

# SAP xApp Manufacturing Integration and Intelligence (xMII) Integration Templates - ERP Integration

## Overview

### Applies to:

SAP xApp Manufacturing Integration and Intelligence (xMII) product.

### Summary

This document provides an overview of the Integration Templates for use with the SAP xMII product. The initial focus of these templates will be for using xMII in mySAP ERP integration scenarios.

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### Author Bio



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## xMII Template Overview

The purpose of the xMII Templates is to provide content-based examples of how to integrate SAP ERP business processes with shop floor-related processes using xMII transactional techniques. Each template will focus on either a specific mySAP ERP function or a collection of functions to address a specific information requirement or business process.

Customers should look to the templates as a starting point for their xMII applications that involve any level of integration with mySAP ERP. The scenarios used in the templates will help to educate customers and systems integrators on the use of SAP remote-enable functions in xMII application along with the special feature provided in xMII that simplify and accelerate the application creation process.

## Introduction

Traditionally, a significant portion of the work need for integrating the information exchanges between mySAP ERP and shop floor systems involves developing an understanding of what information is accessible and how best to access it. SAP has been a leader in providing open access to its data and processes from external systems. The challenges encountered in using those open interfaces are that often it requires significant custom programming in the external systems or as interface applications to access and use the data. This often would prove to be an impractical expense if there was a relatively small amount of data needed for a specific application. SAP xMII provides the simplified framework for accessing that data and creating the processes for manipulating and analyzing that data to satisfy the business requirements of the application.

However, there remains a fair level of effort needed to understand the remote-enable functions available from the many mySAP ERP releases; how best to use them and how to mechanically introduce those processes into a plant level applications. The xMII Templates are being provided to simply those efforts. While these templates do not remove the need for a thorough understanding of the working of SAP software or its configured business processes, they do remove many of the challenges of the software-related mechanics needed to use the SAP functions and provide example processes frequently needed in SAP-to-shop floor integration projects.

## Scope and Strategy

The xMII Templates will initially be organized around the SAP manufacturing components to which they exchange information. The initial components to be address are: Materials Management (MM), Quality Management (QM), Production Planning (PP), Production Planning for Process Industries (PP-PI), Plant Maintenance (PM), Material Logistics (LO) and Batch Management. Processes from other SAP components will be added based on customer demand.

The strategy behind the templates will be to capture the consulting level experiences developed over many years of effort using the existing remote-enable function modules (RFMs) provided by mySAP ERP and incorporate that intellectual property into example xMII Business Logic transactions. The transactions will be developed around specific use cases that are typical to applications that require SAP information at the shop floor or are responsible for posting data into SAP from the shop floor. The RFMs provided from SAP out-of-box are very versatile and cover a wide variety of business processes. The best practice templates will address a limited number of those processes as examples for customers and SAP business partners to use as a starting point for their application development.

Another feature of the templates will be that they are being built to serve as building blocks for more sophisticated applications. There will be multiple levels of transactions that will use lower levels of transactions to address an information requirement or to gather the necessary data to execute some other

business process. The transaction templates will be cataloged not only by component but also by level - the lower the level, the more basic the function that is performed. At a minimum, the expectation is that customers will be able to use the templates as-is with only the need to configure the specifics of their SAP implementation, e.g. plants, materials, etc. to make the templates work. Clearly, the reality for productive use, will be that customers will have to adapt the templates and the directory structure provided so as to incorporate the specific business process requirements of their own applications.

The creation and delivery of xMII Best Practice Templates will be an ongoing process. New templates will be created to cover more processes in SAP and to take advantage of new RFMs provided in later release of mySAP ERP.

These templates are provided to customers as examples and will be posted to the SAP Developers Network without guarantees, maintenance, or warranty obligations from SAP AG or its subsidiaries.

## Template Transaction Levels

The following is an overview of the level strategy used in the development of the templates.

### Level 0

A Level 0 template is an xMII transaction that serves as a 'utility' to a level 1 transaction. These transactions are called from level 1 or greater transactions and do not have all the necessary inputs or processes to be executed alone.

### Level 1

The level 1 templates serve as the basic building blocks for creating SAP integration processes. These are xMII transactions can be executed to perform a basic SAP process and typically will call one or more level 0 transactions to support the overall process. Most of the level 1 templates will directly call one or more remote-enabled function modules in the SAP Business Suite landscape.

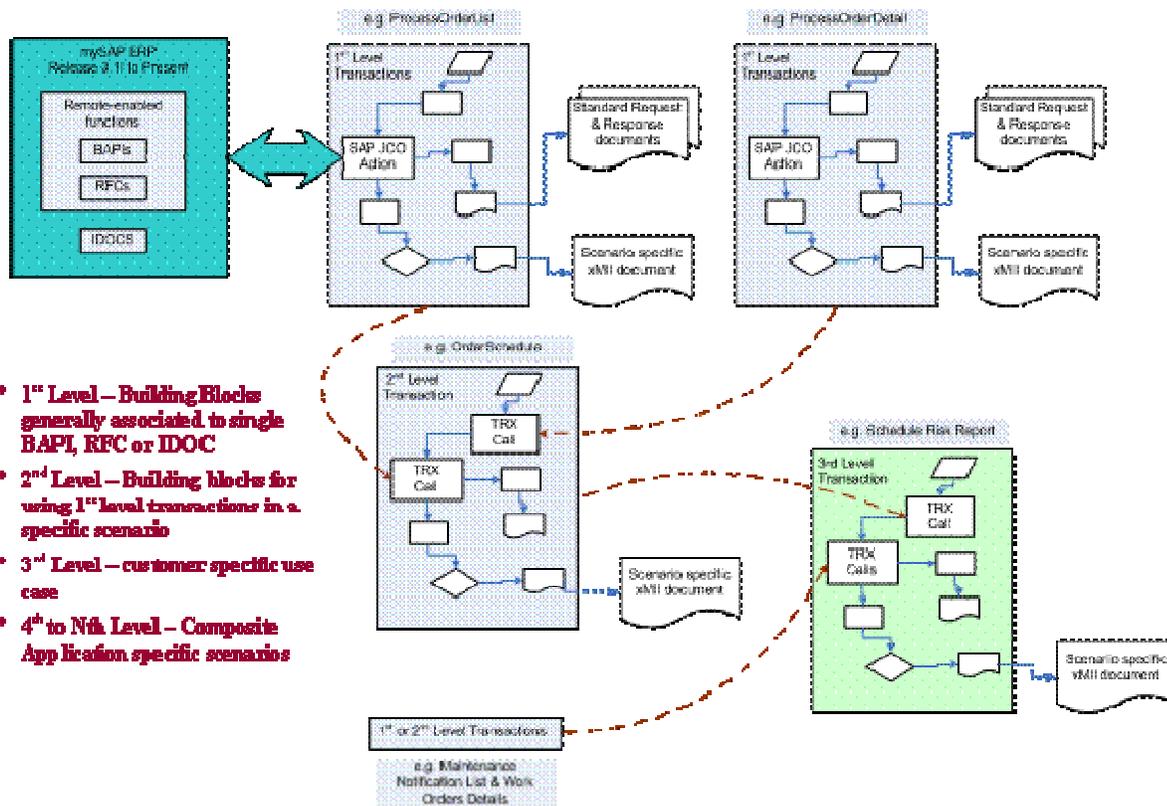
### Level 2

Level 2 templates and greater serve as the examples for addressing specific process or customer business requirements. These templates typically will call multiple Level 1 transactions to extract select sets of information that is needed to support a business process.

### Level N

Templates and project developed transactions that call multiple levels 1 and 2 templates will be used to address broader application processes or composite applications.

The following diagram shows how multiple levels of templates could be used to provide the basis for a composite application.

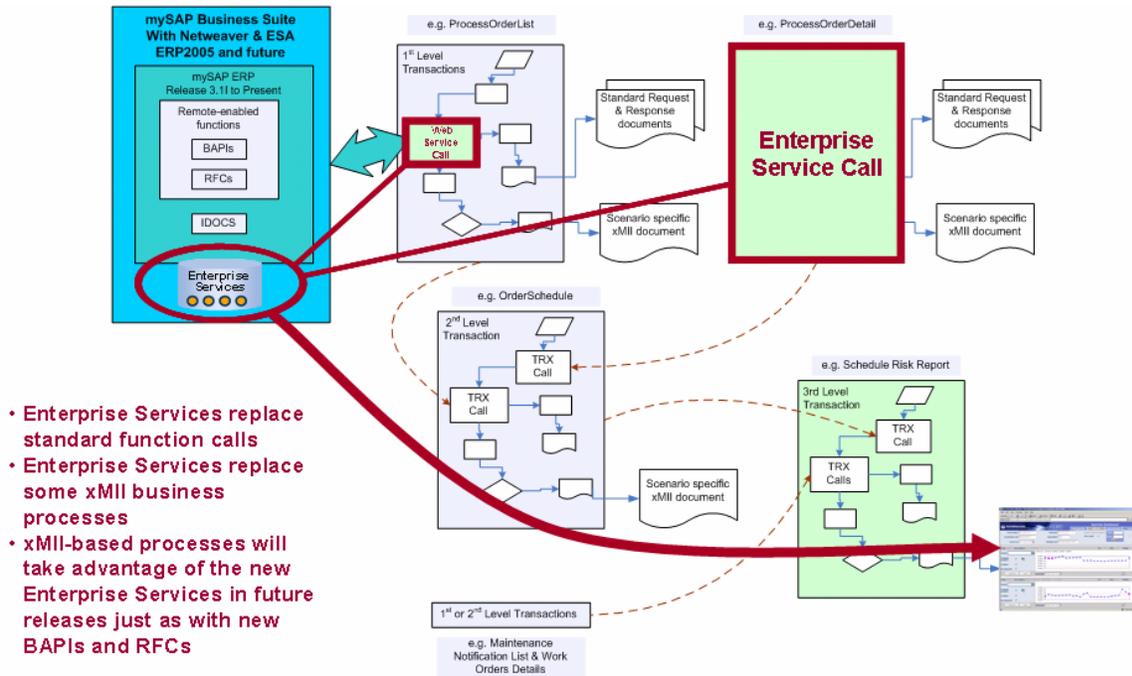


- **1<sup>st</sup> Level – Building Blocks** generally associated to single BAPI, RFC or IDOC
- **2<sup>nd</sup> Level – Building blocks** for using 1<sup>st</sup> level transactions in a specific scenario
- **3<sup>rd</sup> Level – customer specific** use case
- **4<sup>th</sup> to N<sup>th</sup> Level – Composite** Application specific scenarios

## Enterprise Web Services

The xMII templates are essentially 'consumers' of the data and processes exposed through remote-enable functions. The Enterprise Services Architecture from SAP will offer customers an even more versatile mechanism to use SAP processes in there applications. This is also true of xMII-based applications. As enterprise services are developed, xMII templates will work to utilize those services within the template processes. The use of those services will proceed in a manner no different than the use of a new RFM.

The diagram below shows how enterprise services would fit in the template levels.



## How to Use the xMII Templates

The xMII templates provide examples that will accelerate the development of xMII processes that incorporate data or processes within the products of the mySAP Business Suite. The templates employ simplified use cases of the remote-enabled functions that demonstrate how the function works and input & output scenarios typically deployed in a shop floor environment. Users of the templates can copy and modify all levels of the templates to suit the business requirements of their applications. It is encouraged that the original copies of the templates remain intact and that customers create their own versions for use in their development and production environments.

### Template Framework

All the templates will follow the same general structure. Each template will have a set of input transaction properties that fulfill both the minimum requirements for successful execution of an SAP function module along with use case specific inputs needed set a scope to the data returned or the process executed. Each template will also have an output document in xMII format that represents the typical content needed as a response to the process. This typically is a much smaller subset to the overall data returned from the function. The details on the use case of each template are provided in the Specification Sheet for each template.

The templates also provide features for debugging the function execution, exporting of all raw request and response documents from the function along with error detection and handling for both communication and SAP-based transactional failures.

### User Deployment

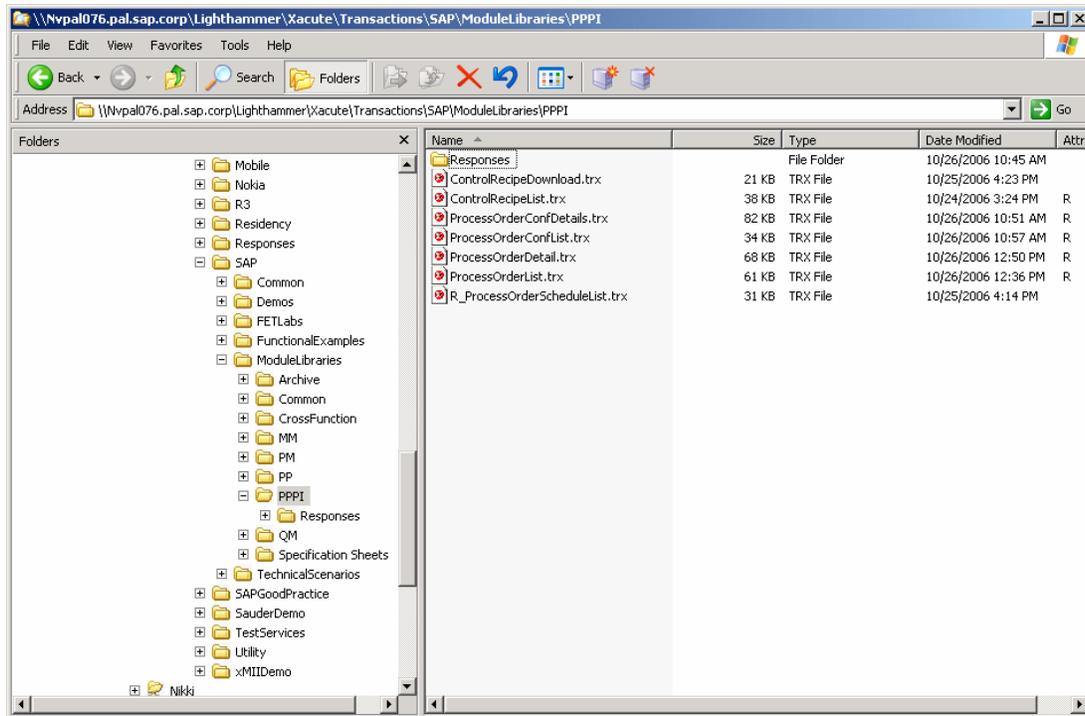
The templates will be organized in directory structure that should be replicated onto the customer server environment. This structure is critical to the on-going development and deployment of the templates and it's supporting data. Users of the templates should download the template content (provided via SDN as zip files) and then copy the templates to their own user directories for use in their applications. Future releases or modifications of the templates will assume that user based content is not being maintained in the those directories.

The templates will be organized into categories by the processes of their associated SAP component. The current categories are:

- Materials Data
- Material Movements
- Batches
- Production Orders
- Process Orders
- Plant Maintenance Notifications
- Plant Maintenance Work Orders
- Quality Management
- Planned Orders

- Repetitive Manufacturing
- IDOCs

The templates will be managed in a consistent directory tree structure associated to its SAP component. All templates will be delivered against that directory structures. A screen shot of the directory structure is shown below.



## SDN Content

The templates will be packaged according to the SAP component or type of activity it provides. The SDN site will reflect that organization. This will allow the user to download the template content that they require.

Associated with each templated transaction will be a specification sheet. This document will explain the specific use case for the transaction and some basic facts about its architecture. The overall documentation on the transaction is to be generated by the user through the Generate Documentation feature provided in the Business Logic Services Link Editor.

## System Release Requirements

The specifications identify the SAP EPR system and xMII requirements for using the template. Many of the transactions indicate that the release is limited only back as far as R/3 Release 4.6C. Many of the functions used in the templates in fact can function in release much older than Release 4.6C. This has been indicated as such because there has been no ability to actually test these functions on systems prior to Release 4.6C. The basic technologies used (e.g. Java Connector) in xMII can function on earlier releases and so it is left to the user to test if these can be used on earlier releases.

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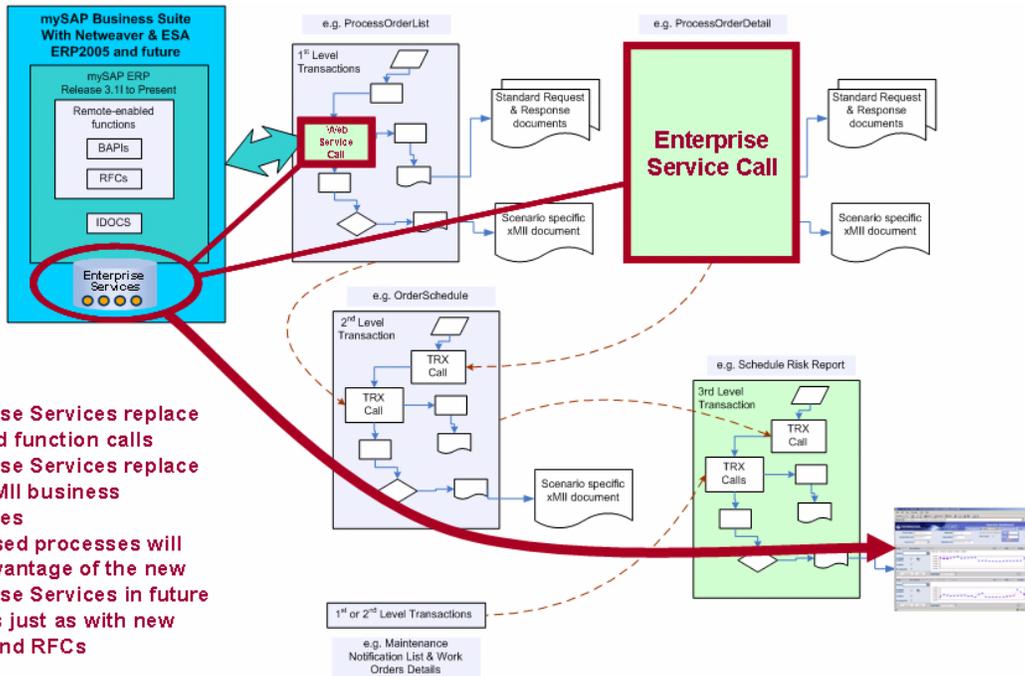
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- Enterprise Services replace standard function calls
- Enterprise Services replace some xMII business processes
- xMII-based processes will take advantage of the new Enterprise Services in future releases just as with new BAPIs and RFCs