

Migration Manager

Tivoli® software



Agenda

- Introduction
- Architecture
- Migration tasks
- What's new in Maximo 7.5 Migration Manager
- Migration Collections
- Usability improvements
- Logging and Troubleshooting
- Resources

What is Migration Manager?

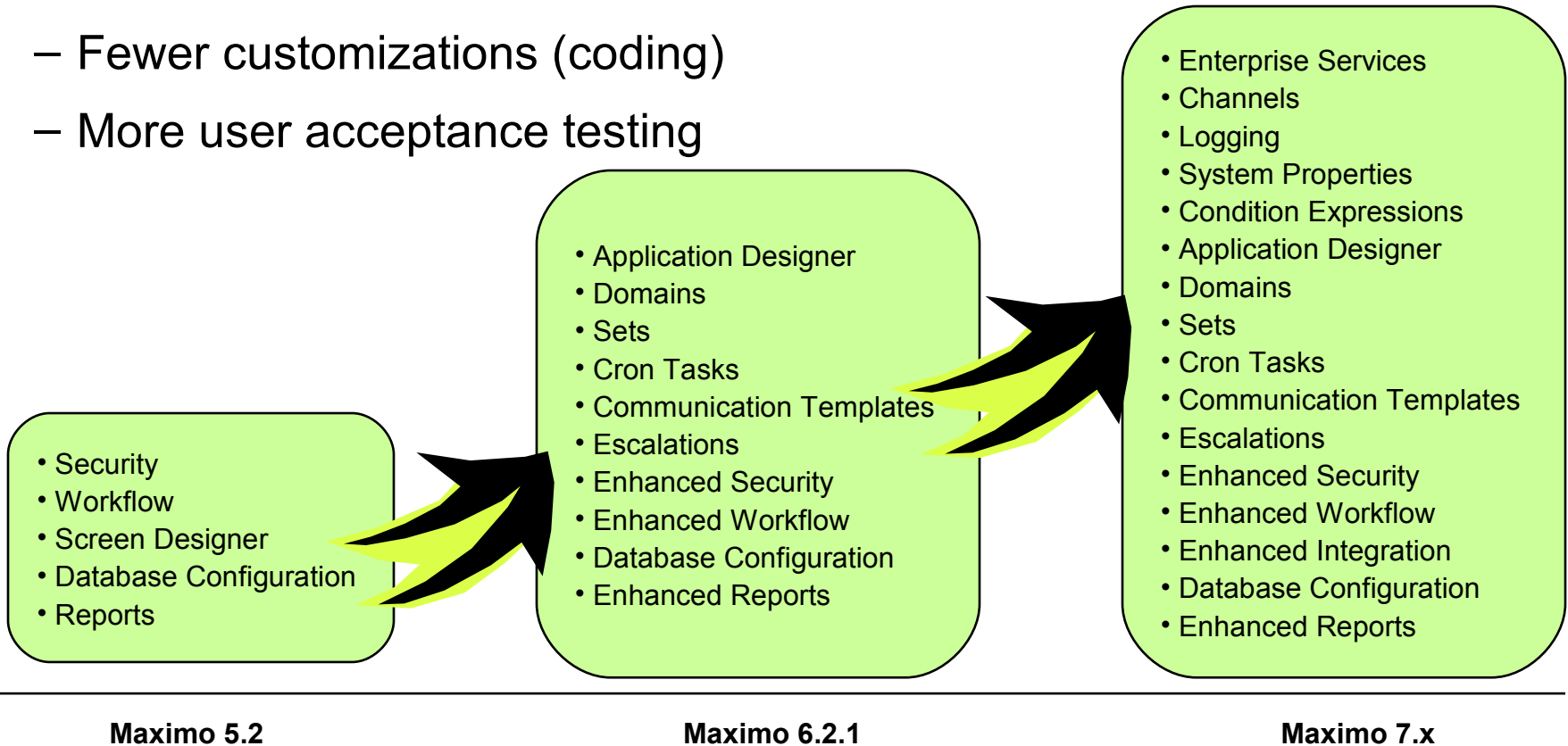
- Vision and scope: Configuration migration between Maximo environments at same release level
 - Pre-production to production
- Support standard rollout environments
 - DEV->TEST->PRODUCTION
- Purpose:
 - Seed a new product environment with all the configurations created for a particular client production rollout
 - Periodically promote configurations implemented after initial rollout
- First released with Maximo 7.1.0

Benefits

- **Lower implementation costs**
 - Standardized process to promote product configurations
 - Reuse of existing Maximo technology
 - No separate tools or utilities
 - Automation of many manual tasks
- **Adhere to IT policies and regulations**
 - Adapt the migration to implementation-specific needs
 - Plan for and control migration tasks
 - Track and report on migration tasks

Configuration Applications

- Maximo rollout involves more configuration than ever before
 - Fewer customizations (coding)
 - More user acceptance testing



Configuration applications in Maximo

Supported Base Services configurations

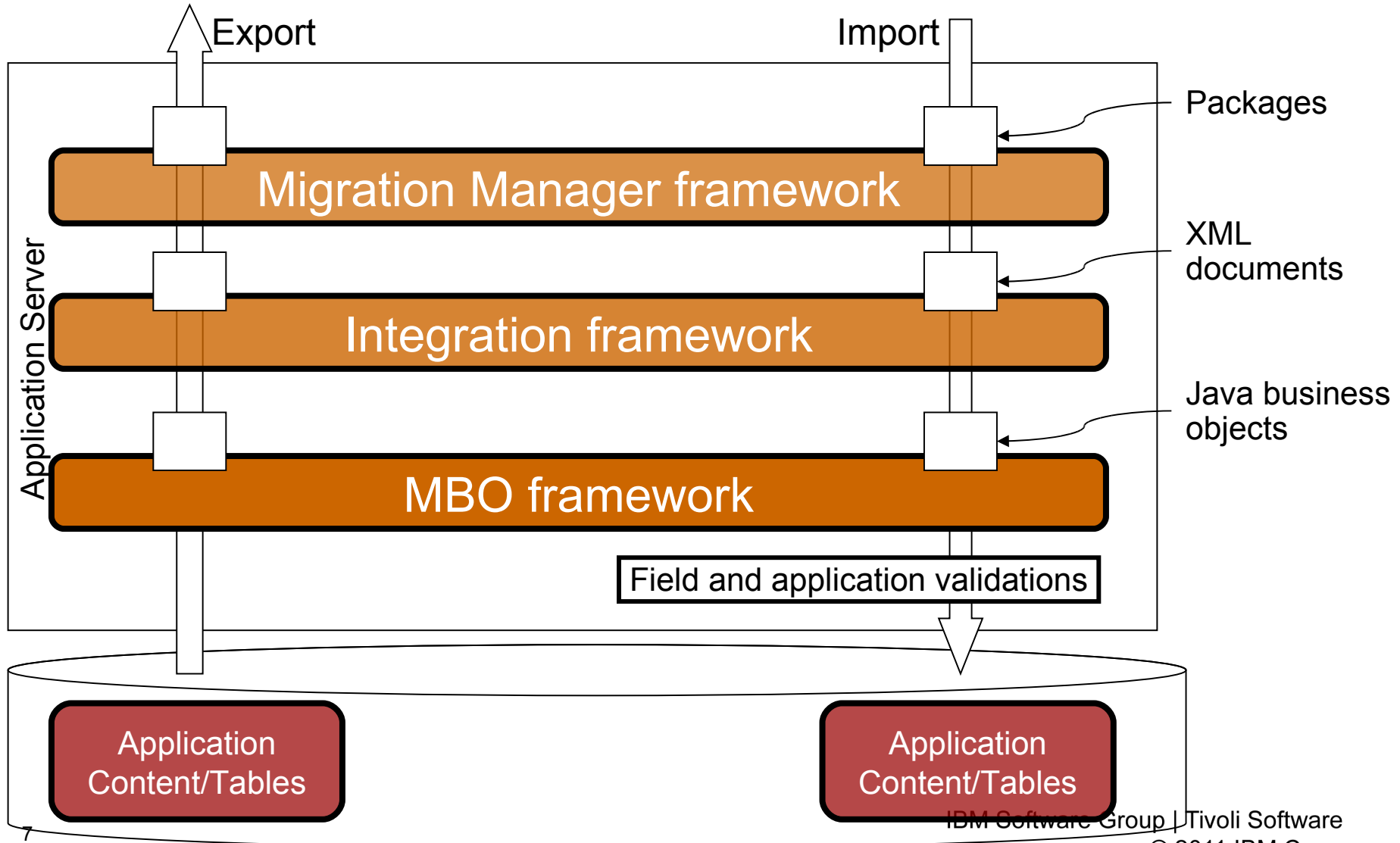
- In 7.x release, migration focus is on:
 - System Configuration
 - Integration
 - Security
 - Reporting

Queries *	Cron Task Setup	Web Service Interactions *
Start Center Templates	E-mail Listeners	Web Services Library *
System Properties	Object Structures	External Systems
Logging	Automation Scripts *	Sets
Domains	Security Groups	Organizations
Database Configuration	Users	Calendars
Application Designer	Launch in Context	People
Communication Templates	Publish Channels	Person Groups
Actions	Invocation Channels	Conditional Expression Manager
Roles	Enterprise Services	KPI Manager
Escalations	End Points	Report Administration
Workflow Designer		

* Added in Maximo 7.5

Architecture

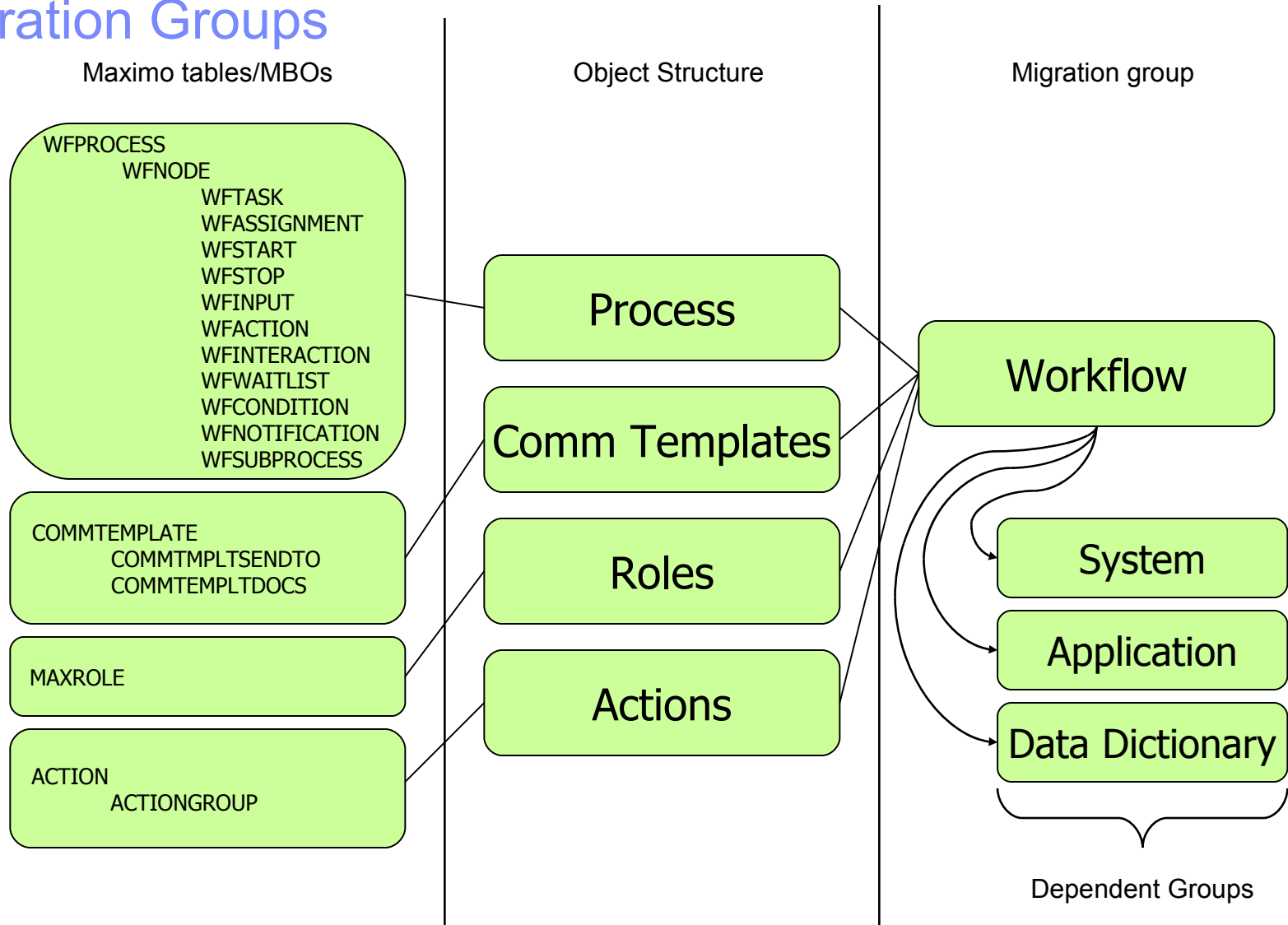
- Migration Manager leverages Tpaee frameworks



Migrating product configurations

- Product configurations are treated as content
- Two types of content:
 - Content in database
 - Content outside database
- Content in database
 - Typically tables and records in the Maximo schema
 - Maximo encapsulation of a table: Maximo Business Object (MBO)
- Content outside database
 - Typically files on file system
 - Must be built into an Enterprise Archive (EAR) and deployed into application server

Organizing Database Content – Object Structures and Migration Groups

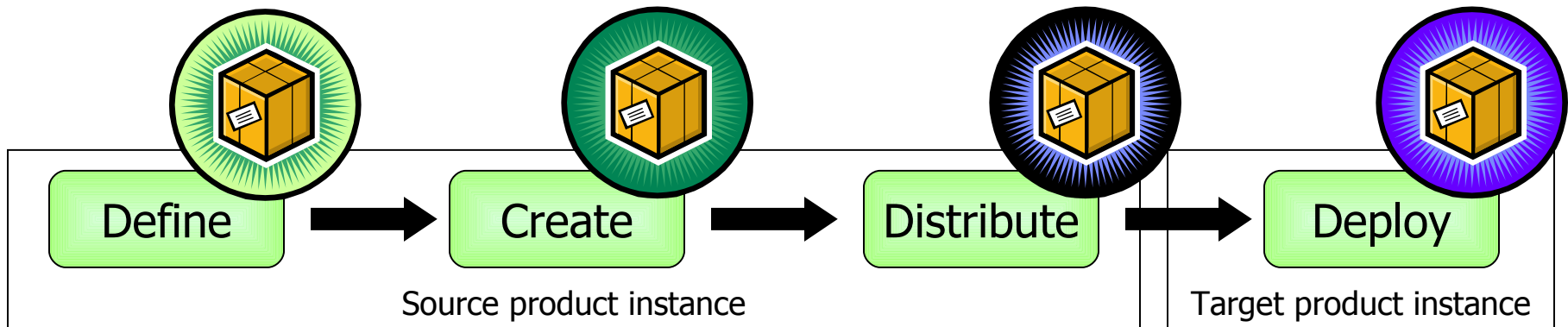


Organizing Content outside the database

- Files that must be part of Maximo EAR
 - Deployed into the application server
 - .class, .jar, .properties, .xml
- Called 'compiled sources'
- Multiple 'compiled source' files can be consolidated into ZIP file for migration

Content migrated in packages

- Package
 - Package is a container for product configuration content
- Package has a life-cycle; package is:
 - Defined
 - Created
 - Distributed
 - Deployed



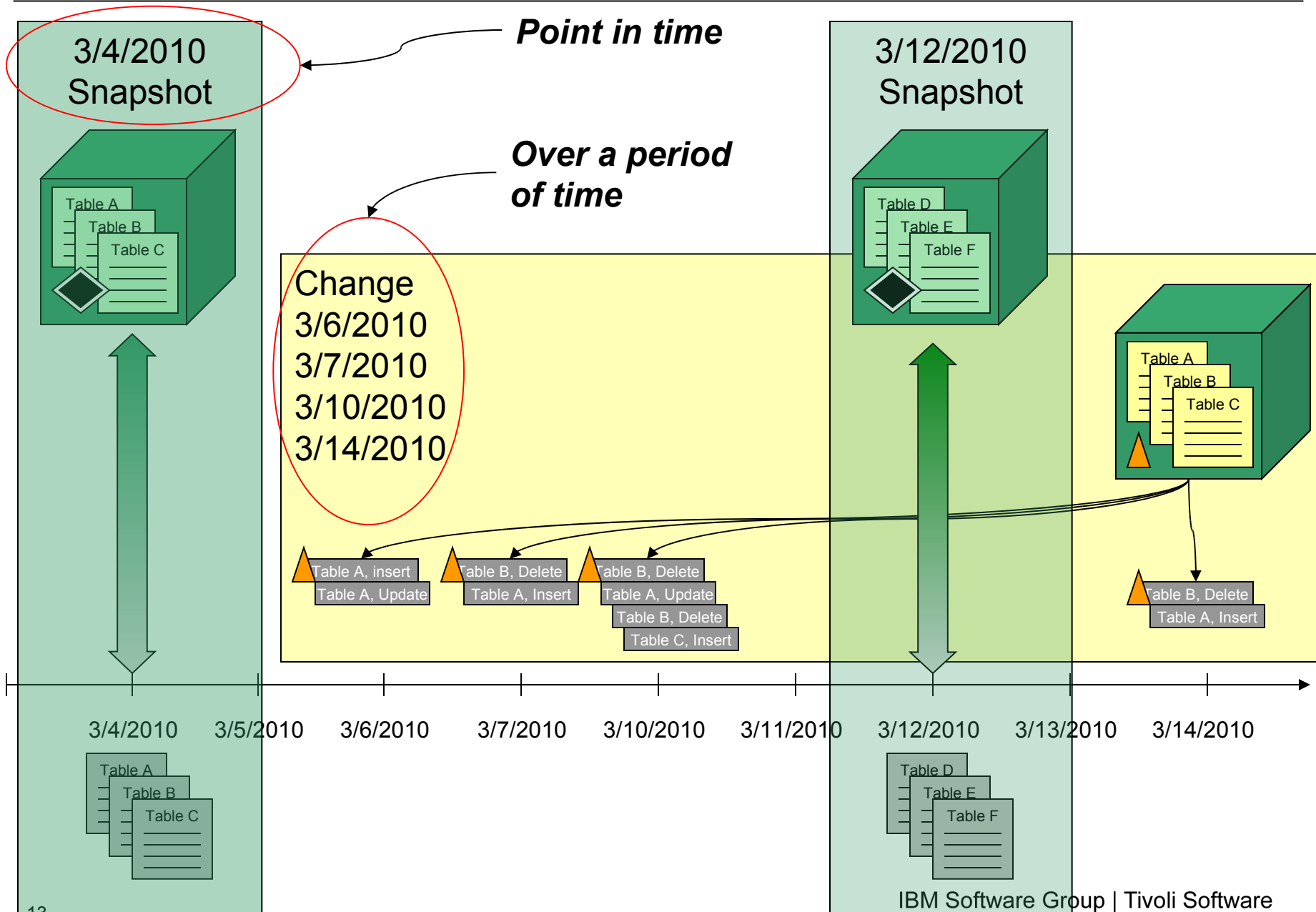
Types of packages

■ Snapshot

- “As is” configuration information collected for a package on demand
- Package defined after the fact

■ Change

- Configuration information collected over a period of time
 - Inserts, updates and deletes occurring since package was activated
- Configuration records created, modified, or deleted by designated users
- Package defined before changes occur



Package Definition

Package Creation

Package Distribution

Package Deployment

Defining a package

- User-driven task to identify the contents of a package in source environment
 - Specify the type of package
 - Snapshot or change
 - Specify migration groups
 - Specify compiled sources

Migration Groups

Migration Group name and order

Find:

List Migration Group Migration Group Structure

Migration Group: Business Process Management

Migration Group Order:

Internal?

Member object structures and object structure order within group

Migration Objects for BPM Filter 1 - 5 of 7

Migration Object	Description	Migration Object Order	Internal
▶ DMACTION >>	Action migration object for Migration Manager	1	<input checked="" type="checkbox"/>
▶ DMACTIONGR >>	Actiongroup migration object for Migration Manager	2	<input checked="" type="checkbox"/>
▶ DMROLE >>	Role migration object for Migration Manager	3	<input checked="" type="checkbox"/>
▶ DMCOMMTEM >>	Communication template migration object for Migration Manag	4	<input checked="" type="checkbox"/>
▶ DMESCALATIC >>	Escalation migration object for Migration Manager	5	<input checked="" type="checkbox"/>

Dependent groups for the given migration group

Dependency Filter 1 - 6 of 6

Dependent Migration Group	Description
▶ APPLICATION	Application
▶ DATADITIONARY	Data Dictionary
▶ DOCUMENTLIBRARY	Document Library
▶ FUNCTIONAL	Functional
▶ RESOURCES	Resources
▶ SYSTEM	System

Find: Select Action

Package Definition Name:

Source:

Type:

Batch Size:

Change Role:

Status:

Change By:

Change Date:

Processing Action:

Package definition with header

Migration Groups Filter > 1 - 1 of 1

Migration Group	Description
BPM	Business Process Management

Migration groups in the definition

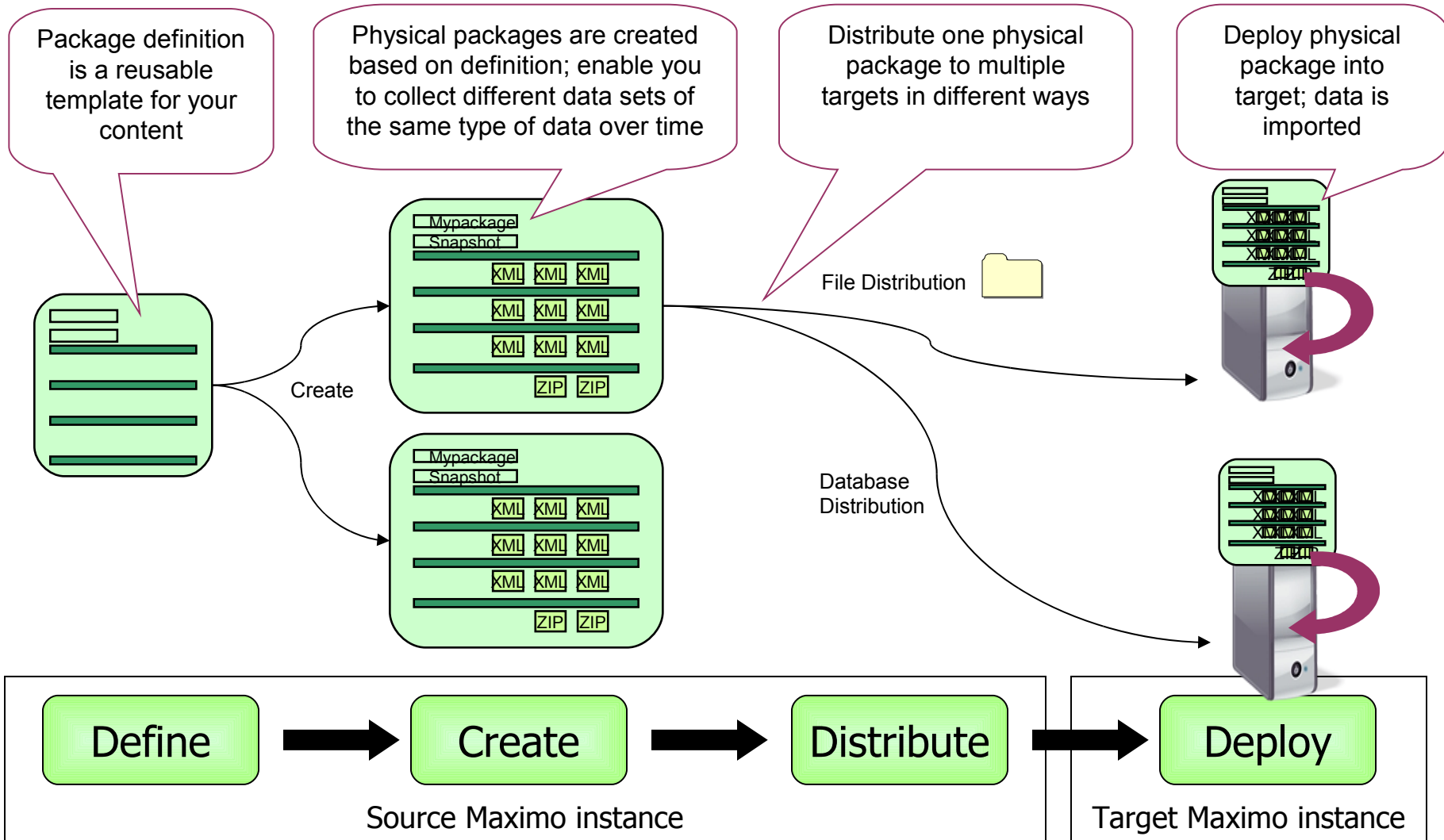
Details

Migration Group:

Dependencies for BPM Filter > 1 - 6 of 6 [Download](#)

Dependent Migration Group	Description
APPLICATION	Application
DATADICTIONARY	Data Dictionary
DOCUMENTLIBRARY	Document Library
FUNCTIONAL	Functional
RESOURCES	Resources
SYSTEM	System

Package definition and physical packages



Package Definition

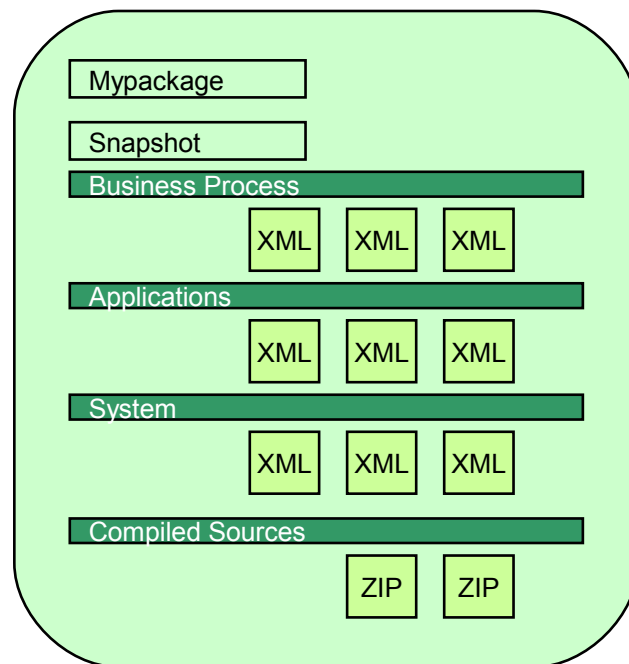
Package Creation

Package Distribution

Package Deployment

Creating a package

- Package definition only defines the content
- Actual configuration data collection done during package creation
- User-driven task to collect configuration information and compiled sources based on definition
 - Long-running task depending upon amount of information to be collected
 - Package is created in the form of records in a staging table



Creating a package - Manifest

- Manifest is used to determine if package can be deployed in target
 - Viewable from Migration Manager application
- Manifest contains:
 - Package information
 - Source environment version information
 - RDBMS
 - Maximo and Industry Solution versions
 - Migration objects in package and record count for each
 - Optional Readme information entered in source environment by package creator that assists in planning deployment into target

Find: Select Action

List Package Definition Package Definition Structure Distribution **Package** Messages Comparison

Package Definition Name:

Source:

Type:

Batch Size:

Change Role:

Status:

Click Create to extract content into the package

Packages Filter 1 - 1 of 1

Package	File Name	Status	Status Date
JHG_LINEARCALC_ibm-rhkb7omky1r_MX75_MAXIMO_2012	JHG_LINEARCALC_ibm-rhkb7omky1r_MX75_MAXIMO_20120315133503.zip	CREATE	3/15/12 1:37 PM

Manifest Status History Distribution Tracking

```
Manifest: <?xml version="1.0" encoding="UTF-8"?>
<PKGDEFMANIFEST>
  <PKGDEFNAME>JHG_LINEARCALC</PKGDEFNAME>
  <SOURCE>ibm-rhkb7omky1r_MX75_MAXIMO</SOURCE>
  <PACKAGE>JHG_LINEARCALC_ibm-rhkb7omky1r_MX75_MAXIMO_20120315133503</PACKAGE>
  <BASELANGUAGE>EN</BASELANGUAGE>
  <TEXTSEARCHENABLED>1</TEXTSEARCHENABLED>
  <CREATEBY>WILSON</CREATEBY>
  <CREATEDATE>2012-03-15T13:35:03-04:00</CREATEDATE>
  <COMPONENTVERSION>
    <RDBMS>Oracle : Oracle Database 11g Release 11.2.0.1.0 - 64bit Production</RDBMS>
    <COMPONENT NAME="Maximo Unit Test Tool" VERSION="Maximo Unit Test Tool 7.5.0.0 Build 20111016-2230 DB Build V7500-01" />
    <COMPONENT NAME="Tivoli's process automation engine" VERSION="Tivoli's process automation engine 7.5.0.1 Build 20111016-2230 DB Build V7501-134" />
    <COMPONENT NAME="IBM Maximo Calibration" VERSION="IBM Maximo Calibration 7.5.0.0
```

Package manifest lists product versions, content details and record counts

Package Definition

Package Creation

Package Distribution

Package Deployment

Distributing a package

- User-driven task to distribute a package to target environments
- Distribute to:
 - Database
 - Remote database in the target environment
 - File
 - Migration Manager-generated file copied to designated folder
- Distribution through Migration Manager application

Manage Targets

Define the targets for which the current product environment will act as source. Packages can be distributed from source to target in two ways: direct to target database or to file. If distributing direct to database, please provide values for the Database URL, User Name, Password and Schema fields. The Database URL should be in the form of a valid JDBC URL. If distributing to file, please provide a value for File Path only.

Target Name	Description	Type	Database URL or File Path
TGT		FILE	c:\temp

Target Details

Target Name: TGT
* Type: FILE
Database URL or File Path: c:\temp
Driver Name:
User Name:
Password:
Schema Name:

Change By: WILSON
Change Date: 1/31/12 2:00 PM

Select Value

Value	Description
DATABASE	Database distribution
FILE	File distribution

Define and manage multiple targets

Select FILE or DATABASE distribution

Provide target details

Package Definition

Package Creation

Package Distribution

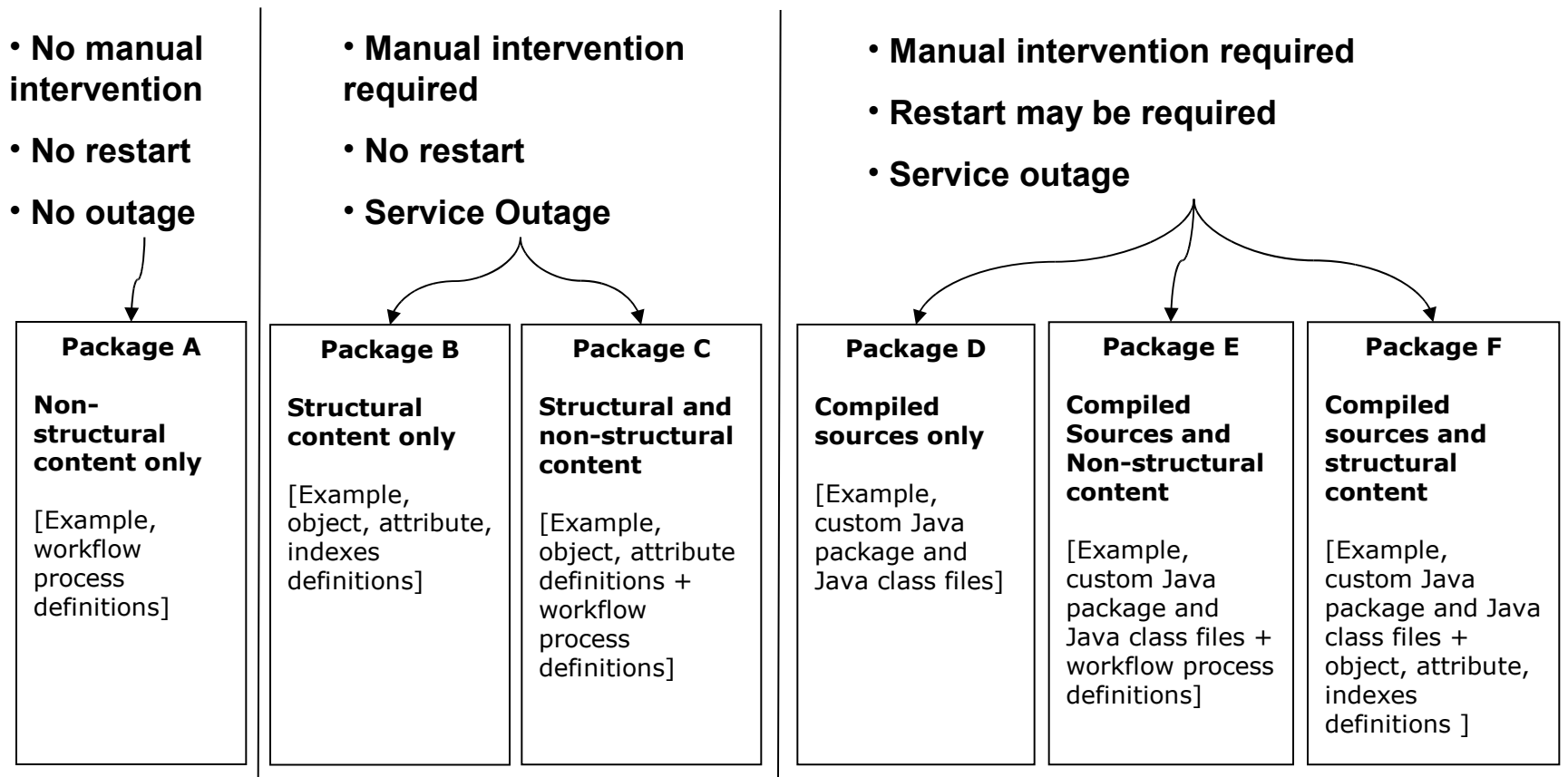
Package Deployment

Deploying a package

- User-driven task to process the contents of a package in a target environment
 - Process metadata associated with package
 - Process compiled sources
 - Apply structural changes to Maximo tables based on data dictionary metadata
 - Process other configuration data
- Package deployed through Migration Manager application

Deployment Paths

- Deployment steps can vary depending upon the contents of package
- Deployment steps determine if service outage will occur
 - Deployment should be scheduled to occur during maintenance windows



Deploying a package – Pre-requisites

- Backup the database before initiating the deployment of a package
 - Migration Manager application will warn
 - If administrator chooses to continue, a log statement will record the fact
- Only one package can be deployed at a time
 - To preserve integrity of structural changes

Select the specific package

Specify if the package is to be previewed only

Deploy P

Please select a single package for deployment from the available packages.

Preview? Do you have a current backup?

Include Database Configuration Commands? Skip prompts to create attribute rules?

Rollback Point: Rollback every record

Packages Filter > 1 - 2 of 2 Download

Package	Type	Create Date		
JHG_LINEARCALC_ibm-rhkb7omky1r_MX75_MAXI MO_20120315123350	FILE	3/15/12 12:33 PM		
UHG_MOBILE_dbasp8246_MAXATTS_MAXIMO_20120 727114407	FILE	7/27/12 12:44 PM		

Deploy Close

Click Deploy to begin deployment of package contents

Find: Select Action [Icons]

List Package Definition Package Definition Structure Distribution **Package** Messages Comparison

After deployment completes, you are brought to the Packages tab

Package Definition Name: Package containing Data Dizziness Part II configurations

Source:

Type:

Batch Size:

Change Role:

Change By:

Change Date:

Processing Action:

Packages [Filter](#) [Download](#)

Package	File Name	Status	Status Date
DDCHGPKG ibm-rhkb7omky1r MX75 MAXIMO 2011122412		DEPLOYED	12/24/11 2:22 PM

Check the status of the package deployment

Manifest:

```
<?xml version="1.0" encoding="UTF-8"?>
<PACKAGEMANIFEST>
<PACKAGEHEADER>
<PKGDEFNAME>DDCHGPKG</PKGDEFNAME>
<SOURCE>ibm-rhkb7omky1r_MX75_MAXIMO</SOURCE>
<PACKAGE>DDCHGPKG_ibm-rhkb7omky1r_MX75_MAXIMO_20111224122925</PACKAGE>
<README>This package contains:

1. Escalation SRDESC
2. Action Group SRDDACTIONGRP
3. Actions SRDDACTIONGRP, SRDDACTIONJAVA
4. Action Launch Point SRDDACTIONJAVA
5. Automation Script SRDDACTIONJAVA

Admin Mode is NOT required.</README>
<BASELANGUAGE>EN</BASELANGUAGE>
<TEXTSEARCHENABLED>1</TEXTSEARCHENABLED>
<CREATEBY>WILSON</CREATEBY>
<CREATEDATE>2011-12-24T12:29:25-05:00</CREATEDATE>
<COMPONENTVERSION>
<RDBMS>Oracle : Oracle Database 11g Release 11.2.0.1.0 - 64bit Production</RDBMS>
```

ADMIN MODE

- New for Maximo 7.1
 - Reduces server downtime while controlling access to Maximo
- Restricted access to Maximo
 - No cron tasks
 - No end user sessions (except designated administrator logins)
 - No event listeners
- Required for:
 - Structural database configuration with configdb
 - Deployment of packages containing structural changes
 - Deployment of packages containing presentation XML
- Benefit: Ensure no changes are made while package is being created or deployed

Protecting against deployment failures

■ Proactive approach

– Database backups

- Most clients already implement periodic/daily backups of production
- Ability to restore to previous state

– Integrity Checker

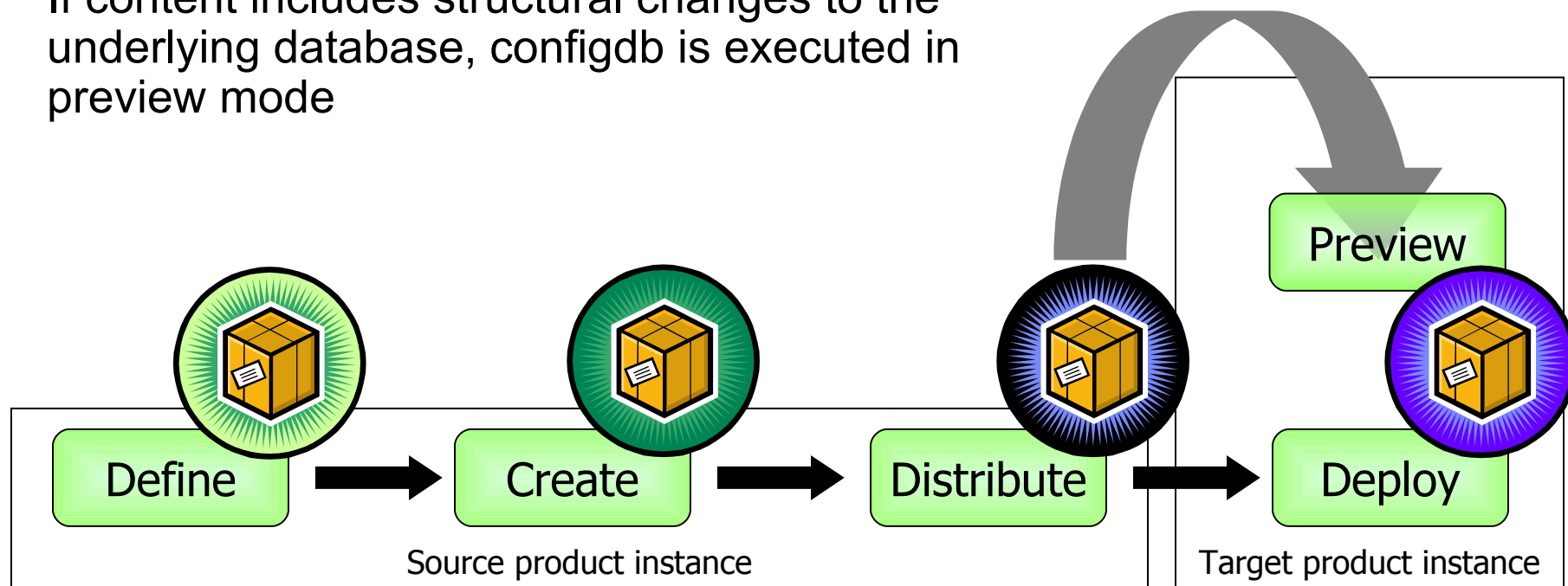
- Integrity Checker tool ships with Maximo
- Run Integrity Checker prior to and after deployment
- Address all errors and warnings issued by Integrity Checker

```
ERROR -- Column WFTOOLBAR.TOOLBARLOCATION is mapped to domain  
TOOLBARLOCATIONS, but is not defined the same Fri Mar 07 16:27:13 EST  
2008
```

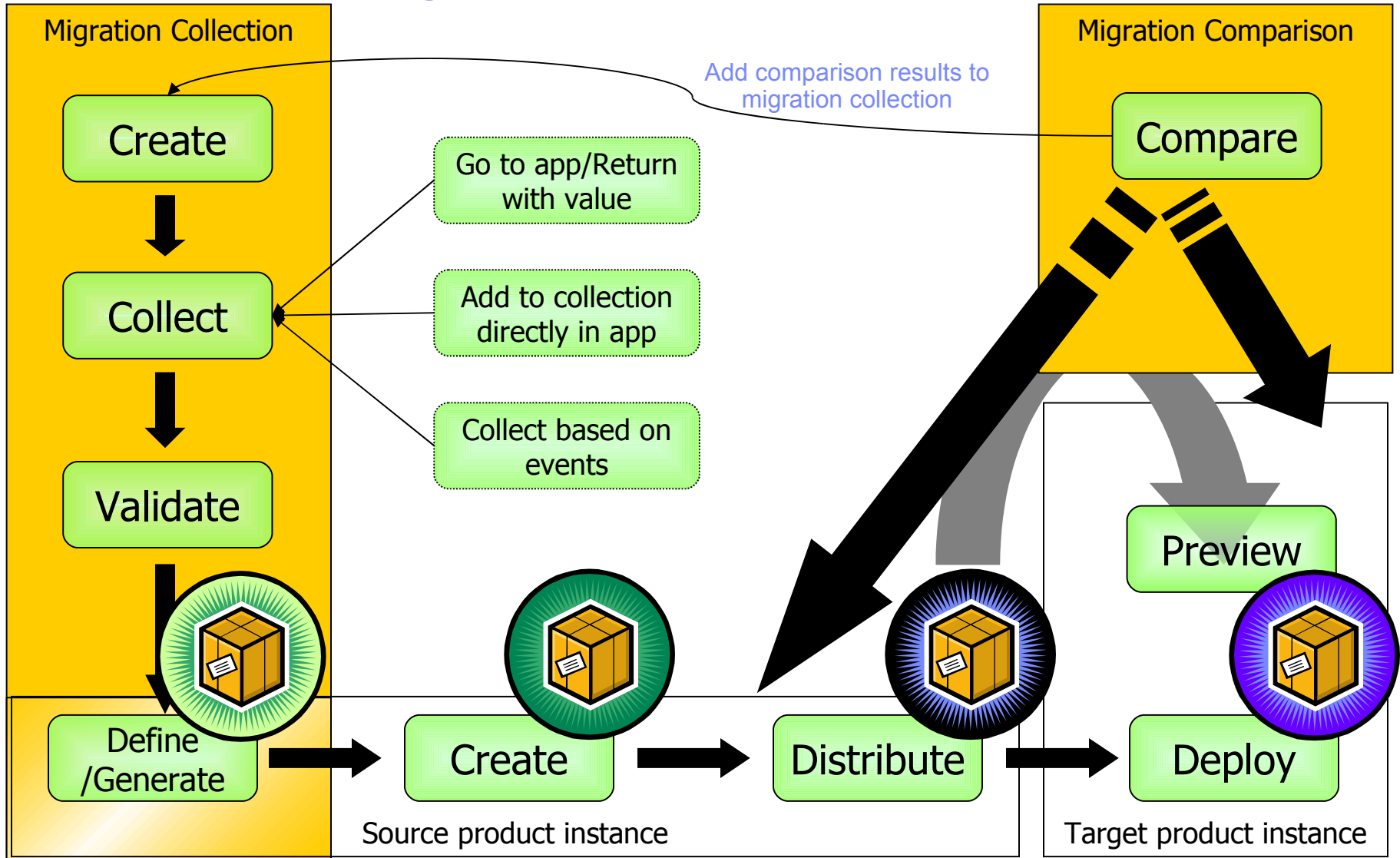
```
          WFTOOLBAR.TOOLBARLOCATION is UPPER(10).      TOOLBARLOCATIONS is  
ALN(10). Fri Mar 07 16:27:13 EST 200
```

Maximo 7.1.1.6 - Preview feature

- Enables administrators or implementers to perform a dry run of content in migration packages
- Helps identify potential data validation errors ahead of full deployment
- Results of data validation are captured in a preview log file
- If content includes structural changes to the underlying database, configdb is executed in preview mode



Maximo 7.5 - Migration Collections and Comparison



Migration Manager strategy for Maximo 7.5

- Provide more user-friendly, flexible toolset
- Accelerate migrations completing production roll-outs faster
 - Reduce deployment time
- Multiple options to identify and collect system configurations
 - ‘Pick and choose’ approach
 - Comparison approach
- Multiple options to migrate system configurations
 - Snapshots
 - Change
 - Migration Collections
- Improve usability of the Migration Manager application
 - Fewer clicks to complete key tasks

Migration Collections

Motivation:

Too costly to maintain external spreadsheets that record configuration activities. Yet, it is a pre-requisite to better manage migration tasks.

Client feedback:

Provide a mechanism where my team can pick and choose the configurations to be migrated. Snapshot packages force my team to be deeply aware of tables, columns and SQL criteria. Change packages force my team to be extremely careful with the changes they make in development.

Solution:

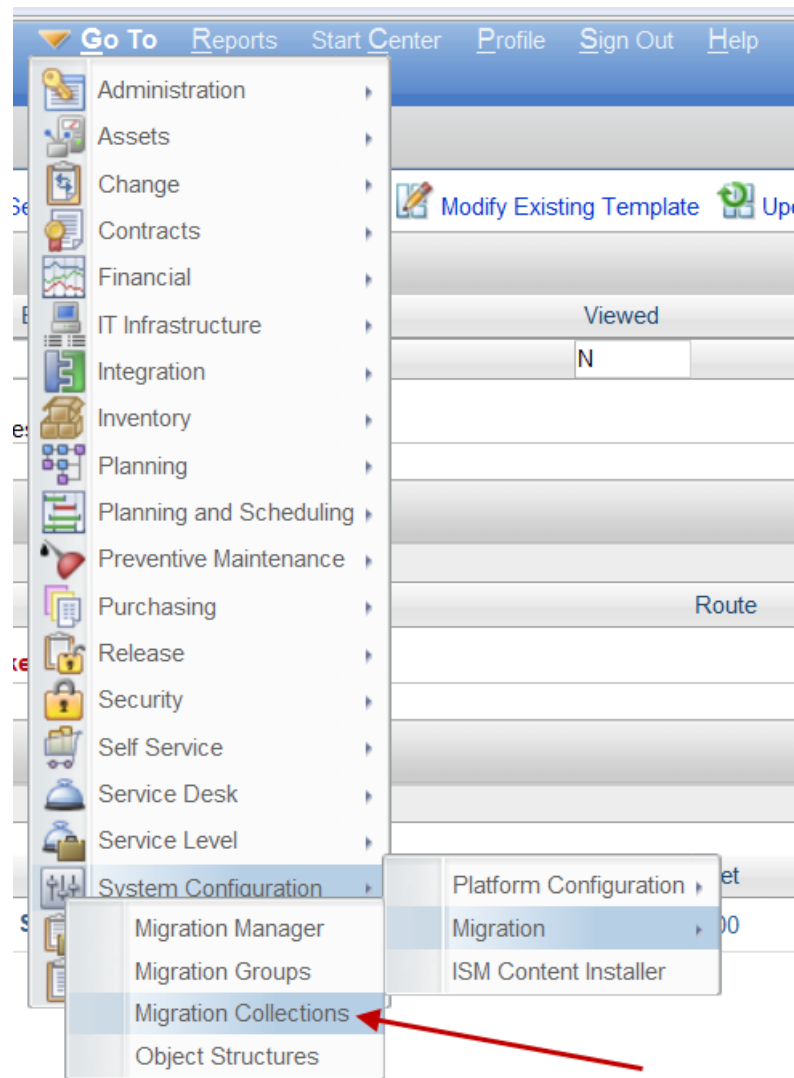
- Decouple collection of configurations from migration (“Pick and choose”)
- Use Tpa capabilities to collect configurations by application
- Validate the configurations for completeness, allow developers and implementers to make adjustments
- Automate the creation of package definition
- Goal: Accelerate package design

Migration Collections – Key Features

- Multiple mechanisms to identify and collect system configurations
- Validation of collected configurations for completeness
 - Trim or expand collection based on results of validation
- Define, enable or disable rules that drive validations
- Export or import collection entries with few clicks
 - Enables a implementation where system configurations must be placed in version control systems
- Generate package definitions
 - Package definition rules determine number of package definitions required

Migration Collections application

- Go To->System Configuration->Platform Configuration->Migration->Migration Collections
- Standard power application with four tabs
 - List
 - Migration Collection
 - Validation Results
 - Package Definitions

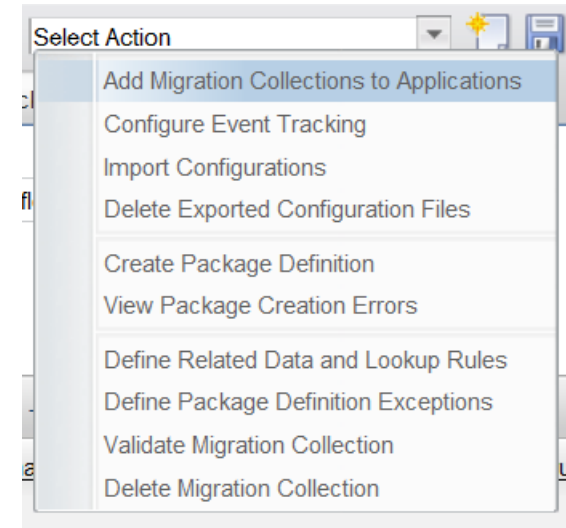


Migration Collections application

- No out of the box migration collections
- Migration collection created by implementers / developers in development environments
- Migration collection can be public (shared) or private
- Migration collections are oriented towards Migration Manager supported applications
 - Unlike traditional migration groups and object structures
- Migration collection can be populated using any combination of the following four paths:
 - Go to <Application> and return with Value (single record)
 - Enable Migration Collection toolbar button in target application and collect multiple records into chosen collection
 - Enable event-based subscription to one or more applications and automatically collect configurations into a chosen collection
 - Import system configurations in the form of Maximo XML directly into an empty collection

Migration Collections application

- Select Action menu items grouped as:
 - Configuring data collection from applications
 - Add Migration Collections to Applications
 - Configure Event Tracking
 - Exporting / Importing configurations
 - Import Configurations
 - Delete Exported Configuration Files
 - Package definition options
 - Create Package Definition
 - View Package Creation Errors
 - Validation options
 - Define Related Data and Lookup Rules
 - Define Package Definition Exceptions
 - Validate Migration Collection



Migration Collections application – Application orientation

- Collection of configurations is oriented by application
- Candidate applications are identified dynamically based on the availability of system-defined Migration Manager object structure
- If exploiters place additional system-defined Migration Manager object structures, they will be picked up automatically thereby enabling more applications to participate in Migration Collections
- A collection entry may initially be associated with system-defined object structure but can be switched to a user-defined object structure in the Migration Collection tab
 - Impact on validation based on content of user-defined object structure

Migration Collections

Bulletins: (0) Go To Reports Start Center Profile Sign Out Help

Find: [Search Box]

List Migration Collection Validation Results

Collection Name: **DEVACOLLEC** Is Public? Owner: **WILSON** Create Date: 3/6/12 4:24 PM

Refresh Collection Objects

Configurations: Filter 1 - 5 of 5 Download

Application	Primary Keys	Object Structure	Create By	Create Date	Create Mode
ACTION	ACTION=INCIDENT CREATEPROBLEM	DMACTION	WILSON	6/6/12 3:27 PM	MANUAL
ROLE	MAXROLE=SRTGRBCUSR	DMROLE	WILSON	3/6/12 4:34 PM	MANUAL
ROLE	MAXROLE=SRTGAFCSUR	DMROLE	WILSON	3/6/12 4:34 PM	MANUAL
COMMTMPLT	TEMPLATEID=SRTGSOL	DMCOMMTEM	WILSON	3/6/12 4:24 PM	MANUAL
			WILSON	8/5/12 10:07 PM	

Details

Application: [Dropdown]

Migration collection has a name and owner

Configurations are placed in the collection

Most commonly used method to gather configurations is to go to application and bring back the desired configuration

Select Application

Applications: Filter 1 - 5 of 37 Download

Application	Description
ACTION	Actions
ASSET	Assets
ASSETCAT	Classifications
AUTOSCRIP	Automation Scripts
CALENDR	Calendars

Cancel

Migration Collections

Collection Name: DEVACOLLEC Is Public?

Owner: WILSON Create Date: 3/6/12 4:24 PM

Configure Event Tracking

You can configure a migration collection so that events are added to it when they occur. Specify an application and an object structure to identify the events that are added. You can restrict the events that are added by event type and by role.

Collection Role:

Application	Object Structure	Add Event	Update Event	Delete Event
ACTION	DMACTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ROLE	DMROLE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Application: Object:

Primary Keys:

Object Structure:

Create Mode:

Refresh Collection Objects Download

Download Exported Configurations Export Configurations New Row

The screenshot shows the Tivoli Migration Collections web application. A modal dialog titled 'Configure Event Tracking' is open, displaying instructions and a table for selecting applications and object structures. Callouts highlight key features: automatic tracking of configurations, selection of application and object structure, and the automatic marking of the 'Create Mode' field.

Configurations can be automatically tracked and added to collection

Select application, object structure and events to track

Create Mode will be marked automatic

Migration Collections application – Validation scan

- Validation scan determines the completeness of data for the purpose of migration
- Validation scan begins with the set of entries in the migration collection
 - A migration collection may be empty under certain conditions
- Validation scan employs rule sets to determine related data
 - Data Dictionary meta-data
 - Related Data rules
 - Lookup rules
- Related Data rules identify secondary data in an application
 - Example, relationships for a business object
 - There is no independent application managing this data
- Lookup rules identify data that has no dedicated management user interface at all
 - Example, MAXVARs, Start Center Templates

Migration Collections application – Validation scan

- Validation scan initiated by user
 - Not mandatory, but strongly recommended
- Runs as a background task on application server
- Validation scan progress posted to client popup dialog
 - Dialog can be closed and re-opened as needed
- Long running process dependent upon:
 - Number of collection entries
 - Quantity and quality of data dictionary meta-data
 - Number of enabled related rules
 - Number of enabled lookup rules

Migration Collections application – Validation scan

- Three types of validation scan results are possible
 - Orphan collection entries (system configuration no longer exists)
 - Duplicate collection entries (system configuration re-created)
 - Related data not present in the collection
- Users can delete orphan and duplicate entries
- Users can review, trim related data records and add to the collection

Migration Collections application – Validation scan

- Validation can be run as many times as needed
- Each validation run will automatically delete the current set of related data
- A validation background task cannot be terminated
 - Will either complete or error out
 - Errors may occur primarily if data dictionary meta-data is badly defined
 - Error will be reported in the popup dialog
 - Additional details can be gathered by enabling DEBUG logging
- If a migration collection is deleted, all related data found are also deleted
- If a validation background task fails, use Cron Task Setup application to review errors and delete background task
 - Execute Cron Task Admin Job Queue action to bring up background tasks
 - Look for jobs where Job Name='DMCOLLECTION'

Validation Results tab displays all the results of the validation scan

Orphans and duplicates in the collection are identified

List Migration Collection **Validation Results**

Collection Name: SUNTRUST1 Is Public:

Owner: WILSON Create Date: 10/11/2011 10:49 AM

Validation Results Filter 0 - 0 of 0 Download

Result	Application	Primary Keys	Create By	Create Date	Create Mode
...No rows to display...					

Delete Orphans Delete Duplicates Dele

Related Configurations Filter 6 - 10 of 93 Download

<input type="checkbox"/>	Collection Configuration Primary Keys	Related Application	Related Object Structure	Related Object Name	Related Configuration Primary Keys
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	PROCESSNAME=SR, PROCESSREV=11	CONFIGUR	DMMAXOBJEC	MAXOBJECTC	OBJECTNAME=WFINTERACTION
<input type="checkbox"/>	PROCESSNAME=LSNRBP, PROCESSREV=1	CONFIGUR	DMMAXOBJEC	MAXOBJECTC	OBJECTNAME=INBOUNDCOMM
<input type="checkbox"/>	PROCESSNAME=LSNRBP, PROCESSREV=1	PERSON	DMPERSON	PERSON	PERSONID=REDDING
<input type="checkbox"/>	PROCESSNAME=LSNRBP, PROCESSREV=1	PERSON	DMPERSON	PERSON	PERSONID=CLINTON
<input type="checkbox"/>	PROCESSNAME=LSNRBP, PROCESSREV=1	PERSON	DMPERSON	PERSON	PERSONID=MARTELL

Delete All Related Configuration Entries Add All Related Configuration Entries to Migration Collection Delete Related Configuration Entry Add Related Configuration Entry to Migration Collection

Use buttons in the Related Configurations tab to add to collection or trim down validation results

Related data not in the collection are identified

Migration Collections application - Rules

- Validation scan executes in three phases:
 - Data Dictionary meta-data
 - Related Data Rules
 - Lookup Rules
- Several Related Data Rules out of the box
 - Basis: Independent Migration Manager object structure exists, however there is no independent management application
 - Enabled out of the box
- Additional related data rules can be defined
- Individual rules can be enabled or disabled as needed
 - Disabled rule will prevent related data from being picked up

Related Data Rules user interface

Define Related Data and Lookup Rules

Related Data Rules | Lookup Rules

Related Data Rules | Filter > | 1 - 5 of 7 | Download

Rule Name	Description	Primary Object	Related Object	Userdefined	Enabled
MAXRELATIO	Collect all relationships for the object	MAXOBJECTI	MAXRELATIO	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MAXSEQUEN	Collect all sequence for the object	MAXOBJECTI	MAXSEQUEN	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SIGOPTFLAG	Collect all sigoptionflag for the object	MAXAPPS	SIGOPTFLAG	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CTRLGROUP	Collect all sequence for the object	MAXAPPS	CTRLGROUP	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MAXLOOKUP	Collect all sequence for the object	MAXATTRIBU	MAXLOOKUP	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Rule Name: Userdefined?

Primary Object: Enabled?

Related Object:

Related Columns | Filter > | 1 - 2 of 2 | Download

Primary column	Related column
<input type="text" value="OBJECTNAME"/>	<input type="text" value="TARGET"/>
<input type="text" value="ATTRIBUTENAME"/>	<input type="text" value="LOOKUPATTR"/>

New Row

New Row

OK Cancel

Lookup Rules

- Several Lookup Rules out of the box
 - Basis: Independent Migration Manager object structure exists, however there is no user interface for this data
 - All lookup rules disabled out of the box
 - Use only when needed
- Out of the box lookup rules are set up as SQL criteria
- SQL can be executed and results reviewed in rules user interface
 - Results are brought up in popup dialog
- If additional lookup rules need to be defined, popup dialog must be created using Application Designer
 - Popup dialog reference must be placed in Migration Collections presentation XML

Lookup Rules user interface

Define Related Data and Lookup Rules

Related Data Rules | **Lookup Rules**

Lookup Rules Filter 1 - 5 of 7 Download

Rule Name	Description	Primary Object	Userdefined	Enabled
MAXMESSAC	Collect maxmessages	MAXMESSAC	<input type="checkbox"/>	<input type="checkbox"/>
LANGUAGE	Collect language records	LANGUAGE	<input type="checkbox"/>	<input type="checkbox"/>
MAXVARS	Collect maxvars	MAXVARS	<input type="checkbox"/>	<input type="checkbox"/>
DOCTYPES	Collect doctype records	DOCTYPES	<input type="checkbox"/>	<input type="checkbox"/>
MAXMODULE	Collect maxmodule records	MAXMODULE	<input type="checkbox"/>	<input type="checkbox"/>

MAXVARS Collect maxvars Userdefined?

Primary Object: MAXVARS Enabled?

SQL Where: =1

Show Lookup Records

New Row

OK Cancel

Primary business object to lookup (should match primary object of Migration Manager object structure)

MAXVARS

SQL where clause can be changed; last saved clause is applied when rule is executed

Show Lookup Records

Clicking this button brings up a popup dialog showing results that will be identified as related data

Export and import from Migration Collections

- Clients seek quick export and import of system configurations from development environments
 - System configurations are maintained in version control systems
- Migration Collections application enables export and import of different system configurations from single tab
 - XML representation only
- Not intended as generic application export-import
 - Integration Framework enables generic application-based export-import
- Intended to offer developer-friendly mechanism for Tpaee system configuration extraction

Export

- Single configuration export steps:
 1. Place system configuration in chosen collection
 2. Click the Export Configuration button
 3. Save As dialog is presented along with file name
 - Save As dialog behavior depends upon web browser configuration
- Multiple file export steps:
 1. Select multiple records in the collection
 2. Click the Export Configurations button
 3. Verify confirmation message that export was completed
 4. Click the Download Exported Configurations to obtain multiple files one-by-one
 - If the system configuration has been deleted but collection entry exists, export will report error BMXAA7906E

List Migration Collection Validation Results Package Definitions

Collection Name: ITER8CHG Email Listener configs Is Public?

Owner: WILSON Create Date: 5/15/12 10:58 AM

Refresh Collection Objects Download

Application	Primary Keys	Create Date	Create Mode	Entry Exists?
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ COMMTMPL1	TEMPLATEID=LS	5/15/12 11:04 AM	MANUAL	
<input type="checkbox"/> ▶ ACTION	ACTION=LSNRBPCHANGESTATUS	5/15/12 11:03 AM	MANUAL	
<input type="checkbox"/> ▶ ACTION	ACTION=LSNRBPCREATEER	5/15/12 11:03 AM	MANUAL	
<input type="checkbox"/> ▶ ACTION	ACTION=LSNRBPCREATEPROBLEM	5/15/12 11:03 AM	MANUAL	
<input type="checkbox"/> ▶ ACTION	ACTION=LSNRBPCREATEINCIDENT	5/15/12 11:03 AM	MANUAL	

Opening ITER8CHG_DMACTION_20120805234233840.XML

You have chosen to open

ITER8CHG_DMACTION_20120805234233840.XML
which is a: Compressed (zipped) Folder
from: http://localhost:7001

What should Firefox do with this file?

Open with Internet Explorer (default)

Save File

Do this automatically for files like this from now on.

OK Cancel

Save As dialog to save XML representation as file to workstation

Single click icon to extract XML representation

Import

- System configurations can be imported into an empty migration collection
 - Migration Collection application will import and commit system configurations
 - Imported system configurations will become members of the collection
 - If import fails error BMXAA7971E will be reported
 - There may be nested errors from the Integration Framework
 - Out of the box, the import limit is 100 records per XML
 - Option not to place imported configurations into collection

Generating package definitions

- Migration Collections application generates package definition
- Driven by:
 - Current contents of the migration collection
 - Object structures registered with individual entries in the migration collection
 - Package definition exception rules
 - Will determine if multiple packages are required to migrate the collection
- If package definition fails, the errors can be viewed in a popup dialog
 - Package definition errors may occur if data dictionary meta-data badly defined

Generating package definitions

- Package definitions driven by collections are categorized as COLLECTION
- No SQL where clause can be associated
 - Downstream package migration activities driven purely by contents of migration collection
- SNAPSHOT and CHANGE package definition functionality continues to be available
- Package creation, distribution and deployment for all three types of packages exactly the same

Package Definition Name	Description	Type	Status	Package Order
ACTIONGRP	Collection package definition for the ACTIONGRP collection	COLLECTION	APPR	1

Details

Package Definition Name: ACTIONGRP Collection package definition for the ACTIONGRP collection

Source: ibm-rhkb7omky1r_MX7501_MAXIMO

Type: COLLECTION

Batch Size: 100

Status: APPR

Active? N

Change By: WJL

Change Date: 3/1/2011

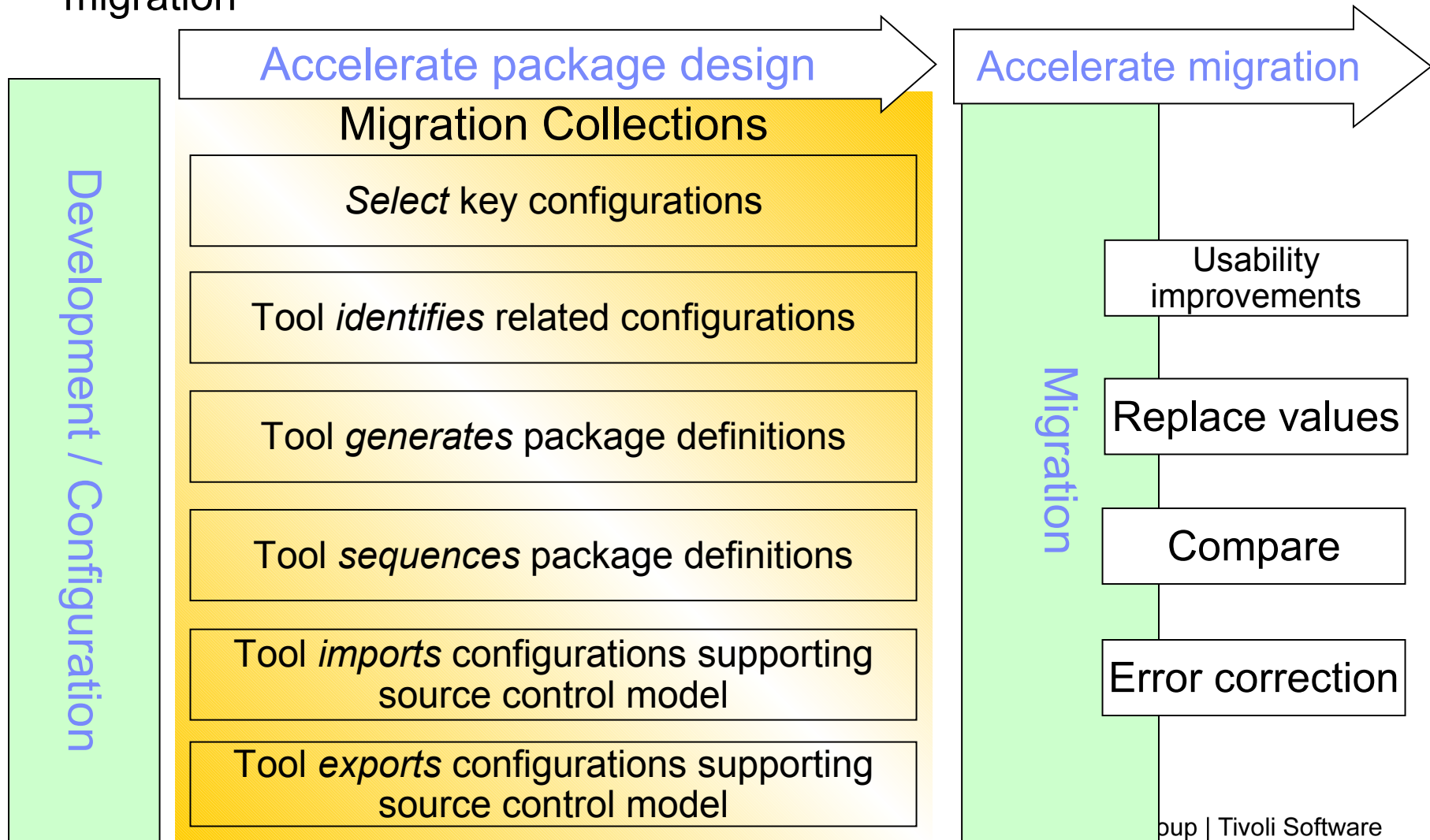
Package definition type is COLLECTION

Package definition corresponds to the current entries in the collection

Navigate to the Migration Manager application to continue migration tasks

Summary

- Migration collection is a bridge between system configuration and migration



Usability Improvements

- Driven by client, implementer, business partner feedback
- Reduce the number of steps required to perform migrations
- Automate tasks where ever possible

Migration Area	Description
Package definition	System property 'mxe.dm.autoapprovepkgdef' can be turned on to set package definition status to APPR automatically. Set to '0' out of the box.
Package definition	Snapshot packages no longer require separate activation step
Package distribution	Distribution record automatically created once a target is chosen to distribute package to
Package deployment	eSig dialog no longer presented – signature option is present but not enabled

Value replacement

- With Maximo 7.1.x, Migration Manager did not have the capability to replace values in flight
 - Could not accommodate migration scenarios where development configurations should not be migrated as-is to production
 - Organization / Site
 - User ID references
 - Date / Time values
- With Maximo 7.5, Migration Manager enables the creation of replacement rules
 - Rules are built on top of existing Integration Framework mapping capabilities
- No out of the box value replacement rules
- Migration Manager application provides management user interface

Value replacement – key features

- In source environment, implementers can flag certain attributes that require value replacement
 - During deployment, Migration Manager prompts user to define replacement rules for such attributes
- In target environment, implementers can:
 - Define value replacement for any Migration Manager object structure
 - Define value replacement for any business object and attribute combination in the object structure
 - Define conditional value replacement
- Value replacement rules are system-wide
 - Will be applied to any inbound package that contains system configuration created with an object structure that has a replacement rule
 - Will be applied to all types of packages (SNAPSHOT, CHANGE, COLLECTION)
- Replacement rules can be enabled or disabled
- Replacement rules can be applied against specific database actions (insert, update or delete)

Add/Modify Replacement Rules

In the Replacement Rules section, specify the sequence for the rules, enable the rules, and specify the field for which you want to provide a substitute value. On the Conditions tab, specify the conditions for the rule.

Replacement rules for MAXENDPOINTDTL

Rule	Description	Sequence	Enabled	User Defined
PORTREPL	Replace port number	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Details

Rule: PORTREPL Replace port number

Sequence: 1

Action: SET

Object Structure: DMMAXENDP

User Defined?
Enabled?
Apply on Primary Object Insert?
Apply on Primary Object Update?
Apply on Primary Object Delete?

Attributes Conditions

Attributes

Field	Replace When Null	Value
VALUE	<input type="checkbox"/>	9000

Details

Field: VALUE

Replace When Null?

Property Name: _____
Value: 9000
MAXVAR: _____
Field: _____

Define replacement rule, provide name

Enable / disable as needed

Determine on what database event, rule should be applied

Specify which field's value should be replaced

Specify where the replacement value will come from

Error Correction and Package Re-processing

- In Maximo 7.1.x, deployment errors are costly
 - Usually implementers must return to source environment and re-create the package and/or re-start deployment
- In Maximo 7.5, deployment errors resulting from bad data in package can be corrected
 - New sub-tab in Package tab to view, edit and re-submit failing data
 - Deployment is 'paused' while error correction is performed
 - Original and corrected data displayed side-by-side
 - Deployment is 'resumed' once corrected data is saved
- Deployment errors resulting from missing / inactive system configurations in target can also be resolved in the same manner
 - Correct system configurations in target while package deployment is 'paused'
- If a package results in progressive errors, all error messages and data are saved
- NOTE: Deployment Data Errors tab displayed ONLY if error results from bad data in migration package XML

Packages Filter > 1 - 1 of 1

Package	Status	Date
JHG Linear Cost spatial spatial MAXIMO 20120313155039	DEPLOY_ERROR	3/13/12 4:09 PM

Manifest Status History Distribution Tracking **Deployment Data Errors**

Deployment Data Errors Filter > 1 - 1 of 1

Migration Group	Migration Object	Date	Message
DATADictionary	DMMAXOBJE	3/13/12 4:09 PM	BMXAA4191E - The value PLUSSTATEPROVINCE is not va

Migration Group: DATADictionary
Migration Object: DMMAXOBJE
Keys: OBJECTNAME=WORKORDER;
Date: 3/13/12 4:09 PM
Message: BMXAA4191E - The value PLUSSTATEPROVINCE is not va

Message Details: psdi.util.MXApplicationException: BMXAA4191E - The value PLUSSTATEPROVINCE is not valid for Domain. Specify a valid value for Domain.
at psdi.app.configure.MaxAttributeCfg.throwNotValid(MaxAttributeCfg.java:2946)
at

Original Error Data: <MAXOBJECTCFG xmlns="http://www.ibm.com/maximo" action="AddChange"><CHANGED>N</CHANGED><CLASSNAME>psdi.app.workorder.WOSet</CLASSNAME><DESCRIPTION>The WORKORDER Table</DESCRIPTION><EAUDITENABLED>0</EAUDITENABLED><EAUDITFILTER /><ENTITYNAME>WORKORDER</ENTITYNAME><ESIGFILTER /><EXTENDSOBJECT /><IMPORTED>0</IMPORTED><INTERNAL>0</INTERNAL><ISVIEW>0</ISVIEW><MAINOBJECT><MAXOBJECTID>186</MAXOBJECTID><OBJECTNAME>WORKORDER</OBJECTNAME><PERSISTENT>1</PERSISTENT>

Edit Error Data

If package has status DEPLOY_ERROR, check if Deployment Data Errors tab is visible

Error details include affected object structure and primary keys of record

Error details also include exception / error message

Click Edit Error Data to edit failed XML

Edit Error Data

To resolve the data error, edit the data using standard XML syntax and then continue the package deployment. The Original Error Data field represents the data record that failed to deploy. The Error Data field shows the same content until you edit the XML.

Migration Group: DATADictionary

Migration Object: DMMAXOBJE

Keys: OBJECTNAME=WORKORDER;

Date: 3/13/12 4:09 PM

Message: BMXAA4191E - The value PLUSSTATEPROVINCE is not va

Message Details: psdi.util.MXApplicationException: BMXAA4191E - The value PLUSSTATEPROVINCE is not valid for Domain. Specify a valid value for Domain. at psdi.app.configure.MaxAttributeCfg.throwNotValid(MaxAttributeCfg.java:2946)

Original Error Data

```
<MAXOBJECTCFG xmlns="http://www.ibm.com/maximo"
action="AddChange">
<CHANGED>N</CHANGED>
<CLASSNAME>psdi.app.workorder.WOSet</CLASSNAME>
<DESCRIPTION>The WORKORDER Table</DESCRIPTION>
<EAUDITENABLED>0</EAUDITENABLED>
<EAUDITFILTER />
<ENTITYNAME>WORKORDER</ENTITYNAME>
<ESIGFILTER />
<EXTENDSOBJECT />
<IMPORTED>0</IMPORTED>
<INTERNAL>0</INTERNAL>
<ISVIEW>0</ISVIEW>
<MAINOBJECT>1</MAINOBJECT>
<MAJOROBJECTID>186</MAJOROBJECTID>
```

Error Data

```
<STORAGEPARTITION>MAXIMO</STORAGEPARTITION>
<TBNAME>WORKORDER</TBNAME>
<TEXTSEARCH>0</TEXTSEARCH>
<UNIQUEIDINDEX>0</UNIQUEIDINDEX>
<UNIQUERULE>D</UNIQUERULE>
<MAXSYSKEYS>
<CHANGED>N</CHANGED>
<COLNAME>REPORTEDBY</COLNAME>
<COLSEQ>1</COLSEQ>
<IXNAME>WORKORDER_NDX22</IXNAME>
<MAXSYSKEYSID>16425</MAXSYSKEYSID>
<ORDERING>A</ORDERING>
</MAXSYSKEYS>
</MAXSYSINDEXES>
</MAXOBJECTCFG>
```

OK Cancel

Original XML and XML for editing shown side-by-side

Click OK to save edited XML

Database Comparison

- Migrations can be accelerated if the differences between source and target database are known
- In Tpaе 7.5, Migration Manager provides a Compare feature that compares system configurations
 - Package definition with at least one migration group is a pre-requisite to executing comparison
 - Any package definition type can be used to execute comparison
- Compare executes as a background task
 - Use 'Refresh Job Status' button to refresh results and status
- Comparison results are presented in the Migration Manager application
 - Ad hoc report provided out of the box

Database Comparison - scope

- Comparison executed from single source database against single target database
 - JDBC connectivity to target is pre-requisite
- Comparison can result in four possible outcomes :

Outcome	Description
Match	System configuration exists in both source and target and is a match
Difference	System configuration exists in both source and target but there is a difference
Local Only	System configuration is present only in the product environment where the comparison was executed
Remote Only	System configuration is present only in the product environment that was compared to

- No support to configure only selected outcomes (all four outcomes will be determined)

Database Comparison – Implementation models

- Comparison can drive development environment migrations to production
 - Identify differences, place identified system configurations into Migration collections
 - Migration Manager application provides action to place differences into migration collection
 - Only system configurations with 'Difference' and 'Local Only' outcomes can be placed into collection
- Comparison can be used post-deployment to verify match between source and target environments
 - Avoid time-consuming manual verification
- Comparison results can be discarded and re-run

Package Definition Name: Collection package definition for the ITER8C

Source:

Type:

Batch Size:

Change Role: >>

After defining Database target, click Start Comparison Job to select target and begin compare between two environments

Comparison Jobs Filter > 1 - 1 of 1

Job Number	Remote Target Name	Start Date	End Date	Status
1006	MX7501	5/15/12 7:31 AM		COMPLETE

Start Comparison Job Refresh Job Status

Comparison Results Filter > 1 - 5 of 87204

Migration Object	Object	Primary Key Information	Result
DMMAXAPPS	MAXLABELS	APP=REPLIBRARY, ID=reportFilesSELFREG_btms_tab3, PROPERTY=label	MATCH
DMMAXAPPS	MAXLABELS	APP=REPLIBRARY, ID=reportFilesSELFREG_btms_tab3, PROPERTY=label	MATCH
DMMAXAPPS	MAXLABELS	APP=REPLIBRARY, ID=reportFilesSELFREG_email_..., PROPERTY=label	MATCH
DMMAXAPPS	MAXLABELS	APP=REPLIBRARY, ID=reportFilesSELFREG_email_url, PROPERTY=label	MATCH
DMMAXAPPS	MAXLABELS	APP=REPLIBRARY, ID=reportFilesSELFREG_email_url_bt..., PROPERTY=label	MATCH

Comparison Result shown

Primary keys listed

Comparison Results shown in table window

Comparison Results Filter 1 - 5 of 101 Download

Migration Object	Object	Primary Key	Result
	MAXME		DIFF
▶ DMMAXMESSAGES	MAXMESSAGES	MSGKEY=CannotAddWpEditSetting, MSGGROUP=workorder	DIFFERENCE
▼ DMMAXMESSAGES	MAXMESSAGES	MSGKEY=CannotCancel, MSGGROUP=workorder	DIFFERENCE
▶ DMMAXMESSAGES	MAXMESSAGES	MSGKEY=DupWOSL, MSGGROUP=workorder	DIFFERENCE
▶ DMMAXMESSAGES	MAXMESSAGES	MSGKEY=DupWOSLTag, MSGGROUP=workorder	DIFFERENCE
▶ DMMAXMESSAGES	MAXMESSAGES	MSGKEY=DupWOTagLock, MSGGROUP=workorder	DIFFERENCE

Filter on Result to find differences

Add Comparison Results to Migration Collection

Details

Configuration Object Group: DATADictionary

Migration Object: DMMAXMES

Object: MAXMESSAC

Primary Key Information: MSGKEY=CannotCancel, MSGGROUP=worl

Local Unique ID:

Remote Unique ID:

Entity: MAXM

Is View? N

Result: DIFFERENCE

Details indicate a record exists in both source and target, but fields have different values

Field value in local system

Field value in remote system

Local Attribute Name	Local Title	Local Value	Remote Attribute Name	Remote Title	Remote Value
VALUE	Value	Warning - WO {0} is in a non-cancel condition.	VALUE	Value	Work order {0} cannot be canceled. The specified work order cannot be canceled because it is not the last PM generated work order on the list page. Cancel the last PM generated work order before you cancel the specified work order.

Comparison Results Filter > 1 - 4 of 4 Download

Migration Object	Object	Primary Key Information	Result
	ACTION		LOCAL
DMACTION	ACTION	ACTION=MCVERIFYENTRIES	LOCALONLY
DMACTION	ACTION	ACTION=MCVERIFYRESULT	LOCALONLY
DMACTION	ACTION	ACTION=SRDDACTION	LOCALONLY
DMACTION	ACTION	ACTION=SRDDACTIONJS	

Details

Configuration Object Group: BPM

Migration Object: DMACTION

Object: ACTION

Primary Key Information: ACTION=MCVERIFYENTRIES

Local Unique ID:

Remote Unique ID:

Entity: ACTION

Is View? N

Result: LOCALONLY

Field values in local system shown on left

Details indicate a record exists in local product environment only





Comparison Results Records Filter > 1 - 5 of 11 Download

Local Attribute Name	Local Title	Local Value	Remote Attribute Name	Remote Title	Remote Value
MEMO	Memo				
LANGCODE	Language Code	EN			
HASLD	Has Long Description	0			
DESCRIPTION	Description	System action to verify existence of migration collection entries			
VALUE	Value	com.ibm.tivoli.maximo.script.ScriptAction			

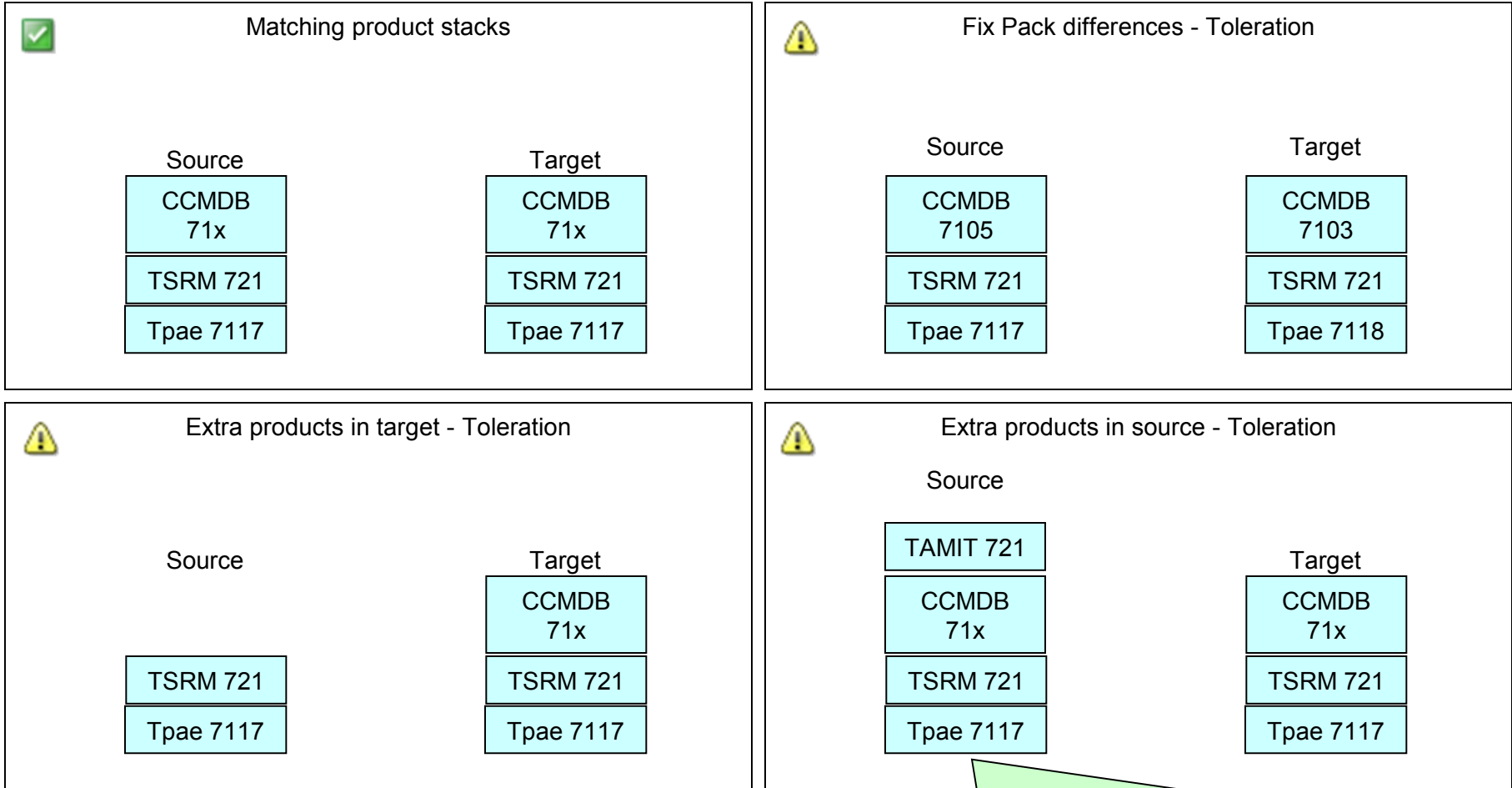
Product Compatibility Checks

- Source and target product environments have different products and versions installed
- In Maximo 7.1.x, Migration Manager supported the following:
 - For a product present in source and target:
 - Tolerate hot fix differences
 - Tolerate fix pack version difference
 - For target environments with extra products than source, allow package deployment with warning
- Product and version differences imply:
 - Database level entity differences
 - Meta-data differences
 - Code differences
- Allowing migrations between environments with disparate product stacks can corrupt the product environments

Product Compatibility Checks – Tpaе 7.1.x

<p> Matching product stacks</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>CCMDB 71x</td> <td>CCMDB 71x</td> </tr> <tr> <td>TSRM 721</td> <td>TSRM 721</td> </tr> <tr> <td>Tpaе 7117</td> <td>Tpaе 7117</td> </tr> </tbody> </table>	Source	Target	CCMDB 71x	CCMDB 71x	TSRM 721	TSRM 721	Tpaе 7117	Tpaе 7117	<p> Fix Pack differences - Toleration</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>CCMDB 7105</td> <td>CCMDB 7103</td> </tr> <tr> <td>TSRM 721</td> <td>TSRM 721</td> </tr> <tr> <td>Tpaе 7117</td> <td>Tpaе 7118</td> </tr> </tbody> </table>	Source	Target	CCMDB 7105	CCMDB 7103	TSRM 721	TSRM 721	Tpaе 7117	Tpaе 7118
Source	Target																
CCMDB 71x	CCMDB 71x																
TSRM 721	TSRM 721																
Tpaе 7117	Tpaе 7117																
Source	Target																
CCMDB 7105	CCMDB 7103																
TSRM 721	TSRM 721																
Tpaе 7117	Tpaе 7118																
<p> Extra products in target - Toleration</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>TSRM 721</td> <td>CCMDB 71x</td> </tr> <tr> <td>Tpaе 7117</td> <td>TSRM 721</td> </tr> <tr> <td></td> <td>Tpaе 7117</td> </tr> </tbody> </table>	Source	Target	TSRM 721	CCMDB 71x	Tpaе 7117	TSRM 721		Tpaе 7117	<p> Extra products in source - Disallowed</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>TAMIT 721</td> <td>CCMDB 71x</td> </tr> <tr> <td>CCMDB 71x</td> <td>TSRM 721</td> </tr> <tr> <td>TSRM 721</td> <td>Tpaе 7117</td> </tr> </tbody> </table>	Source	Target	TAMIT 721	CCMDB 71x	CCMDB 71x	TSRM 721	TSRM 721	Tpaе 7117
Source	Target																
TSRM 721	CCMDB 71x																
Tpaе 7117	TSRM 721																
	Tpaе 7117																
Source	Target																
TAMIT 721	CCMDB 71x																
CCMDB 71x	TSRM 721																
TSRM 721	Tpaе 7117																

Product Compatibility Checks – Maximo 7.5



Maximo 7.5 enables implementers to exclude products in the source product stack from being compared with target product stack

Product Compatibility Checks – Maximo 7.5

- Some PSI (product packaging) include generic system configuration content
 - Example, SRM Service Catalog Content 7.2.0.1
 - Other best practices or jump start content packages
- Migration becomes impossible since Migration Manager treats content packages the same as regular product packages
- Implementers can exclude from compatibility checks those products
 - Use exclusion with caution
 - Ad hoc use in truly different product environments can lead to deployment errors and system configuration corruption
- Recommendation is to maintain same product stacks in sources and targets

Source and Target Product Compatibility

Numbered in the following format: *version.release.modification.fix_pack interim_*

Explanation	Product	Version	Exclude
<input checked="" type="checkbox"/> The product and all its version levels match.	Maximo Calibration	7.5.0.0 Build BUILD DB Build V7500-1	<input type="checkbox"/>
<input checked="" type="checkbox"/> The product and all its version levels match.	IBM Tivoli Integration Composer	7.5.0.0 Build BUILD DB Build V7500-01	<input type="checkbox"/>
<input checked="" type="checkbox"/> The product and all its version levels match.	IBM Tivoli Asset Management for IT (Base)	7.5.0.0 Build BUILD DB Build V7500-28	<input type="checkbox"/>

Target

Explanation	Product	Version
<input checked="" type="checkbox"/> The product and all its version levels match.	Maximo Calibration	7.5.0.0 Build BUILD DB Build V7500-11
<input type="checkbox"/> One or more extra products are in the target.	Maximo Unit Test Tool	7.5.0.0 Build BUILD DB Build V7500-01
<input checked="" type="checkbox"/> The product and all its version levels match.	IBM Tivoli Integration Composer	7.5.0.0 Build BUILD DB Build V7500-01

OK Cancel

Icon indicates matches and differences in product information

Check box can be checked to exclude specific product information from being matched

Explanation of the difference is provided

Content changes

- DMMAXOBJECTCFG object structure can now be migrated across different RDBMS
 - Example, Oracle to DB2
 - Review limitations in Tivoli Information Center
- DMQUERY object structure added to APPLICATION migration group
 - Migrates queries
- DMINTERACTION object structure to migrate web services interactions
- DMSCRIPT, DMLAUNCHPOINT object structures to migrate scripts
- DMWSREGISTRY object structure to migrate web services library entries
- Numerous bug fixes

Logging and troubleshooting

- 'dm' logger continues to remain the primary logger for all Migration Manager functions including Migration Collections
 - 'integration' and 'sql' loggers are also important to debug deployment errors
 - For all deployments prior to go-live, setting DEBUG level for 'dm' logger is recommended
- Integrity Checker should be executed in both source and target environments as pre-requisite to migration
 - Errors and warnings should be resolved prior to migration
- For smaller packages, consider utilizing Preview function to test data validity
- Planning for migration using published Redbook material strongly recommended

Logging and troubleshooting

- For invalid data errors at deployment, use debug logs to check if the SQL statement is executed against the database before the error is reported for the associated table and see if record is found
- Migration Collection validation may take additional time for certain scenarios depending on the number of related records found for a candidate configuration in the collection
 - System properties `mxe.dm.collvalidlevels`, `mxe.dm.collvaliddtgexclude` and `mxe.dm.collvalidsrcexclude` should be used in concert to tune the validation
 - Consider disabling related and lookup rules when large numbers of related records are found – break into multiple collections
 - Additionally, turning on debug logs will produce significant information on the extent of validation

Resources

- Maximo 7.5 Information Center for Migration Manager and Migration Collections application help
 - http://pic.dhe.ibm.com/infocenter/tivihelp/v49r1/topic/com.ibm.mbs.doc/gp_migmgr/c_ctr_mig_mgr_over.html
- Migration Manager Redbook for Maximo 7.1.x
 - <http://www.redbooks.ibm.com/abstracts/sg247906.html?Open>
- IBM Support Tech Notes
- Maximo WiKi
 - <http://www.ibm.com/developerworks/wikis/display/maximo/Home>
 - Content will be added over time