

IS-B-DCH Interface Delivery Channels - Banking



SAP Banking 4.02



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Typographic conventions

This convention	is used for
<i>Screen Text</i>	words or characters you see on the screen (this includes system messages, field names, screen titles, menu names, and menu items).
User Entry	exact user input. These are words and characters you type on the keyboard exactly as they are in the documentation.
< Variable User Entry >	variable user input. Pointed brackets indicate that you replace these variables with appropriate keyboard entries.
ALL CAPITALS	report names, program names, transaction codes, table names, ABAP/4 language elements, file names, and directories.
<i>Book Title</i>	cross-references to other books
KEY CAP	keys on your keyboard. Most often, function keys (for example, F2 and the ENTER key) are represented this way.
This icon...	helps you identify...
 Example	an Example. Examples help clarify complicated concepts or activities.
 Note	a Note. Notes can contain important information like special considerations or exceptions.
 Caution	a Caution. Cautions should help you avoid errors. for example, those that could lead to data loss.

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General Information

Introduction

The IS-B-DCH interface ('Delivery Channels') is an interface of SAP's core banking solution BCA.

It can be used to link multiple delivery channels to the SAP Banking system on an online basis.

Examples for delivery channels are branch teller systems, Internet banking solutions, telephone banking or call centers.

Via these channels users can access the business partner data and the accounts managed in SAP Banking, create postings and standing orders etc.

SAP provides function modules for the exchange of application data between SAP Banking and the partner product. These function modules can be called by external systems and are then processed in the SAP Banking BCA module.

Currently the function modules are called using the SAP remote function call (RFC) interface. In future SAP Banking will provide Business Application Programming Interfaces (BAPIs) for the communication.

SAP Banking Solution

The whole SAP Banking solution consists of the following components:

BCA - Bank Customer Accounts

BCA is a complete solution for the management of customer data, accounts, conditions and all transactions on the accounts. It contains periodic processing functions like account balancing, cash concentration, account statement production, account closing etc. With the actual SAP Banking release 4.02 (released in May 1999), BCA delivers functions for the administration of current accounts, bank accounts, internal clearing accounts and simple saving accounts. The BCA solution will be extended to a full core banking solution including term deposits as well as consumer and commercial loans.

The focus of BCA is retail banking and wholesale banking. BCA has been designed for international usage and banks of any size.

SEM for Banks - Strategic Enterprise Management

SEM for banks defines a full range of applications for managing the bank, the profitability and risks of the business. SEM consists of the components:

- Profit Analyzer
- Risk Analyzer
- Strategy Analyzer

CRM for Banks - Customer Relationship Management

SAP is currently developing a comprehensive Customer Relationship Management initiative which will provide cross-industry applications for the management of the whole customer life cycle. SAP Banking will include a special version of CRM, which is based on the standard CRM plus banking-specific components like

Business Support Systems

The standard SAP R/3 solution is often implemented by banks to handle their Financials, Logistics and Human Resources.

The SAP Banking solution technically is an industry specific add-on to the SAP R/3-standard. Banks using BCA have to install the standard R/3 system plus the SAP Banking Add-On.

There are defined relationships between the SAP Banking releases and the appropriate R/3 releases.

Overview of SAP Banking Releases

SAP Banking Release	based on SAP R/3 release	shipment
4.02	4.0B	May 1999
4.03	4.0B	September 1999
4.61	4.6B	May 2000

Delivery Channels

Delivery Channels are the customers' entry points to the bank. Typically banks offer the following (electronic) delivery channels:

- Branch Teller Systems
- ATM (Automatic Teller Machine)
- Call Center
- Telephone Banking (Voice Recognition)
- Mobile Phone Banking (SMS messages)
- Internet Banking
- Online Banking in closed networks (e.g. T-Online, AOL etc.)

In future presumably new channels will be developed and offered:

- Web Kiosk
- PDA (Personal Digital Assistant)

The delivery channel user's can either be the bank clerks or (and this is increases dramatically) the customers directly.

Ideally all delivery channels are tightly integrated via a common platform, which connects the delivery channels to the back-end systems of the bank.

In BCA all delivery channels are handled equally.

Example:

A bank transfer will always lead to the creation of a BCA posting item, no matter if it is initiated via Internet banking, via the teller or via telephone.

All BCA posting items include the field '**medium**', which defines the channel of how the item was initiated.

The standard BCA customizing includes the following values for the field 'medium':

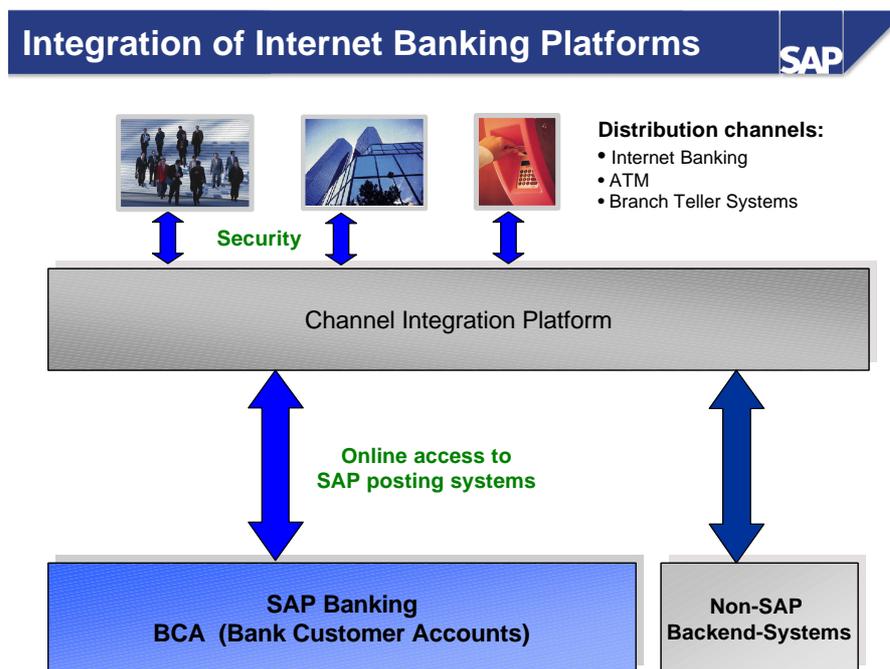
0001	Internal
0002	Money transfer order
0003	EFT
0004	Internet
0005	S.W.I.F.T
0006	Telephone
0007	Wire Transfer
0008	ACH
0009	ATM

Integration of SAP BCA and Partner solutions

Overview

SAP is providing the back-end solution for the management of customer data, account data, conditions and transactions.

The partner solution is providing a software solution for connecting the delivery channels to SAP Banking.



The partner solution (Channel Integration Platform) should have a synchronous online connection to SAP Banking. Only if this requirement is fulfilled, the partner solution gets a direct response, when a payment item could be posted successfully in SAP Banking. The SAP Banking BCA system is updated on a real-time basis, a posting item will be created immediately on the appropriate BCA account.

Nevertheless it would also be desirable to have a storage capability in the delivery channel platform. In those cases where the back-end systems are temporarily not available, the front-end platform could store the information and pass it to the back-end system as soon as it is available again.

Typically the channels are able to integrate multiple back-end systems in a common front-end for the user. A business transaction which affects more than one back-end system is automatically routed to the appropriate back-end systems. The user does not recognize which back-end system is affected.

The partner product cares for the front-end to the user. Typically it includes a toolbox for the definition of bank-specific front-ends, which can be used across the multiple channels. In this scenario SAP Banking BCA provides the back-end system, which manages the customer and account data as well as all transactions, but is not providing the front-end for the specific delivery channel.

Security

The partner solution is expected to manage the user authorization. SAP Banking BCA does not prefer any specific authorization method, nonetheless banks typically use SSL and 128bit-encryption on the technical layer plus PIN (Personal Identification Numbers) in combination with TAN (Transaction Numbers). Recently chip-card based technologies providing an electronic signature are beginning to replace the PIN-based authorization process.

While each bank customer who has an online access to the system must have a single user in the delivery channel platform, this is not required in the SAP Banking system. The partner product must guarantee that transactions are only allowed on the specific customer's account.

Inside SAP BCA a special RFC user should be set up with all SAP Banking RFC authorizations but without any online authorization.

Country-specific Homebanking Standards

In Internet Banking there are country-specific homebanking standards.

HBCI (Home Banking Computer Interface) is the new German standard for home banking. It comprises the definition of business transactions for typical home banking transactions like bank transfers or standing orders.

In the USA, OFX is the standard for home banking.

SAP Banking BCA is not providing these country-specific standards. Instead we expect the partner product for delivery channels to support the standards and to map them to the SAP Banking specific interfaces.

Example: Communication between SAP and partner products

In the following a typical scenario for the integration of SAP Banking and a partner product for Internet Banking is described. The Internet is an example of a delivery channel. Of course any other delivery channel could be used as well.

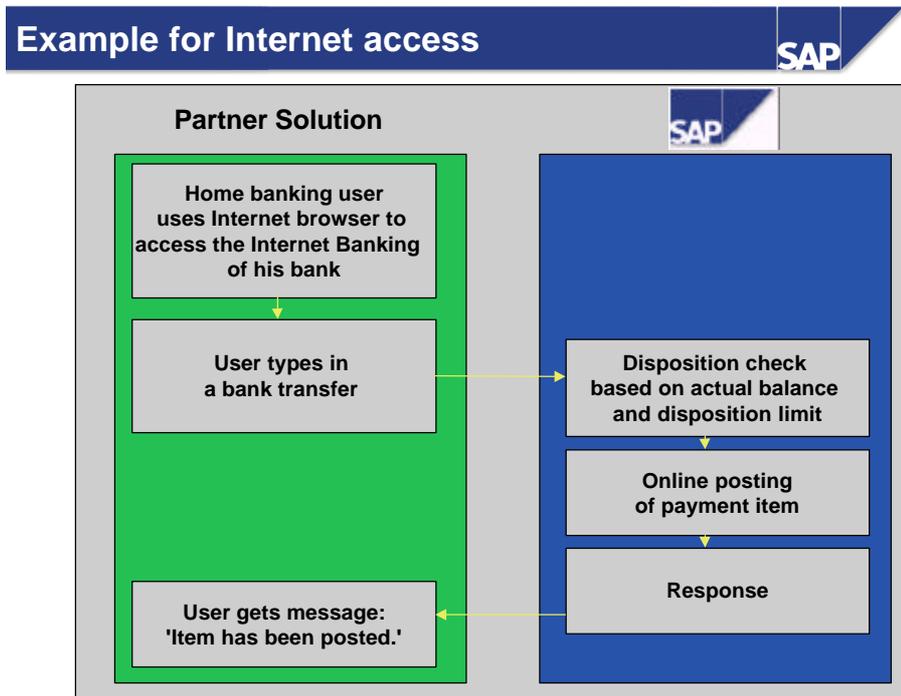
In this scenario, a home banking user uses a standard Internet browser to access the Internet banking page of his bank. Typically, there will be special security mechanisms before the request is forwarded to the back-end system. The partner system will care for the management of the security access (PIN Personal Identification Numbers, TAN Transaction Numbers).

After the successful user authorization the user enters the personal view on his bank account and initiates a bank transfer from his account to another account.

The partner system calls the BAPI for creating a payment item in SAP Banking.

Based on the amount of the payment item, the disposition limit of the customer's account and the actual account balance the disposition check is executed. If the disposition check gives a positive result, the payment item will be posted and the partner system receives an immediate reply via the return parameter of the BAPI.

The partner system can immediately show the message that the bank transfer has been successfully posted. The user will see it on the next account statement instantly.



Technical description of the interface

In the current release 4.02 the interface between SAP Banking BCA and delivery channel products is based on the Remote Function Call (RFC).

From a technical point of view, RFC is a library (in the C programming language) which is available on *nearly* all operating system platforms.

How it works.

RFC is a general concept, allowing communication between R/3 Systems or between an R/3 System and external programs.

In the case of an external system management tool we are dealing with an example of the latter, in which the program adopts the role of a client in relation to the R/3 System. The service offered by the application server involves the delivery of internal system information or carrying out individual system management activities.

RFC works in sessions. In other words, the user opens an RFC, carries out RFC tasks and then concludes the session. In opening the session, the R/3 logon procedure, with user ID and password, must be carried out. The user must be identifiable to and authorized by the R/3 System. In other words, users must exist within the R/3 System, which are then used by the external agent. Obviously, you need to set up authorizations for these users which correspond with the activities that they are to carry out.

RFC recognizes synchronous, asynchronous and transactional calls. The following examples use synchronous calls. For further details on the other types of call, see the appropriate RFC documentation.

The Most Important Functions

The most important RFC functions at a glance:

<i>Name</i>	<i>Short Description</i>
RfcOpen()	A connection is made with an application server. The connection information is either specified directly or read from a file.
RfcCallReceive()	Synchronous call from an RFC client Activates a function module in an R/3 System. After processing, the client calling regains control.
RfcCall()	Calls a function module without waiting for it to end.
RfcLastError()	A function allowing you to analyze RFC errors. Detailed information is given in stdout format.
RfcClose()	RFC connection closed, session finished.
ItCreate() ItDelete()	Storage space needs to be created and released when tables are exchanged between a client program and an R/3 System.

Further RFC Documentation

Other RFC functions and call forms are contained in the RFC-API on the SAP Banking Online Documentation CD.

Framework of a client RFC program in C

In order not to be too theoretical about RFC we have included a practical example:

```
#include "saprfc.h"
main()
{
    rfc_handle = RfcOpen(&rfc_opt);
    function = "BAPI_BANKACCT_GET_LIST";
    .....

    rfc_rc = RfcCallReceive( rfc_handle, function, exporting,
importing, tables, &exception );

    function = "BAPI_PAYM_ITEM_POST_SENDER";
    .....

    rfc_rc = RfcCallReceive( rfc_handle, function, exporting,
importing, tables, &exception );

    /* a lot more action */
}
```

```
RfcClose(rfc_handle);  
}
```

SAP Business Framework (future SAP Banking release)

In a future release the interface between SAP Banking BCA and delivery channels products will be based on the **SAP Business Framework**.

Banking specific Business Objects will be defined in the **SAP BOR (Business Object Repository)**.

Examples for Business Objects:

- Business Partner (i.e. customer data)
- Account
- Payment item
- Payment order
- Check
- Standing order

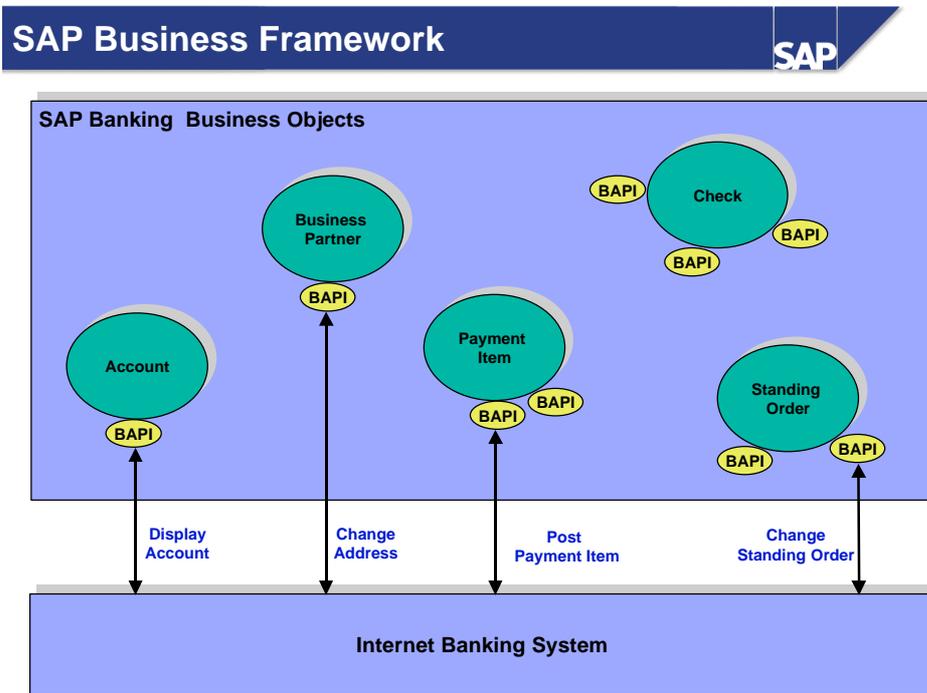
Methods define the access from external systems to the SAP Banking Business Objects. A method for a Business Object in the SAP Business Object Repository is called '**BAPI**' (Business Application Programming Interfaces).

Examples for BAPI's in SAP Banking:

- Get account master data details
- Get account balance
- Create payment item
- Create Standing order

The SAP Business Framework is an open platform for the integration of external systems. Object-oriented access technologies like CORBA or COM/DCOM are supported. The BAPI's can also be called by any external system which can handle Remote Function Calls (RFC) of SAP function modules.

For technical details of the SAP Business Framework we refer to the SAP basis training or the standard R/3 documentation.



In the current SAP Banking release 4.02 there are no real BAPIs in SAP Banking BCA: Currently SAP Function Modules can be accessed via RFC (Remote Function Call).

Technically BAPI's and function modules are equivalent, the main difference is that BAPIs are defined as stable and available for a longer term.

BAPIs are planned for the next major SAP Banking release which will be shipped in May 2000. It will be based on the SAP R/3-Release 4.6

Documentation

All SAP Banking BCA interfaces are documented in the BCA interface documentation which is part of the SAP Banking Documentation CD.

Improving of the SAP Banking interfaces

SAP is highly interested in improving the interfaces for the communication between partner products for delivery channels and the SAP Banking solution. We recommend our partners to send us all proposals for the further development of the interfaces.

RFCs for the Certification

Details of the RFC's are listed in the SAP BCA interface documentation which is a part of the SAP Banking Documentation CD.

The interface documentation contains:

- import parameters of the RFC's
- export (return) parameters of the RFC's
- table structures for the import and export of data
- general format descriptions.

In the following a subset of all BCA RFC's is defined for the certification of the IS-B-DCH Delivery Channel interface.

The RFC's describe a typical process of an access via a delivery channel: After reading account information (master data as well as transaction data and account balances) a payment is initiated and displayed. A standing order is displayed and changed.

This document gives an overview of the RFC's.

For the detailed description of the test process and the test data we refer to the test plan document, that is handed out and explained at the consulting day.

Account information

At the beginning, a function is called to get the list of all accounts belonging to one customer.

The delivery channel system gets the customer number from a manual input of the bank clerk or the customer via homebanking. It could also be read automatically from a smart card.

The result of the function is a list of account numbers.

BAPI_BANKACCT_GET_LIST

Obtaining account list for business partner

Account balances information

As a next step the account balances are called for the customer's accounts.

The delivery channel system should then display the accounts with all their posting / value-dated balances.

Posting balance

BAPI_COND_POST_DECRE_BALANCES

Value date balance

BAPI_COND_VAL_DECRE_BALANCES

Account turnover information (before posting)

The delivery channel system should then query for the transactions posted on one of the customer's accounts.

BAPI_PAYM_ITEM_GET_LIST

Querying an account turnovers

Payment transactions

A transaction should be initiated from the delivery channel system. In order to do that a sender item should be posted on the customer's account. The receiver item will not be posted in this scenario. Typically this is transferred to an external payment transaction system.

Successful posting

BAPI_PAYM_ITEM_POST_SENDER

Posting an ordering party item

Additionally, there should be one posting to another sender account, which will be not successful. The delivery channel system should identify that and present an appropriate message to the user.

Error posting

BAPI_PAYM_ITEM_POST_SENDER

Posting an ordering party item

Account turnover information (after posting)

The posting which has been made should be checked via the delivery channel system. For that reason, the function which returns all turnovers has to be called again. It should now include the new item.

BAPI_PAYM_ITEM_GET_LIST

Querying an account turnovers

Standing order

All standing orders related to one of the customer's account should be displayed by the delivery channel system.

BAPI_STANDING_ORDER_GET_LIST

Querying all standing orders for an account

The details of the standing order(s) should be displayed:
amount, periodicity, next due date etc.

BAPI_STANDING_ORDER_GET_DETAIL

Displaying standing orders

One of the standing orders should be changed via the delivery channel system.

BAPI_STANDING_ORDER_CHANGE

Changing standing orders

Certification process

Certification of the IS-B-DCH interface is carried out using a test catalog elaborated by SAP.

During certification, it is checked whether the non-SAP system is able to exchange the required data with the SAP system. However, only the interface between the SAP system and the non-SAP system is certified. SAP does not certify application functions of the non-SAP system.

Certification of BCA-DCH

