
N-Tuition Technologies GmbH

ARSLink for SAP

Product Abstract

In order to stay ahead in today's business world, successful companies' need more than just good ideas. They need tools that help them quickly turn their strategic directives into actions that move their organization forward.

Putting word to action isn't as easy as it sounds, however. Most companies have a plethora of systems and processes that have grown up over time and, although they each more or less effectively solve the task for which they were designed, their sheer numbers and narrow focus have created an IT conglomeration that is costly to manage.

This presents us with a major challenge:

How can we organize our IT department so that it not only provides an infrastructure needed to run our business, but provides a means for efficiently managing the changes to that infrastructure needed to stay competitive?

The answer to this involves two things; **Processes** and **Tools**.

Processes:

This is where ITIL and IT Service Management (ITSM) comes in. ITIL provides a good basis for organizing your IT business processes and can, if properly implemented, be used to help you run your IT department **as a business**. The important thing here is that running IT as a business means integrating your ITSM processes such as Service Desk, Change and Configuration Management with basic business processes such as Purchasing, Finance/Controlling and Human Resources.

Tools:

In trying make their IT more manageable, many companies have invested in ERP systems such as SAP, only to find that while SAP is well suited to standardizing core business processes, its level of sophistication and focus on best practices make it hard to adapt to their company's changing needs.

At the same time, companies have also invested in ITSM applications such as those based on Remedy's ARS workflow engine. While Remedy's applications go far on a stand-alone basis, their value can be greatly expanded when they (and the processes they support) are integrated with the systems and processes that provide the basis for any business.

We provide that integration...

N-Tuition's "ARSLink for SAP" allows a company to turn disparate methods and systems into integrated, cross-functional, end-to-end business processes, by supplying a seamless point to point integration between ARS and SAP, giving you both **flexibility** for dynamic processes and **standardization** for your core business processes.

By combining the flexibility of Remedy's industry leading ITSM applications with the crucial business process data of SAP, N-Tuition's "ARSLink for SAP" can give your company a manageable environment for implementing its business strategy, while leveraging both your investment in SAP and in Remedy ARS.

Integration Summary

When integrating processes (and the systems that support them) you have two major needs. The first of these is access to data in another system. The second is an interaction with sub-processes run in the other system. Both cases require the transfer of data between applications.

The “ARSLink for SAP” fulfills both of these needs, allowing you to exchange data in a number of ways:

Direct Access - In this case, inquiries for data such as user name, equipment, location, etc. which are placed from within your ARS Application (e.g. HelpDesk) come directly from the SAP database rather than from the ARS database. This is transparent for the user of the application. Direct Access is particularly interesting for data that changes often.

Scheduled Data Transfer - With a scheduled data transfer, pre-defined data can be copied into the ARS database at regular intervals. This can be done in a complete or incremental way. This is particularly useful for static data types.

Event Driven Transfer - Because this allows you to transfer data based on a event in either ARS or SAP, it means that you can create end to end processes, with part of the process running in ARS and part of the process running in SAP. This is particularly useful for processes such as Change Management or Customer Service that need core business sub-processes (such as creating a purchase order) to complete.

Architecture:

The ARSLink for SAP is a seamless server-server integration which uses the proven ARS C-API and the standard BAPI interface of SAP R/3 and allows for the real-time or scheduled transfer of data between ARS and SAP. (NOTE: The technical details of the integration can be found in the product documentation.)

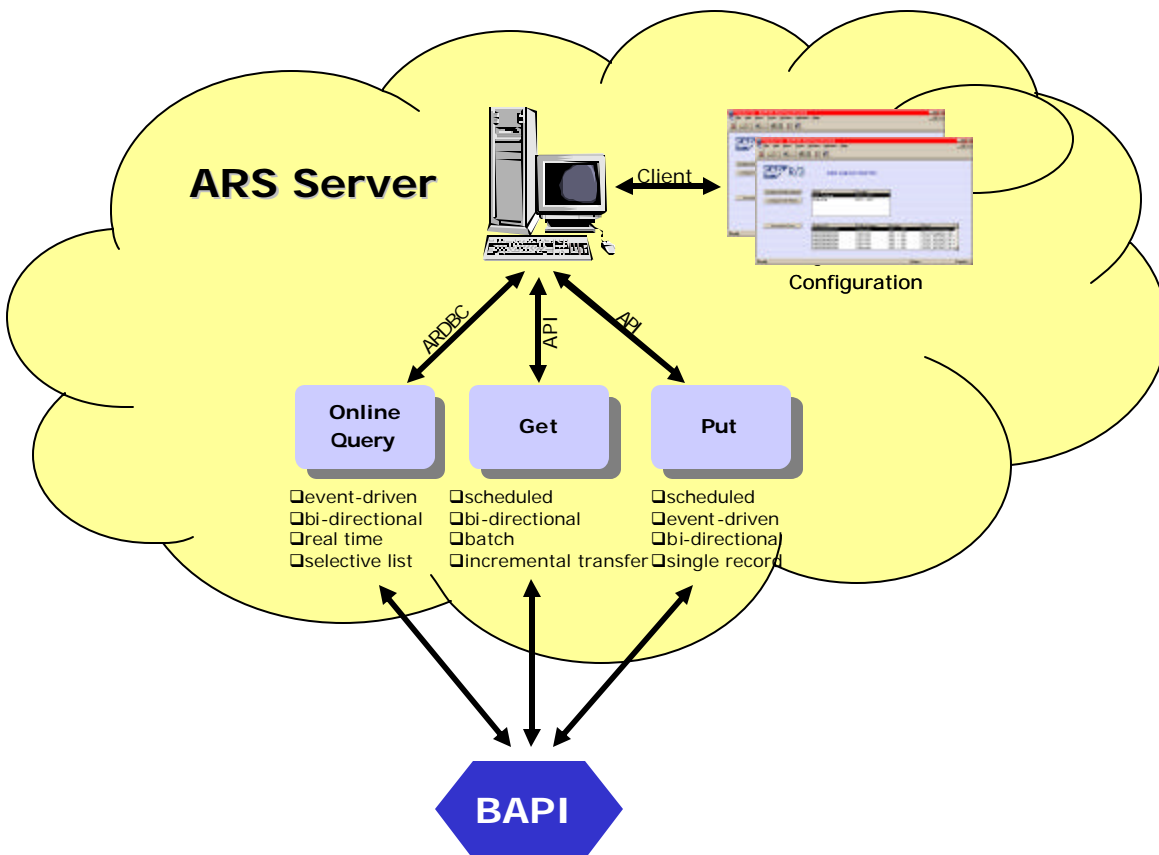


Figure 1 Integration between SAP R/3 and Remedy ARS

Benefits:

Simplified Structures – Processes become more transparent and easier to manage. You can spread multiple sub-processes over several applications yet keep your data centrally located.

Flexibility – Reduced implementation time for new processes. ARS is simple to configure and manage, allowing you to put new processes into action as quickly as needed.

ROI – By using the best characteristics of both SAP and ARS you leverage your investment in those technologies. In fact, this integration helps you expand the usefulness of both SAP and ARS, allowing you to move additional business processes such as Customer Support, Employee Services, etc. onto one platform.

Standardization – Because this integration is a standard product, it is easier to maintain than a “home-grown” integration. Future compatibility becomes less of a risk.

NOTE: For addition benefits, please refer to **Sample Scenarios** section.

Support Information

The integration described is **supported by N-Tuition Business Solutions AG** and its affiliates. N-Tuition develops, markets, and supports the installation of ARSLink for SAP and its integration with Remedy.

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System Requirements

The following N-Tuition Technologies GmbH software and Remedy products must be installed and operating correctly prior to the integration:

- Remedy Action Request System 5.0 or later.
- N-Tuition Technologies GmbH Software ARSLink for SAP 5.0 or later installed on Action Request System Server.

Server Requirements

Microsoft Windows NT 4.0 (with Service Pack 4 or later), Windows 2000, Solaris 2.6, 7, 8, 9, AIX 4.3.3, HP-UX 11.

- 20 MB of available disk space.
- 512 MB of RAM

Client Requirements

- Microsoft Windows 95 or later, Windows NT 4.0, or Windows 2000 with Remedy User Tool
- Or any Operating System with Web Client.

Contact Information

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Integration Details

General Information on Communication with SAP R/3

As a matter of principal, two communication interfaces exist for exchanging data with an SAP system. One possibility is the IDOC's (Intermediate Document Interface), which is a form of EDI interface to the SAP system. IDOC's operate asynchronously and are less suitable for "real time" interfaces: Another possibility for communication with an SAP R/3 system is the BAPI's (Business Application Programming Interface). A BAPI offers a object-oriented view of a business application (e.g. customer order). A BAPI uses different methods for creating a customer order, closing a customer order and displaying customer orders. Each of these methods is implemented by an RFC (Remote Function Call). This communication operates synchronously and bi-directionally and is therefore better suited for a "real time" interface.

The ARSLink for SAP R/3 communicates with the SAP R/3 system via BAPI's or their methods, the RFC's.

For communication between the ARSLink for SAP R/3 and the R/3 system, it is not necessary to install or configure anything additionally on the R/3 side. Only this standard interface is addressed. For this purpose, it is necessary to setup a SAP user with the required authorizations to communicate with the RFC's. This use does not require dialog authorization.

The use of this standard allows the ARSLink for SAP R/3 to interface with an R/3 system from Release 3.X to Release 4.X. For all future SAP releases, communication will function with the present means as long as SAP supports the RFC.

As a matter of principle, it is necessary to define the processes when deploying ARSLink for SAP R/3. The process interfaces must be defined in order to find out at which process points data will be exchanged between the ARS system and SAP R/3 via the ARSLink for SAP R/3. These interfaces must be defined right down to the field level. Then, it is necessary to find out whether the BAPI's or RFC's provided by SAP provide the required functions and all required fields. Moreover, the RFC's should contain certain conventions required by ARSLink for SAP R/3:

Prerequisites for data exchange in

- Get case and Online Query:

Two function modules must exist on the SAP side. One, which supplies a list of all, desired key numbers for the data records and one, which supplies the desired detailed data for a key number.

➤ Put case:

One function module must exist on the SAP side, which receives the desired data, processes it and returns certain data.

The example adapters supplied, address standard function modules from SAP Release 4.6c. The ARS forms for example integration are "Demo Sales Order" and "Demo Customer".

ARSLink for SAP R/3 was conceived so that new module adapters can be added without great effort. In developing a new module adapter, algorithms for modification of the data between SAP and ARS can also be integrated.

The following methods are supported by ARSLink for SAP R/3 and can be combined and integrated into a module adapter:

1. get_sap_key_list

This function determines a list of keys in SAP and stores it temporarily. It serves for comparing data records with the data records in ARS.

2. get_sap_details

The information associated with the key from the SAP system is determined on the basis of the key determined.

3. put_sap_record

This function allows a new data record to be created or an existing data record in SAP to be modified.

With these functions, it is possible to transfer master data from SAP to ARS, to create or change a data records in SAP as well as search for SAP data directly with an Online Query. Only these three methods are required to integrate all imaginable business processes from ARS with SAP.

Each of these three methods communicates precisely with one BAPI method on the SAP R/3 side.

For better structuring and chronological control of integration, it is recommendable to distribute the required functions among a number of module adapters.

Survey of methods:

| Method | Module | Transfer | Description |
|------------------|--------------|-----------|--|
| put_sap_record | Put | ARS → SAP | Generation of data record in SAP by calling an SAP - function module |
| put_sap_record | Put | ARS → SAP | Updating of a data record in SAP by calling an SAP function module |
| get_sap_key_list | Online Query | SAP → ARS | Determination of a key list (key) (SAP) |
| get_sap_details | Online Query | SAP → ARS | Determination of a data record from SAP, identified by the key. |
| get_sap_key_list | Get | SAP → ARS | Determination of a key list (key) (SAP) |
| get_sap_details | Get | SAP → ARS | Determination of a data record from SAP, identified by the key. |

In practice; two cases normally result from a PUT data exchange between ARS and SAP R/3.

In order to keep the update functions more simple and modular, a new module can be realized here including call-up a new RFC in SAP.

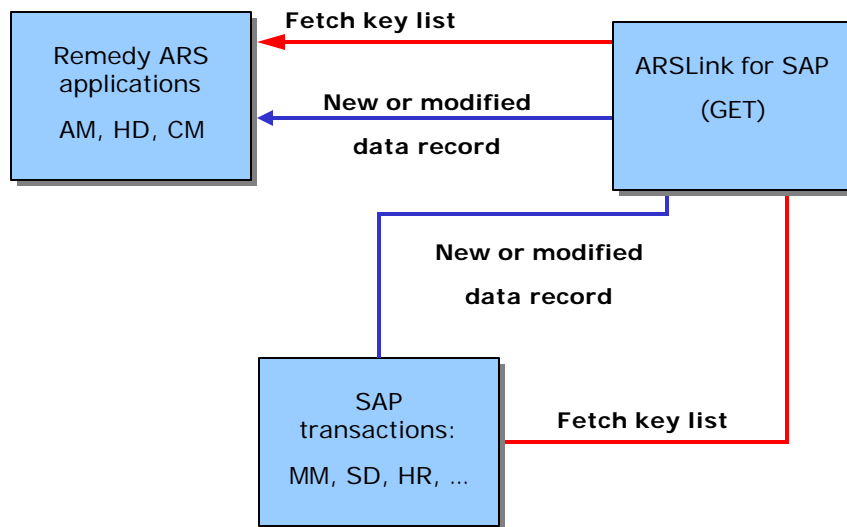
The method put_sap_record is also implemented in this module. However, a different function module is called in SAP resulting in a change of the data record.

Transferring Master Data from SAP (Get)

Transferring master data from SAP to ARS is practical when certain master data, for which SAP is the main system, is to be used for display or working in ARS.

Examples for this are employees' master data, material master data, equipment master data, and debtor and creditor master data. This data is managed in the R/3 system. However, if this data is also required for ARS applications, it can be transferred to ARS. This data should be used there only for read access and kept up to date by cyclic comparison. It is also practical to limit the data fields to those actually required in ARS. This cycle can be scheduled every 5 minutes or maybe once a day as required. Master data transfer allows quick and current access to the required data, which then no longer has to be maintained redundantly.

Master data transfer is usually time-controlled, unidirectional and always transfers a certain number of data records. It always operates with two methods (RFC's). First, ARSLink for SAP R/3 generates a list with key numbers from ARS and the R/3. For this purpose, the RFC GET_ID_XXX is called in R/3. These lists are compared with one another. If a new data records is found in SAP, the required fields are fetched via the RFC GET_DETAIL_XXX and therefore stored in a new data records in ARS. Otherwise, the data records are also fetched with RFC GET_DETAIL_XXX and updated.

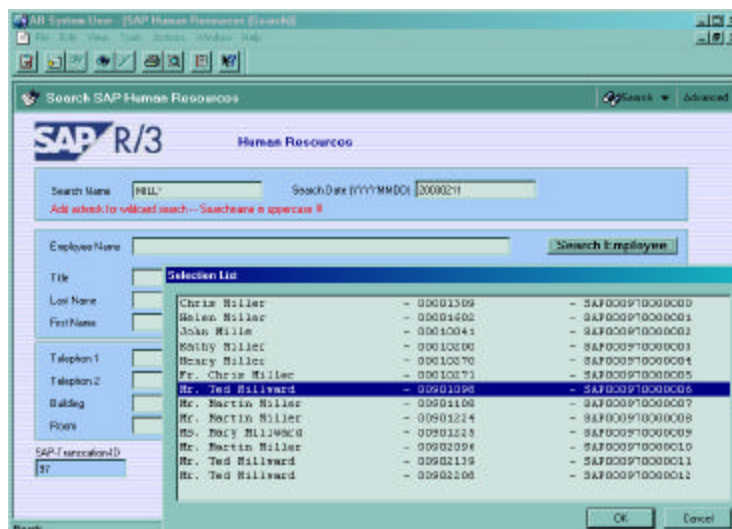
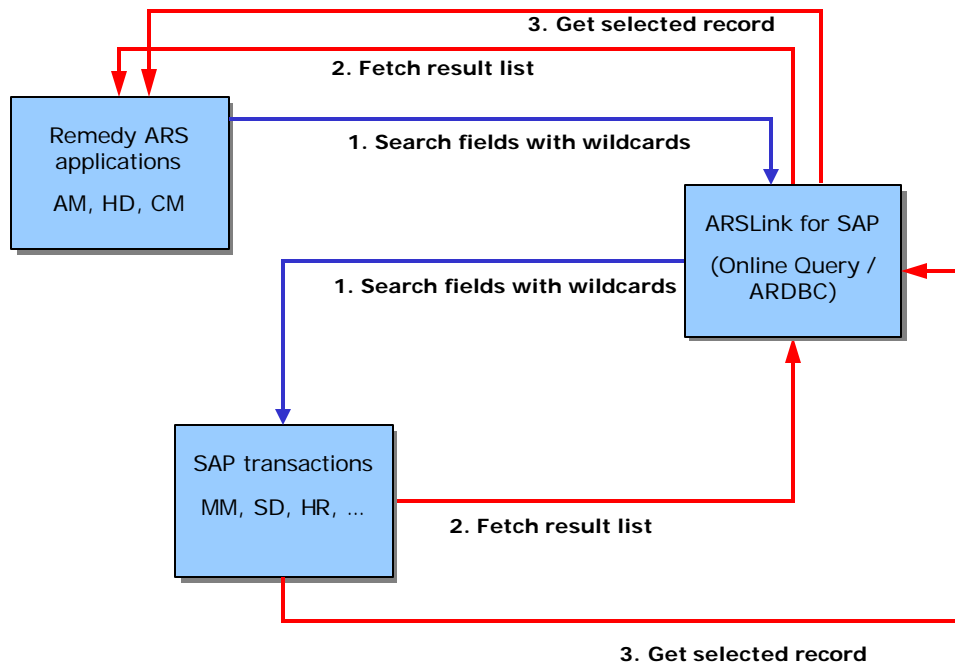


Selection of Certain Master Data in SAP (Online Query)

If a large number of data records are present in the SAP system or the data records are subject to daily modification, replication is not required into ARS. Replication of the data could require a long time and would have to be performed a number of times each day. In addition it takes space on both databases.

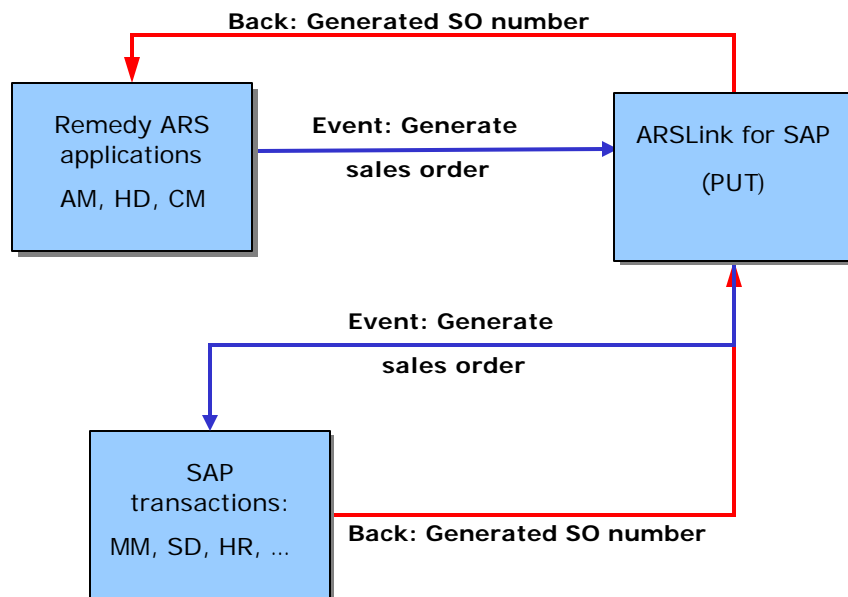
Access to the data can be accomplished here online with the ARDBC plug-in with the advantage that access is also possible to the current SAP data records in real-time.

Technical realization is analog to the Get method. However, after entering the selection criteria and executing the search, a hit list is displayed to the user. After selection of the corresponding entry, the detailed data is transferred to ARS.



Example of Crating a Data Record in SAP (Put)

Sometimes, it is necessary to transfer data to the SAP system from an ARS application. This data transfer can be accomplished at highly differing points in the process depending on the situation. Moreover, ARSLink for SAP R/3 can link all ARS applications with all R/3 modules. Possible interfaces are: Storing service orders, service messages, order requests, return orders or new employees in the R/3 system from ARS. It makes sense to create corresponding interfaces wherever an R/3 is the main system for the process or data must be present in SAP for commercial billing. To transfer this data is again possible to use the data previously transferred from SAP to ARS within the scope of master data transfer, or "Online Query". Normally, transfer of data to SAP is accomplished under event control, e.g. from ARS by pressing a button. This data exchange is bi-directional and transfers exactly one data record. After successful booking of it, the number generated in SAP for a data record is written back to ARS, to achieve a 1:1 relationship between the data records. The number from SAP is now stored in the ARS data record and vice versa. This data exchange operates with precisely one method (RFC) in R/3. The RFC PUT_XXX is called, which also writes back the number generated after processing or in the event of an error, an error message.



Configuration of ARSLink for SAP

A data record is configured in the form SAPLink:DataExchange as the first step for new integration. In this ARS application, you set all the needed parameters for a data exchange.

Remedy User - [SAPLink.Config DataExchange (Modify)]

File Edit View Tools Actions Window Help

Matching SAPLink:Config DataExchange

| Request ID | Name |
|------------------|--------------|
| 0000000000000001 | SAP_Customer |
| 0000000000000002 | Salesorder |

Modify SAPLink:Config DataExchange 0000000000000001

SAP R/3 Data Exchange Configuration

General Information

Name: SAP_Customer Direction: SAP -> ARS

ARS Form: SAP Customer (Get DataExchange)

SAP Logon | Key Information | Field Mapping | Vendor Query

SAP Logon Parameter

| | | | |
|-------------|----------------------|------------|---|
| User | sjsusalein | Hostname | |
| Password | XXXXXXXXXXXXXXXXXXXX | System Nr. | 04 |
| Client | 100 | GW Host | |
| Language | DE | GW Service | |
| Destination | | Trace | <input checked="" type="checkbox"/> on <input type="checkbox"/> off |

Set Password

1 Selected Number 1 of 2 Demo Fuerteventura

Configuration of Field Mapping

Allocation of the fields between ARS and SAP is accomplished by field mapping. User friendly menus apply for both directions.

The screenshot displays the SAP R/3 Data Exchange Configuration interface. The main window is titled 'Modify SAPLink Config DataExchange 040510040000002'. The 'General Information' section shows the 'Name' field set to 'Salesorder' and the 'Direction' dropdown set to 'SAP -> SAP'. The 'SAP Logon' section is set to 'Field Mapping' and 'Field Mapping'. A table of field mappings is visible, with 'KUNNR' highlighted in blue. A list of SAP fields is shown on the left, and a list of ARS fields is shown on the right.

| SAP Field | ARS Field |
|---------------------------|-------------|
| eOrdnr-Header.DatChn | DatChn |
| eOrdnr-Header.Division | Division |
| eOrdnr-Header.DocType | DocType |
| eOrdnr-Header.FactCaption | FactCaption |
| eOrdnr-Header.SalesOrg | SalesOrg |
| eOrdnr-Header.ItemNumber | ItemNumber |
| eOrdnr-Header.Material | Material |
| eOrdnr-Header.TargetCity | TargetCity |
| eOrdnr-Header.PartNumber | PartNumber |
| eOrdnr-Header.PartRole | PartRole |

| | | | | | |
|-------|------------|-------|-------|-------|-------|
| ABRWW | DATL | KATR2 | LOEVM | STCD1 | XICMS |
| ADRNR | DEAR1 | KATR3 | LZONE | STCD2 | XKNZA |
| ANRED | DEAR2 | KATR4 | MCDD1 | STCD3 | XSUBT |
| AUFSD | DEAR3 | KATR5 | MCDD2 | STCD4 | XXIPI |
| BAHNS | DEAR4 | KATR6 | MCDD3 | STCEG | XZEMP |
| BAHNS | DEAR5 | KATR7 | MILVE | STKZA | |
| BBNBR | DTAMS | KATR8 | NAME1 | STKZN | |
| BBSNR | DTAWS | KATR9 | NAME2 | STKZU | |
| BEGRU | DUEFL | KDKG1 | NAME3 | STRAS | |
| BRAN1 | EKONT | KDKG2 | NAME4 | TELBX | |
| BRAN2 | ERDAT | KDKG3 | NIELS | TELPX | |
| BRAN3 | ERNAM | KDKG4 | ORT01 | TELF1 | |
| BRAN4 | ETIKG | KDKG5 | ORT02 | TELF2 | |
| BRAN5 | EXABL | KNAZK | PERIV | TELT1 | |
| BRSCH | FAKSD | KNRZA | PFACH | TELT2 | |
| BUBKZ | FISKN | KNURL | PFORT | TELT3 | |
| CASSD | FITYP | KONZS | PSTLZ | TXLW1 | |
| CCCC1 | GFORM | KTOCD | PSTL2 | TXLW2 | |
| CCCC2 | HZUOR | KTOXD | REGIO | UMJAH | |
| CCCC3 | INSPATDEB1 | KUKLA | RFMKR | UMSAT | |
| CCCC4 | INSPBYDEB1 | KUNNR | SORTL | UMSA1 | |
| CFOPC | JMJAH | LAND1 | SPERR | UWAER | |
| CITYC | JMZAH | LIFNR | SPERZ | VBUND | |
| CIWVE | KATR1 | LIFSD | SPRAS | WERKS | |
| CDUNC | KATR10 | LOCCD | STCDT | XCPDK | |

Sample Scenarios

The ARSLink for SAP allows you to combine the strengths of the AR System with those of SAP R/3 to obtain the best possible support for your processes. This section contains examples of scenarios describing how the ARSLink for SAP can be used. While not exhaustive, they should provide the basis to help you visualize how this integration can help you work more efficiently.

1. Help Desk - Generating Problem Tickets

Much of the data needed in a Help Desk application comes from other sources. In particular, HR Data (Who is calling), Configuration Data (Equipment, Location, etc.), Contract Data (SLA, Profit-Center, External Service Provider) is often found in SAP. When handling end-user calls, up-to-date data is highly important. The ARSLink for SAP provides an interface for obtaining all required information for creating a detailed trouble ticket: customer identification, profit center for internal billing purposes, location, SLA information and a precise definition of the part affected including when it was installed and the book-value to the organization. The supporting data for the complete inquiry is at your agents fingertips because the ARSLink for SAP continuously updates the AR system database with equipment- and customer related data from SAP R/3.

Additionally, External Service providers are often used for desktop services as are external specialists for specific systems. In the case an on-site visit is needed, the Help Desk agent can, with a click, transfer the information to SAP R/3 so that a Service Notification/Service Order is created and sent to the External Service Provider who handles the call. The AR system will be updated as the status of the Service Order in SAP changes, allowing the Help Desk to keep track and follow up as the call progresses. At the same time, the financial details of the call are processed within SAP, improving the controlling process and increasing the effectiveness and efficiency of your support organization.

2. Configuration- and Change Management - Minimizing Hardware and Licensing Costs

Most businesses live in a state of constant change. People change departments, equipment changes locations, new departments are created, and others are closed. Financial data is kept in one system, operational (system management) data in another. Keeping up with these changes is a challenge, at best.

Using the ARSLink for SAP, a company can integrate the back-office or financial side of the equation with the operational side and save considerable money.

One example of this can be seen in software licensing. When new equipment is purchased, it is entered into the ERP system and depreciated, with costs often being directly related to a profit center or project. The license data for software belonging to that system is also entered, including data regarding maintenance. When the product is installed, a similar process takes place in the IT Service Management (ITSM) software.

Over time, a PC may be moved in location (which because it interests operations, is logged in the ITSM software) and it may change department (which may, or may not, be entered into one or both of the financial or ITSM software) and at some time it may reach the end of its life cycle and be mustered out regardless if happens to be finished being depreciated or not. Incorrect tracking of hardware costs companies money!

Because this process doesn't only affect hardware, but the software installed on the machine as well, it often happens that even if a machine is both sent to the scrap yard and properly depreciated, but the software licenses (which are oftentimes still usable) are not properly tracked.

A problem facing many companies today is that they are either paying for licenses they don't use or using licenses they haven't paid for.

This is where the ARSLink for SAP comes in. By integrating the two systems, both financial data and ITSM data are matched. Changes in location or department are tracked in both systems, enabling companies to better control their portfolio of IT assets. One way of doing this is by using SAP as the source for equipment data in Asset/Configuration Management while exchanging changes to the status of this data between the two applications. Additionally, since changes often use sub-processes such as purchasing, a change in ITSM can initiate the purchasing process in SAP and track it as it progresses.

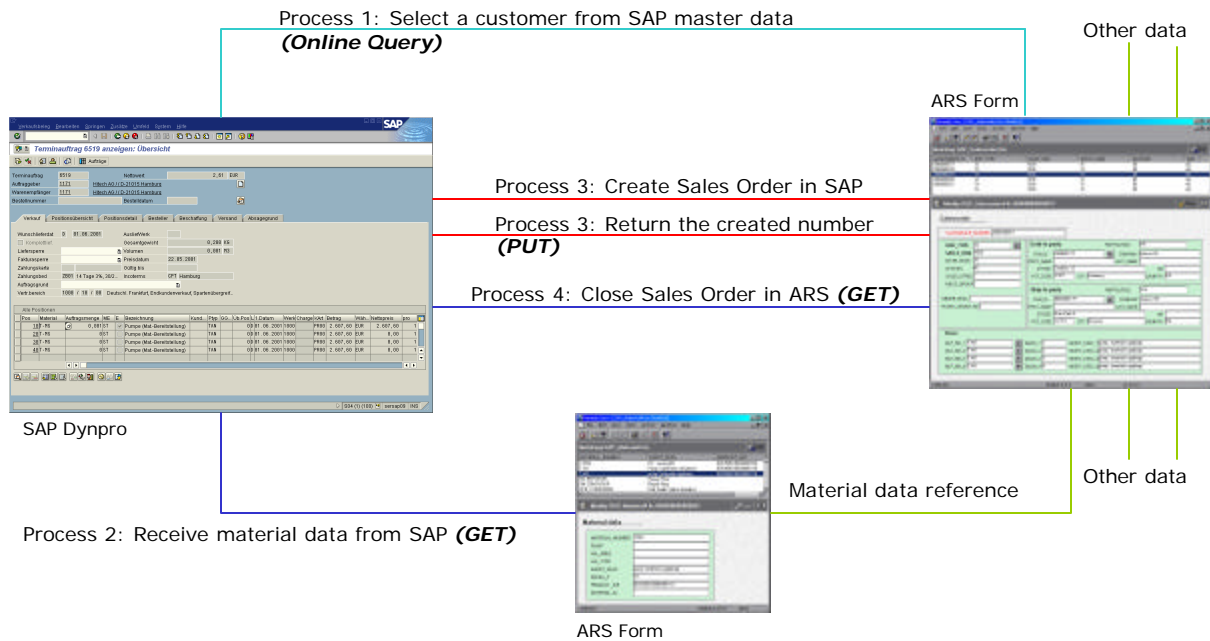
A good example of how changes can be tracked can be seen at one of our governmental customers. Being a G7 Nation, they have large network of embassies worldwide. In order to keep track of what exists where, they've entered all of their inventory data into SAP. Their employee requests they manage in an ARS based Service Desk.

When a change request, such as the need for a new piece of equipment, comes into their centralized Service Desk, they enter it into their Change Management system. This initiates a process which starts with approval of the request and ends with an installation of the material at one of hundreds of world-wide sites. By integrating the two systems, they have effectively created an end-to-end process in which the underlying systems are transparent to the end-user. They are able to keep both a financial and physical track of their systems and information and save money by improving the effectiveness of the resources they use.

3. Customer Service: Creating a Sales Order in SAP

You have a Customer Service application running on ARS. A customer calls with an issue regarding a piece of hardware he bought from your company. He wants a replacement part. First your agent looks up the customer's information in your Remedy application to check if the equipment is still under warranty, has maintenance scheduled, or any pending issues. Since a good portion of the data needed, in particular all financial data on the customer (billing address, contract data, warranty, etc.) is found in SAP, your agent's search within your Remedy Customer Service application causes the financial data she needs to be automatically pulled from SAP and filled into the Remedy form.

After seeing that the equipment in question isn't under warranty, your agent notifies the customer who asks to purchase the part. In order to fill the order, the agent needs to create a Sales Order for the customer. To do this she needs material data and customer data from SAP. On her ARS form she collects online, in real-time, the data from SAP to fill the order.



After completing all fields on the ARS form, by clicking on a button, the Sales Order is created and the rest of the sales process (shipping, billing, etc.) is started in SAP. In order to keep Customer Service updated, the SAP order number is moved back into the ARS form. At the same time, the order processing is continuing on in SAP, e.g calculating prices, adding item positions and finally shipping them. By opening the original ARS record and refreshing it, the agent is able to track all activities which are done in SAP and answer any questions the customer may have regarding the order's status should he call again. After shipping the desired piece of software a notification is sent to the person who created the record in ARS, letting them know the customer has received the order.

This integration allows companies to save money by keeping the front-end Customer Service process within the flexible Remedy ARS application, yet leveraging the investment in SAP by transparently allowing all back-office workflow such as contract management and billing to be done in SAP.

4. Security - Constant Vigilance

By using the ARSLink for SAP, companies can simplify the administration of their security policies. A simple example of this can be seen in the integration of Human Resources data. By creating a notification within the internal Help Desk when certain critical SAP HR data such as name, employment status or department changes, administrators can ensure that the security privilege given to users be kept up to date.

A good example of this would be when someone leaves the company. As soon as the employment status within SAP changes, administrators would be automatically notified of the change and can take appropriate action. The same goes for a change in department. Should, for example, an employee in the finance department move to sales, his or her access to certain confidential business critical data may need to be restricted. With this integration, this process can be greatly simplified in most organizations.

Lastly, a more common example would be a name change due for example to marriage. While this is generally inputted relatively quickly in Human Resources, it might take longer for the change to "trickle down" to the systems administration group. By automatically notifying them of the change, a considerable amount of time and energy could be saved.

Summary

While the list of examples could go on, we will stop here in the hope that we've given you ideas that will help you understand how the ARSLink for SAP can help your company use your Remedy and SAP environments more effectively, thereby saving money and making your company more competitive.

If you have any need of help in analyzing how you can use this product, feel free to contact us or our certified partners at the above addresses.

Endnotes

N-Tuition Technologies GmbH and Remedy produced this integration note to assist customers with joint Remedy/N-Tuition implementations. Remedy and N-Tuition have made an effort to ensure that the information contained in this document is accurate, but do not guarantee any accuracy now or in the future.

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