

Maximo Autoscripts

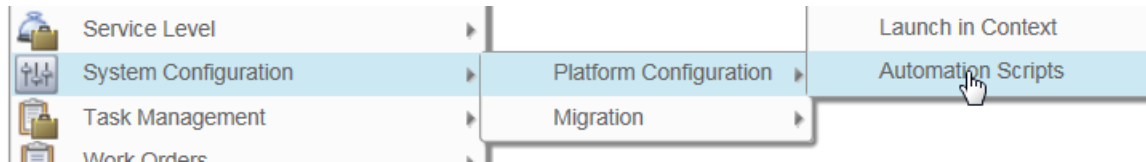
Anand Kshatriya
A&A IT Solutions Corp

Biography:

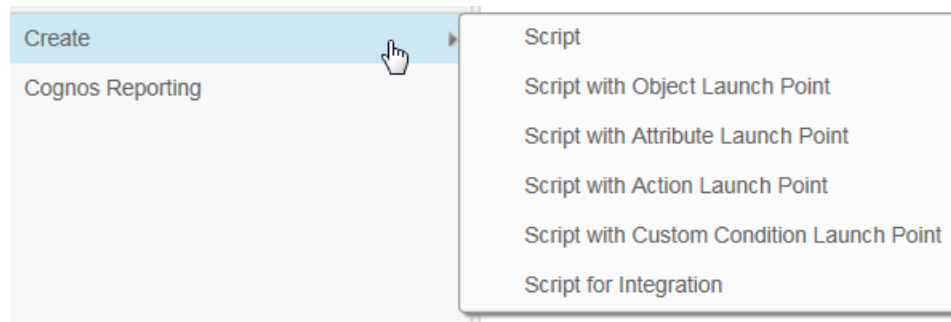
Anand Kshatriya - He is a Mechanical Engineer, MBA and a Computer Professional. He has 8 years of Production, Inspection, Installation and Commissioning experience in Utility Plants, Cement Plants and other Process plants.

He also has 16 years of Computer design and development experience. Worked on Maximo from version 4 up to the latest 7.6 in Utility Plants, Metals Industry, Food Industry and Oil and Gas Industry.

Automation scripts can be accessed using the below navigation.



Different types of automation scripts can be created.



MOC requirement:

- MOC cannot be taken from ENTERED to INPLN unless reviewers, approver and authorizer is assigned.
- MOC cannot be taken from INPLN to PLANCOMP unless reviews, approval and authorizer are checked as complete.
- MOC cannot be taken to APPR unless all PRE-START Actions are complete.

Below autoscript is triggered when a Management of Change (MOC) status is changed

Attribute Launch Point

Launch Point:

SC_MOCSTA

MOC Status Validations

Active?



Object:

PLUSGMOC

* Attribute:

STATUS

Events

- Initialize Access Restriction
- Initialize Value
- Validate
- Retrieve list
- Run action

Launch Point Variables

Filter > 1 - 1 of 1

Variable	Variable Type	Binding Type	Binding Value	Overridden?
sc_status	IN	ATTRIBUTE	STATUS	<input checked="" type="checkbox"/>

Variable:

sc_status

Binding Value:

STATUS

Variable Type:

IN

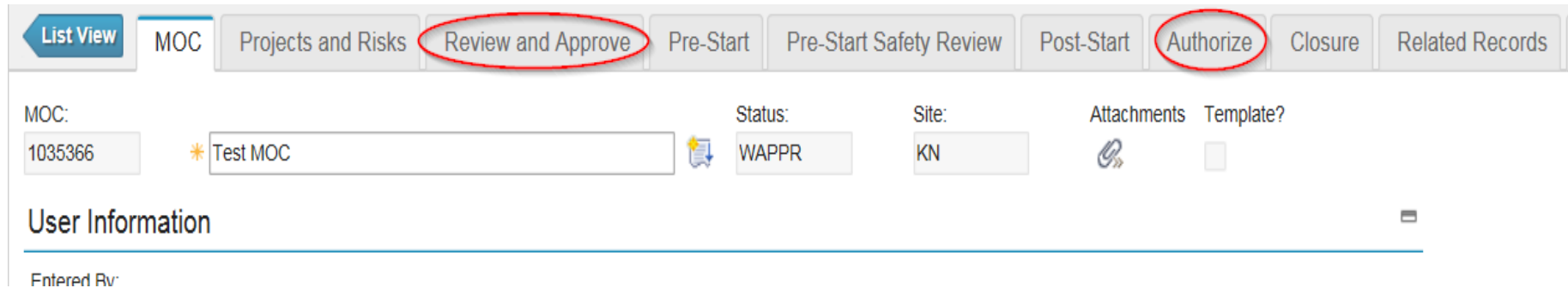
Overridden?



Binding Type:

ATTRIBUTE

Below autoscript example is used to ensure a MOC (Management of Change) is validated and approved by the right authority before processing.




List View | MOC | Projects and Risks | **Review and Approve** | Pre-Start | Pre-Start Safety Review | Post-Start | **Authorize** | Closure | Related Records

MOC: 1035366 * Test MOC

Status: WAPPR

Site: KN

Attachments  Template?

User Information

Entered By:

MOC pre and post start steps

List View

MOC

Projects and Risks

Review and Approve

Pre-Start

Pre-Start Safety Review

Post-Start

Authorize

Closure

Related Records

Log

MOC:

1035366

* Test MOC

Status:

WAPPR

Site:

KN

MOC Type:

Owner:

Owner Group:

Pre-Start Actions

Filter > 1 - 3 of 3


MOC Action	Description	Reviewer Title	Action By	Completed?	Repeatable?	Sign Off Date	Comments
1013	Determine if the change affects the water bal	Env Mgr		<input type="checkbox"/>	<input type="checkbox"/>		
1021	Determine if the change introduces situation	H&S Mgr		<input type="checkbox"/>	<input type="checkbox"/>		
1056	Verify that maintenance department person	Maint Mgr		<input type="checkbox"/>	<input type="checkbox"/>		

Select MOC Actions


Select MOC Action Group

MOC has to be reviewed and approved

[List View](#)
[MOC](#)
[Projects and Risks](#)
[Review and Approve](#)
[Pre-Start](#)
[Pre-Start Safety Review](#)
[Post-Start](#)
[Authorize](#)
[Closure](#)
[Related R](#)

MOC: 1035366 * 


Status: WAPPR Site: KN

MOC Type:  Owner: Owner Group:

Reviewers

Filter >     1 - 1 of 1


Reviewer	Name	Person's Location	Person's Site	Status	Reviewed?	Sign Off Date
AKSHATRIYA	Anand Kshatriya		KN	ACTIVE	<input type="checkbox"/>	<input type="text"/>

Reviewer: AKSHATRIYA >> Anand Kshatriya 

Comments:

Person's Location:

Status: ACTIVE

Sign Off Date: 

Person's Site: KN


Reviewed?

[Select People](#) [New Row](#)

Approvers

Filter >     1 - 1 of 1


Approver	Name	Person's Location	Person's Site	Status	Approved?	Sign Off Date
TEST1	test 1			ACTIVE	<input type="checkbox"/>	<input type="text"/>

Approver: TEST1 >> test 1 

Comments:

Person's Location:

Status: ACTIVE

Sign Off Date: 

Person's Site:

Approved?

MOC has to be authorized

List View

MOC

Projects and Risks

Review and Approve

Pre-Start

Pre-Start Safety Review

Post-Start

Authorize

Closure

MOC:

1035366

* Test MOC

X

Status:

WAPPR

Site:

KN

Owner Group:

MOC Type:

Owner:

Authorizers

Filter

1 - 1 of 1

Authorizer	Name	Person's Location	Person's Site	Status	Authorized?	Sign Off Date
AKSHATRIYA/	Anand Kshatriya		KN	ACTIVE	<input type="checkbox"/>	

Authorizer: AKSHATRIYA >> Anand Kshatriya

Person's Location:

Person's Site:

Status:

Authorized?:

Sign Off Date:

Comments:

Select People

New Row

MOC Related records

Find MOC



Find Navigation Item

- Go To Applications
- Available Queries
 - All Records
 - All Bookmarks
 - Active MOCs
 - All HHO Open MOCs
 - All In Progress and Approved MOCs
 - MOC - All Uncompleted Actions
 - MOC - My Uncompleted Actions

- Common Actions
 - New MOC
 - Save MOC
 - Clear Changes
 - Change Status
 - Select Owner
 - Take Ownership
 - Approve MOC
- More Actions
 - Workflow
 - Apply SLAs
 - View SLAs
 - Select/Deselect SLAs
 - Create
 - View

List View MOC Projects and Risks Review and Approve Pre-Start Pre-Start Safety Review Post-Start Authorize Closure **Related Records**

MOC: 1035366 X

Originating Record: >> Status: WAPPR

Originating Record Class: Site: KN

Related Work Orders Filter > 0 - 0 of 0

Work Order	Description	Class	Status	Relationship
There are no rows to display.				

Select Work Orders New Row

Related Action Tracking Records Filter > 0 - 0 of 0

Work Order	Description	Class	Status	Relationship
There are no rows to display.				

Select Tickets New Row

Related Tickets Filter > 0 - 0 of 0

Work Order Key	Description	Class	Status	Relationship
There are no rows to display.				

Select Tickets New Row

Related Operator Log Entries Filter > 0 - 0 of 0

Description	Log Entry	Summary	Log Date	Relationship
There are no rows to display.				

Select Log Entries

- Work Order
- Service Request
- Incident
- Investigation**
- Improvement
- MOC Request
- MOC
- Action
- Release
- Communication
- Risk Assessment
- Template

```

# Declare Imports
from java.lang import System
from java.lang import Boolean
from java.lang import Float
from java.lang import Integer
from psdi.mbo import MboConstants
System.out.println("MOC number is "+mbo.getString("wonum"))
System.out.println("MOC Status is "+mbo.getString("status"))
revSet=mbo.getMboSet("PLUSGMOCRVLST")
revCount=revSet.count()
System.out.println("Total reviewers are "+Integer.toString(revCount))
apprSet=mbo.getMboSet("PLUSGMOCAPPLIST")
apprCount=apprSet.count()
System.out.println("Total approvers are "+Integer.toString(apprCount))
authSet=mbo.getMboSet("PLUSGMOCAUTHLIST")
authCount=authSet.count()
flagcount=1
System.out.println("Total authorizers are "+Integer.toString(authCount))
System.out.println("Previous status value is "+mbo.getMboValue("status").getPreviousValue().toString())
if ((interactive==Boolean.TRUE) and (mbo.getMboValue("status").getPreviousValue().toString()=="WAPPR") and (mbo.getString("status")
("ENTRD","CAN"))):
    System.out.println("MOC should fail in WAPPR")
    errorgroup = "SC_MOC"
    errorkey = "wapprToEntr"
if ((interactive==Boolean.TRUE) and mbo.getMboValue("status").getPreviousValue().toString()!="WAPPR"):
    if ((mbo.getString("status") in ("INPLN","INPRG","5DAY","REL","PLNGCOMP","WMATL","APPR","COMP","ACTIVE","REL","WSCH")) and (revCo
apprCount==0 or authCount==0)):
    flagcount=2
    errorgroup = "SC_MOC"
    errorkey = "enter_to_plan"
if ((interactive==Boolean.TRUE) and (mbo.getMboValue("status").getPreviousValue().toString()!="WAPPR") and (mbo.getString("status")
("INPLN"))):
    if (revCount>0):
        for i in range(revCount):
            reviewed=revSet.getMbo(i).getBoolean("REVIEWED")
            if (reviewed==Boolean.FALSE):
                flagcount=2
                errorgroup = "SC_MOC"
                errorkey = "notreviewed"

if (apprCount>0):
    for i in range(apprCount):
        approved=apprSet.getMbo(i).getBoolean("APPROVED")
        if (approved==Boolean.FALSE and flagcount==1):
            flagcount=2
            errorgroup = "SC_MOC"
            errorkey = "notapproved"

if (authCount>0):
    for i in range(authCount):
        authorized=authSet.getMbo(i).getBoolean("AUTHORIZED")
        if (authorized==Boolean.FALSE and flagcount==1):
            flagcount=2
            errorgroup = "SC_MOC"

```

1 IMPORTS, DEBUG

2 RELATIONSHIPS

3 MAXMESSAGES, DISPLAY TO USER

4 USING CURRENT MBO

5 LOOPING THROUGH MBO SET

6 USING SCREEN CHECKBOX AND COUNTERS

Import required classes. Put in many System.out statements or print statements when developing the script.

```
# Declare Imports
from java.lang import System
from java.lang import Boolean
from java.lang import Float
from java.lang import Integer
from psdi.mbo import MboConstants
System.out.println("MOC number is "+mbo.getString("wonum"))
System.out.println("MOC Status is "+mbo.getString("status"))
```

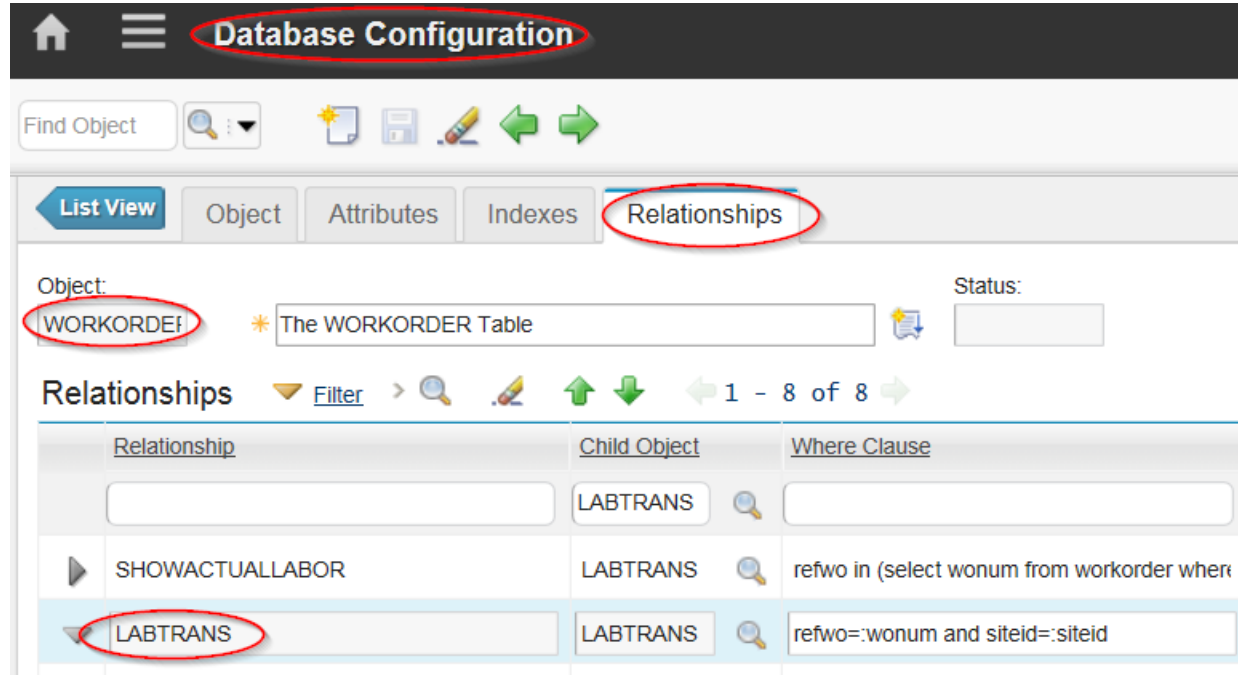
1 IMPORTS, DEBUG

Test the script basic logic before detailed coding.

```
if(true):
    System.out.println("do some if stuff..")
else:
    System.out.println("do some else stuff..")
```

Use relationships defined in Database Configuration.

2 RELATIONSHIPS



The screenshot shows the 'Database Configuration' application interface. The 'Relationships' tab is selected, and the 'Object' field is set to 'WORKORDER Table'. The 'Relationships' table below lists several relationships, with the 'LABTRANS' relationship highlighted in blue. The 'Where Clause' for this relationship is 'refwo=:wonom and siteid=:siteid'.

Relationship	Child Object	Where Clause
	LABTRANS	
SHOWACTUALLABOR	LABTRANS	refwo in (select wonum from workorder where
LABTRANS	LABTRANS	refwo=:wonom and siteid=:siteid

```
laborSet=mbo.getMboSet("LABTRANS")
```

Use MAXMESSAGES to
inform user

3 MAXMESSAGES
AND DISPLAY TO USER

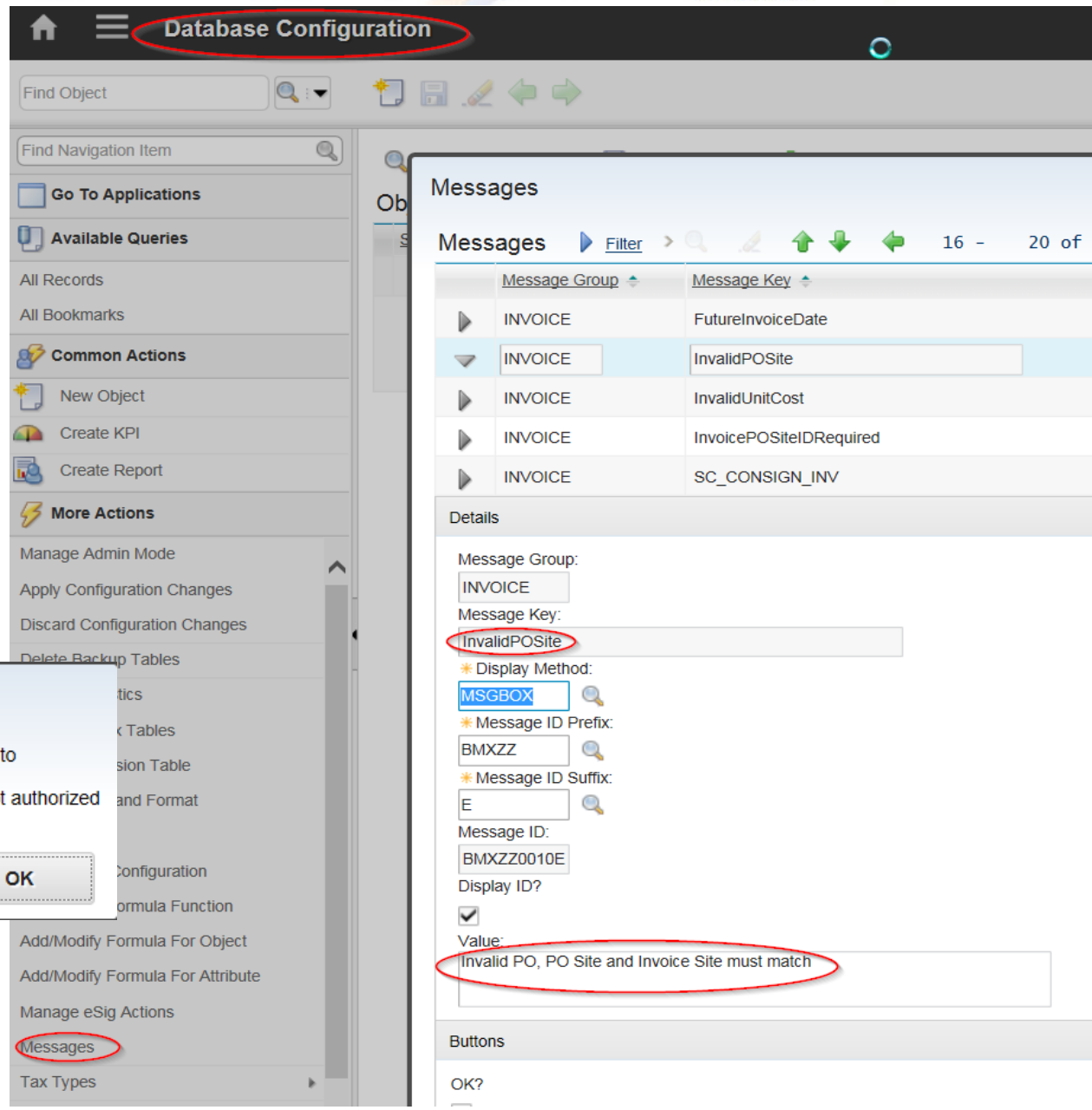
errorgroup = "INVOICE"
errorkey = "InvalidPOSite"

System Message



BMXAA4590E - Could not change MOC 1002288 status to PLNGCOMP.
BMXZZ0031E - Cannot proceed. All Authorizers have not authorized the MOC. [More information](#)

OK



The screenshot shows the SAP Database Configuration interface. The title bar is labeled "Database Configuration". The left sidebar contains a navigation menu with items like "Go To Applications", "Available Queries", "Common Actions", and "More Actions". The "Messages" item is circled in red. The main area displays a table of messages:

Message Group	Message Key
INVOICE	FutureInvoiceDate
INVOICE	InvalidPOSite
INVOICE	InvalidUnitCost
INVOICE	InvoicePOSiteIDRequired
INVOICE	SC_CONSIGN_INV

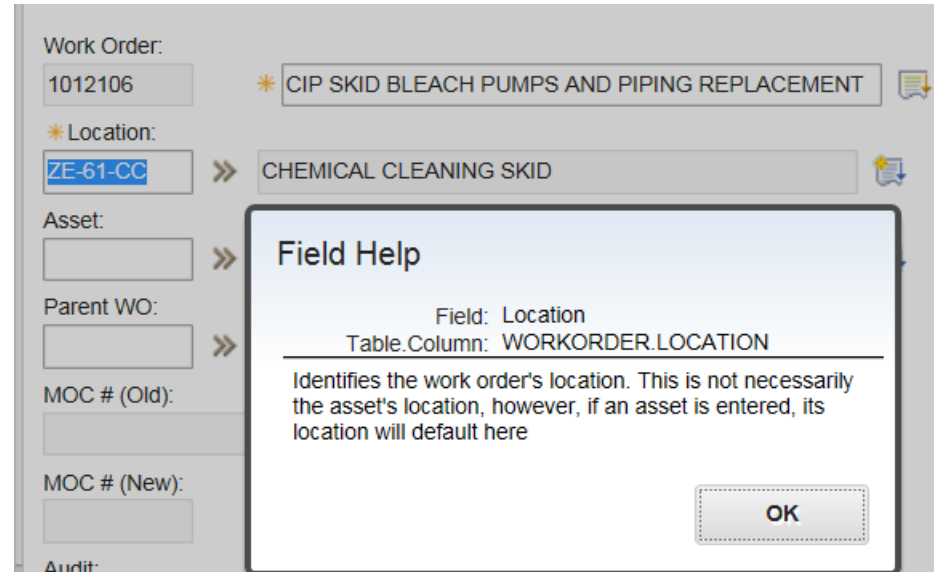
Below the table is the "Details" section for the selected message:

- Message Group: INVOICE
- Message Key: InvalidPOSite (circled in red)
- Display Method: MSGBOX
- Message ID Prefix: BMXZZ
- Message ID Suffix: E
- Message ID: BMXZZ0010E
- Display ID?
- Value: Invalid PO, PO Site and Invoice Site must match (circled in red)

At the bottom, there are "Buttons" including "OK?".

Do a ALT + F1 on the field to get the database column name.

4 USING CURRENT MBO



Work Order:
1012106 * CIP SKID BLEACH PUMPS AND PIPING REPLACEMENT

* Location:
ZE-61-CC >> CHEMICAL CLEANING SKID

Asset:
>>

Parent WO:
>>

MOC # (Old):

MOC # (New):

Audit:

Field Help

Field: Location
Table.Column: WORKORDER.LOCATION

Identifies the work order's location. This is not necessarily the asset's location, however, if an asset is entered, its location will default here

OK

The below code gets the MBO value in the script

```
mbo.getString("LOCATION")  
mbo.getFloat("ESTCOST")
```


Use auto script to loop through child mbo sets:

PR Lines in a Purchase requisition

Labor transactions in a Workorder

List of Suppliers for an Inventory item

5 LOOPING THROUGH
MBO SET

```
customSet=mbo.getMboSet("PRLINE")
count=customSet.count()
cost=0
totalcost=0
for i in range(count):
    cost=customSet.getMbo(i).getFloat("linecost")
    totalcost = totalcost+cost
    System.out.println("Total Cost is "+Float.toString(totalcost))
```

Above code loops through the PR Lines and calculates total cost.

This can be used to prevent the user from approving PR if it is getting over AFE amount.

Using check boxes on screen in a script.

6 USING CHECK BOXES

Rotating?

Field Help

Field: Rotating
Table.Column: ITEM.ROTATING

Specifies whether the item is a rotating asset. If the check box is selected, the item becomes an asset tracked by item number and individual asset number. If the check box is cleared (the default), the item is not tracked as an individual asset.

OK

Below code checks if “Rotating” checkbox is checked on an Item or not.

```
isrotating=mbo.getBoolean("ROTATING")
if (isrotating==Boolean.TRUE):
    System.out.println("Rotating item, needs Asset number")
```

Script examples:

Reset PR Line numbers if a line is deleted.

```
if (interactive==True) and (mbo.getThisMboSet().getApp() == "PR"):  
    customSet=mbo.getMboSet("PRLINE")  
    count=customSet.count()  
    current=0  
    for i in range(count):  
        current=current+1  
        linenum=customSet.getMbo(i).getInt("prlinenum")  
        System.out.println("PR Line number is "+Integer.toString(linenum))  
        if(linenum==current):  
            System.out.println("Current count is equal to PR Line number.")  
        else:  
            System.out.println("Current count is NOT equal to PR Line number.")  
            customSet.getMbo(i).setValue("prlinenum", current, MboConstants.NOACCESSCHECK | MboConstants.NOVALIDATION)
```

Script should only be triggered in a user session, not if record is created by MIF in integration.

```
if (interactive==Boolean.TRUE and mbo.getThisMboSet().getApp() == "PR"):
```

Script is triggered only from PR application.

```
if (interactive==Boolean.TRUE and mbo.getThisMboSet().getApp() == "PR"):
```

User should see a warning message if required date is less than today.

```
from psdi.server import MXServer
```

```
TodayDate = MXServer.getMXServer().getDate()  
if(mbo.getDate("REQUIREDDATE")<TodayDate):  
    errorgroup = "AppDate"  
    errorkey = "reqdateinvalid"
```

Dynamically select domain based on another field value

```
from java.lang import System
System.out.println("is labor is "+str(islabor))
if islabor==1:
    domainid='LABOR_DOMAIN'
else:
    domainid='NONLABOR_DOMAIN'
```

Attribute Launch Point

Launch Point:

SC_ERP_WOI

Used to retrieve

Object:

WORKORDEF



Events

- Initialize Access Restriction
- Initialize Value
- Validate
- Retrieve list
- Run action

Script to query database and select/ add/ update/ delete records:

Below code gets MAXUSER Object.

```
from psdi.security import UserInfo
from psdi.server import MXServer
userInfo = mbo.getThisMboSet().getUserInfo()
userSet=MXServer.getMXServer().getMboSet("MAXUSER", userInfo)
userSetWhere = "status='ACTIVE' and userid='" + user + "'"
userSet.setWhere(userSetWhere)
userSet.reset()
count=userSet.count()
System.out.println("USER MBO count is "+Integer.toString(count))
System.out.println("User is "+user)
newperson=userSet.getMbo(0).getString("PERSONID")
```

Questions/ Contact:

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Booth # 101