



# Maximo Email, Workflow and Work Assignments

New features and upgrade considerations from 6 to 7.5

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# Agenda – Theme 1, Email

- Feature 1: SSL email, new in 7.5.0.3
  
- Feature 2: System for recovery of failed email, new in 7.5.0.3
  
- Feature 3: Email Interaction Setup, new in 7.5.0.3
  - Demo of 2-way email interactions

## Agenda – Theme 2, Workflow

- Feature 1: Parallel Assignments, new in 7.1.1
- Feature 2: Using the current routing memo in workflow, new in 7.5

## Agenda – Theme 3, Assignments

- Feature 1: Assignment Tab in Work Order Tracking. New in Scheduler 7.1.1 and included in base 7.5
- Feature 2: Work order and assignment bulk re-schedule. New in Scheduler 7.1.1 and included in base 7.5
- Assignments Demo

# Email Feature 1 – SSL Email

## 7.5.0.3

## Business Drivers

### ■ Customer Need

- Enable secure connectivity to mail server
  - Inbound email listener
  - Outbound send mail
- Primary mail servers bulk of our clients use with SSL:
  - Lotus Domino 7.x, 8.x
  - Microsoft Exchange Server 2003, 2007, 2010

### ■ Benefit

- Cut IT costs for clients by enabling direct secure connection to mail server
- Avoid workarounds such as re-directing email to non-secure mail servers

# Improvement Details

## ■ Inbound email listener

- Email Listener configuration application
  - Displays POPS, IMAPS protocols in addition to POP and IMAP
  - Defaults secure connection ports
  - Enables setting up STARTTLS command on POP, IMAP
- Email Listener engine
  - Uses secure connection to SSL-enabled mail server ports
- Internal tool TestEmail.bat also enabled for SSL

## ■ Outbound email

- System-wide property to enable SSMTP
- System-wide property to set up STARTTLS command

# Handling Digital Certificates

- **Mail servers enabled for SSL may present digital trust certificates to clients**
- **Client must store the certificate and utilize it for all communication with the mail server**
- **In Tpaee 7.5.0.3 digital certificates should be imported into the application server container ahead of configuring email listener or smtp connection**
  - WebSphere / WebLogic servers directly manage SSL-connection and apply the certificates
  - No specialized Maximo / Tpaee configurations or tools to import SSL certificates
- **Customers are responsible for procuring and installing their SSL certificates**



# Email Feature 2 – Recovery of Failed Email

## 7.5.0.3

## Problem

- Send Email Notifications from Maximo (JavaMail API)
  - Escalations, Workflows.
  - Create Communications From Tickets, WO, etc.
- Email Notifications are Synchronous (i.e wait for a response from the MailServer).
- MessagingExceptions typically indicate failure to send and are caught and written out to error logs.
- **Failed Email Notifications are lost forever.**
- Failed Email Notifications impact client's business.

## Solution

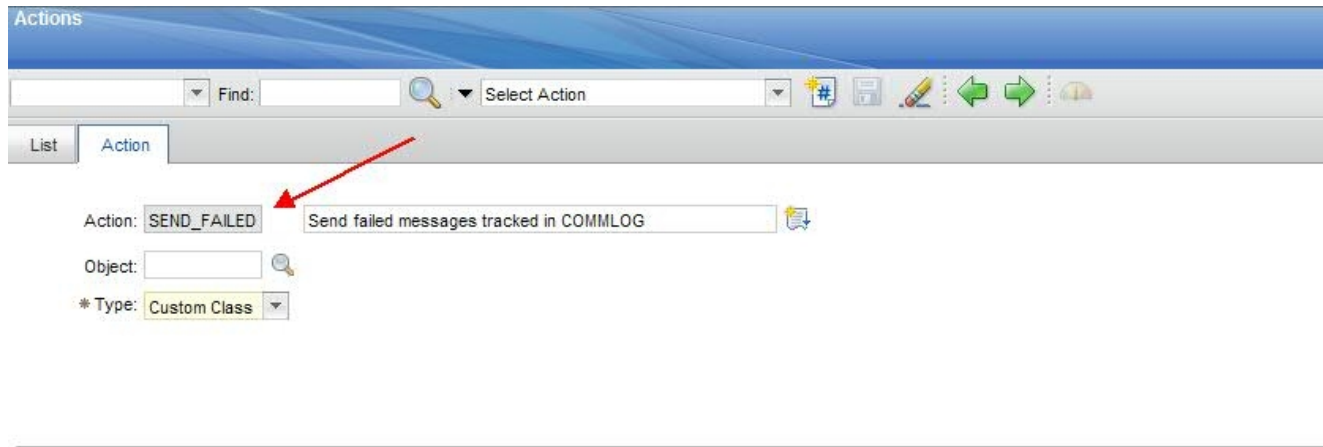
- Persist failed Email notifications (header and body) in the COMMLOG table whenever an exception or a failure is thrown from the email server so it can be tracked for resend.
- Add a YORN flag to the COMMLOG table to indicate failed notifications.
- Provide a Custom Action out of the box that resends failed messages.
- Gives clients absolute control – Apply the Action via an Escalation or Workflow.

# Email Failure Tracking

The screenshot shows the 'Communication Templates' configuration page. The title bar reads 'Communication Templates'. Below the title bar is a search bar with 'Find:' and a magnifying glass icon, and a 'Select Action' dropdown menu. Below the search bar are four tabs: 'List', 'Communication Template', 'Recipients', and 'Attachment Folders'. The 'Communication Template' tab is active. The main content area shows the following fields and options:

- Template: 1004
- Incident Response Time Expired
- Created By:
- \* Applies To: INCIDENT
- Date:
- \* Accessible From: ALL
- Track Failed Messages?  (highlighted with a red arrow)
- Comm Log Entry?

# Enabling the Custom Action



# Email Feature 3 – Email Interaction Setup

**ISM Library, 7.1.1.7**  
**Base 7.5.0.3**

# Email Interaction Setup (EIS): The Basics

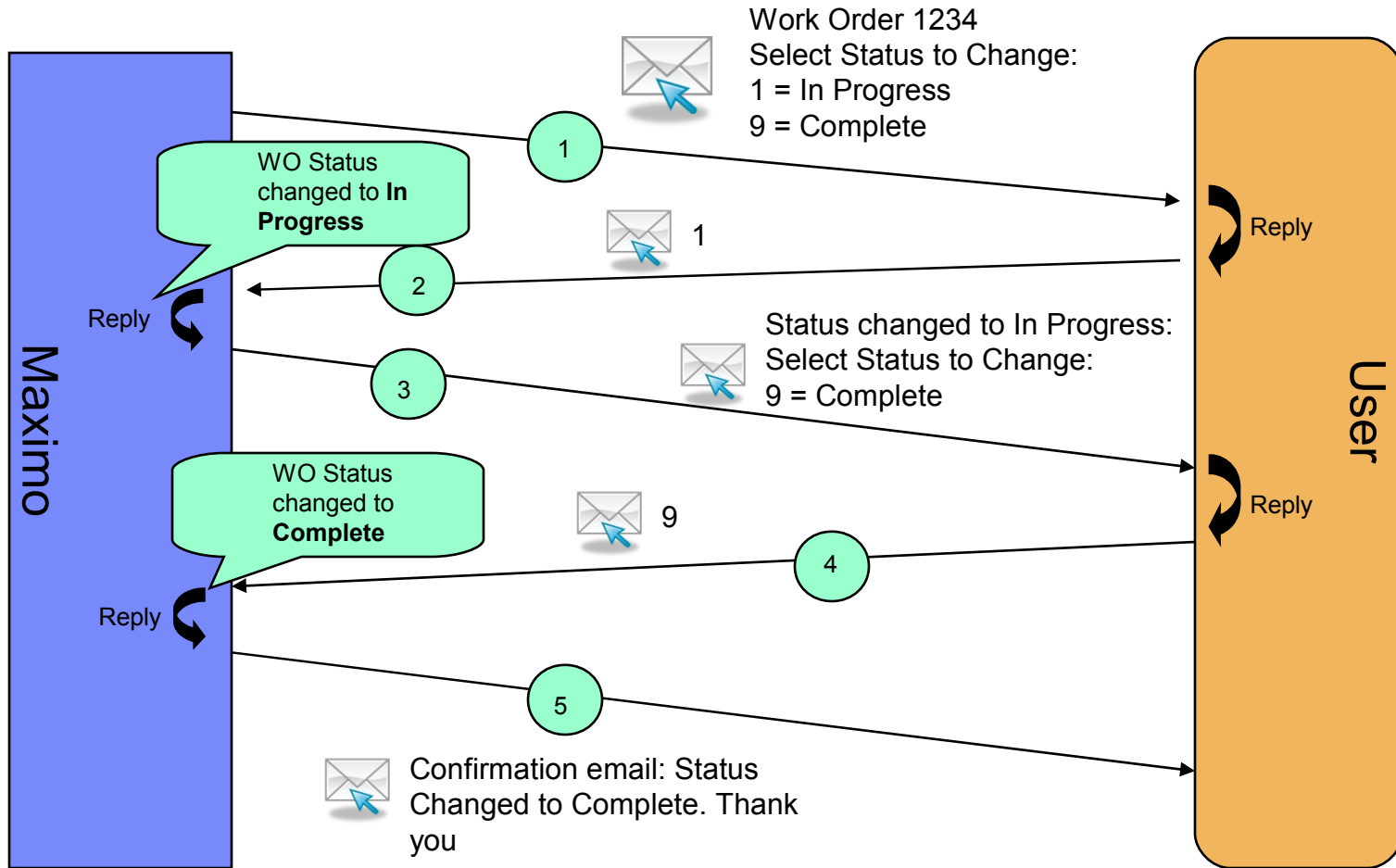
- New configuration application, defining how users can interact with Maximo records by email
  - Leverages the email listener, escalations, comm templates, roles
- Generates an initial outbound email based on any data condition, using escalations
  - User sends an email reply that can:
    - Change status
    - Accept/reject workflow assignment
    - Update Maximo record attributes
- Uses Maximo security and business objects
- Device independent

## Use case example – WO Status Change

- Mobile worker receives notification of an approved job he is the owner of, based on escalation and comm. template
- Mobile worker replies to email, setting work order in progress, and making other edits e.g. new target dates
- Email listener processes the update, replies to user with a prompt for the next step in the defined chain of events
- Mobile worker replies to the email, choosing to set the work order to complete with a memo
- Maximo sends confirmation email that the email cycle is complete on that record



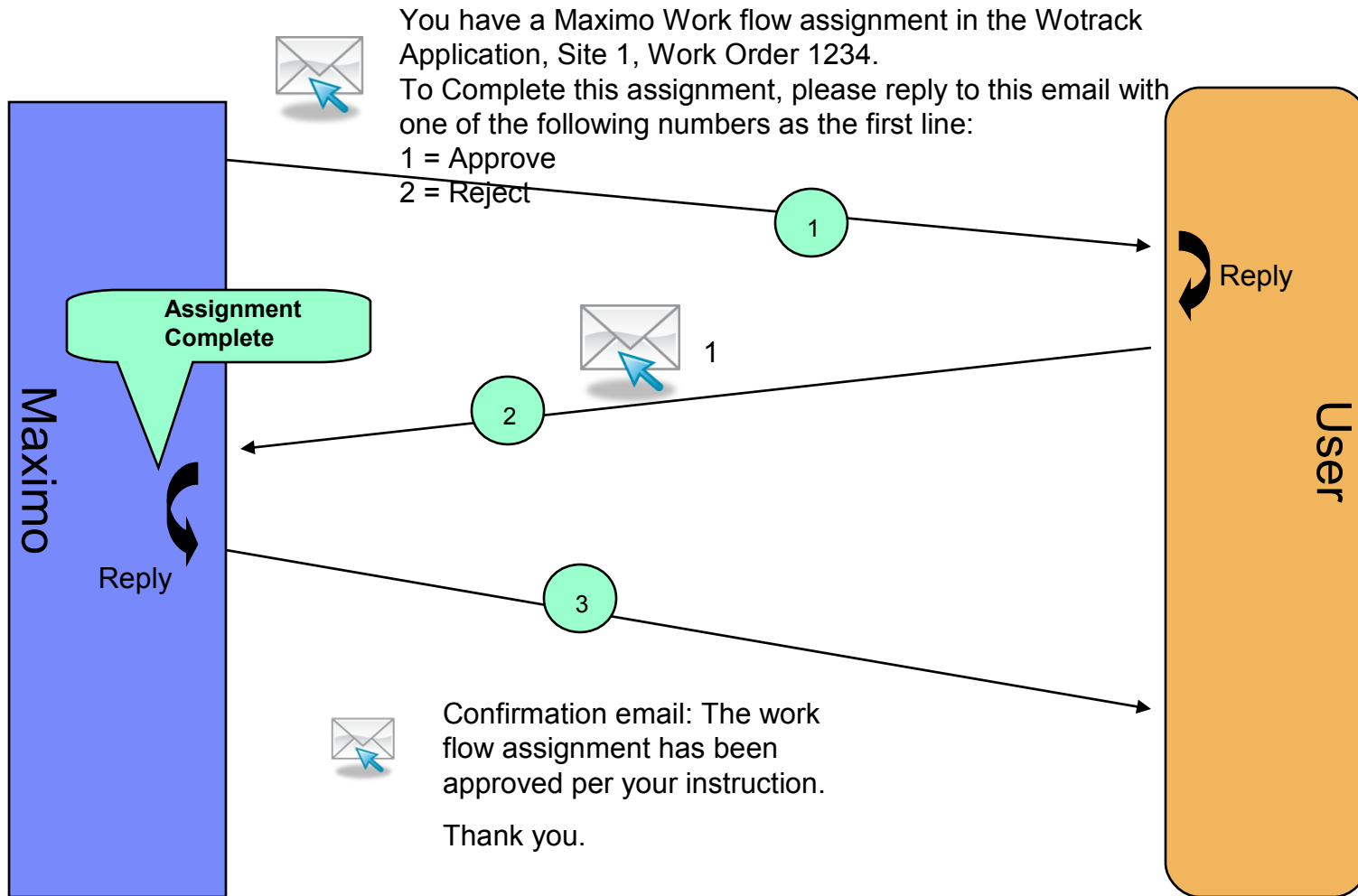
Work Order Status change - In this example, the expected email exchange between server and user consists of five emails:



## Use case example 2 – Workflow assignment

- A new Service Request enters Workflow
- The ‘approval’ task is assigned to a supervisor role
- The person acting in that role receives email with information about the SR, and accept/reject actions
- The supervisor accepts the SR for approval
- The E-mail listener processes the update, routing the workflow on its accept action to the next downstream task
- Maximo sends confirmation email to the user that the accept action was processed

# Workflow - In this example, the expected email exchange between Maximo for E-mail and user consists of three emails as shown below.



# New App sets up messaging rules

The screenshot displays the 'E-mail Operation Configuration' web application interface. The configuration details are as follows:

- Configuration: MFVO
- Maximo for E-mail WorkOrder Status
- Active?
- Workflow Process: [Empty]
- Object: WORKORDER
- The WORKORDER Table

The 'Object Status Change Configurations' table is shown below:

Status	Description	Attributes
APPR	Approved	STATUS,SITEID,WONUM,SCHEDSTART,SCHEDFINI SH
INPRG	In Progress	STATUS,SITEID,WONUM,SCHEDSTART,SCHEDFINI SH

The 'Selection Values for APPR' table is shown below:

Selection Value	Target Status	Description
1	INPRG	In Progress
2	COMP	Completed

# Each step drives a comm template to a role

E-mail Operation Configuration - Windows Internet Explorer

http://localhost:9080/maximo/ui/?event=loadapp&value=mfmailcfg&uisessionid=1

File Edit View Favorites Tools Help

E-mail Operation Configuration

Configuration: MFWO Maximo for E-mail WorkOrder Status Active?

Workflow Process: >>

Object: WORKORDER The WORKORDER Table

**Object Status Change Configurations** Filter 1 - 2 of 2 Download

Status	Description	Attributes
APPR	Approved	STATUS,SITEID,WONUM,SCHEDSTART,SCHEDFINISH
INPRG	In Progress	STATUS,SITEID,WONUM,SCHEDSTART,SCHEDFINISH

Details

Status: APPR Approved

Attributes: STATUS,SITEID,WONUM,SCHEDSTART,SCHEDFINISH

Communication Template Response Comm Template without Changing Status

Notification Template: MFMAILSENDW >> Maximo for E-mail: send initial outbound

Send To: WOWNER >> Work Order Owner

Response Template: MFMAILRESNO\$ >> Maximo for E-mail: reply for WorkOrder, no stat

Selection Values for APPR Filter 1 - 2 of 2 Download

Done Internet 100% 6:54 PM

# Setting up formatted communication templates

The screenshot shows a web browser window titled "Communication Templates - Windows Internet Explorer". The address bar shows the URL: `http://localhost:9080/maximo/ui/?event=loadapp&value=commtmpl&uisessionid=1`. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The address bar also contains a search icon and the Google logo.

The main content area displays the configuration for a communication template:

- Template:** MFMAILSENDW
- Maximo for E-mail:** send initial outbound
- Created By:** MAXADMIN
- Status:** ACTIVE
- \* Applies To:** WORKORDER
- Date:** 4/26/11 10:03 AM
- \* Accessible From:** ALL
- Attachments:** (icon)
- Comm Log Entry?**

Below the configuration fields is a section titled "Template Details" with the following fields:

- To:** (empty text box)
- cc:** (empty text box)
- bcc:** (empty text box)
- \* Send From:** mx4mail@maximodemo.com
- Reply To:** (empty text box)
- Subject:** WorkOrder assigned @@MAILKEY@@:wonu

Below the subject field is a rich text editor with a toolbar containing icons for undo, redo, bold, italic, underline, strikethrough, bulleted list, numbered list, indent, outdent, link, unlink, insert image, insert table, insert video, insert audio, insert link, and insert text. The editor's status bar shows "Font", "Size", and "Format None".

The text in the editor is as follows:

```

Work Order : wonum has been assigned to you.

@@SELECTIONLIST@@

Additional Information -----
Work Order : wonum :description
Asset : assetnum

@@TASKLIST@@

Message:
Please do not alter the system information below this line

@@OBJID@@
    
```

The browser's status bar at the bottom shows "Done", "Internet", and "100%". The Windows taskbar at the very bottom shows the Start button, several open applications (including "Communication Te..." and "mx4email pics.doc ..."), and the system tray with the time "6:59 PM".

# Email cycle is triggered by escalation

Escalations - Windows Internet Explorer

http://localhost:9080/maximo/ui/?event=loadapp&value=escalation&uisessionid=1

File Edit View Favorites Tools Help

Escalations

Find: Select Action

List Escalation Communication Log

Escalation: MFMAILSENDW Maximo for E-mail: send E-mail from workorder Site: Active?

Applies To: WORKORDER Organization: Schedule: 30s\*\*\*\*\*

Condition: status in (select value from synonymdomain where domainid='WOSTATUS' and value = 'APPR') and to\_date(schedstart) = to\_date(sysdate) and parent is null and owner is not null

Create Successful Execution Entry?

Calendar Organization: Calendar: Shift:

Last Run Time: 10/25/11 7:07 PM

**Validation Results**

Escalation Points Filter 1 - 1 of 1 Download

Escalation Point	Elapsed Time Attribute	Elapsed Time Interval	Interval Unit of Measure	Organization	Calendar	Shift
1						

New Row

Actions Notifications

Select Action Group or add individual actions by clicking New Row. Action Group: MFMAILSENDW

Actions Filter 1 - 1 of 1 Download

Action	Description	Type	Sequence
MFMAILSENDW	Maximo for E-mail, send e-mail for WorkOrder	CUSTOM	10

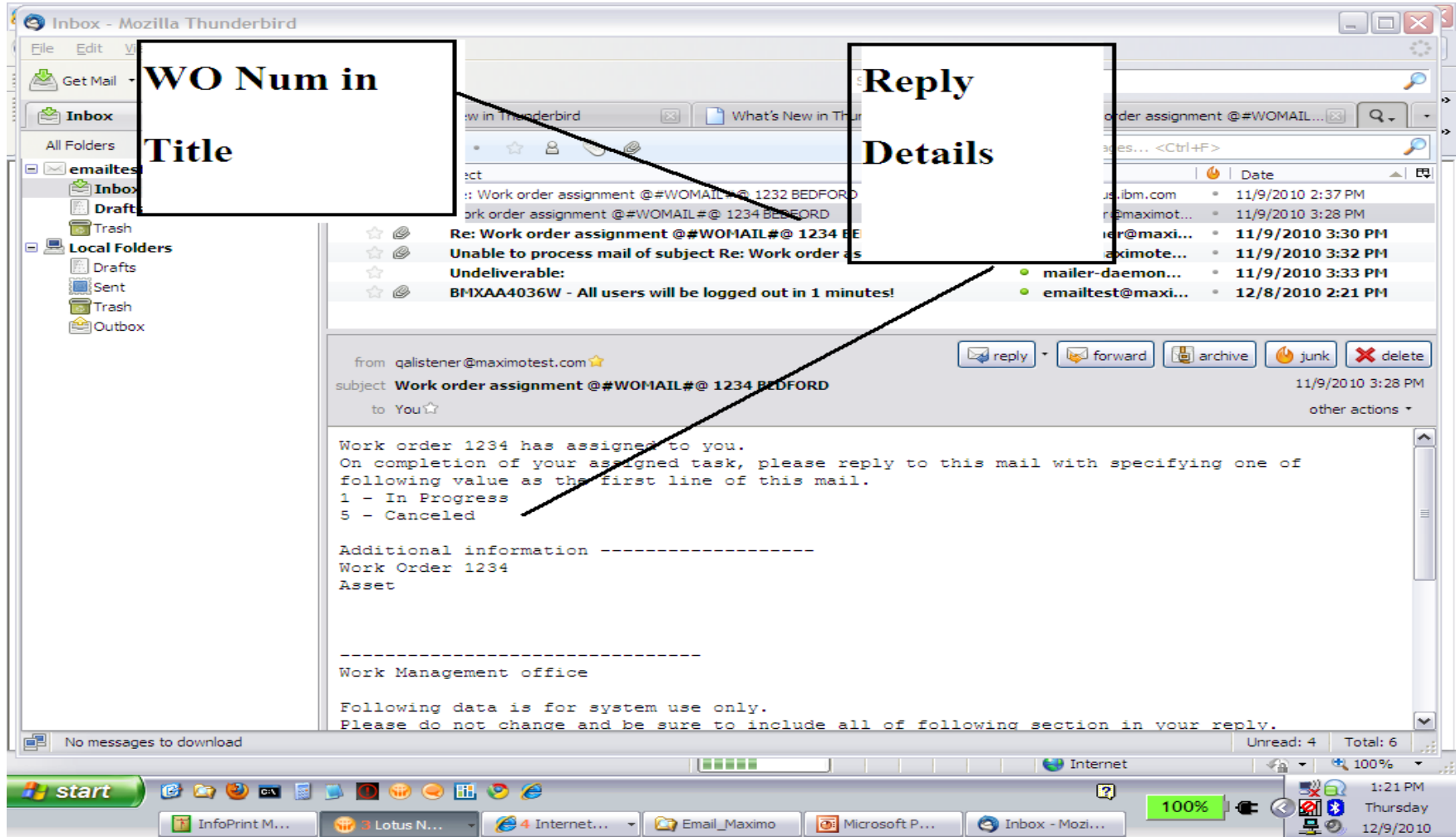
New Row

Done

Escalations - Wind...

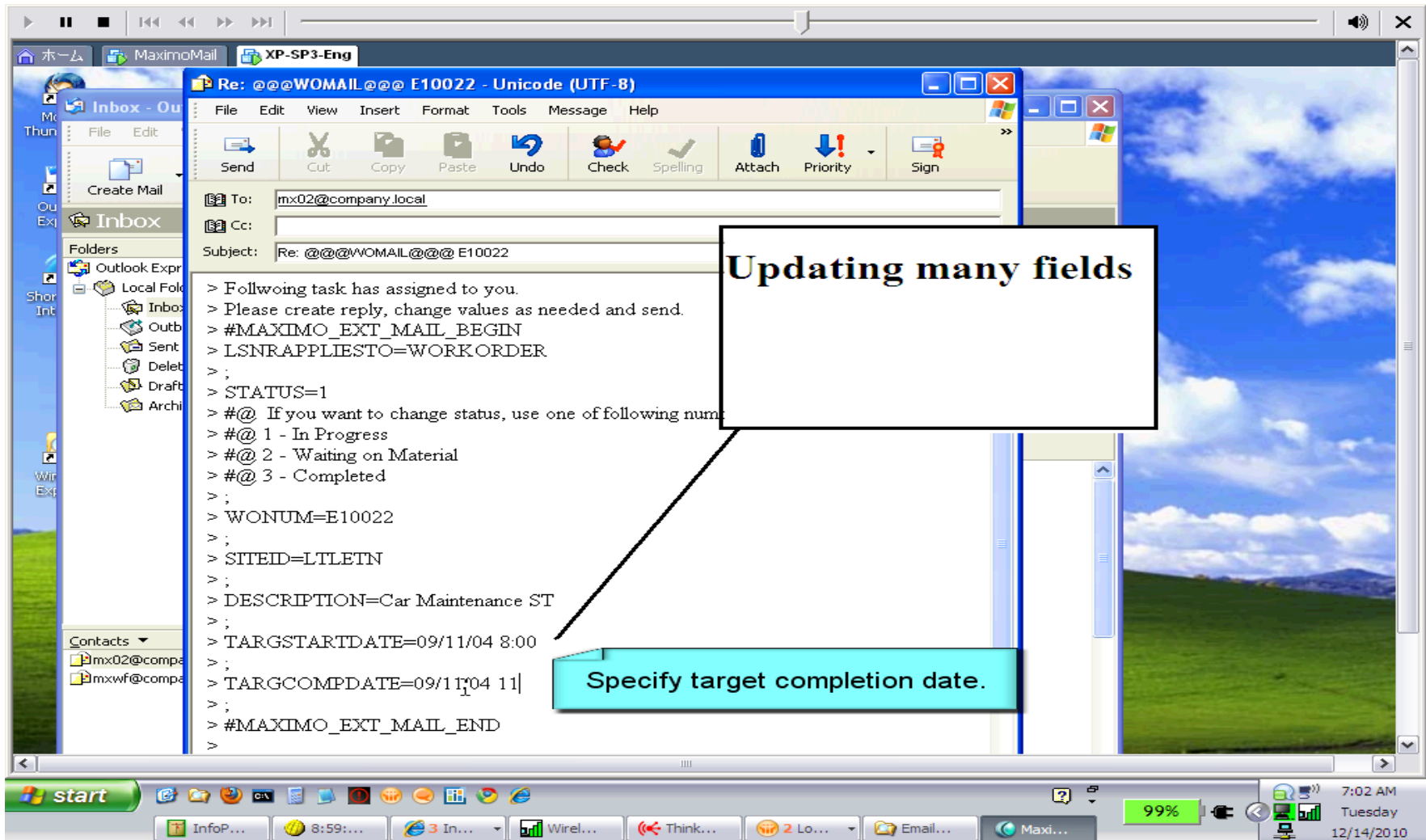
7:08 PM

# Email received by mobile worker





# Mobile worker replies with updates



Re: @@@WOMAIL@@@ E10022 - Unicode (UTF-8)

To: mx02@company.local

Cc:

Subject: Re: @@@WOMAIL@@@ E10022

> Following task has assigned to you.  
> Please create reply, change values as needed and send.  
> #MAXIMO\_EXT\_MAIL\_BEGIN  
> LSNRAPPLIESTO=WORKORDER  
> ;  
> STATUS=1  
> #@ If you want to change status, use one of following number  
> #@ 1 - In Progress  
> #@ 2 - Waiting on Material  
> #@ 3 - Completed  
> ;  
> WONUM=E10022  
> ;  
> SITEID=LTTLETN  
> ;  
> DESCRIPTION=Car Maintenance ST  
> ;  
> TARGSTARTDATE=09/11/04 8:00  
> ;  
> TARGCOMPDATE=09/11/04 11|  
> ;  
> #MAXIMO\_EXT\_MAIL\_END  
>

**Updating many fields**

**Specify target completion date.**

start

InfoP... 8:59:... 3 In... Wirel... Think... 2 Lo... Email... Maxi...

99%

7:02 AM  
Tuesday  
12/14/2010

# Email Listener processes inbound reply

**E-mail Listeners - Windows Internet Explorer**

http://localhost:9080/maximo/ui/?event=loadapp&value=emailstner&uisessionid=1

File Edit View Favorites Tools Help

E-mail Listeners

Bulletins: (1) Go To Reports Start Center Profile Sign Out Help

Find: Select Action

List Listener E-mail Processing

E-mail Address: mx4mail mx4mail Active?

E-mail Password: ..... Protocol: pop3

Mail Server: mx7vm Port: 110

E-mail Folder: INBOX

Administrator E-mail: admin@maximodemo.com

**E-mail Processing**

Preprocessor: psdi.common.emailstner.Preprocessor

Object Key Delimiter: ##

Workflow Process: MFMAILRCV

**E-mail Deletion**

E-mail Deleted?

Age Threshold:

Age Unit of Measure:

**E-mail Processing Frequency**

Schedule: 1m,\*\*\*\*\*

Cron Task Name: LSNRCRON

Cron Task Instance: LSNR21

Last Run Time: 10/25/11 7:13 PM

**Queue-based Processing**

Queue-based Processing?

Queue Connection Factory:

Processing Queue:

Done

Start E-mail Listeners - ... more pics.doc - Mic... 7:13 PM

# Integration with Workflow

- For the workflow scenario, the comm template is specified on the task node properties in Workflow Designer. The email is sent to the task's role.

**Task Node Properties**

Title: APPROV1, First stage approval  
Application: WOTRACK, Work Order Tracking  
Time Limit: 0:00  
Display One?:   
WF Task Type: [Empty]

**Assignments** | Filter | 1 - 1 of 1 | Download

Role ID	Description	Send E-mail	Task Description	Time Limit
APPROLEWO	Work order approval owner.	<input type="checkbox"/>	:description	0:00

**Details**

Role ID: APPROLEWO, Work order approval owner.  
Application: WOTRACK, Work Order Tracking  
Description: :description  
Escalation Role: [Empty]  
Communication Template: MXSMPWFA, Sample Template for Workflow Assignme  
Expression: [Empty]

Time Limit: 0:00  
Priority: [Empty]  
Send E-mail?:   
Calendar Based?:   
Custom Class?:

**New Row**

# Integration with Workflow

- In the E-mail Operation Configuration, select an active workflow process for the object. Then the appropriate nodes may be chosen for notification in the email cycles.

The screenshot displays the 'E-mail Operation Configuration' web application. The configuration fields are as follows:

- Configuration: WFWO (Work order multi-level approval in email)
- Workflow Process: MFWO (Work order approval process - for email)
- Object: WORKORDER (The WORKORDER Table)
- Active?

The 'Workflow Assignment Configurations' table shows the following data:

Node	Title	Attribute to store value	Attributes
2	FIN APPR1		
4	FIN APPR2		
8	SAFETY		

The 'Selection Values for 2' table shows the following data:

Selection value	Accept	Store the value to attribute	Description
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	<input type="checkbox"/>	<input type="checkbox"/>	

# Emailing workflow tasks

- **The first table specifies which tasks in the workflow process will support the email operation.**
  - Node = NodeID in the workflow process.

Workflow Assignment Configurations Filter > 1 - 2 of 2 Download ?

Node	Title	Attribute to store value	Attributes
2	FIN APPR1	WOPRIORITY	DESCRIPTION,SCHEDSTART,SITEID,STATUS,WONUM
4	FIN APPR2	WOPRIORITY	ASSETNUM,DESCRIPTION,SITEID,STATUS,WONUM

**Details**

Node: 2 FIN APPR1

Attribute to store value\*: WOPRIORITY Priority

Attributes: DESCRIPTION,SCHEDSTART,SITEID,STATUS,WONUM

**Task Completion Notification Communication Template**

Task Completion Notification Template

New Row

# Workflow selection values

- **The second table builds the email prompts seen by the recipient.**
  - Selection value : The number to be selected by the user in email.
  - Only 1 Accept is allowed.
  - Multiple Rejects are allowed, with a differentiating data value.
  - Response Template : Used as acknowledgement message in response to user's operation.

Selection value	Accept	Store the value to attribute	Description
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	moreinfo
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	cancel
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	duplicate

**Details**

Selection value:     Accept?:     Store the value to attribute?:     Description\*:

**Response Communication Template**

Response Template:    

[New Row](#)

# Conclusion: configurable email scenarios allow record updates from any device by email

- Simple status changes by numeric replies
  - A single number on the first line of the reply triggers the update
  - Style is chosen on person record, defaults to Advanced
- Advanced status changes, allowing attribute updates
  - Examples: WO description, priority, target dates
  - Edited in the body of the email response
- Simple workflow approve or reject by numeric replies
- Advanced workflow updates, allowing attribute updates

# Email Interaction Setup - Demo





# **Workflow Feature 1 – Parallel Assignments**

## **7.1.1**

# Parallel Assignments

- Requirement: specify a workflow task to require one representative from each of several groups to accept the assignment in order for it to move down the accept action line.
- Delivered via Assignee Relationship (to person, person group or role) on task node, mutually exclusive of traditional assignment role.
- Each relationship becomes a group, for assignment purposes.
- Enhances the concept of “any one assignee may accept” vs. “all assignees must accept.”

# **Workflow Feature 2 – Current Memo**

## **7.5.0.3**

# Current Memo

- Requirement: capture the workflow routing memo immediately preceding the action that sends a communication template.
- Gets an important piece of routing information onto the notification that is reporting on its action performed.

# Current Memo

List Canvas Process

Process: MEMO DEMO

Object: WORKORDER

Process Revision: 2

100%



### Action Properties

Action: WO CANCEL >> Work order cancel action

Instruction: Cancel work order

Positive?

Expression:

Custom Class?

Notifications Filter > 1 - 1 of 1 >

Communication Template	Send To
1018	WILSON


New Row

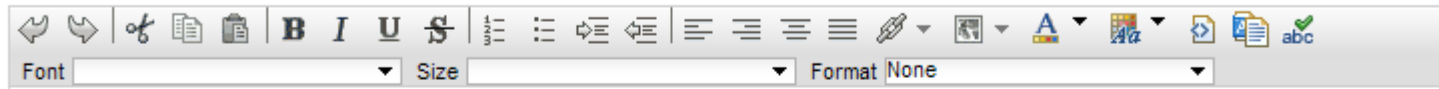
OK Cancel

# Current Memo (vs. Last Memo)

\* Send From:

Reply To:

Subject:  



A rich text editor toolbar with various icons for undo, redo, cut, copy, paste, bold, italic, underline, strikethrough, bulleted list, numbered list, indent, outdent, link, unlink, font color, background color, text color, and spell check. Below the icons are dropdown menus for Font, Size, and Format (set to None).

Work order was rejected.

Work: :description

Last memo: :WFASSIGNMENT.lastmemo

Rejection memo: :WFASSIGNMENT.currentmemo

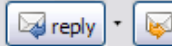
Message:



# Current Memo – result of substitutions

☆ Workflow assignment for WILSON @@WFMAIL@@ • bdownlist@maxdev002.swg.usma.ibm.com  
☆ Work order 1239 - bdownlist@maxdev002.swg.usma.ibm.com

from bdownlist@maxdev002.swg.usma.ibm.com ☆  
subject **Work order 1239**  
to You ☆



Work order was rejected.

Work: renovate the server room

Last memo: Fine with me

Rejection memo: too expensive, try again

# **Assignments Feature 1 – Assignments Tab in Work Order Tracking**

**Scheduler 7.1.1**  
**Base 7.5**



# Assignments Tab

- Requirement: allow labor and crew assignments to be made without leaving Work Order Tracking.
  - Note, crews are now in base Maximo
- Finds available labor or crews by date and shift matching the work plan labor requirements

# Assignments Tab

Work Order Tracking

Bedford Work Orders Find: [ ] Select Action [ ]

Work Order: 1005 Electric Cart Tune-Up Site: BEDFORD Status: APPR

Parent WO: [ ] Scheduled Start: [ ] Target Start: 7/25/12 8:00 AM

Scheduled Finish: [ ] Target Finish: 7/27/12 9:00 AM

Assignments: Filter [ ] 1 - 1 of 1

Task	Description
[ ]	Electric Cart Tune-Up

**Available Labor**

To find labor available during a specific date range, enter the dates in the From and To fields. To include labor who are already assigned to other jobs, select Include Fully Assigned.

\* From: 7/25/12 \* To: 7/26/12

Location: SHIPPING Vendor: [ ] Contract: [ ]

Include Fully Assigned?

Refresh

Labor	Name	Craft	Skill Level	Work Location	Shift	Start Time	Available Hours	Assigned?
		MECH	FIRSTCLASS					
KLIEN	Ted Klien	MECH	FIRSTCLASS	NEEDHAM	DAY	7/26/12 2:28 PM	0:32	<input type="checkbox"/>
SILIKI	Jim Siliki	MECH	FIRSTCLASS	NEEDHAM	EVENING	7/25/12 3:00 PM	8:00	<input type="checkbox"/>
SNYDER	Kevin Snyder	MECH	FIRSTCLASS	NEEDHAM	NIGHT	7/25/12 11:00 PM	8:00	<input type="checkbox"/>
CALMS	Mark Calms	MECH	FIRSTCLASS	NEEDHAM	NIGHT	7/25/12 11:00 PM	8:00	<input type="checkbox"/>

Cancel

# Assignments Feature 2 – Bulk Re-schedule

**Scheduler 7.1.1**  
**Base 7.5**

# Bulk Re-schedule

- Requirement: move all selected work orders on the list tab of Work Order Tracking to a new date
- Including an option to re-schedule labor assignments starting at the new date, or un-assign them

# Bulk Re-schedule

Work Order Tracking

Bedford Work Orders Find:  Select Action

List Work Order Plans Assignments Related Records Actuals Safety Plan Log Data Sheet Failure Reporting Specifications

Advanced Search Save Query Bookmarks

Work Orders Filter > 1 - 10 of 10

<input type="checkbox"/>	Work Order	Description	Location	Asset	Status	Scheduled Start
<input type="checkbox"/>	7330	Fuel handling tools	NEEDHAM		WAPPR	3/28/99 7:00 PM
<input type="checkbox"/>	7331	Engineering and layout drawings	BR300	11300	WAPPR	7/25/12 2:34 PM
<input type="checkbox"/>	7332	Install latches and dowels	NEEDHAM		WAPPR	7/25/12 2:34 PM
<input type="checkbox"/>	7333	Install turntable	NEEDHAM		WAPPR	7/25/12 2:34 PM
<input checked="" type="checkbox"/>	7334	Install transfer table	NEEDHAM			
<input checked="" type="checkbox"/>	7335	Build out-bay work platform	NEEDHAM			
<input checked="" type="checkbox"/>	7336	Install tool rack	NEEDHAM			
<input type="checkbox"/>	7337	Build/install in-bay covers	NEEDHAM			
<input type="checkbox"/>	7338	Install manual grapples	NEEDHAM			
<input type="checkbox"/>	7339	Install pneumatic grapples	NEEDHAM			

Select Records

**Reschedule/Unassign Assignments**

Reschedule Date:

Reschedule the assignments?

OK Cancel

# Assignments - Demo



# Thank You!

## Questions?

