MxApprove

A Mobile Workflow Inbox for Maximo

Product Installation and Admin Guide

Table of Contents

About MxApprove 2

Prerequisites 2

Installing the App on a Mobile Device 3

Installing on iOS 3

Installing on Android 3

Installing the Server Components 4

Upgrading the Server Components 7

Uninstalling the Server Components 9

Configuring the Record Details screen 11

Troubleshooting 15

Unable to log into the MxApprove app 15

Common Exceptions 15

If all else fails... no worries! 15

Appendix A – Server Component Details 16

About MxApprove

MxApprove by A3J Group, LLC is a mobile workflow inbox for IBM Maximo Asset Management. Users of IBM Maximo need to approve or reject various system records as they go through standard lifecycles. Examples include approval of Purchase Requisitions to support non-stock purchases for Work Order planning, revisions of Contracts and Purchase Orders, electronic approval of Invoices, revisions of Job Plans, etc. Many times, administrators of IBM Maximo utilize the system's Electronic Workflow capabilities to standardize and automate the lifecycle of these records. At times during these lifecycles, assignments are made to individuals or groups that require review and approval or rejection of the assignment.

That's where MxApprove comes in. Standard functionality within IBM Maximo has users log into the web application on their desktop to access their Assignments Inbox. From there users review and act on those records. In the world of management today, who has time to constantly sit down at their desk and monitor their IBM Maximo inbox?

MxApprove allows users to view their Assignments Inbox right on their phone. Available on iOS and Android operating systems, MxApprove allows users to access their inbox, review the records that are assigned to them, and accept, reject, and reassign assignments. All on the go, and all using the authorized IBM Maximo API's.

This guide will walk you through installing the app, both for the mobile device, and the necessary server components.

Prerequisites

To fully install the MxApprove app, you will need to install the app on an iOS or Android device, and install server components within IBM Maximo itself.

The app communicates with IBM Maximo via its REST API. Therefore, the app will require IBM Maximo version 7.5.0.3 or higher.

Installing the App on a Mobile Device

MxApprove is available on iOS devices through the Apple Store and Android devices through the Google Play Store. Please follow the instructions below for the type of device you have.

It's worth noting that the app is free on both platforms and can be installed without the server components. Without the server components, users can still access their assignments inbox and browse the records that have been assigned to them. However, they will not be able to accept, reject, or reassign an assignment.

Installing on iOS

1. Open the App Store app on your iOS device.
2. Press the Search button on the bottom and enter MxApprove in the ensuing search bar.
3. Press the GET button in the upper right-hand portion of the screen.
4. Enter the password for your Apple ID account.
5. The app will install and is ready for use. Press the OPEN button to launch the app.

Installing on Android

1. Open the Google Play app on your Android device.
2. Press the Search button on the bottom and enter MxApprove in the ensuing search bar.
3. Press the GET button in the upper right-hand portion of the screen.
4. Enter the password for your Google account.
5. The app will install and is ready for use. Press the OPEN button to launch the app.

Installing the Server Components

MxApprove requires components to be installed into your IBM Maximo environment to fully utilize the features of the app. Please note that users will be able to log into the app and view their current workflow assignments without the server components, but they will not be able to act on those assignments. The server components extend the IBM Maximo REST API to accept, reject, or reassign workflow assignments, and to allow system administrators to tailor the details screen for each type of record that is workflow enabled.

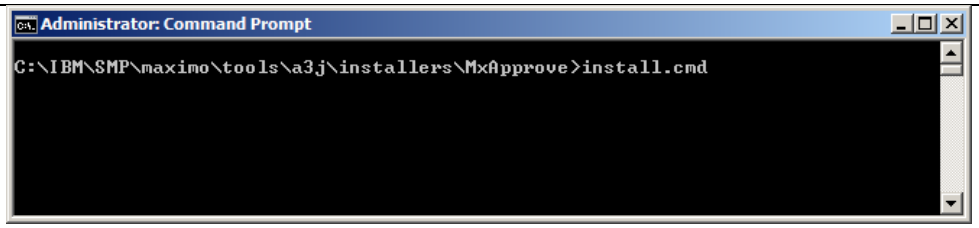
A complete listing of the files, database objects, screen updates, and other Maximo configurations that will be loaded into your Maximo environment can be found in Appendix A of this document.

Installation Steps

Follow the instructions listed in the table below. Please note that to complete this installation, the administrator must have:

1. Administrative access to the IBM Maximo application.
2. Administrative access to the IBM WebSphere or Oracle WebLogic application server application.
3. Administrative access to the Operating System where IBM Maximo® is installed.

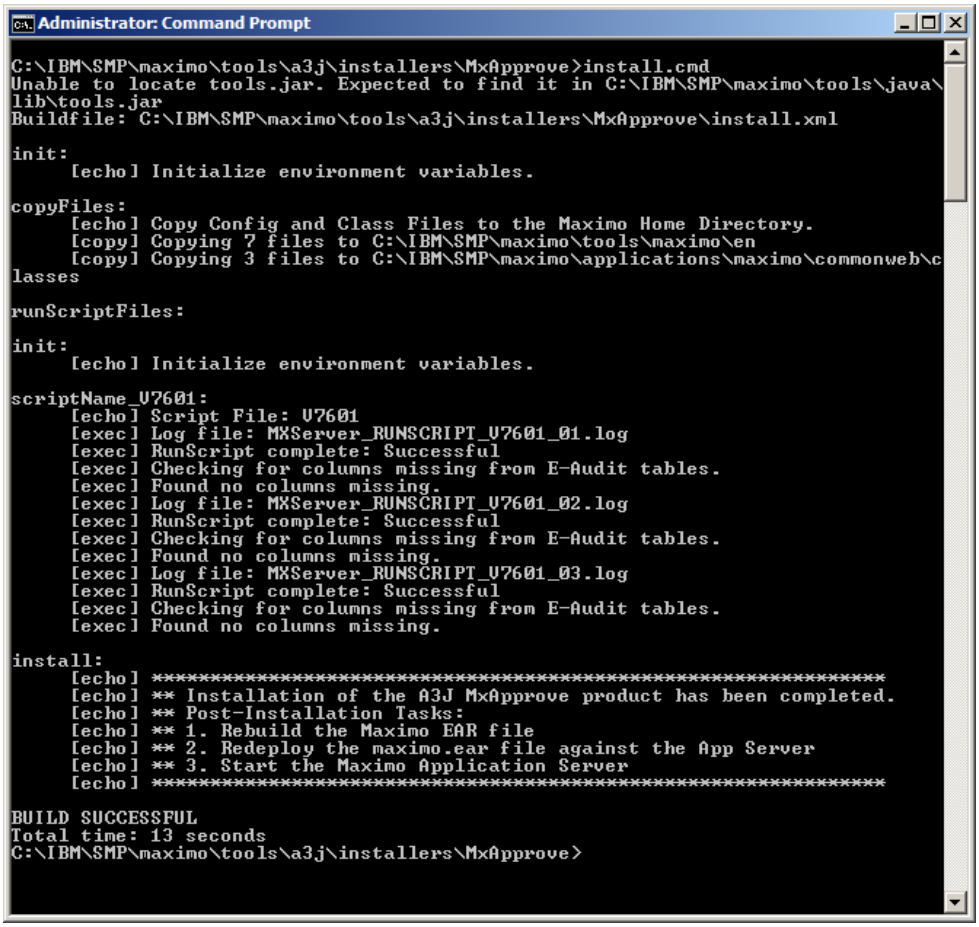
Step	Instructions
1.	Stop the IBM Maximo Application server(s) or service(s). For more information on how to stop the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
2.	Backup your entire IBM Maximo home directory (e.g. C:\IBM\SMP\maximo) on the file system.
3.	Backup your IBM Maximo database.
4.	Extract the contents of the **A3JMxApprove.zip** file to your IBM Maximo home directory (e.g. C:\IBM\SMP\maximo), overwriting files if necessary.
5.	Using a Windows Command Prompt as an Administrator, navigate to the following directory: **<maximo-home>\tools\a3j\installers\MxApprove** … where <maximo-home> represents the folder location of your IBM Maximo home directory (e.g. C:\IBM\SMP\maximo).



6. Run the Install Utility:

install.cmd

The installer generates messages like the following output:



If you see **BUILD FAILED** instead of **BUILD SUCCESSFUL** at the bottom of that script, you have encountered an error. Please refer to the troubleshooting guide in a subsequent chapter of this installation guide or contact A3J Group.

7.	Rebuild and redeploy the **maximo.ear** file. For more information on how to rebuild and redeploy IBM Maximo EAR files, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
8.	Start the IBM Maximo Application server(s) or service(s). For more information on how to start the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
9.	Your installation of MxApprove is now complete. To verify installation: MxApprove adds a new tab to the Database Configuration application within IBM Maximo. Log into Maximo using a web browser and navigate to the System Configuration > Platform Configuration > **Database Configuration** application. Locate the PR object from the initial search page. In addition to the standard tabs, such as Object, Attributes and Relationships, a new tab called **MxApprove** should appear. Click on the **MxApprove** tab. You should see information on that tab for which values to show on the record details related to Purchase Requisitions in the mobile app. MxApprove also adds several system properties within IBM Maximo. Log into Maximo using a web browser and navigate to the System Configuration > Platform Configuration > **System Properties** application. Use the filter to search for properties with the term **mxapprove** in its name. You should see several properties after performing the filter. Please refer to Appendix A for a full list of server configuration elements that this installation adds to IBM Maximo.

Upgrading the Server Components

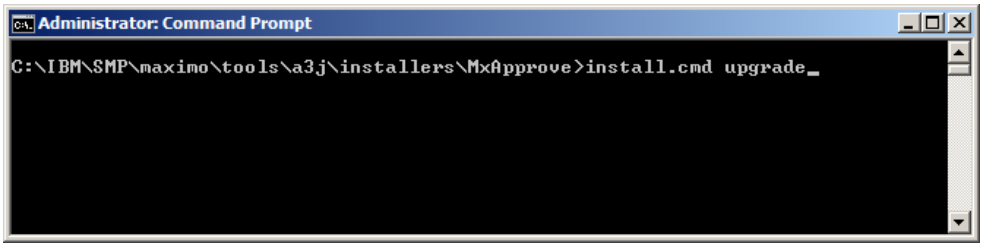
MxApprove keeps track of the version of its server components that are installed in IBM Maximo. This makes upgrading the product a breeze. Simply follow the instructions below, and MxApprove will take itself from its current version to the latest version available.

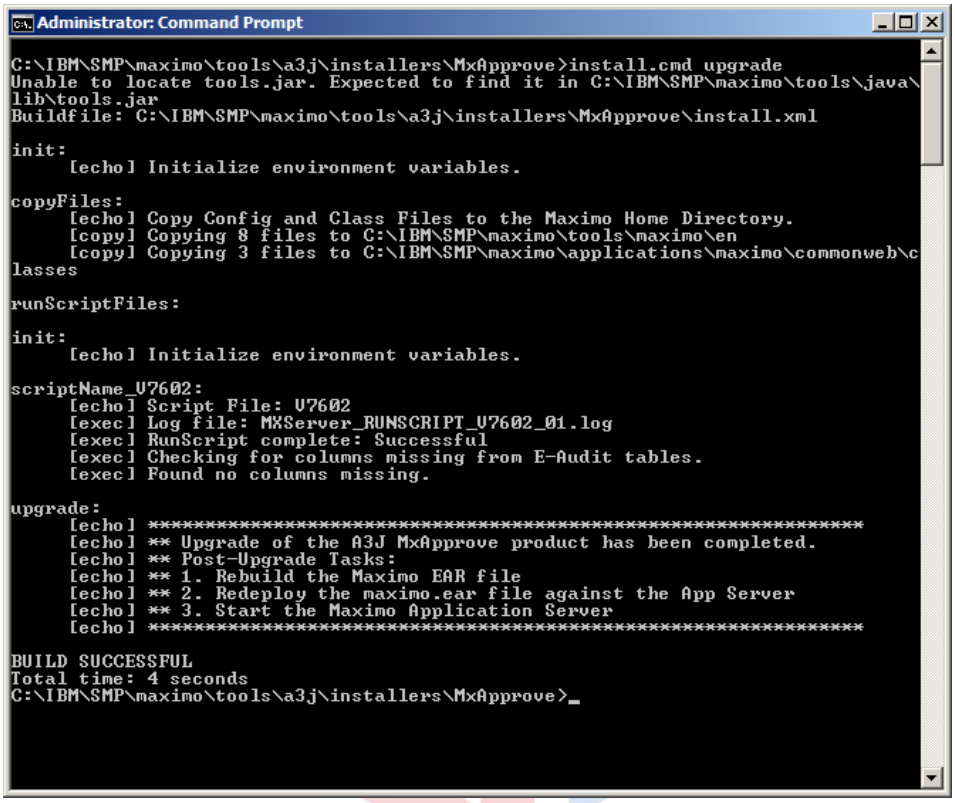
A complete listing of the files, database objects, screen updates, and other Maximo configurations that will be loaded into your Maximo environment can be found in Appendix A of this document.

Upgrade Steps

Follow the instructions listed in the table below. Please note that to complete this upgrade, the administrator must have:

1. Administrative access to the IBM Maximo application.
2. Administrative access to the IBM WebSphere or Oracle WebLogic application server application.
3. Administrative access to the Operating System where IBM Maximo® is installed.

Step	Instructions
1.	Stop the IBM Maximo Application server(s) or service(s). For more information on how to stop the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
2.	Backup your entire IBM Maximo home directory (e.g. C:\IBM\SMP\maximo) on the file system.
3.	Backup your IBM Maximo database.
4.	Extract the contents of the **A3JMxApprove.zip** file to your IBM Maximo home directory (e.g. C:\IBM\SMP\maximo), overwriting files if necessary.
5.	Using a Windows Command Prompt as an Administrator, navigate to the following directory: **<maximo-home>\tools\a3j\installers\MxApprove** … where <maximo-home> represents the folder location of your IBM Maximo home directory (e.g. C:\IBM\SMP\maximo). 

6.	Run the Upgrade Utility: **install.cmd upgrade** The installer generates messages similar to the following output:  If you see **BUILD FAILED** instead of **BUILD SUCCESSFUL** at the bottom of that script, you have encountered an error. Please refer to the troubleshooting guide in a subsequent chapter of this installation guide or contact A3J Group.
7.	Rebuild and redeploy the **maximo.ear** file. For more information on how to rebuild and redeploy IBM Maximo EAR files, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
8.	Start the IBM Maximo Application server(s) or service(s). For more information on how to start the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
9.	Your upgrade of MxApprove is now complete. Please refer to Appendix A for a full list of server configuration elements that the upgrade adds to IBM Maximo.

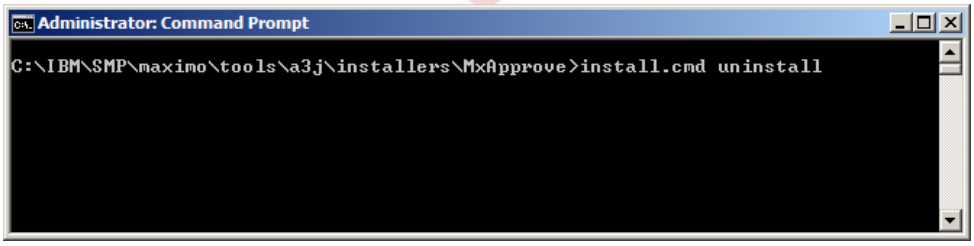
Uninstalling the Server Components

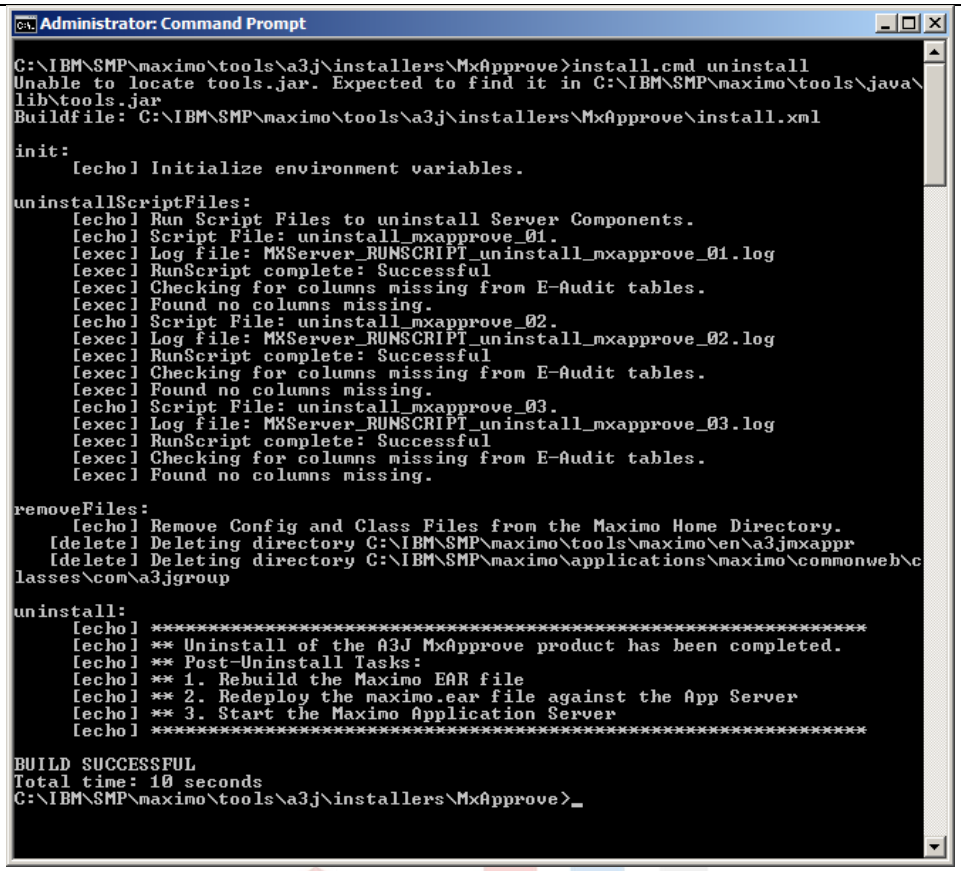
It was just getting good! But if you must… we'll at least make it easy for you. We'll also leave the installation files around so you can always choose to put it back!

Uninstall Steps

Follow the instructions listed in the table below. Please note that to complete this uninstall, the administrator must have:

1. Administrative access to the IBM Maximo application.
2. Administrative access to the IBM WebSphere or Oracle WebLogic application server application.
3. Administrative access to the Operating System where IBM Maximo® is installed.

Step	Instructions
1.	Stop the IBM Maximo Application server(s) or service(s). For more information on how to stop the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
2.	Backup your entire IBM Maximo home directory (e.g. C:\IBM\SMP\maximo) on the file system.
3.	Backup your IBM Maximo database.
4.	Using a Windows Command Prompt as an Administrator, navigate to the following directory: **<maximo-home>\tools\a3j\installers\MxApprove** … where <maximo-home> represents the folder location of your IBM Maximo home directory (e.g. C:\IBM\SMP\maximo). 
5.	Run the Uninstall Utility: **install.cmd uninstall** The installer generates messages similar to the following output:

	 If you see **BUILD FAILED** instead of **BUILD SUCCESSFUL** at the bottom of that script, you have encountered an error. Please refer to the troubleshooting guide at the bottom of this installation guide or contact A3J Group.
6.	Rebuild and redeploy the **maximo.ear** file. For more information on how to rebuild and redeploy IBM Maximo EAR files, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
7.	Start the IBM Maximo Application server(s) or service(s). For more information on how to start the IBM Maximo Application server, refer to the IBM Maximo System Administration Guide that was delivered with the IBM Maximo software.
8.	Your uninstall of MxApprove is now complete.

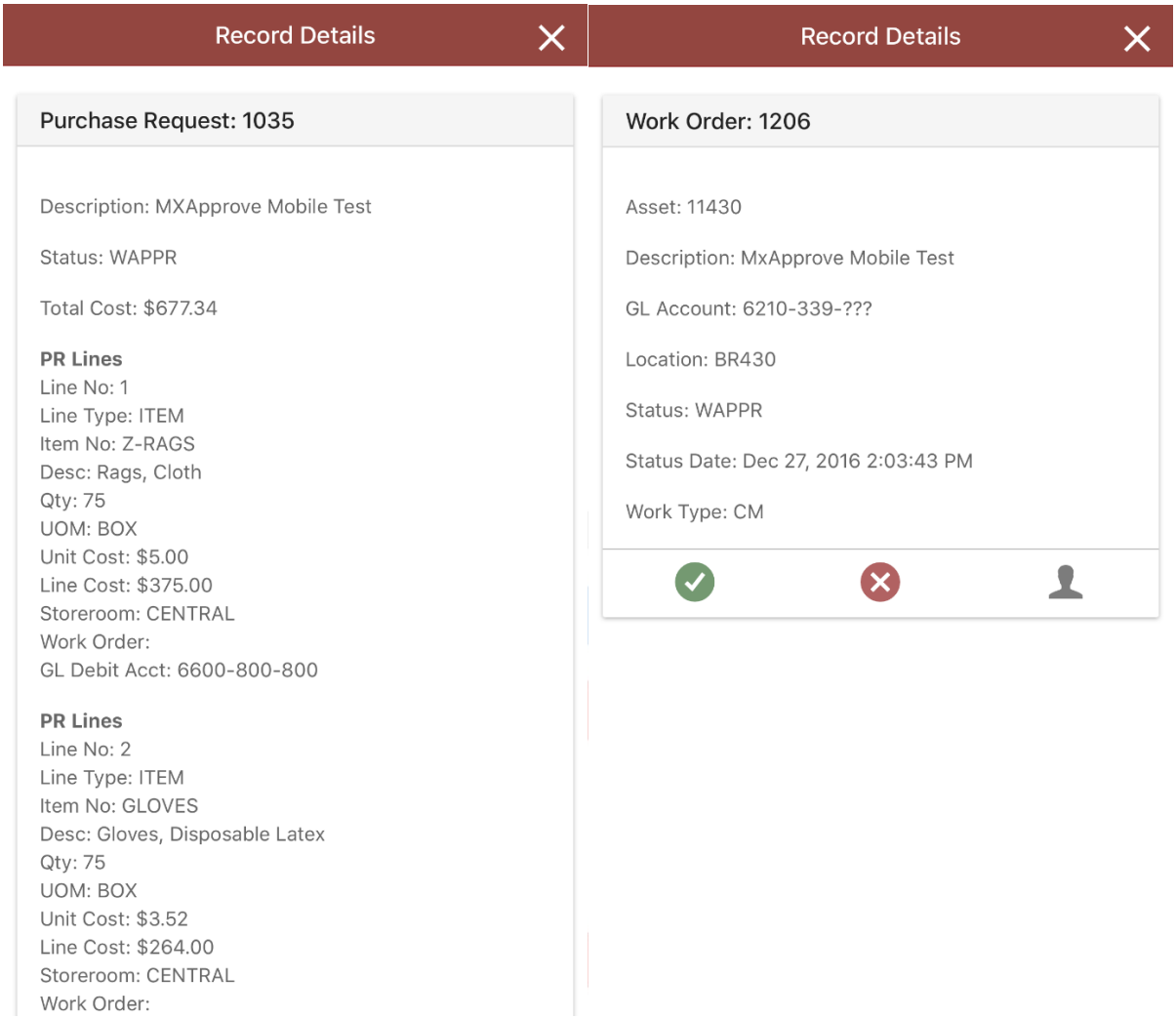
Configuring the Record Details screen

MxApprove allows administrators of IBM Maximo to configure the information displayed on the Record Details screen within the app on an object-by-object basis. The app comes with some basic definitions for common objects that might go through Maximo's electronic workflow. Those objects are:

- Work Orders (WORKORDER)
- Service Requests (SR)
- Purchase Requisitions (PR)
- Purchase Orders (PO)
- Invoices (INVOICE)
- Desktop Requisitions (MR)

Your organization might have a need to route other objects through electronic workflow in IBM Maximo, such as Job Plans or Assets. Alternatively, the fields that come with the objects listed above might not be the ones you want to see. Therefore, we've built some basic capabilities into the product to allow administrators to configure what's shown.

Below are two examples of the Record Details screen in the MxApprove app. The first shows the details of a Purchase Requisition, and the second shows the details of a Work Order.

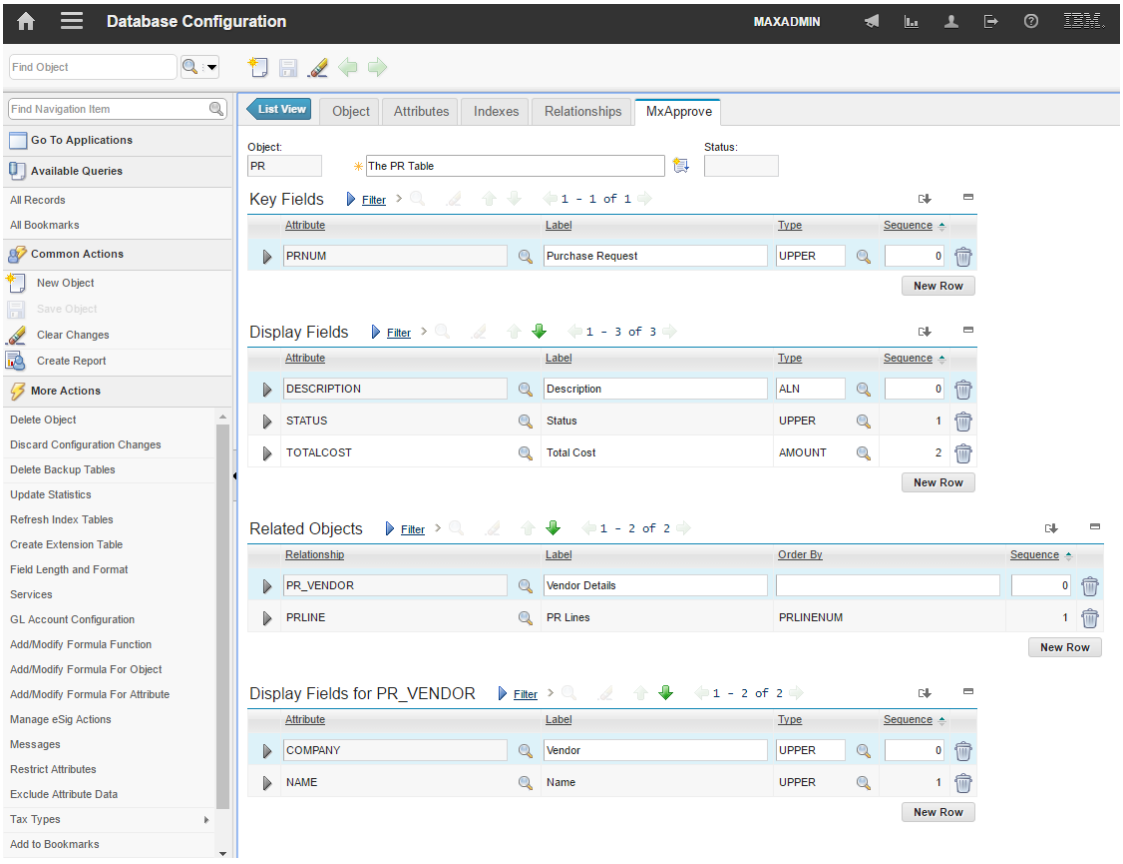


Notice how the two screens have a different layout based upon their object type.

To adjust the information displayed on the Record Details screen for an object, follow the instructions listed in the table below. Please note that to complete these steps, the administrator must have:

1. Administrative access to the IBM Maximo application.
2. Administrative access to the IBM WebSphere or Oracle WebLogic application server application.
3. Administrative access to the Operating System where IBM Maximo is installed.

Step	Instructions
1.	Log into IBM Maximo as an administrative user.

2.	From the Go To menu, navigate to the System Configuration > Platform Configuration > **Database Configuration** application.
3.	Locate the object that you wish to edit or create Record Details for. For example, you may want to adjust the Record Details screen for Purchase Requisitions. If so, locate the PR object. Alternatively, you may want to add Record Details for Job Plans. If so, locate the JOBPLAN object.
4.	Navigate to the **MxApprove** tab. It should have the following layout: 
5.	The **Key Fields** section of the screen represents the header information for the Record Details screen. Multiple Key Fields will be concatenated together separated by commas. For example: Work Order: 1206, Site: BEDFORD. To add a new Key Field, click the **New Row** button under the Display Fields table and supply the Attribute, Label, Type, and Sequence values. Please note that the Type field will be used by the app for properly formatting numbers, dates, etc.
6.	The **Display Fields** section of the screen represents fields that will be displayed in sequence on the Record Details screen of the app. To add a new Display Field, click the **New Row** button under the Display Fields table and supply the Attribute, Label, Type, and Sequence values.

	Please note that the Type field will be used by the app for properly formatting numbers, dates, etc. To remove a Display Field, click the trash can icon on the row you wish to delete.
7.	If you wish to add related information to the screen, you can use the **Related Objects** section of the screen to define a relationship to the current record. You can define as many relationships as you wish for a given object. Related Objects will be shown after the Display Fields on the Record Details screen of the app in the sequence you specify. To add a new Related Object, click the **New Row** button under the Related Objects table and supply the Relationship, Label, Order By (optional), and Sequence values. To remove a Related Object, click the trash can icon on the row you wish to delete.
8.	The **Display Fields for {Relationship}** section of the screen allows you to add display fields for the related objects. To add a new Display Field, highlight the Related Object you wish to add a field for and click the **New Row** button under the Display Fields for {Relationship} table. Supply the Attribute, Label, Type, and Sequence values. To remove a Display Field, click the trash can icon on the row you wish to delete.
9.	To save your changes, click the floppy disk icon in the toolbar. Your changes will be reflected immediately in the MxApprove app. You do not need to restart or refresh for your changes to take effect.

Troubleshooting

Here are some common problems that we've seen users experience, and their respective answers:

Unable to log into the MxApprove app

- **Lack of connectivity to the network that the IBM Maximo environment is located.** The MxApprove app will alert users when they are offline. However, the app does not know whether the connection that you have is the correct one. For example, your phone may be connected to the internet via your cell connection. However, your IBM Maximo environment may be located within a private network that is not accessible to the internet. Make sure that you can see the IBM Maximo environment from the connection you have. One trick is to open a browser on your device and see if you can navigate to the IBM Maximo URL for your organization. If the login page returns successfully, then you're on the correct network. Otherwise, locate the correct network and connect to it.

- **LDAP vs Native IBM Maximo Authentication.** The MxApprove app supports both LDAP and native IBM Maximo authentication. The app defaults to native authentication. This setting can be toggled back and forth from the Settings dialog within the app.

Common Exceptions

- **workflow#BgCompFailure.** Since the app uses the IBM Maximo REST API to communicate back and forth, it is therefore using the MIF for all transactions. If a user completes or rejects an assignment that then triggers a Manual Input or Interaction from the user, the MIF will not properly handle that scenario and will throw this error back to the user. Unfortunately, there's not much that can be done to get around this, other than to develop the workflow such that either a Stop, Wait, or new Task assignment follows each Task Assignment.

- **Your IBM Maximo environment is not on version 7.5.0.3 or later.** The IBM Maximo REST API was introduced in version 7.5.0.3. Any version that precedes that one will fail almost immediately upon use. ***HINT*:** The folks at A3J Group are really helpful regarding IBM Maximo upgrades.

If all else fails... no worries!

Call or email the folks at A3J Group. They're very helpful.

support@a3jgroup.com
1-877-A3J-GRP4 (1-877-235-4774)

Appendix A – Server Component Details

System Properties

Name	Description	Value
mxe.rest.handler.mxapprove	The REST Mx Approve resource handler	com.a3jgroup.mxapprove.A3JMboResourceRequestHandler
mxe.rest.mxapprove.blockaccess	Block access to these comma separated list of mxapprove mbos	[empty]
mxe.rest.mxapprove.defaultformat	The REST default format for all mxapprove mbos	json
mxe.rest.mxapprove.imglib.defaultformat	The REST default format for the mxapprove mbo imglib	image
mxe.rest.serializer.mxapprove.imglib.image	The REST serializer for the imglib mxapprove mbo for image format	com.ibm.tivoli.maximo.rest.ImageLibSerializer
mxe.rest.serializer.mxapprove.json	The REST serializer for mxapprove mbo for json format	com.a3jgroup.mxapprove.A3JMboJSONSerializer
mxe.rest.serializer.mxapprove.xml	The REST serializer for mxapprove mbo for xml format	com.ibm.tivoli.maximo.rest.MboXMLSerializer

Table Domains

Domain ID	Description	Object
A3JMXAPPRATTR	MaxAttributeCfg Table Domain	MAXATTRIBUTECFG
A3JMXAPPRATTRCHILD	MaxAttributeCfg Table Domain for Child Objects	MAXATTRIBUTECFG
A3JMXAPPRREL	MaxRelationship Table Domain	MAXRELATIONSHIP

Database Objects

Object	Attribute	Title	Remarks

A3JMXAPPRKEY	OBJECTNAME	Object	This represents an object in Workflow.
A3JMXAPPRKEY	ATTRIBUTENAME	Attribute	The attribute name of a key field for this object.
A3JMXAPPRKEY	LABEL	Label	The label of a key field for this object.
A3JMXAPPRKEY	MAXTYPE	Type	The type of a key field for this object.
A3JMXAPPRKEY	SEQ	Sequence	The sort order of a key field for this object.
A3JMXAPPRFIELD	OBJECTNAME	Object	This represents an object in Workflow.
A3JMXAPPRFIELD	ATTRIBUTENAME	Attribute	The attribute name of a display field for this object.
A3JMXAPPRFIELD	LABEL	Label	The label of a display field for this object.
A3JMXAPPRFIELD	MAXTYPE	Type	The type of a display field for this object.
A3JMXAPPRFIELD	SEQ	Sequence	The sort order of a display field for this object.
A3JMXAPPRCHILD	OBJECTNAME	Object	This represents an object in Workflow.
A3JMXAPPRCHILD	PARENT	Object	This represents an object in Workflow.
A3JMXAPPRCHILD	NAME	Relationship	The relationship name of a related object.
A3JMXAPPRCHILD	LABEL	Label	The label of a related record set for this object.
A3JMXAPPRCHILD	ORDERBY	Order By	The order by clause that the related set should be sorted by.
A3JMXAPPRCHILD	SEQ	Sequence	The sort order of a related record set for this object.
A3JMXAPPRCHILDFLD	OBJECTNAME	Object	This represents an object in Workflow.
A3JMXAPPRCHILDFLD	PARENT	Object	This represents an object in Workflow.
A3JMXAPPRCHILDFLD	NAME	Relationship	The relationship name of a related object.
A3JMXAPPRCHILDFLD	ATTRIBUTENAME	Attribute	The attribute name of a related display field for this object.
A3JMXAPPRCHILDFLD	LABEL	Label	The label of a related record set for this object.
A3JMXAPPRCHILDFLD	SEQ	Sequence	The sort order of a related record set for this object.

Indexes

Table	Key(s)
A3JMXAPPRKEY	OBJECTNAME, ATTRIBUTENAME
A3JMXAPPRFIELD	OBJECTNAME, ATTRIBUTENAME
A3JMXAPPRCHILD	PARENT, NAME
A3JMXAPPRCHILDFLD	PARENT, NAME, ATTRIBUTENAME

Relationships

Parent	Child	Name	Remarks
WFASSIGNMENT	WFNODE	A3JMXAPPRNODES	Relationship to the WFNODE table, used to find the node record for a given assignment. This relationship is necessary due to code in the WFACTION object that assumes the owning object is the WFNODE, not the WFASSIGNMENT. We are after the Assignment Accept and Reject Instructions to the user for the assignment.
MAXOBJECTCFG	A3JMXAPPRKEY	A3JMXAPPRKEY	Relationship to the MAXOBJECTCFG table, used to identify key fields for the given object for the A3J MxApprove app.
MAXOBJECTCFG	A3JMXAPPRFIELD	A3JMXAPPRFIELD	Relationship to the MAXOBJECTCFG table, used to identify display fields for the given object for the A3J MxApprove app.
MAXOBJECTCFG	A3JMXAPPRCHILD	A3JMXAPPRCHILD	Relationship to the MAXOBJECTCFG table, used to identify related objects for

			the given object for the A3J MxApprove app.
A3JMXAPPRCHILD	A3JMXAPPRCHILDFLD	A3JMXAPPRCHILDFLD	Relationship to the A3JMXAPPRCHILD table, used to identify display fields for the given related object for the A3J MxApprove app.