

Innovative
Easy to adopt
Flexible



Control
Insight
Simplicity



Support for PHP, Java, RPG,
Cobol, CA Plex, CA 2E, LANSa,
and more



Application
modernization
support

IBM i application
lifecycle and change
management
TD/OMS & GRAVITY



Definition and working with TD/OMS



Building
tomorrow's
business

> TD/OMS

Integration with X-Analysis,
IBM RTC, RPG Toolbox,
Zend Studio

IT operations
improvement

INTRODUCTION



REMAINSOFTWARE

Contents

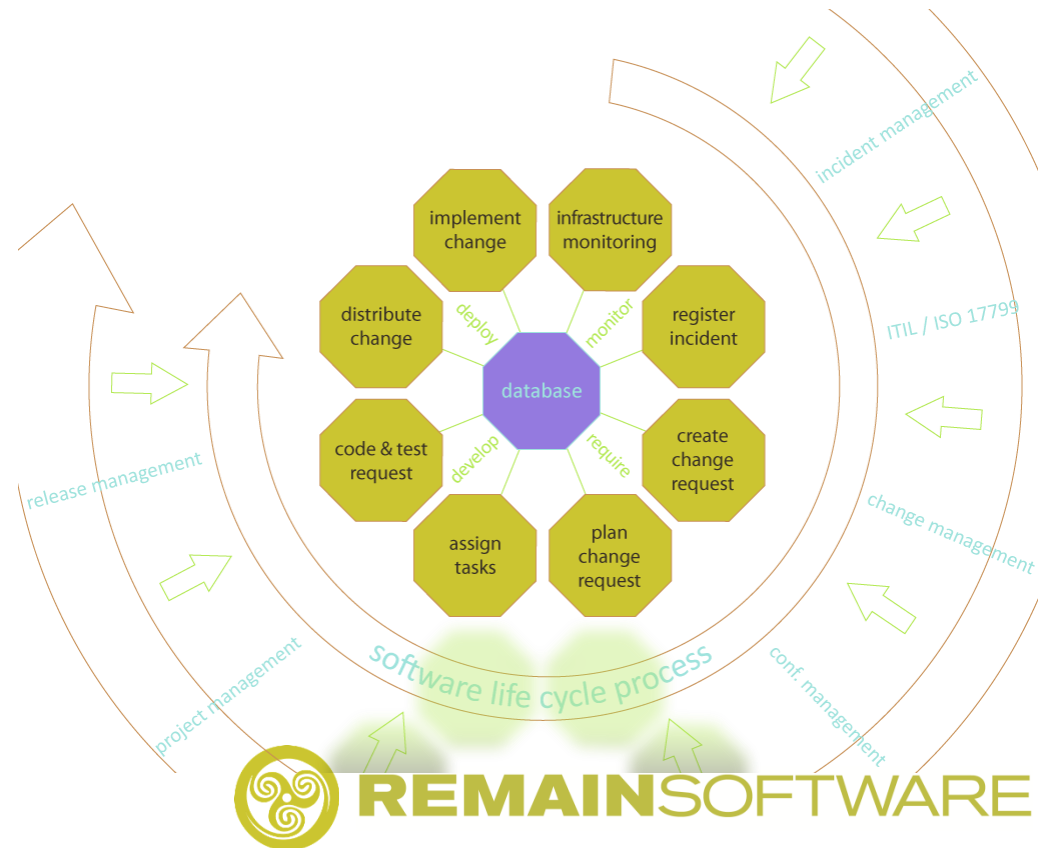
>TD/OMS

- > Overview
- > Cycle Patterns
- > Main Processes
- > Application Configuration
- > Work Management
- > History and Logging

Overview

>TD/OMS

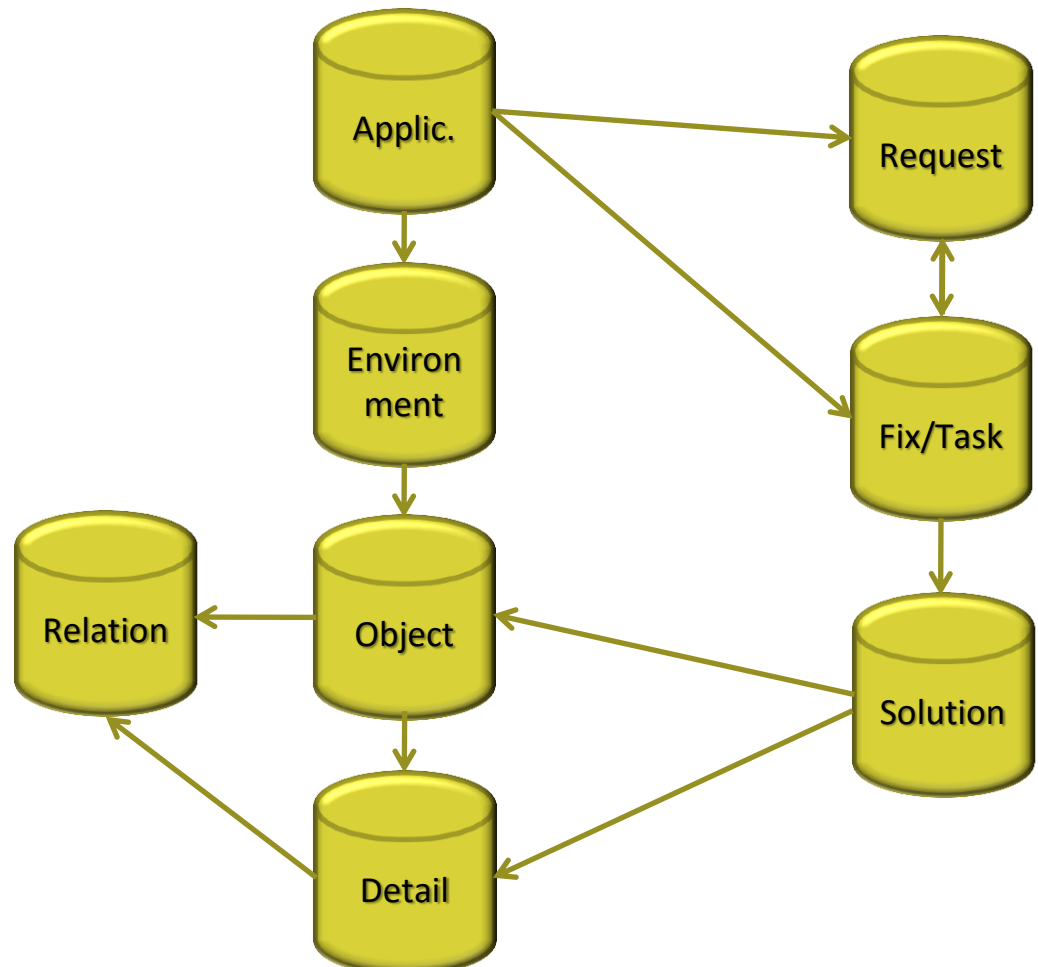
> The Software Life Cycle



Overview

>TD/OMS

> Main entities

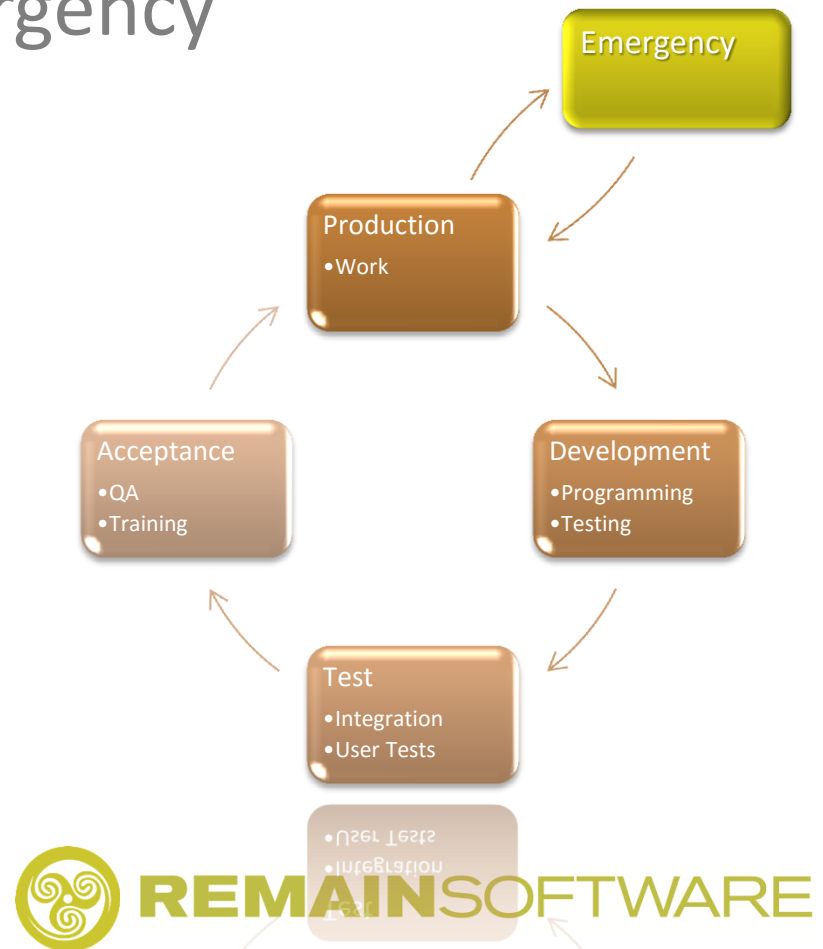


REMAINSSOFTWARE

Cycle Patterns

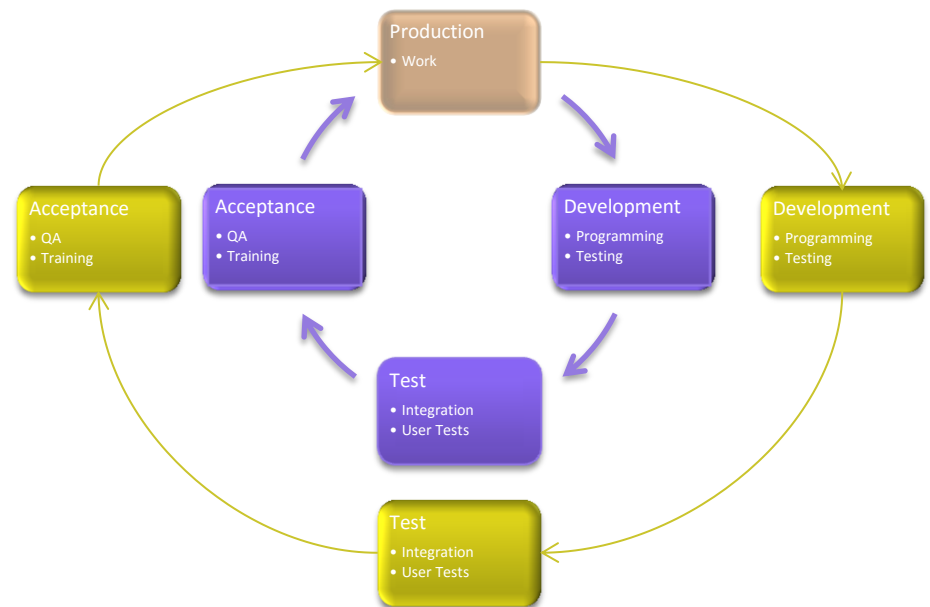
>TD/OMS

> Standard Cycle with emergency



> Multiple independent project cycles

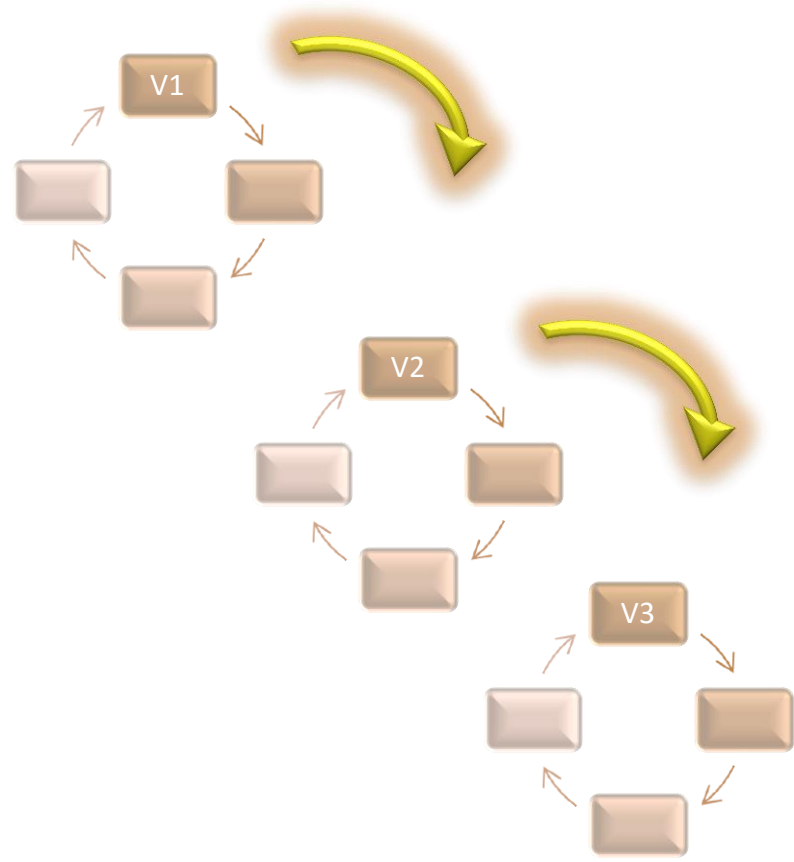
> Parallel Development



Cycle Patterns

>TD/OMS

> Multiple versions



REMAINSSOFTWARE

> Ratification

- > Approval of changes
- > Enables transfer process
- > Unlimited number of groups
- > Unlimited number of group members
- > Of each group 1 member must ratify

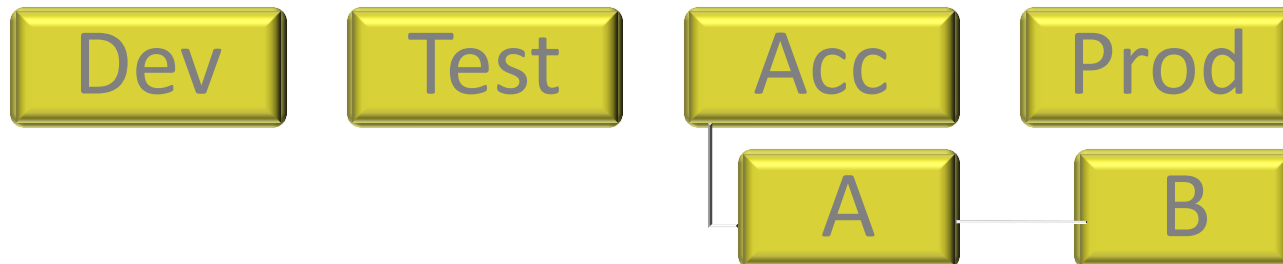


> Transfer

- > Physical object movement between environments
- > Copy Down (e.g. Prod-Dev)
- > Move Down (e.g. Test-Dev)
- > Move Up e.g. (Acc-Prod)
- > Move Up with *KEEP (No Copy up)

> Distribution

- > Distribute across Network
- > With or without sources
- > Monitored by Remote Job Monitor
- > Distribute Objects (A)
- > Distribute Transfer Command (B)

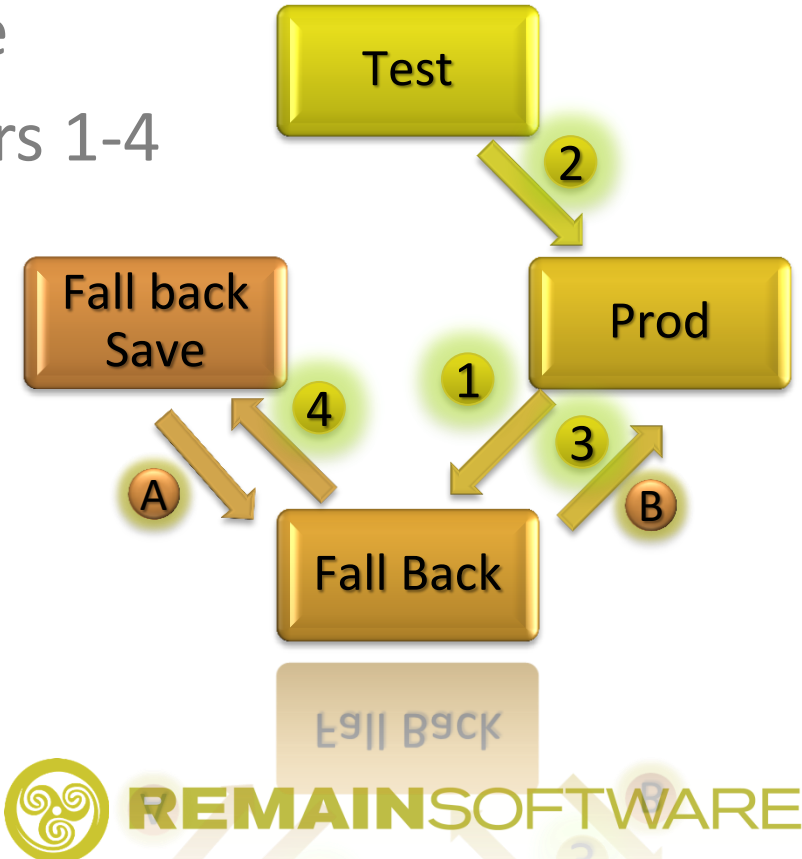


Main Processes

>TD/OMS

> Fall Back

- > Returns to a previous state
- > Automatic: Atomic transfers 1-4
- > Manual: A-B

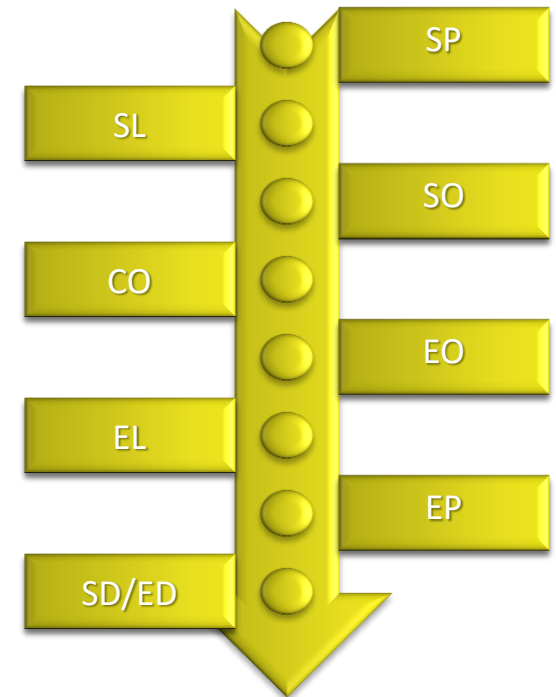
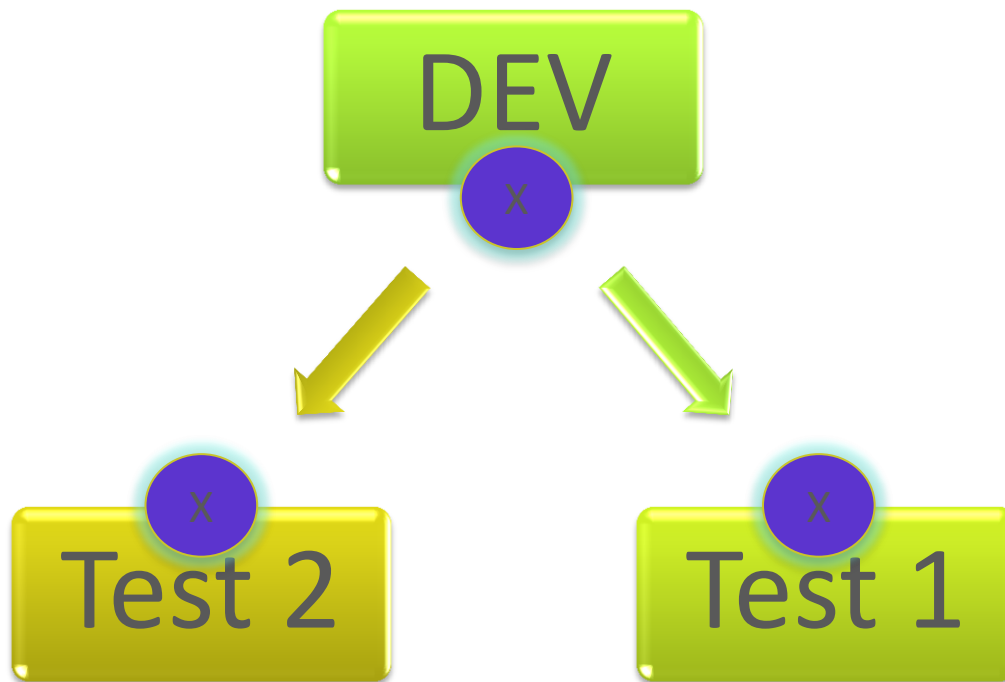


REMAINSOFTWARE

Main Processes

>TD/OMS

> Exceptions & Actions



REMAINSOFTWARE

Application Configuration

>TD/OMS

> Authorization

> TD/OMS Manager

> Application Managers

> Programmers

> Users

> Can be set at:

> Application

> Environment

```
JMA001                      User Authority Maintenance
OMA00101                    Work with user rights

Application code .....: OMS01 Application student 1
Position to .....: _____

2=Change 4=Delete
User/Class Aut Description
- *USER      1  User class *USER
- OMSOP01    2  TDOMS Training - Student 1
- OMSOP05    3  TDOMS Training - Student 5

F3=Exit  F5=Refresh  F6=Add  F12=Cancel  F21=Print list
```

Bottom

F3=EXIT F5=Refresh F6=Add F12=Cancel F21=Print list



REMAINSOFTWARE

Bottom

Application Configuration



> Tables

> Priority

> Reason

> Type

> Activities

Table Maintenance				
Work with Priority Codes				
DMA000801				
<hr/>				
Application		DMS01	Application student 1	
Table		01	Priority code table	
2=Change 3=Copy 4>Delete 5=Display				
Opt	Short	Long	Description	Default
-	H	HIGH	High Priority	0
-	L	LOW	Low Priority	0
-	N	NORM	Normal Priority	1
Bottom				
<hr/>				
F3=Exit F5=Refresh F6=Add F12=Cancel				

F3=EXIT

F5=Refresh

F6=ADD

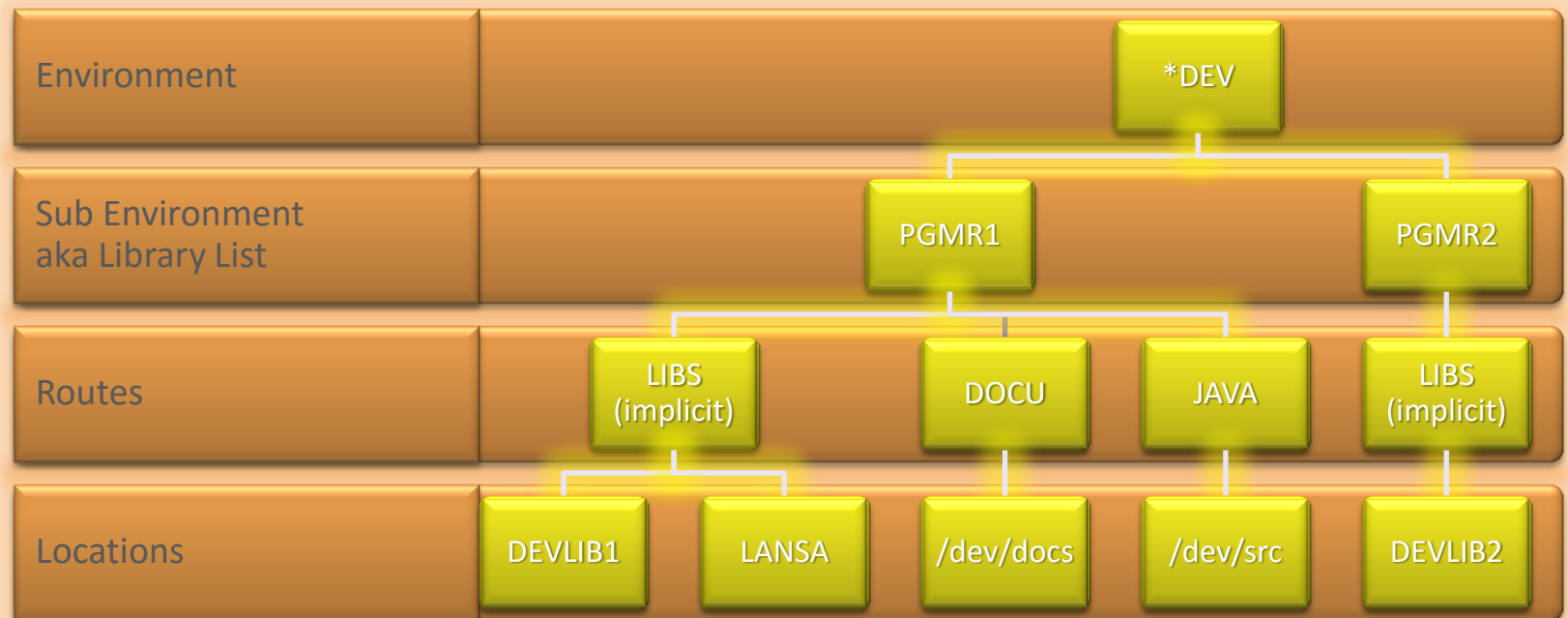
F12=CANCEL



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Bottom

> Environment Structure



Application Configuration



> Environment

- > 5 Character code serves as Status Field
- > Sequence determines the Level
- > Zero is Emergency
- > Lowest number (not zero) is Development
- > Highest number is production

JMA002 Environment Maintenance
OMA00201 Work with Environments

Application code: OMS01 Application student 1

Position to: _____

2=Change 4=Delete 6=Print 8=Security 12=Work with Library Lists
13=Work with Ratification Groups

Seq.#	Envir.	Description	Inc Lbl.	R Count
— 10	*DEV	Development	---1---	0
— 20	*TST	Test	*ALL	0
— 30	*ACC	Acceptance	*NONE	2 1
— 40	*PRD	production	*ALL	0

Bottom

F3=Exit F4=Prompt F5=Refresh F6=Add F12=Cancel



> Filling the Object File

> Loads Top Down (PRD,...,DEV)

> Resolves Object Relations

> DSPPGMREF API

> Source Scanning

JMA003 OMA00301-1	Fill Object File Enter Selection Fields
Application code	<u>OMS01</u> Application student 1
Environment code	<u>*ALL</u> Name or *ALL, F4 for list
Route	<u>*NONE</u> Name, *ALL, *NONE, F4 for list
Library	<u>*ALL</u> Name, *ALL, *NONE, F4 for list
Object code	<u>*ALL</u> Name, *generic*, ?wildcard? or *ALL
Object type	<u>*ALL</u> Object type, *ALL
Object attribute	<u>*ALL</u> Object attribute, *ALL
Processing mode	<u>0</u> 0=Background, 1=Interactive
Processing method	<u>0</u> 0=Filling, 1=Emptying, 2=Report
Rebuild relations only ..	<u>0</u> 0=No, 1=Yes
F3=Exit F5=Refresh F9=Retrieve F12=Cancel	



Application Configuration

➤ TD/OMS

➤ Filling the Object File

➤ Mutation Report

```
OMQPR20B
Pag. 0001                      Object Report, Differences between database and system

Application code .....: OMS01 TD/OMS test application
Environment code .....: *PRD  production

TESTRPG02  OMSOP1P                      *PGM  RPGLE  *ADDED  QRPGLSRC  TESTRPG02  OMSOP1PS
1E2186E05  OM206T6                      *b6M  B6EGE  *ADDED  0B6EGE2BC  1E2186E05  OM206T62
```

➤ Source Conflict Report

```
OMQPR10B
Pag. 0001                      Object Report, Unlocatable and Older/Newer Sources

Application code .....: OMS01 TD/OMS test application
Environment code .....: *PRD  production

----- Current ----- Previous --- Nearest-Old Nearest-New

AAADTA0001  OMSOP1P  *PGM  RPG  QRPGLSRC  AAADTA0001  UNLOCATE  UNLOCATE
** E N D O F R E P O R T **

AAADTA0001  OM206T6  *b6M  B6E  0B6E2BC  AAADTA0001  UNLOCATE  UNLOCATE
```



REMAINSOFTWARE

Application Configuration

➤ TD/OMS

➤ Filling the Object File

➤ Missing Relations Report

```
OMX016
Pag.    3          Fill relation file, unlocatable objects
```

OMS01	*PRD	PGM22	*PGM	OMSOP1P	OM0001W3	*FILE	OMSDEV22
		PGM23	*PGM	OMSOP1P	PGM03	*PGM	*LIBL
					PGM04	*PGM	*LIBL
					OMAPPL1	*FILE	DOMSPR1DTA
					OMCNVL1	*FILE	DOMSPR1DTA
					OMDMPL1	*FILE	DOMSPR1DTA
					OMH001	*FILE	DOMH001DTA



REMAINSOFTWARE

Work Management



> Object information

Object Maintenance
Work with Objects

OMA000401

Application OMS01 View on 0
Position to

1=Select 2=Change 4=Delete 5=Display relations 6=Print relations ...

Opt	Object	Location	Type	Attribute	Env.	Appc.	Fix
—	jsmjax~1.jar	/QOpenSys/	*STMF		*ACC	OMS01	*ACT
—	AS3Fil~1.pro	/QOpenSys/	*STMF		*ACC	OMS01	*ACT
—	AAADTA	OMSOP1P	*PGM	RPG	*PRD	OMS01	
—	AAADTA0001	OMSOP1P	*PGM	RPG	*PRD	OMS01	
—	AAADTA0002	OMSOP1P	*PGM	RPG	*PRD	OMS01	
—	AAADTA0003	OMSOP1P	*PGM	RPG	*PRD	OMS01	
—	AAADTA0004	OMSOP1P	*PGM	RPG	*PRD	OMS01	
—	A1	OMSOP1P	*PGM	CLP	*PRD	OMS01	
—	A4	OMSOP1PD	*FILE	DSPF	*PRD	OMS01	
—	A7	OMSOP1P	*CMD		*PRD	OMS01	

More...

F3=Exit F5=Refresh F6=Add F10=Names F11=View 2 F24=More keys

TD/OMS Components

OMS01-Application student 1 (98)

☒ Preview ☐ Procedures

Name	Sub Path	Location	Description	Type	Attribute	Environment	Application
CL00016	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL00017	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL0001711	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL0001722	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CRVKLANT01	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01
CRVKLANT02	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01
CRVKLANT03	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01

CL00016	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL00017	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL0001711	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CL0001722	OMSOP1P	OMSOP1P	CL source	*PGM	CLP	*PRD	OMS01
CRVKLANT01	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01
CRVKLANT02	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01
CRVKLANT03	OMSOP1PD	OMSOP1PD	OMS - Customer contacts	*FILE	PF	*PRD	OMS01



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Work management



> Object Relations

> Endless Drill Down

> Using

> Used By

> Add UDR with F6

> Base for Impact Analysis

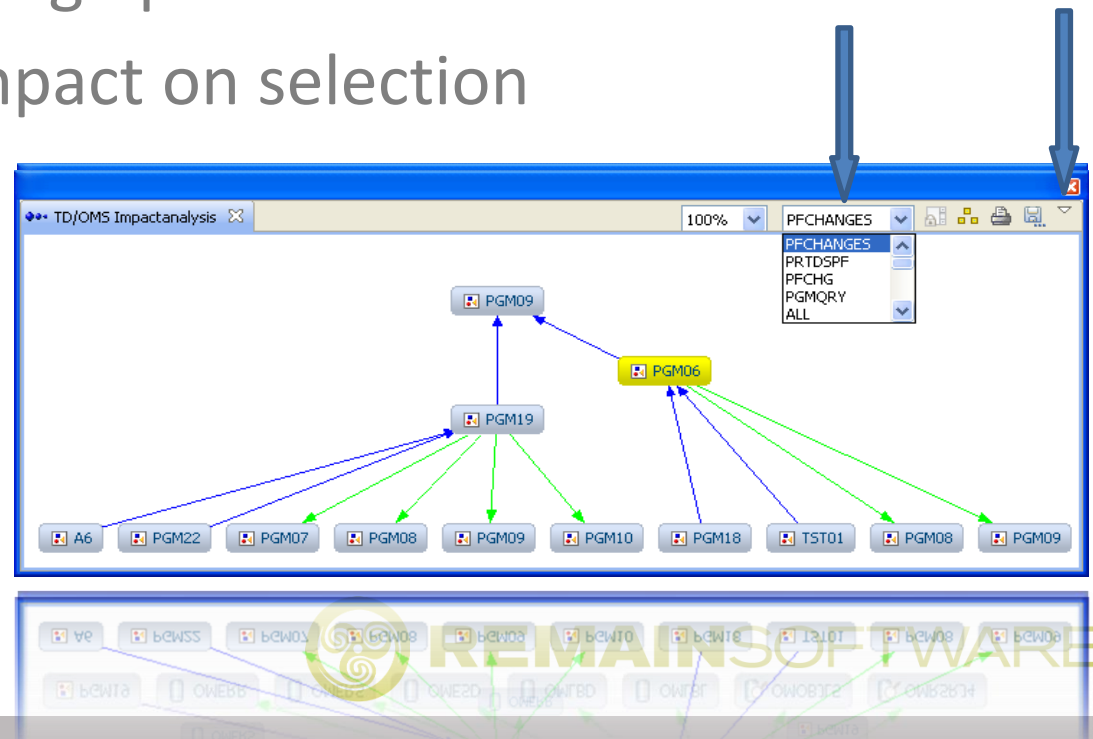
Object Maintenance							
Work with Object Relations							
<hr/>							
Object		PGM01		Application		OMS01	
Location		OMSOP1P		Environment		*PRD	
Object type		*PGM					
<hr/>							
1=Connect		4=Delete		5=Display Relations		6=Print relations ...	
Opt	Object	Location	Type	Detail	Env.	Appc.	Type
—	* PGM01	OMSOP1P	*PGM		*PRD	OMS01	
—	OMAPPL1		*FILE		*none	*none	*INP
—	OMCNVL1		*FILE		*none	*none	*INP
—	OMDMPL1		*FILE		*none	*none	*INP
—	OMEODL1		*FILE		*none	*none	*INP
—	OMERDL1		*FILE		*none	*none	*INP
—	OMEROL1		*FILE		*none	*none	*INP
—	OMERRL1		*FILE		*none	*none	*INP
—	DSP01	OMSOP1PD	*FILE		*PRD	OMS01	*I/O
—	QCMDXEC	QSYS	*PGM		*none	*none	
—	QUSRTVUS	QSYS	*PGM		*none	*none	
—	QCMD	QSYS	*PGM		*none	*none	
—	< PGM17	OMSOP1P	*PGM		*PRD	OMS01	
—	< PGM23	OMSOP1P	*PGM		*PRD	OMS01	
							Bottom
<hr/>							
F3=Exit		F5=Refresh		F6=Add		F10=Names	
				F11=View 2		F24=More keys	

Work management

>TD/OMS

> Impact Analysis

- > Arrows indicate Using and Used by
- > Use menu to change presentation
- > Definition has impact on selection



> Request Maintenance

> Status is derived from connected tasks

> *PLND Special status

JM0003
OM000312

Request Maintenance
Work with Requests

Application code: OMS01
Position to: _____

2=Change 3=Copy 4=Delete 6=Print 8=Display Fixes 12=Work with Fixes ...

Opt	Appl.	Req-number	Short request description	Stat.
—	OMS01	R0000003	Extend customer address for the UK	*NEW
—	OMS01	R0000002	Tax change as of Jan 1	*PLND
—	OMS01	R0000001	The date format is not showing correctly	*ACC

Bottom

F3=Exit F5=Refresh F6=Add F9=History F11=View F12=Cancel F24=More keys

> Fix (Task) Maintenance

> Status derived from Solutions (connected objects)

```
JM0004                      Fix Maintenance
OM000401-1                  Work with Fixes

Application code .....: OMS01      Application student 1
Position to .....: _____

2=Change  4=Delete  5=Display  6=Print  9=Process  12=Work with Solutions ...

  Fix      Description                      Status  St-Date  Programmer
-- F0000003 Extend customer address for the UK  *NEW   25-06-10 OMSOP01
-- F0000002 Tax change as of Jan 1          *NEW   22-06-10 OMSOP01
-- F0000001 The date format is not showing corre *ACC   18-06-10 OMSOP01

Bottom

F3=Exit  F6=Add  F9=History  F10=View-2  F23=More Options  F24=More Keys
```

E3=EXIT E6=ADD E9=HISTORY E10=VIEW-2 E23=MORE OPTIONS E24=MORE KEYS



Work management

> TD/OMS

> Planning

> Fill by drop of Request (filter) or Task filter

The screenshot displays the TD/OMS Work Management interface. On the left, the 'Tasks' tree is expanded, showing a list of tasks including 'FIX0003 Change a message [OMS01 *PRD]', 'FIX0002 Follow/Leader second task [OMS01 *CMP]', and 'FIX0001 Follow/Leader first task [OMS01 *CMP]'. A blue arrow points from the 'All Tasks' filter in the tree to the 'All Tasks (66%)' task in the planning view on the right. The planning view shows a Gantt chart with tasks plotted against a timeline from November 16, 2009, to December 14, 2009. The tasks are: 'All Tasks (66%)', 'FIX0003 Change a message [OMS01 *PRD] (0%)', 'FIX0002 Follow/Leader second task [OMS01 *CMP] (100%)', and 'FIX0001 Follow/Leader first task [OMS01 *CMP] (100%)'. The bottom of the image features the REMAINS SOFTWARE logo and name.

Solution Maintenance

> 3 = Copy

> 11 = Move

```

JM0005                               Solution Maintenance
OM000501                             Work with Connected Solutions
-----
Application code .....: OMS01       Application student 1
Fix number .....: F0000001       The date format is not showing correctly

Position to .....: _____

2=Change 3=Copy 4=Delete 5=Display 7=Object history ...
Opt Object      Type/Dtl   Src Description                               Status
--  jsmjax~1.jar *STMF                                     *ACC
--  AS3Fil~1.pro *STMF                                     *ACC
--  PGM01        *PGM           1  PROGRAM 1                               *ACC

                                                                 Bottom

F3=Exit  F5=Refresh  F6=Add  F11=View  F12=Cancel  F24=More keys

```

Work management



> Solution Conflicts

TD/OMS - Object Management System
Process Connection List Wizard. Solve Solution Conflict.

Solution PGM01, type *PGM is already active in fix F0000001 in application OMS01

Component Info Conflict Info Conflict Task F0000001 This Task F0000003

Current Object

Name PGM01
Location OMSOP1P
Type *PGM
Description PROGRAM 1
Environment *PRD
Version V0M0

Solution

☐ Skip this object
☐ Remove from Connection List
☐ Connect as Locked
☒ Connect and Lock Other Occurrences
☐ Reserve This Object
☐ Connect Alternative and Make Leader
☐ Connect Alternative and Make Follower
☐ Connect Alternative and Lock Others

Alternatives

Application	Environment	Location	Task	Version
<input type="checkbox"/> OMS01	*ACC	OMSOP1P	F0000001	V1 M0

Apply Next > Finish

Alternatives

Application	Environment	Location	Task	Version
<input type="checkbox"/> OMS01	*ACC	OMSOP1P	F0000001	V1 M0

Solution

☐ Skip this object
☐ Remove from Connection List
☐ Connect as Locked
☒ Connect and Lock Other Occurrences
☐ Reserve This Object
☐ Connect Alternative and Make Leader
☐ Connect Alternative and Make Follower
☐ Connect Alternative and Lock Others

Apply Next > Finish

Connection Objects Processing
Solve Solution Conflicts

OMD000701

Action to be taken 0

1. Skip this object
2. Remove from connection list
3. Connect as locked
4. Connect & lock other occurrences
5. Reserve this object
6. Connect alternative and follow
7. Connect alternative and lead
8. Connect alternative & lock other

Opt	Appc.	Fix	Version	Base	Ovrc.	Type	Env.	Status
-	OMS01	F0000001	V1 M0	V0 M0	*NO	1	*TST	*ACT

Bottom

Message : Solution PGM01, type *PGM is already active in fix F0000001 in application OMS01
Cause : You requested the connection of solution PGM01, type *PGM More...

F8=Display object F12=Cancel

F8=012b19d op16cf F12=C9UC6f

Message : You requested the connection of solution PGM01, type *PGM F0000001 in application OMS01
Cause : Solution PGM01, type *PGM is already active in fix F0000001 in application OMS01

Bottom

> Subset Screens

> F9 = Retrieve Previous

> F14 = Restore Default

> Save as Default

> F5 = Reset to
Settings

JM0004 OM000402		Fix Maintenance Specify Fixes to Work with	
Application code		OMS01	Application student 1
<u>Request</u>			
Request number		R00000002	- R00000002
<u>Fix</u>			
Fix number			- 999999999
Release number			- 999999999
User Id			- 999999999
Type		*ALL	
<u>General</u>			
Income date		0-00-00	- 99-99-99
Priority		*ALL	*ALL, F4 for list
Ratification status		*ALL	*ALL, *OPEN, *CMP
Status		*ALL	Status, *OPEN, *NEW, *PLND, *CMP, *ALL
Save as default subset ..		0	1=Yes
F5=Refresh F9=Retrieve F12=Cancel F14=Restore defaults			

Work Management

>TD/OMS

> APIs > OMQ* Commands

- > Change (IO Module) CHG
- > Display
- > Retrieve
- > Print

USI
RTV
PRT

Main entities

- > Object
- > Relation
- > Request
- > Fix
- > Solution
- > Application

OB
OR
RE
FI
SO
AP

> OMQCHGOB

> OMQUSIFI

> OMQPRTOB

> OMQRTVAP

> Etc...

History and Logging



> Object History

> Version numbers

> Request and Fix

JMI008 OMI00801	Display object history Object information									
<hr/>										
Object code					AS3Fil~1.pro		Route		NONIBMI	
Object type					*STMF					
Detail										
Object description										
<hr/>										
5=Display Object 8=Display Fix/Request 10=Display Solution										
Opt	Version	Vrs.based		Appl.	Compl.	Fix/Req	Pgmr./User	Stat.	Overr.	
—	V1	M1	V0	M0	OMS01	0-00-00	F0000001	OMSOP01	*ACC	
—					OMS01	0-00-00	R0000001	OMSOP01	*ACC	
<hr/>										
Bottom										
<hr/>										
F3=Exit F5=Refresh F12=Cancel F21=Print list										
<hr/>										
E3=EXIT E2=PGML62P ETS=C9UC6 ESI=bL1U1 I12I										
<hr/>										
Bottom										

Fix number	Status	Version	Version Based On	Realized completion date	Application code	Solution type	Override code
FIX0002 Follow/Leader second task [OMS01 *CMP]	*CMP	V2 M0	V1 M0	10-Nov-2009	OMS01	*CHANGE	*LEAD
REQ0001 Follow/Leader exercise [OMS01 *CMP]							
FIX0001 Follow/Leader first task [OMS01 *CMP]	*CMP	V2 M0	V0 M0	10-Nov-2009	OMS01	*CHANGE	*FOLLOW

FIX0001 Follow/Leader first task [OMS01 *CMP]	*CMP	V2 M0	V0 M0	10-Nov-2009	OMS01	*CHANGE	*FOLLOW
---	------	-------	-------	-------------	-------	---------	---------

History and Logging



> Transfer History

```
JMI011                      Object Maintenance
OMI011D-01                  Work with transfer history

Application . . . : OMS01
Object . . . . . : AS3Fil~1.pro
Object Type . . . : *STMF
Object Attribute:

5=Details
  Transfer
Opt Code    Vrs.  Mod.  From  To   User ID   Date      Time
---
OM000007    1     1  *TST  *ACC  OMSOP01   22.06.2010 13.27.00
OM000006    1     1  *ACC  *TST  OMSOP01   22.06.2010 13.23.52
OM000005    1     1  *TST  *ACC  OMSOP01   22.06.2010 11.36.14
OM000004    1     0  *DEV  *TST  OMSOP01   22.06.2010 11.35.23
OM000003    1     0  *TST  *DEV  OMSOP01   21.06.2010 13.01.10
OM000002    0     0  *DEV  *TST  OMSOP01   21.06.2010 10.16.08
```

F3=Exit F12=Cancel

Bottom

Application code	Transfer code	From Environment	To Environment	User i.d., or user class	Date	Time	Job name	Job number
OMS01	OM000009	*ACC	*PRD	OMSOP01	10-Nov-2009	14:34:15	OM000009	299343
OMS01	OM000008	*TST	*ACC	OMSOP01	10-Nov-2009	14:26:50	OM000008	299342
OMS01	OM000007	*DEV	*TST	OMSOP01	10-Nov-2009	14:26:06	OM000007	299341
OMS01	OM000006	*ANY	*DEV	OMSOP01	10-Nov-2009	14:18:35	OM000006	299340
OMS01	OM000005	*PRD	*DEV	OMSOP01	10-Nov-2009	14:05:40	OM000005	299337
OMS01	OM000004	*ANY	*DEV	OMSOP01	10-Nov-2009	13:54:34	OM000004	299328
OMS01	OM000003	*DEV	*TST	OMSOP01	10-Nov-2009	13:47:49	OM000003	299326
OMS01	OM000002	*PRD	*DEV	OMSOP01	10-Nov-2009	13:47:31	OM000002	299324

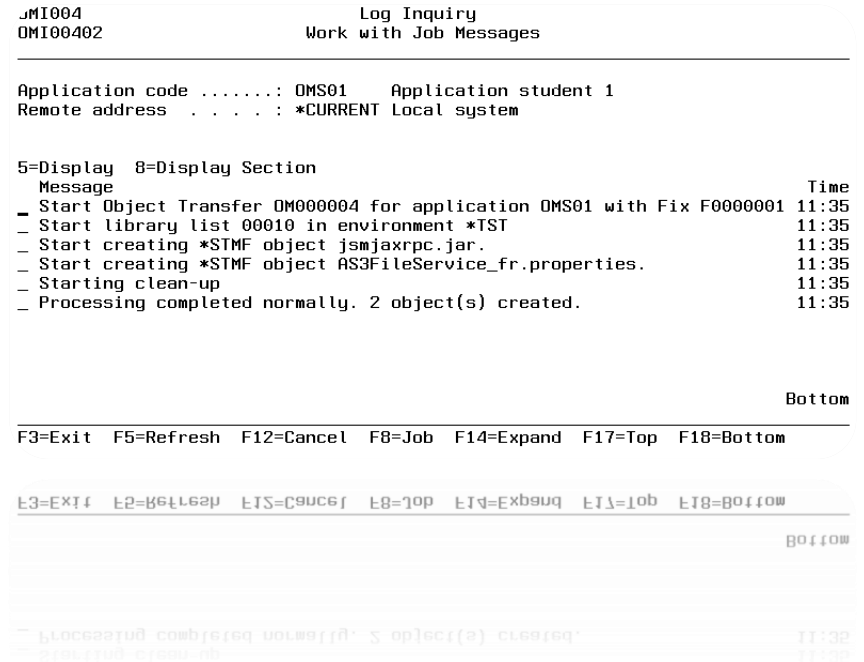
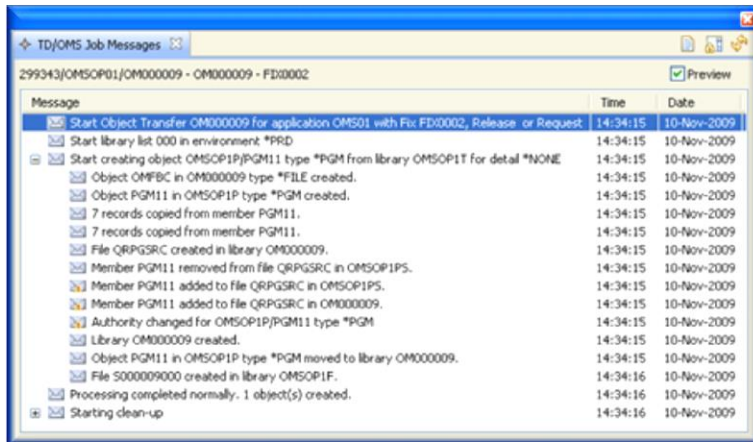


REMAINS SOFTWARE

History and Logging



> TD/OMS Logging



Innovative
Easy to adopt
Flexible



Control
Insight
Simplicity



Support for PHP, Java, RPG,
Cobol, CA Plex, CA 2E, LANSAs,
and more



Application
modernization
support

IBM i application
lifecycle and change
management
TD/OMS & GRAVITY



Multiplatform
deployment



Building
tomorrow's
business

Integration with X-Analysis,
IBM RTC, RPG Toolbox,
Zend Studio

IT operations
improvement

Thank you for your attendance



REMAINSSOFTWARE