MCL Technologies

Touch the Technologies and Take Control

MCL-*R/3 Bridge*

MCL-R/3 BRIDGE – VERSION 1.01

MCL-R/3 Bridge is a robust set of software tools designed as add-on, which combine seamlessly with the MCL-Collection suite of software to help you:

- **Create wireless data applications interfaced to SAP™ R/3™.**

  MCL-R/3 Bridge can help you create and deploy data collection applications to all SAP modules with the ability to process any SAP R/3 transaction supported through SAP standard technology such as IDOC's, BAPI's or RFC's.

- **Quickly create data collection applications for SAP environments.**

  MCL-R/3 Bridge a set of user-friendly and intuitive graphical add-on R/3 interfaces integrated with MCL-Designer. These add-ons provide easy MCL mapping of shop-floor captured data variables to corresponding SAP interface data definitions, based on the use of a metadata repository containing data structure definitions for BAPI's, IDOC's and Function Modules used in the application,

- **Customize SAP applications for your particular environment.**

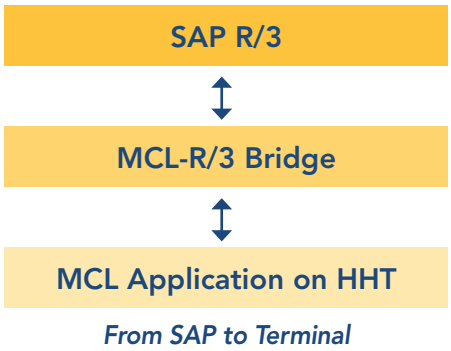
  Develop intelligent, thick client applications using DOS, Palm or Pocket PC based terminals for wired or wireless network in LAN or WAN environments.

Concept

The MCL-R/3 Bridge is implemented through the use of standard commu nication features and mechanisms supported by R/3, namely:

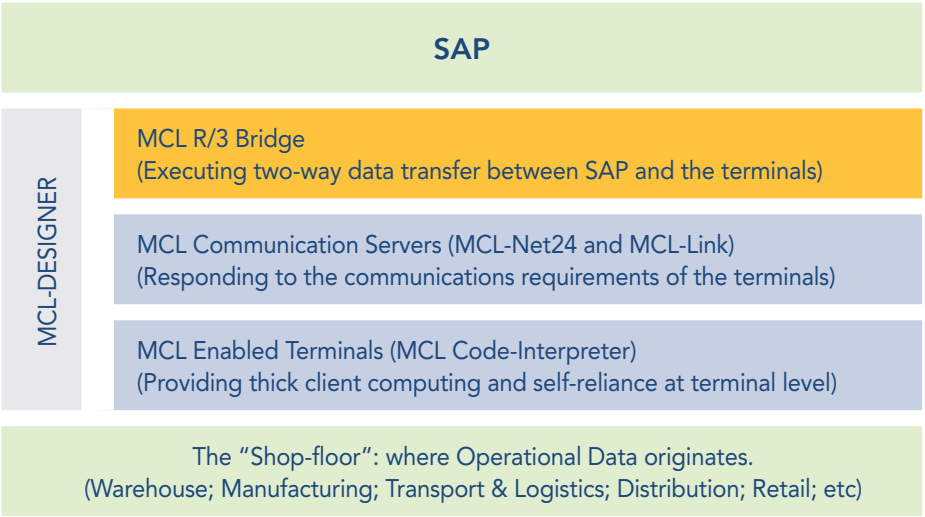
- Remote Function Calls (RFC)
- Intermediate Documents (IDOC)
- Business Object Application Program Interface (BAPI)

The MCL-R/3 Bridge is positioned as a SAP R/3 communication interface creating an external system to extend R/3 functionality with bar code handling, printing, shop floor or warehouse execution.



As a generic R/3 communications interface, based on SAP standard technologies, MCL can interface with all R/3 functional modules (IM, SD, WM, PP, PM, PS, HR) where RFC's, IDOC's or BAPI's are defined as standard interfaces.

MCL R/3 Bridge Layers



Certification

SOFTWARE SAP™ PARTNER

MCL-R/3 Bridge is an SAP certified interface for SAP R/3 :

CA-ADC Advanced Data Collection (includes MM-MOB and WM-LSR).

This certificate confirms the existence of products functionality in accordance with SAP's Certification procedure.

The certification test is documented in report: 1208/01-2001/wdf from June 01, 2001.

Bridge

1. IDOC Component

Acts as a bridge between SAP R/3 and another application. It receives Intermediate Documents (IDOCs) from one or more instances of SAP R/3, converts the IDOCs to a format suitable for the target application making the converted data available to that application. It also takes data produced by an external application and converts it to an IDOC format. The result of the conversion may be one or more IDOCs, which are sent to a R/3 system.

- The server is implemented as a registering server, which is one that connects to a SAP gateway on start-up and registers itself with an identifier defined at R/3 level. It also automatically tries to re-establish connection if communication to SAP is lost.
- The IDOC Component supports advanced features, such as load balancing.
- Parsing and mapping the received/sent IDOC to and from the application server's internal Database table is executed by scripts in VB script and/or Jscript.

2. RFC/BAPI Component

Works co-operatively with MCL-Link and MCL-NetS24 to intercept any R/3 specific message coming from the hand-held device and passes it to SAP.

The RFC/BAPI Component makes extensive use of XML and VB/Java scripting to cover any application specific requirements, for instance business or optimization rules, label or report printing.

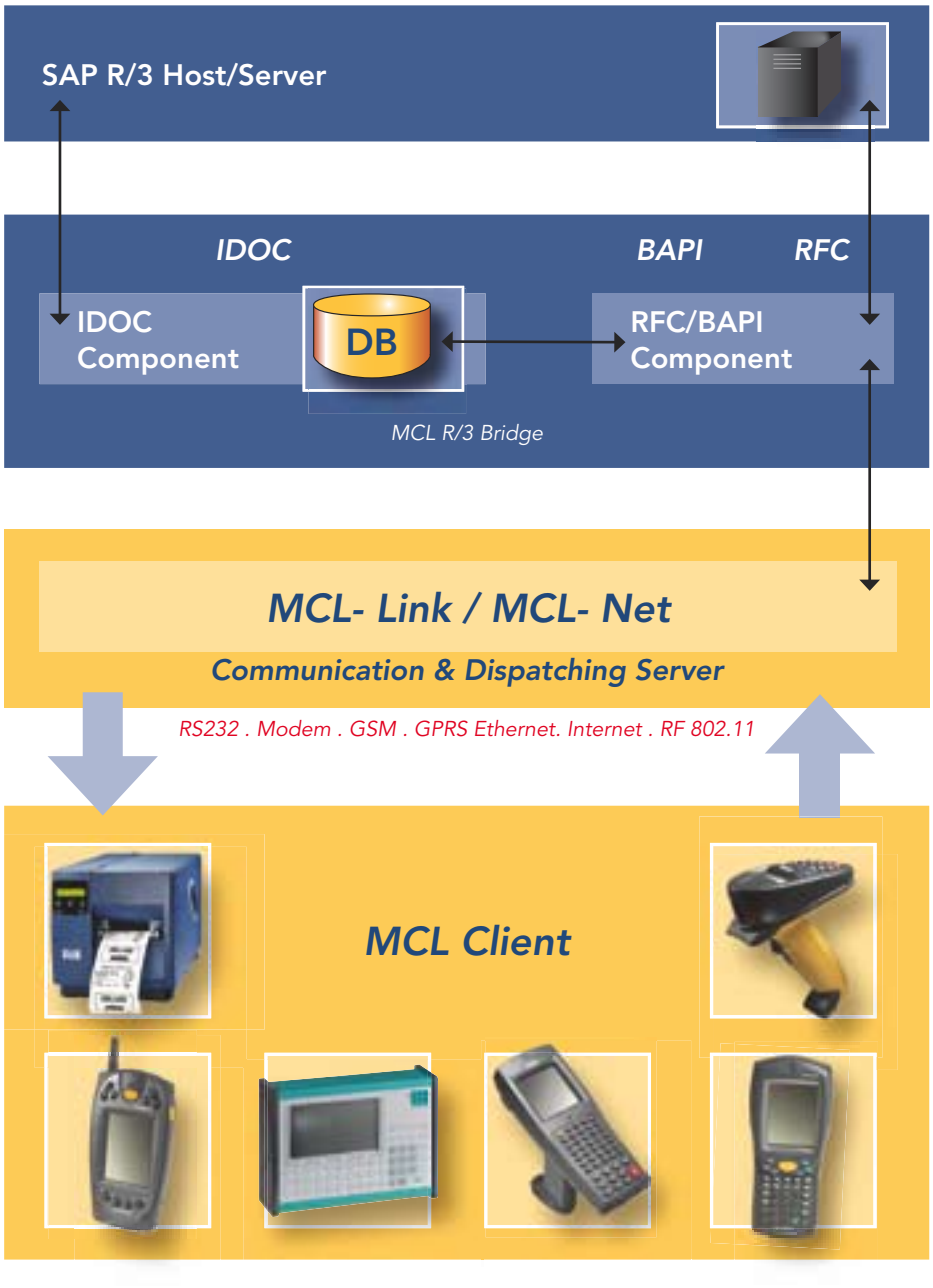
The RFC/BAPI Component executes the required XML script with the data passed from the terminal. The script will either call an RFC or BAPI or will insert the data into the database for the IDOC Component to execute as an IDOC into SAP.

R/3 input parameters are passed:

- through the hand-held device message contents
- by flat file(s) uploaded from the hand-held device to the communication server
- by data stored in the application server database
- by the hand-held device using the ODBC support provided by MCL

R/3 answer is returned:

- as direct message to the hand-held device
- by flat file(s) to be downloaded to the hand-held device from the communication server
- by data stored in the application server Database that can be accessed
- by the hand-held device through the ODBC support provided by MCL.



Architecture

3. MCL-Link and MCL-NetS24 Communications Software

MCL-Link is the wired communications server for terminals/scanners running batch applications developed with MCL-Designer. Users can easily upload and download files via cradles-232 to MCL-Link. MCL-Link will then communicate with the MCL-R/3 Bridge RFC/BAPI Component.

MCL-NetS24 is the wireless communications server for wireless radio terminals with the same function as MCL-Link.

Scalability

MCL-R/3 Bridge uses a true multi-tier Windows NT/2000 based distributed client/server open architecture providing scalable systems from small to corporate wide applications protecting your enterprise investment.

MCL-R/3 Bridge is easily configured on one server, which acts as the Application and Communication Server. The MCL-R/3 Bridge is configurable on one Database server and one or multiple Application Servers, each one connected to multiple Communications Servers.

The scalability of the MCL R/3 Bridge provides independent future-proofing in relation to:

- Choice of Terminals;
- Communications Systems;
- Host System Connectivity Options;
- Multi-site expansion.

System requirements

PRODUCT	OPERATING SYSTEM	PROCESSOR	AVAILABLE DISK SPACE	RAM	MISCELLANEOUS
MCL-R/3 Bridge IDOC Component	Win NT/2000/ XP	Pentium II or III 500 MHz or Higher	40 MB	128 to 256 MB	RDBMS required: MS SQL Server, ORACLE 7 or Higher, Sybase Adaptive Server, DB2 Universal Database Server
MCL-R3 Bridge RFC/ BAPI Component	Win NT/2000/ XP	Pentium 166 MHz or Higher	40 MB	32 MB	

Ordering hints

- The MCL-R/3 Bridge Development Kit is available to companies after attending MCL-R/3 Bridge training.
- The additional bridges may be ordered with the following conditions:

  1. together with a MCL-R/3 Bridge RFC/BAPI component at full price
  2. for the same end-user
  3. for the same project.

- MCL-Designer 2.52 or greater is required and must be installed prior to the MCL-R/3 Bridge development kit installation. It must be electronically activated.
- All MCL-R/3 Bridge components also require the SAP GUI (client version 3.0 or higher) to be installed on the machine.
- MCL-R/3 Bridge requires MCL-NetS24 version 2.51 or higher or MCL-Link version 2.50 or higher.

Product list

PRODUCT NUMBER	PRODUCT DESCRIPTION	MCL-R/3 BRIDGE: IDOC COMPONENT	MCL-R/3 BRIDGE: RFC/BAPI COMPONENT	MCL-R/3 BRIDGE DESIGNER ADD-ON
SMSBR3IB12XEX	**MCL- R/3 Bridge: IDOC component**	✓	—	—
SMSBR3RB12XEX	**MCL-R/3 Bridge: RFC/BAPI component**	—	✓	—
SMSBR3RP12XEX	**MCL-R/3 Bridge + additional RFC/BAPI component**	—	✓	—
SMSDEVR322XED	**MCL-R/3 Bridge Development Kit**	✓	✓	✓
SMSDSGEP221ED	**MCL-R/3 Bridge Designer Add-on**	—	—	✓

OUTLINE AND ADVANTAGES

1. Outline

The MCL-R/3 Bridge crosses the gap between the practical requirements of the operations environment and the need for the Enterprise to maintain the integrity of the SAP system.

The MCL-R/3 Bridge will help you to deliver SAP to the shop-floor, the warehouse aisles, the delivery truck, or wherever it is needed, while presenting it in whatever way you have determined will best contribute to productivity in those areas. This is achieved while conforming to the standard SAP Interface protocols, as embodied in SAP IDocs, BAPIs, and RFCs. The MCL-R/3 Bridge has received SAP Certification.

The MCL-R/3 Bridge solution operates in a number of layers:

- **MCL-Designer:** application development environment.
- **MCL-Link/NetS24**: communication software between the terminals and the MCL-R/3 Bridge
- **MCL-R/3 Bridge – comprising of the RFC/BAPI and IDOC components** certified Interface between the communication software and SAP.

2. Advantages

The value obtained from the MCL-R/3 Bridge can derive from a variety of effects, such as:

- **Presenting the Operator with only the Relevant Fields.**

  Sometimes the fullness of SAP functionality, as shown in the standard SAP screens, can be superfluous to the reporting of shop-floor transactions. The MCL-R/3 Bridge can be used to focus the shop-floor operator interface on just the fields required for the task.

- **Optimising the Sequence of Presentation of SAP Fields.**

  The MCL-R/3 Bridge can be used to present the fields required in the sequence that best suits the operation in hand, including dynamically reacting to the specific data reported by the operator.

- **Providing Local Validation Capability.**

  It is possible that Operational conditions not addressed by SAP can be built into a rule-base, executed by the terminal and validated locally, where necessary with reference to data obtained from SAP.

- **Catering for a Variety of Terminal Types.**

  The layered approach of the MCL-R/3 Bridge means that the choice of terminal can be made to suit the operating conditions, while presenting exactly the same face to SAP. So, with the MCL-R/3 Bridge, you are free to choose from a wide range of Terminals, which include characteristics, such as: Keyboard Entry, Pen Entry, Character-based screen, Graphical Screen, Touch-screen Interface, Signature Capture, Rugged Industrial Packaging and Sealing, Fixed Truck or Workbench mounted, Batch or Real-time. Even specific barcode printers can be connected directly to SAP using the MCL-R/3 Bridge.

- **Making use of Scanning and Auto ID Technology.**

  The flexibility provided by the MCL Designer layer means that, while still maintaining full conformity to SAP standards, a terminal can be selected for the Auto ID capability that it makes available. The choice includes radio or cable attached scanners to enable the use on the shop-floor of Auto ID technologies, such as:1D Bar Codes, 2D Bar Codes, RFID Codes, DataMatrix, MaxiCode,Image Capture.

- **Enabling the Direct Attachment of Equipment or Processes.**

  Many of the terminals, which can be programmed using MCL, support and control the direct attachment of external devices. This means that the MCL-R/3 Bridge can be used to complete an unbroken link between SAP and shop-floor equipment, such as scales, intelligent sensors, PLCs, and printers.

- **Creating Multiple SAP Transactions from a Single Shop-floor Entry.**

  The MCL Designer layer can be used to interpret the data entered at the Operations level and to expand it into multiple SAP transactions, based on a rule-base programmed into the terminal.

- **Generating Transactions for Multiple Systems from a Single Shop-floor Entry.**

  The actions that the MCL-R/3 Bridge can take include routing a message to SAP or to any other system. Consequently, a single shop-floor transaction can be routed to multiple systems by the combined action of the MCL-Designer and the MCL-R/3 Bridge, while the shop-floor operator has just a single entry to make.

- **Enabling Operations to Act in Response to Prevailing Conditions.**

  It can happen that events requiring immediate responsive action can erupt spontaneously on the shop-floor. The necessity to move Stock from a store to a Retail area, because a Customer wants it now, is one such case. The MCL-R/3 Bridge can be used to enable the Sales Assistant to use a terminal to simply record the movement of the Stock while, invisibly to the operator, the MCL-R/3 Bridge automatically generates, and sends to SAP, the Stock Transfer and Transfer Orders to enable the movement.

- **Adding to the Mobility of SAP.**

  The MCL-R/3 Bridge means that SAP functionality can go where the business goes, efficiently and in a structured manner. The MCL-R/3 Bridge provides:

  - The use of the Terminals that best suit the operation.
  - LAN, WLAN, WAN, WWAN, Modem, GSM and GPRS communication.
  - The power to know when to use on-line or off-line operation.
  - The capability to deliver SAP to an operation in a way that best suits.
  - While maintaining fully SAP Compliant integration.

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