.

A single entry in the table with BAPI structure BAPI_LINK_CONF_GOODSMOV which refers to one of the confirmations ensures that neither backflushes nor automatic goods receipt occur in the R/3 system for the confirmation concerned.

The possibility of including goods movements in the above-mentioned table does not fall within the scope of certification.

3.2.4.1 *Upload of time tickets*

Connection for wage time tickets	
BOR object	BUS2116
Method	CreatePredefTimeTicketMultiple
Message type	PPCC2PRETTICKET
IDoc type	PPCC2PRETTICKET01
Segment structure names	1. E1BP_PP_TIMETICKET
	2. E1BP2017_GM_ITEM_CREATE
	3. E1BP_LINK_CONF_GOODSMOV
BAPI structure names	1. BAPI_PP_TIMETICKET
	2. BAPI2017_GM_ITEM_CREATE
	3. BAPI_LINK_CONF_GOODSMOV

Time tickets are passed as IDocs from the subsystem to the R/3 system.

If the actual activity quantities are not to be entered but instead target activity quantities are confirmed, then indicators TARGET_ACTI1 to TARGET_ACTI6, or TARGET_BUS_PROC1 can be set for this. The calculation of the associated activity quantities is then performed in the R/3 system. The target activities are calculated from yield, scrap quantity and rework quantities along with the planned standard values, using the costing formulas for the work center.

The settings defined in the R/3 system's confirmation parameters as proposals for confirmation data are only intended for the entry of confirmations in the SAP dialog. Therefore these parameters are not interpreted during updating of the transferred PDC data. Only the parameters for definition of checks (see Section 3.3) and subsequent processes are considered when this data is updated.

The structures used during the upload of time tickets are as follows:

BAPI_PP_TIMETICKET				Wage time tickets
Field Name	**Type**	**L**	**D**	**Meaning**
CONF_NO	NUMC	10	0	Confirmation number of the operation
ORDERID	CHAR	12	0	Order
SEQUENCE	CHAR	6	0	Sequence
OPERATION	CHAR	4	0	Operation
SUB_OPER	CHAR	4	0	Suboperation
CAPA_CATEGORY	CHAR	3	0	Capacity category
SPLIT	INT1	3	0	Number of a split
FIN_CONF	CHAR	1	0	Partial/final confirmation (not interpreted)
CLEAR_RES	CHAR	1	0	Clearing open reservations
POSTG_DATE	DATS	8	0	Posting date
DEV_REASON	CHAR	4	0	Reason for variance
CONF_TEXT	CHAR	40	0	Confirmation text
PLANT	CHAR	4	0	Plant
WORK_CNTR	CHAR	8	0	Work center
RECORDTYPE	CHAR	3	0	Record type of completion confirmation
CONF_QUAN_UNIT	UNIT	3	0	Confirmation unit of measure
CONF_QUAN_UNIT_ISO	CHAR	3	0	ISO code for confirmation unit of measure
YIELD	QUAN	13	3	Yield
SCRAP	QUAN	13	3	Scrap quantity
REWORK	QUAN	13	3	Rework quantity
CONF_ACTI_UNIT1	UNIT	3	0	Activity 1: unit of measure of activity quantity
CONF_ACTI_UNIT1_ISO	CHAR	3	0	Activity 1: ISO code for unit of measure
CONF_ACTIVITY1	QUAN	13	3	Activity 1: activity quantity
NO_REMN_ACTI1	CHAR	1	0	Activity 1: no remaining activity expected
CONF_ACTI_UNIT2	UNIT	3	0	Activity 2: unit of measure of activity quantity
CONF_ACTI_UNIT2_ISO	CHAR	3	0	Activity 2: ISO code for unit of measure
CONF_ACTIVITY2	QUAN	13	3	Activity 2: activity quantity
NO_REMN_ACTI2	CHAR	1	0	Activity 2: no remaining activity expected
CONF_ACTI_UNIT3	UNIT	3	0	Activity 3: unit of measure of activity quantity
CONF_ACTI_UNIT3_ISO	CHAR	3	0	Activity 3: ISO code for unit of measure
CONF_ACTIVITY3	QUAN	13	3	Activity 3: activity quantity
NO_REMN_ACTI3	CHAR	1	0	Activity 3: no remaining activity expected
CONF_ACTI_UNIT4	UNIT	3	0	Activity 4: unit of measure of activity quantity
CONF_ACTI_UNIT4_ISO	CHAR	3	0	Activity 4: ISO code for unit of measure
CONF_ACTIVITY4	QUAN	13	3	Activity 4: activity quantity
NO_REMN_ACTI4	CHAR	1	0	Activity 4: no remaining activity expected
CONF_ACTI_UNIT5	UNIT	3	0	Activity 5: unit of measure of activity quantity
CONF_ACTI_UNIT5_ISO	CHAR	3	0	Activity 5: ISO code for unit of measure
CONF_ACTIVITY5	QUAN	13	3	Activity 5: activity quantity
NO_REMN_ACTI5	CHAR	1	0	Activity 5: no remaining activity expected
CONF_ACTI_UNIT6	UNIT	3	0	Activity 6: unit of measure of activity quantity
CONF_ACTI_UNIT6_ISO	CHAR	3	0	Activity 6: ISO code for unit of measure
CONF_ACTIVITY6	QUAN	13	3	Activity 6: activity quantity
NO_REMN_ACTI6	CHAR	1	0	Activity 6: no remaining activity expected
CONF_BUS_PROC_UNIT1	UNIT	3	0	Business process: unit of measure for process quantity
CONF_BUS_PROC_UNIT1_ISO	CHAR	3	0	Business process: ISO code for unit of measure
CONF_BUS_PROC1	QUAN	13	3	Business process: process quantity
NO_REMN_BUS_PROC1	CHAR	1	0	Business process: no remaining quantity expected
EXEC_START_DATE	DATS	8	0	Date at "Start of execution" time
EXEC_START_TIME	TIMS	6	0	Time at "Start of execution" time
SETUP_FIN_DATE	DATS	8	0	Date at "End of setup" time
SETUP_FIN_TIME	TIMS	6	0	Time at "End of setup" time

PROC_START_DATE	DATS	8	0	Date at "Start of processing" time
PROC_START_TIME	TIMS	6	0	Time at "Start of processing" time
PROC_FIN_DATE	DATS	8	0	Date at "End of processing" time
PROC_FIN_TIME	TIMS	6	0	Time at "End of processing" time
TEARDOWN_START_DATE	DATS	8	0	Date at "Start of teardown" time
TEARDOWN_START_TIME	TIMS	6	0	Time at "Start of teardown" time
EXEC_FIN_DATE	DATS	8	0	Date at "End of execution" time
EXEC_FIN_TIME	TIMS	6	0	Time at "End of execution" time
FCST_FIN_DATE	DATS	8	0	Date of predicted "End of execution" time
FCST_FIN_TIME	TIMS	6	0	Time of predicted "End of execution" time
STD_UNIT1	UNIT	3	0	Standard value 1: unit of measure
STD_UNIT1_ISO	CHAR	3	0	Standard value 1: ISO code for unit of measure
FORCAST_STD_VAL1	QUAN	9	3	Standard value 1: predicted standard value
STD_UNIT2	UNIT	3	0	Standard value 2: unit of measure
STD_UNIT2_ISO	CHAR	3	0	Standard value 2: ISO code for unit of measure
FORCAST_STD_VAL2	QUAN	9	3	Standard value 2: predicted standard value
STD_UNIT3	UNIT	3	0	Standard value 3: unit of measure
STD_UNIT3_ISO	CHAR	3	0	Standard value 3: ISO code for unit of measure
FORCAST_STD_VAL3	QUAN	9	3	Standard value 3: predicted standard value
STD_UNIT4	UNIT	3	0	Standard value 4: unit of measure
STD_UNIT4_ISO	CHAR	3	0	Standard value 4: ISO code for unit of measure
FORCAST_STD_VAL4	QUAN	9	3	Standard value 4: predicted standard value
STD_UNIT5	UNIT	3	0	Standard value 5: unit of measure
STD_UNIT5_ISO	CHAR	3	0	Standard value 5: ISO code for unit of measure
FORCAST_STD_VAL5	QUAN	9	3	Standard value 5: predicted standard value
STD_UNIT6	UNIT	3	0	Standard value 6: unit of measure
STD_UNIT6_ISO	CHAR	3	0	Standard value 6: ISO code for unit of measure
FORCAST_STD_VAL6	QUAN	9	3	Standard value 6: predicted standard value
FORCAST_BUS_PROC_UNIT1	UNIT	3	0	Bus. proc.: unit of measure for predic. remaining quantity
FORC_BUS_PROC_UNIT1_ISO	CHAR	3	0	Business process: ISO code for unit of measure
FORCAST_BUS_PROC_VAL1	QUAN	13	3	Business process: predicted remaining quantity
PERS_NO	NUMC	8	0	Personnel number
TIMEID_NO	NUMC	8	0	Time recording ID number
WAGETYPE	CHAR	4	0	Wage type
SUITABILITY	CHAR	2	0	Suitability
NO_OF_EMPLOYEE	DEC	5	2	Number of employees
WAGEGROUP	CHAR	3	0	Wage group
BREAK_UNIT	UNIT	3	0	Break time unit
BREAK_UNIT_ISO	CHAR	3	0	ISO code unit of measure
BREAK_TIME	QUAN	9	3	Confirmed break time
EX_CREATED_BY	CHAR	12	0	External person entering confirmation
EX_CREATED_DATE	DATS	8	0	Date confirmation entered externally
EX_CREATED_TIME	TIMS	6	0	Time confirmation entered externally
TARGET_ACTI1	CHAR	1	0	Indicator: determine target activity 1
TARGET_ACTI2	CHAR	1	0	Indicator: determine target activity 2
TARGET_ACTI3	CHAR	1	0	Indicator: determine target activity 3
TARGET_ACTI4	CHAR	1	0	Indicator: determine target activity 4
TARGET_ACTI5	CHAR	1	0	Indicator: determine target activity 5
TARGET_ACTI6	CHAR	1	0	Indicator: determine target activity 6
TARGET_BUS_PROC1	CHAR	1	0	Indicator: determine target quantity for business process
EX_IDENT	CHAR	32	0	External confirmation key (GUID)
LOGDATE	DATS	8	0	Logical date
LOGTIME	TIMS	6	0	Logical time

BAPI2017_GM_ITEM_CREATE	Goods movements for confirmation

For further information on the structure of goods movements, please refer to the documentation for method **CreateFromData** of BOR object **BUS2017** "Goods movement".

BAPI_LINK_CONF_GOODSMOV	Linking of confirmation with goods movements		
Field Name	**Type**	**L**	**Meaning**
INDEX_CONFIRM	INT4	10	Index of an entry in the "Wage time tickets" table
INDEX_GOODSMOV	INT4	10	Index of an entry in the "Goods movements for confirmation" table

3.2.4.2 *Upload of time events*

Linking for time events	
BOR object:	BUS2116
Method	CreatePredefTimeEventMultiple
Message type	PPCC2PRETEVENT
IDoc type	PPCC2PRETEVENT01
Segment structure names	1. E1BP_PP_TIMEEVENT
	2. E1BP2017_GM_ITEM_CREATE
	3. E1BP_LINK_CONF_GOODSMOV
BAPI structure names	1. BAPI_PP_TIMEEVENT
	2. BAPI2017_GM_ITEM_CREATE
	3. BAPI_LINK_CONF_GOODSMOV

It should be noted that dependent on the time event type, which is determined from the record type, only certain data can be confirmed and hence only part of the interface structure is available for each time event (see notes on structure BAPI_PP_TIMEEVENT).

The structures used during the download of time events as follows:

BAPI_PP_TIMEEVENT				Time events	
Field Name	**Type**	**L**	**D**	**Meaning**	**Note**
CONF_NO	NUMC	10	0	Completion confirmation number of the operation	
ORDERID	CHAR	12	0	Order	
SEQUENCE	CHAR	6	0	Sequence	
OPERATION	CHAR	4	0	Operation	
SUB_OPER	CHAR	4	0	Suboperation	
CAPA_CATEGORY	CHAR	3	0	Capacity category	
SPLIT	INT1	3	0	Number of a split	
RECORDTYPE	CHAR	3	0	Record type of completion confirmation	
LOGDATE	DATS	8	0	Logical date	
LOGTIME	TIMS	6	0	Logical time	
FIN_CONF	CHAR	1	0	Partial/final confirmation	
CLEAR_RES	CHAR	1	0	Clearing open reservations	
POSTG_DATE	DATS	8	0	Posting date	
DEV_REASON	CHAR	4	0	Reason for variance	
CONF_TEXT	CHAR	40	0	Confirmation text	
CONF_QUAN_UNIT	UNIT	3	0	Confirmation unit of measure	
CONF_QUAN_UNIT_ISO	CHAR	3	0	ISO code for confirmation unit of measure	1)
YIELD	QUAN	13	3	Yield	1)
SCRAP	QUAN	13	3	Scrap quantity	1)
REWORK	QUAN	13	3	Rework quantity	1)
PLANT	CHAR	4	0	Plant	2)

WORK_CNTR	CHAR	8	0	Work center	2)
CONF_ACTI_UNIT1	UNIT	3	0	Activity 1: unit of measure of activity quantity	
CONF_ACTI_UNIT1_ISO	CHAR	3	0	Activity 1: ISO code for unit of measure	
CONF_ACTIVITY1	QUAN	13	3	Activity 1: activity quantity	
NO_REMN_ACTI1	CHAR	1	0	Activity 1: no remaining activity expected	
CONF_ACTI_UNIT2	UNIT	3	0	Activity 2: unit of measure of activity quantity	
CONF_ACTI_UNIT2_ISO	CHAR	3	0	Activity 2: ISO code for unit of measure	
CONF_ACTIVITY2	QUAN	13	3	Activity 2: activity quantity	
NO_REMN_ACTI2	CHAR	1	0	Activity 2: no remaining activity expected	
CONF_ACTI_UNIT3	UNIT	3	0	Activity 3: unit of measure of activity quantity	
CONF_ACTI_UNIT3_ISO	CHAR	3	0	Activity 3: ISO code for unit of measure	
CONF_ACTIVITY3	QUAN	13	3	Activity 3: activity quantity	
NO_REMN_ACTI3	CHAR	1	0	Activity 3: no remaining activity expected	
CONF_ACTI_UNIT4	UNIT	3	0	Activity 4: unit of measure of activity quantity	
CONF_ACTI_UNIT4_ISO	CHAR	3	0	Activity 4: ISO code for unit of measure	
CONF_ACTIVITY4	QUAN	13	3	Activity 4: activity quantity	
NO_REMN_ACTI4	CHAR	1	0	Activity 4: no remaining activity expected	
CONF_ACTI_UNIT5	UNIT	3	0	Activity 5: unit of measure of activity quantity	
CONF_ACTI_UNIT5_ISO	CHAR	3	0	Activity 5: ISO code for unit of measure	
CONF_ACTIVITY5	QUAN	13	3	Activity 5: activity quantity	
NO_REMN_ACTI5	CHAR	1	0	Activity 5: no remaining activity expected	
CONF_ACTI_UNIT6	UNIT	3	0	Activity 6: unit of measure of activity quantity	
CONF_ACTI_UNIT6_ISO	CHAR	3	0	Activity 6: ISO code for unit of measure	
CONF_ACTIVITY6	QUAN	13	3	Activity 6: activity quantity	
NO_REMN_ACTI6	CHAR	1	0	Activity 6: no remaining activity expected	
CONF_BUS_PROC_UNIT1	UNIT	3	0	Bus. proc.: unit of measure for confirmed quantity	3)
CONF_BUS_PROC_UNIT1_ISO	CHAR	3	0	Business process: ISO code for unit of measure	3)
CONF_BUSS_PROC1	QUAN	13	3	Business process: confirmed quantity	3)
NO_REMN_BUS_PROC1	CHAR	1	0	Business process: no remaining quantity expected	3)
PERS_NO	NUMC	8	0	Personnel number	
TIMEID_NO	NUMC	8	0	Time recording ID number	
WAGETYPE	CHAR	4	0	Wage type	
EX_CREATED_BY	CHAR	12	0	Person entering confirmation	
EX_CREATED_DATE	DATS	8	0	Date completion confirmation entered	
EX_CREATED_TIME	TIMS	6	0	Time completion confirmation entered	
TARGET_ACTI1	CHAR	1	0	Indicator: determine target activity 1	
TARGET_ACTI2	CHAR	1	0	Indicator: determine target activity 2	
TARGET_ACTI3	CHAR	1	0	Indicator: determine target activity 3	
TARGET_ACTI4	CHAR	1	0	Indicator: determine target activity 4	
TARGET_ACTI5	CHAR	1	0	Indicator: determine target activity 5	
TARGET_ACTI6	CHAR	1	0	Indicator: determine target activity 6	
TARGET_BUS_PROC1	CHAR	1	0	Business process: determine target quantity	3)
EX_IDENT	CHAR	32	0	External confirmation key	

Notes

1) Quantity details may only be entered for the following time event types:
- "Partial end of processing" (B20)
- "Suspension of processing" (B30)
- "End of processing" (B40)

2) Work center and plant may only be specified with start time events and with variable activities (V20, V40).

3) Entries relating to activities and the business process may only be made for the following time event types:
- "Partial end of variable activity" (V20)
- "End of variable activity" (V40)

   However, it should be noted here that only the business process and activities can be confirmed for which "Variable activity" has been assigned in the "Record type group" field in the costing view of the work center concerned.

BAPI2017_GM_ITEM_CREATE	Goods movements for confirmation
For further information on the structure of goods movements, please refer to the documentation for method CreateFromData of BOR object BUS2017 "Goods movement".	

BAPI_LINK_CONF_GOODSMOV	Linking confirmations with goods movements		
Field Name	**Type**	**L**	**Meaning**
INDEX_CONFIRM	INT4	10	Index of an entry in the "Time tickets" table
INDEX_GOODSMOV	INT4	10	Index of an entry in the "Goods movements for confirmation" table

3.3 Checks to be performed from the subsystem

It is not possible to check the actual data completely in the PDC is system, as is done during updating in the SAP system, due to its complexity. Only a few minimum checks are expected of a certified PDC system. However, the PDC vendor can perform additional checks that are not relevant to certification, for example, during a customer project. Examples of possible checks are as follows:

- Check as to whether the previous operation has been confirmed. This is only possible if this operation exists in the PDC system.
- Validation of the personnel number against the personnel number in the HR mini-master record of the HR-PDC interface

3.3.1 Required fields

The following fields must be completed for every record:

- RECORDTYPE   confirmation type
- ORDERID   order
- LOGDATE   date of confirmation
- LOGDATE   time of confirmation
- EX_CREATED_BY   person entering the confirmation
- EX_CREATED_DATE   date confirmation entered
- EX_CREATED_TIME   time confirmation entered

The time stamp for a confirmation (LOGDATE, LOGTIME) relating to an operation and a person must be unique.

It is recommended that an external key is entered in the EX_IDENT field if the PDC system offers a cancellation function (see Section 1.4.2).

3.3.2 Certification-relevant checks

3.3.2.1 *Valid record types*

For every confirmation that is transferred to the R/3 system, a record type must be specified as well. The initial value is not permitted. The following values are permitted for the RECORDTYPE field:

Confirmation type	Record type	Meaning
Wage time ticket	L00	The content of the FIN_CONF field determines whether the confirmation is posted as a partial or final confirmation
	L20	Partial confirmation
	L40	Final confirmation
Time event	R10	Start of setup
	R20	Partial end of setup
	R30	Setup interruption
	R40	End of setup
	B10	Start of processing
	B20	Partial end of processing
	B30	Interruption of processing
	B40	End of processing
	A10	Start of teardown
	A20	Partial end of teardown
	A30	Interruption of teardown
	A40	End of teardown
	V20	Partial end of variable activity
	V40	End of variable activity

3.3.2.2. *Operation identifier*

To identify the confirmed operation, either the confirmation number must be entered in the CONF_NO field or the combination "order / sequence / operation" must be completed in the ORDERID, SEQUENCE and OPERATION fields. Suboperations can likewise be uniquely identified both via the confirmation number in the CONF_NO field or via the combination "order / sequence / sub-operation" in the ORDERID, SEQUENCE, OPERATION and SUB_OPER fields. It is necessary to check whether this operation or suboperation is known to the subsystem.

3.3.2.3 *Chronological order with time events*

When entering time events care should be taken to ensure that the time events entered for an operation and a person are entered in chronological order. Thus it is not permitted to enter a partial end, interruption or end time event without the related start time event having previously been entered. However, the R/3 system allows you to enter several start time events one after the other, without another time event interposed between them. This can be entered later.

To ensure adherence to the sequence, steps must be taken in the PDC system to ensure that another start event for the same operation and the same person is only entered after an interruption or end time event has been entered.

When entering a time event with record type V40 "End of variable activity" it is necessary to check that for each start time event entered either a interruption or an end time event has been posted. If this is not

the case, only a V20 time event can be reported but not a V40 time event. In this way, the operation cannot have a "confirmed" indicator.

3.3.2.4 *Different actual work center*

If an actual work center is confirmed which is different to the planned work center, it is necessary to check whether this work center is known to the subsystem, that is, whether the master data for the work center has been transferred to the subsystem. A work center is only uniquely identified when a plant is specified. A work center may only be specified for time tickets and for the following time events: R10, B10, A10, V20, V40.

3.3.2.5 *Activities and business process*

When confirming activities, it is necessary to check that these are defined in the work center concerned, that is, the activity must be described as text in fields ACTI1_TEXT to ACTI6_TEXT. When entering a quantity for the business process, it is necessary to check that the business process is defined at the work center in field CO_BUSPROC.

When entering time events it should also be noted that only activities or a business process can be confirmed for which "Variable activity" has been assigned in the "Record type group" field in the costing view of the work center concerned.

If an activity quantity is entered with a unit of measure and the entered unit of measure is different to the planned unit of measure, then conversion to the appropriate unit of measure for the planned activity quantity of the operation via the "generally applicable units of measure" must be possible.

Entry of an activity quantity without a unit of measure is only permitted when an activity unit has been defined for the relevant activity in the work center. The same applies to the business process.

If indicators NOACTI1 to NOACTI6 (NOAXTx = 'X') are set at the work center, entry of an actual activity quantity is not permitted.

3.3.2.6 *Reason for variance*

If a reason for variance is entered in the DEV_REASON field, then this must be checked against the possible reasons for variance. It should be noted here that the causes are defined on a plant basis.

3.3.2.7 *Units of measure*

It is necessary to check that the confirmed units of measure are contained in the master data provided.

3.3.3 Non-certification-relevant checks

3.3.3.1 *Units of measure*

If units of measure that are different to the planned value are entered, it is necessary to check whether conversion to the planned unit of measure is possible.
Conversion using the "generally applicable units of measure" is always possible where the two units of measure concerned are defined using the same SI unit. This will be found in the MSSIE field for the "generally applicable units of measure" master data.

3.3.1.1.1 Units of measure for the produced quantity

When entering a unit of measure for the yield or scrap or rework quantity, it is necessary to check whether it is a case of
1) the planned unit of measure for the operation or
2) the planned unit of quantity for the order header or
3) a unit of measure that can be converted using the "material-dependent units of measure" or
4) a unit of measure that can be converted using the "generally valid units of measure".
Checks must be undertaken in the specified order.

3.3.1.1.2 Units of measure for other quantities

When a unit of measure relating to activities, business process, predicted standard values and durations, such as break time, is entered, it is necessary to check whether it is a case of
1) the planned unit of measure or
2) a unit of quantity which can be converted using the "generally applicable units of measure".
Checks must be undertaken in the specified order.

3.3.3.2 *Order of operations*

For each plant and order type the confirmation parameters in the R/3 system specify how stringently adherence to the order of operations must be checked. This information is transferred to the subsystem in the MESSAGE_TYPE field of the operations.
The MESSAGE_TYPE field can accept the following characteristics here:

Value	Meaning
	Order of operations is not checked
S	Message referring the user to the next screen where operation order is missing
I	Information where operation order is not adhered to
A	Termination where operation order is not adhered to
E	Error where operation order is not adhered to
W	Warning where operation order is not adhered to

If the operation order is not to be checked, then the pure order should be checked on the basis of the operation number and, if possible, if the order has been violated an appropriate message should be displayed. As a minimum, the confirmation entered should be rejected where characteristics "E" (error) or "A" (termination) apply.

At the same time, however, care should be taken over the total quantity confirmed for the operation that is the total of the quantities confirmed for an operation must not exceed the yield confirmed for the predecessor. If a quantity of rework has been entered for the predecessor, then this can be viewed as yield.

When comparing the quantities of two operations, it should be noted that these may be defined differently. In every case the quotient from the operation fields NOMINATE and DENOMINATOR should be used for the conversion to the order header unit and the quotient of the other operation should be used to calculate its operation unit, even if the two operation units concerned are identical. If too great a quantity is determined in this way, one should proceed as described above in accordance with the definition of inspection severity and, if necessary, the confirmation should be rejected.

When ascertaining the order of operations it is assumed initially that the order of the operations within a sequence results when an ascending sort of the operation numbers is carried out.

Where **parallel sequences** are used, it should be noted that an operation can have more than one predecessor. In this case, the smallest of the confirmed quantities of all the predecessors is used as comparison criterion. Linking of a parallel sequence with the basic sequence is defined by fields

- REFERENCE_SEQUENCE basic sequence,
- BRANCH_OPERATION branch operation from the basic sequence, and
- RETURN_OPERATION return operation from the basic sequence

It should be noted here that the operations in the basic sequence so defined do not represent the predecessors and successors directly, but the first or last operation in the basic sequence which runs in parallel to the sequence in question.

When collective orders are used, it is also possible that the predecessor is to be found in a different production order in the collective order. This is the case if

- no predecessor has initially been found and
- there is a different order in the SUPERIOR_ORDERID field from the current order contained in field ORDERID.

The predecessor is then determined by the fields

- SUPERIOR_ORDERID superior order of the collective order,
- SUPERIOR_SEQUENCE sequence in the superior order and
- SUPERIOR_OPERATION operation in the superior order

It is not possible to ensure that the PDC system knows the predecessor of an operation, for example, if the predecessor is not PDC-relevant or has been confirmed via a different PDC system. Moreover, the PDC system cannot be expected to be able to validate the quantity of an operation against the confirmed quantity of its predecessor, as this could require complex quantity conversions.

3.3.3.3 Underdelivery and overdelivery tolerances

The indicators for error management with underdelivery in the CHECK_UNDERDELIVERY field and with overdelivery in the CHECK_OVERDELIVERY field of the operation determine how strictly the confirmed yield is checked against the corresponding tolerance quantities in the UNDERDELIVERY_QUANTITY and OVERDELIVERY_QUANTITY fields of the operation. The indicators can accept the following characteristics here:

Value	Meaning
	Tolerance is not checked
X	Error relating to shortfall or exceeding of the tolerance quantity
W	Warning relating to shortfall or exceeding of the tolerance quantity

It is only necessary to check the underdelivery tolerance for a possible shortfall for a confirmation that results in the status "confirmed" being set for the operation concerned. On the other hand, the

overdelivery tolerance must be checked to see if it has been exceeded for every confirmation except for start time events.

It should be noted that, to compare the confirmed quantity with the tolerance quantity that is provided in the operation unit of quantity, conversion of the confirmed quantity may be necessary. The procedure to be followed here is as described under "Checking the operation order" (see Section 3.3.3.2).

Checking of the tolerance is not relevant to certification, as this could require some very complex conversions of actual quantities expressed in different units of measure to the planned units of measure.

3.3.3.4 Time recording ID number and personnel number

The entries in fields

- TIMEID_NO   time recording ID number and
- PERS_NO   personnel number

must be validated against the HR mini-master record on the exact LOGDATE (date of confirmation). It is only sensible to use one of the two fields. The period of validity of the HR mini-master record is determined by the FROM_DATE (start of period of validity) and TO_DATE (end of period of validity) fields.

Validation of the personnel number and the time recording ID card number in the R/3 system can either be entirely suppressed using a customer enhancement or else it can be performed against a user-defined table. This information cannot be made available to the PDC system. For this reason, checking of the personnel number and the time recording ID number in the PDC system is not relevant to certification.

4 Glossary

ALE

Application Link Enabling. ALE refers to the design and operation of distributed applications.

The basic idea in ALE is to guarantee a distributed, but integrated R/3 installation. It covers a business-controlled exchange of messages between loosely coupled applications, retaining consistency of data.

Application integration is achieved not through a central database but via synchronous and asynchronous communication.

BAPI

Business Application Programming Interface. Standard programming interface which offers external access to the business processes and data of the R/3 system.

Business Application Programming Interfaces (also referred to as Business APIs or BAPIs) are defined in the Business Object Repository (BOR) as methods of SAP business objects and SAP interface types for executing particular business transactions.

Business Object

Representative entity type for a central business object in the real world. A combination of attribute, method and event definitions which are used in a common context.
Business APIs (BAPIs) are the methods of SAP business objects that permit access from external systems to R/3 functions over the Intranet, DCOM or CORBA.

IDoc

Intermediate Document. IDocs are used for asynchronous data exchange between two systems.

Interface type

Representative entity type for a central business object in the real world. A combination of attribute, method and event definitions which are used in a common context.
Business APIs (BAPIs) are the methods of SAP interface types that enable the R/3 system to access the functionality of external systems.

Logical system

System in which applications run integrated on a common database. In SAP usage, a client corresponds to a logical system. The definition of a client can include specification of the logical system to which the client corresponds. External systems and hence especially subsystems can also be defined as logical systems in R/3.

Pair formation

Under pair formation, a duration is calculated from two points in time which arise in connection with the confirmation of time events. Pair formation occurs, for example, between
• A start and a final confirmation

- A start and a partial confirmation
- Two partial confirmations
- A partial and a final confirmation

The R/3 system performs pair formation in the PP and HR application components.

HR mini-master record

The HR mini-master record contains excerpts of data from the complete master data for employees. The HR mini-master record is necessary for the connection of subsystems so as to enable checking of employee-related data there that is to be subsequently be loaded into the SAP system.

The HR mini-master record is also used to make HR data available, for example, in Logistics, when R/3 system components are componentized.

5 Appendix

5.1 Note on terminals with numeric keypads

The names of production orders are generally alphanumeric. To enter these objects on a terminal which only has a numeric keypad, either they must be entered using the confirmation number only or else care must be taken to ensure that the keys assigned for PDC-relevant orders contain only numeric values.

5.2 Comparison of the fields used in the PP-PDC interface and Communication Channel 2 (CC2)

In the tables below, the field names of the corresponding fields in the new PP-PDC interface are shown along with the ones used in the old Communication Channel 2 (CC2). Fields for which there is no field name in CC2 did not exist in CC2.

Download for work centers	
PP-PDC interface BAPI_PDC_WORKCENTER	**Communication channel 2 E1WORK2**
SOURCE_SYS	
WORK_CNTR	ARBPL
PLANT	WERKS
SUBSYSTEM_GROUPING	BDEGR
WORK_CNTR_DESCR	WTEXT
VALID_START	
VALID_END	
CO_AREA	
COST_CNTR	
ACTI1_TEXT	
ACTI1_UNIT	
ACTI1_UNIT_ISO	
NOACTI1	
RECORD_GRP1	VGS01
ACTI2_TEXT	
ACTI2_UNIT	
ACTI2_UNIT_ISO	
NOACTI2	
RECORD_GRP2	VGS02
ACTI3_TEXT	
ACTI3_UNIT	
ACTI3_UNIT_ISO	
NOACTI3	
RECORD_GRP3	VGS03
ACTI4_TEXT	
ACTI4_UNIT	
ACTI4_UNIT_ISO	
NOACTI4	
RECORD_GRP4	VGS04
ACTI5_TEXT	
ACTI5_UNIT	
ACTI5_UNIT_ISO	
NOACTI5	
RECORD_GRP5	VGS05
ACTI6_TEXT	
ACTI6_UNIT	
ACTI6_UNIT_ISO	
NOACTI6	
RECORD_GRP6	VGS06
CO_BUSPROC	
CO_BUSPROC_NAME	
COST_DRIVER	
COST_DRIVER_ISO	

Operation data for PDC download (insert or update records)	
PP-PDC interface BAPI_PP_PDC_OPERA2	Communication channel 2 E1OPER2
SOURCE_SYS	
CONF_NO	RUECK
ORDERID	AUFNR
SEQUENCE	APLFL
OPERATION	VORNR
SUB_OPER	UVORN
SUBSYSTEM_GROUPING	BDEGR
MATERIAL	MATNR
MATL_DESC	MAKTX
ROUT_QUAN_UNIT	
ROUT_QUAN_UNIT_ISO	
ORD_QUAN_UNIT	KMEIN
ORD_QUAN_UNIT_ISO	
BASE_QUAN_UNIT	
BASE_QUAN_UNIT_ISO	
HDR_NOMINATOR	
HDR_DENOMINATOR	
LEADING_ORDERID	LAUFNR
SUPERIOR_ORDERID	MAUFNR
SUPERIOR_SEQUENCE	MAPLFL
SUPERIOR_OPERATION	MVORNR
REFERENCE_SEQUENCE	BEZFL
BRANCH_OPERATION	VORNR1
RETURN_OPERATION	VORNR2
OPER_DESCRIPTION	
OPER_QUAN_UNIT	MEINH
OPER_QUAN_UNIT_ISO	
OPER_QUANTITY	MGVRG
PLANNED_SCRAP	ASVRG
NOMINATOR	UMREZ
DENOMINATOR	UMREN
UNDERDELIVERY_QUANTITY	UNTMG
CHECK_UNDERDELIVERY	UNTLI
OVERDELIVERY_QUANTITY	UEBMG
CHECK_OVERDELIVERY	UEBLI
MESSAGE_TYPE	MRFLG
USERFIELD_CH20_1	USR00
USERFIELD_CH20_2	USR01
USERFIELD_UNIT	USE04
USERFIELD_UNIT_ISO	
USERFIELD_QUAN	USR04
ACTIVITY_UNIT_1	UNIT1
ACTIVITY_UNIT_1_ISO	
ACTIVITY_QUANTITY_1	ACTI1
ACTIVITY_UNIT_2	UNIT2
ACTIVITY_UNIT_2_ISO	
ACTIVITY_QUANTITY_2	ACTI2
ACTIVITY_UNIT_3	UNIT3
ACTIVITY_UNIT_3_ISO	
ACTIVITY_QUANTITY_3	ACTI3
ACTIVITY_UNIT_4	UNIT4
ACTIVITY_UNIT_4_ISO	
ACTIVITY_QUANTITY_4	ACTI4

ACTIVITY_UNIT_5	UNIT5
ACTIVITY_UNIT_5_ISO	
ACTIVITY_QUANTITY_5	ACTI5
ACTIVITY_UNIT_6	UNIT6
ACTIVITY_UNIT_6_ISO	
ACTIVITY_QUANTITY_6	ACTI6
CO_BUSPROC_1	
BUSPROC_UNIT_1	
BUSPROC_UNIT_1_ISO	
BUSPROC_QUANTITY_1	
WORK_CNTR	ARBPL
PLANT	WERKS
EARL_SCHED_START_DATE	FSAVD
EARL_SCHED_START_TIME	FSAVZ
LATE_SCHED_FIN_DATE	SSEDD
LATE_SCHED_FIN_TIME	SSEDZ
SETUP_TIME_UNIT	RSTZE
SETUP_TIME_UNIT_ISO	
SETUP_TIME	RUEST
PROCESS_TIME_UNIT	BEAZE
PROCESS_TIME_UNIT_ISO	
PROCESS_TIME	BEARZ
TEARDOWN_TIME_UNIT	ARUZE
TEARDOWN_TIME_UNIT_ISO	
TEARDOWN_TIME	ABRUE
STATUS	STATV
INDICATOR_TT_OR_TE	STATA
INDICATOR_FIN_OR_PART	STATE
CONFIRMED_YIELD	LMNGA
CONFIRMED_SCRAP	XMNGA
CONFIRMED_REWORK	RMNGA
CONFIRMED_ACTIVITY_1	ISM01
NO_REMN_ACTIVITY_1	LEK01
CONFIRMED_ACTIVITY_2	ISM02
NO_REMN_ACTIVITY_2	LEK02
CONFIRMED_ACTIVITY_3	ISM03
NO_REMN_ACTIVITY_3	LEK03
CONFIRMED_ACTIVITY_4	ISM04
NO_REMN_ACTIVITY_4	LEK04
CONFIRMED_ACTIVITY_5	ISM05
NO_REMN_ACTIVITY_5	LEK05
CONFIRMED_ACTIVITY_6	ISM06
NO_REMN_ACTIVITY_6	LEK06
CONFIRMED_BUS_PROC_1	
NO_REMN_BUS_PROC_1	
CONFIRMED_WORK_CNTR	ARBPI
CONFIRMED_PLANT	WERKI

Operations for PDC download (delete records)	
PP-PDC interface **BAPI_PP_PDC_OPERA1**	**Communication channel 2**
SOURCE_SYS	
CONF_NO	RUECK
ORDERID	AUFNR
SEQUENCE	APLFL
OPERATION	VORNR
SUB_OPER	UVORN
SUBSYSTEM_GROUPING	BDEGR

Open time pairs per operation and person (download)	
PP-PDC interface **BAPI_PP_PDC_OPENEVENT**	**Communication channel 2** **E1PEROP**
SOURCE_SYS	
CONF_NO	RUECK
SUBSYSTEM_GROUPING	BDEGR
PERS_NO	PERNR
TIMEID_NO	ZAUSW
RECORDTYPE	SATZA
LOGDATE	LDATE
LOGTIME	LTIME
WORK_CNTR	ARBPL
PLANT	WERKS

Time tickets (upload)	
PP-PDC interface **BAPI_PP_TIMETICKET**	**Communication channel 2** **E1CONF2**
CONF_NO	RUECK
ORDERID	AUFNR
SEQUENCE	APLFL
OPERATION	VORNR
SUB_OPER	UVORN
CAPA_CATEGORY	KAPAR
SPLIT	SPLIT
FIN_CONF	
CLEAR_RES	
POSTG_DATE	BUDAT
DEV_REASON	GRUND
CONF_TEXT	LTAX1
PLANT	WERKS
WORK_CNTR	ARBPL
RECORDTYPE	SATZA
CONF_QUAN_UNIT	MEINH
CONF_QUAN_UNIT_ISO	
YIELD	LMNGA
SCRAP	XMNGA
REWORK	RMNGA
CONF_ACTI_UNIT1	ILE01
CONF_ACTI_UNIT1_ISO	
CONF_ACTIVITY1	ISM01
NO_REMN_ACTI1	LEK01
CONF_ACTI_UNIT2	ILE02
CONF_ACTI_UNIT2_ISO	
CONF_ACTIVITY2	ISM02

NO_REMN_ACTI2	LEK02
CONF_ACTI_UNIT3	ILE03
CONF_ACTI_UNIT3_ISO	
CONF_ACTIVITY3	ISM03
NO_REMN_ACTI3	LEK03
CONF_ACTI_UNIT4	ILE04
CONF_ACTI_UNIT4_ISO	
CONF_ACTIVITY4	ISM04
NO_REMN_ACTI4	LEK04
CONF_ACTI_UNIT5	ILE05
CONF_ACTI_UNIT5_ISO	
CONF_ACTIVITY5	ISM05
NO_REMN_ACTI5	LEK05
CONF_ACTI_UNIT6	ILE06
CONF_ACTI_UNIT6_ISO	
CONF_ACTIVITY6	ISM06
NO_REMN_ACTI6	LEK06
CONF_BUS_PROC_UNIT1	
CONF_BUS_PROC_UNIT1_ISO	
CONF_BUS_PROC1	
NO_REMN_BUS_PROC1	
EXEC_START_DATE	
EXEC_START_TIME	
SETUP_FIN_DATE	
SETUP_FIN_TIME	
PROC_START_DATE	
PROC_START_TIME	
PROC_FIN_DATE	
PROC_FIN_TIME	
TEARDOWN_START_DATE	
TEARDOWN_START_TIME	
EXEC_FIN_DATE	
EXEC_FIN_TIME	
FCST_FIN_DATE	
FCST_FIN_TIME	
STD_UNIT1	
STD_UNIT1_ISO	
FORCAST_STD_VAL1	
STD_UNIT2	
STD_UNIT2_ISO	
FORCAST_STD_VAL2	
STD_UNIT3	
STD_UNIT3_ISO	
FORCAST_STD_VAL3	
STD_UNIT4	
STD_UNIT4_ISO	
FORCAST_STD_VAL4	
STD_UNIT5	
STD_UNIT5_ISO	
FORCAST_STD_VAL5	
STD_UNIT6	
STD_UNIT6_ISO	
FORCAST_STD_VAL6	
FORCAST_BUS_PROC_UNIT1	
FORC_BUS_PROC_UNIT1_ISO	
FORCAST_BUS_PROC_VAL1	
PERS_NO	

TIMEID_NO	ZAUSW
WAGETYPE	
SUITABILITY	
NO_OF_EMPLOYEE	
WAGEGROUP	
BREAK_UNIT	
BREAK_UNIT_ISO	
BREAK_TIME	
EX_CREATED_BY	
EX_CREATED_DATE	ERDAT
EX_CREATED_TIME	ERTIM
TARGET_ACTI1	
TARGET_ACTI2	
TARGET_ACTI3	
TARGET_ACTI4	
TARGET_ACTI5	
TARGET_ACTI6	
TARGET_BUS_PROC1	
EX_IDENT	
LOGDATE	LDATE
LOGTIME	LTIME

Time events (upload)	
PP-PDC interface **BAPI_PP_TIMEEVENT**	**Communication channel 2** **E1CONF2**
CONF_NO	RUECK
ORDERID	AUFNR
SEQUENCE	APLFL
OPERATION	VORNR
SUB_OPER	UVORN
CAPA_CATEGORY	KAPAR
SPLIT	SPLIT
RECORDTYPE	SATZA
LOGDATE	LDATE
LOGTIME	LTIME
FIN_CONF	
CLEAR_RES	
POSTG_DATE	BUDAT
DEV_REASON	GRUND
CONF_TEXT	LTXA1
CONF_QUAN_UNIT	MEINH
CONF_QUAN_UNIT_ISO	
YIELD	LMNGA
SCRAP	XMNGA
REWORK	RMNGA
PLANT	WERKS
WORK_CNTR	ARBPL
CONF_ACTI_UNIT1	ILE01
CONF_ACTI_UNIT1_ISO	
CONF_ACTIVITY1	ISM01
NO_REMN_ACTI1	LEK01
CONF_ACTI_UNIT2	ILE02
CONF_ACTI_UNIT2_ISO	
CONF_ACTIVITY2	ISM02
NO_REMN_ACTI2	LEK02
CONF_ACTI_UNIT3	ILE03
CONF_ACTI_UNIT3_ISO	

CONF_ACTIVITY3	ISM03
NO_REMN_ACTI3	LEK03
CONF_ACTI_UNIT4	ILE04
CONF_ACTI_UNIT4_ISO	
CONF_ACTIVITY4	ISM04
NO_REMN_ACTI4	LEK04
CONF_ACTI_UNIT5	ILE05
CONF_ACTI_UNIT5_ISO	
CONF_ACTIVITY5	ISM05
NO_REMN_ACTI5	LEK05
CONF_ACTI_UNIT6	ILE06
CONF_ACTI_UNIT6_ISO	
CONF_ACTIVITY6	ISM06
NO_REMN_ACTI6	LEK06
CONF_BUS_PROC_UNIT1	
CONF_BUS_PROC_UNIT1_ISO	
CONF_BUSS_PROC1	
NO_REMN_BUS_PROC1	
PERS_NO	
TIMEID_NO	ZAUSW
WAGETYPE	
EX_CREATED_BY	
EX_CREATED_DATE	ERDAT
EX_CREATED_TIME	ERTIM
TARGET_ACTI1	
TARGET_ACTI2	
TARGET_ACTI3	
TARGET_ACTI4	
TARGET_ACTI5	
TARGET_ACTI6	
TARGET_BUS_PROC1	
EX_IDENT	

5.3   ISO codes

When the units of measure are downloaded, the associated ISO code is also transferred. Similarly, the ISO codes for the units of measure have to be specified during an upload. These are contained in the "Generally Applicable Units of Measure" table.
An up-to-date list of current international ISO codes can also be requested from the UN Commission (WP.4 Trade Facilitation Recommendations, Recommendation 20).

> UN Economic Commission for Europe
> Information Office
> Palais des Nations
> 1211 Geneva
> Switzerland
>
> Phone: +4122 917 2893
> Fax: +4122 917 0036
> e-mail: info.ece@unece.org

Alternatively, it can be viewed directly over the Internet at:

> http://www.unicc.org/unece/trade/facil/tf_home.htm