

MAXIMO 7612 TO MANAGE 8.6

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1. Introduction

This is one of my first few upgrade PoC of a local Maximo76 setup to MAS Manage8.6 setup in IBM TechZone Cloud. I am sure there are more than one approach to upgrade, but this is just to prove ourselves at least one successful approach.

This is just a guide with real commands. Please follow the standards and procedures you must for a client setup, apart from best practices and standard procedures of IBM Maximo.

This document needs good understanding of Maximo EAM version 7.6 and its administration and fair level of understanding of MAS, OpenShift concepts and OpenShift CLI.

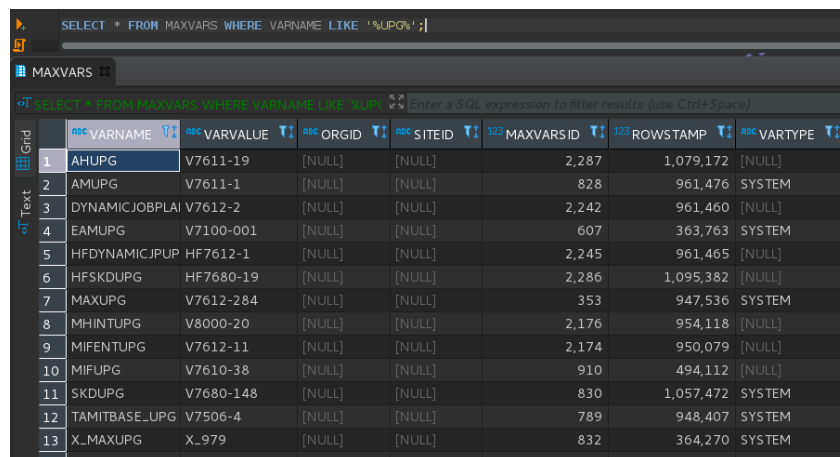
2. Working Environment

Windows laptop with two VirtualBox VMs.

VM1 - Maximo 76 Environment:

- Maximo 7612 setup
- DB2 database
- Customisation: No but outlined the steps in this document for customisations.

The screenshots were taken from Maximo76 OOTB (no customisations).



The screenshot shows a database query result in a Maximo interface. The query is `SELECT * FROM MAXVARS WHERE VARNAME LIKE '%UPG%';`. The results are displayed in a table with columns: VARNAME, VARVALUE, ORGID, SITEID, MAXVARSID, ROWSTAMP, and VARTYPE. The table contains 13 rows of data, including variables like AHUPG, AMUPG, DYNAMICJOBPLAI, EAMUPG, HFDYNAMICJPUP, HFSKUPG, MAXUPG, MHINTUPG, MIFENTUPG, MIFUPG, SKDUPG, TAMITBASE_UPG, and X_MAXUPG.

VARNAME	VARVALUE	ORGID	SITEID	MAXVARSID	ROWSTAMP	VARTYPE
1 AHUPG	V7611-19	[NULL]	[NULL]	2,287	1,079,172	[NULL]
2 AMUPG	V7611-1	[NULL]	[NULL]	828	961,476	SYSTEM
3 DYNAMICJOBPLAI	V7612-2	[NULL]	[NULL]	2,242	961,460	[NULL]
4 EAMUPG	V7100-001	[NULL]	[NULL]	607	363,763	SYSTEM
5 HFDYNAMICJPUP	HF7612-1	[NULL]	[NULL]	2,245	961,465	[NULL]
6 HFSKUPG	HF7680-19	[NULL]	[NULL]	2,286	1,095,382	[NULL]
7 MAXUPG	V7612-284	[NULL]	[NULL]	353	947,536	SYSTEM
8 MHINTUPG	V8000-20	[NULL]	[NULL]	2,176	954,118	[NULL]
9 MIFENTUPG	V7612-11	[NULL]	[NULL]	2,174	950,079	[NULL]
10 MIFUPG	V7610-38	[NULL]	[NULL]	910	494,112	[NULL]
11 SKDUPG	V7680-148	[NULL]	[NULL]	830	1,057,472	SYSTEM
12 TAMITBASE_UPG	V7506-4	[NULL]	[NULL]	789	948,407	SYSTEM
13 X_MAXUPG	X_979	[NULL]	[NULL]	832	364,270	SYSTEM

Note: Even though the Maximo76 environment referred here has other add-ons installed, we are focusing on base Maximo (MAXUPG 7612-284) upgrade.

VM2 - Ubuntu VM with OpenShift CLI installed. You can use your local laptop itself or WSL in your Windows laptop.

A common shared folder exists for these 2 VMs on the Windows Host and the shared folder path in both the VMs is same: `/media/sf_VMSharedFolder`

Cloud/TechZone - MAS Manage 8.6 Environment:

- MAS 8.10
- Manage 8.6
- DB2 database installed along with Manage 8.6 (or MAS IoT)
- Cloud/TechZone setup

3. Approach to Upgrade

There could be different approaches, depending on Maximo76 setup, size, environment constraints, client requirements, etc.

This document considers the following approach for upgrade:

- For Maximo76 steps, we use a production copy which is used only for the purpose of upgrade (not for dev, testing or production).
- For MAS Manage, we install the MAS Core and Manage as OOTB first.
- Then, we use the default installed database of MAS Manage and import the Maximo76 schema into it.
- Perform Upgrade in this Maximo76 schema of MAS environment.
- Let the OOTB Upgrade finish in MAS environment and then apply the customisations.

Other approaches:

1. Mx76 as secondary DB in MAS
 - instead of overwriting default DB2 database with Maximo76 schema, install a new (secondary) database for Maximo76.
 - Upgrade this Maximo76 database
 - Then either point Manage to this upgraded database or backup/restore this upgraded database into default Manage DB.
 - I used this approach earlier (not documented here) and it works as well.
2. DB First approach
 - In this approach, we install MAS Core
 - Install DB2 database in MAS with same names used by Manage install.
 - Import the Maximo76 schema into this DB2 database.
 - Install MAS Manage: This installation of Manage should take care of upgrading the Db2 database with Maximo76 schema.
 - Not tried this approach yet but prefer not doing this approach as we want the Manage installation to be successful with OOTB.
3. Upgrade locally
 - In a Maximo76 environment (locally), try to get the MAS Manage SMP and related artefacts as a SMP_M8 folder.
 - Point the SMP_M8 folder's DB Connection to Maximo76 database.
 - Perform the `updatedb` from the SMP_M8 folder.
 - Export this upgraded copy and import in MAS environment.
 - I've given a try to this approach but was not successful as SMP_M8 copy needs additional artefacts (like secrets) which are in OpenShift and need to figure out how to get them working in SMP_M8 folder.

4. Customisations

If your Maximo76 setup has customisations, bundle them into an archive as documented in [Customizing IBM Maximo Manage - IBM Documentation](#), compatible with MAS Manage.

This includes and not limited to, custom product config, DBCs, MXSs, Java Classes (businessobjects, maximouiweb, tools, etc), Automation Scripts (compatible with GBS auto deploy tool), Custom XSLs, etc.

You may refer to my MAS Manage Customisation PoC [here](#) for a sample.

Note: Please ensure the Java version match/computability when compiling custom java classes for Manage customisation archive.

5. Preparing Maximo76 DB

Perform these steps to avoid errors when importing or upgrading the Maximo76 database in MAS environment.

Note: Steps c, d, e, f can be ignored if performing this for OOTB Maximo76 database.

a. Backup DB

- Take a backup of the database before we prepare it for upgrade. Just in case, if you need to start over again

b. Integrity Check

- Run the integrity checker in Maximo76 database as is ie., with customisations, etc.
- Fix the integrity errors or run integrity checker in repair mode.
- Run the integrity checker again until all errors are fixed.

c. Stripping Off Customisations

Remove all the custom classes and applicable mbo and mbo-field registrations from Maximo76 database and bundle the customisation files in the customisation archive as mentioned [above](#).

In the Maximo76 database perform the following:

- Update the custom classes used for persistent and non-persistent objects to the default OOTB custom classes.
- Remove/Replace the custom classes for MBO Attributes.
- Do the same for Integration custom classes
- You can leave the custom class name references in the presentation XMLs as is.
- You can keep the automation scripts as is.
- Basically, remove all custom class reference from DB tables (except from the XMLs of MAXPRESENTATION).

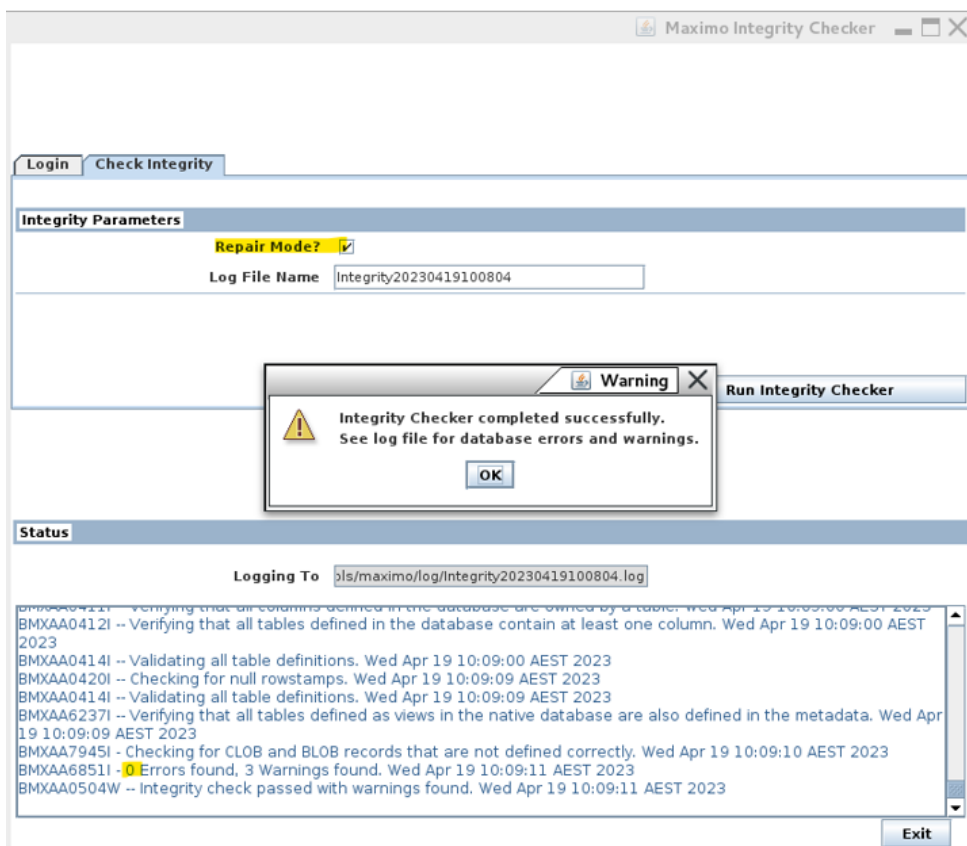
d. Perform updatedb

Run the updatedb command in Maximo 76 itself without the custom product config, so that the updatedb resets the OOTB mbo and field class definitions.

At this stage maximo76 DB has custom objects and attributes but no custom class reference (except in MAXPRESENTATION XMLs).

e. Integrity Check Again

- Run the integrity checker in Maximo76 database, this time it is without customisations.
- It should pass in the first go, else something is being missed in the above steps.



f. Fix Script

Prepare a script for the fixes which are not covered in customisation archive, eg Integration End Point URLs, Doclinks updates, etc. So that this can be run after Maximo76 is upgraded to Manage8.

6. Export Maximo76 DB

There are multiple ways of exporting DB, I used this approach to simply export the DDL and Data. This is to ensure minimal settings are affected when importing this into MAS Manage database.

These values are here for reference, they could be different in your environment:

DB install user	ctginst1
The name of Maximo76 database in DB2	maxdb76
Maximo Schema	maximo
File name to capture all Maximo DDL	maxdb76.ddl
The Maximo76 VM's shared folder path	/media/sf_VMSharedFolder

a. Backup vs Export

Preferred the Export-Import option over Backup-Restore. For the Maximo7612 OOTB database I was working with, the DB2 backup size (~6 GB) was way more than the Export size (tar file of ~400 MB). Plus going with the Export options with minor modifications lets you import the Schema and its objects

rather than the entire DB. The MAS DB default install had other schemas as well, which I did not want to disturb.

b. Exporting DDL and Data as tar file

Run the following commands in the terminal of Maximo76 installation (Local VM, in my case). Ensure the DB is not connected by any application, like Maximo or SQL Developer or any other app.

su ctginst1
mkdir /tmp/db2bkp/
cd /tmp/db2bkp
db2 terminate
db2 deactivate db maxdb76
db2look -d maxdb76 -e -z maximo -l -x -f -o maxdb76.ddl
db2move maxdb76 export -sn maximo -l ./lobs
tar -cf maxdb76exp.tar *
cd /tmp
chmod -R 777 db2bkp
exit
cp /tmp/db2bkp/maxdb76exp.tar /media/sf_VMSharedFolder/Mx76/export

If the commands like `db2`, `db2look` and `db2move` are not recognised, trying using their full path, eg:

<code>/opt/IBM/db2/V11.1/bin/db2 deactivate db maxdb76</code>

Example output:

```
[ctginst1@mx761 apr20]$ db2 terminate
DB20000I  The TERMINATE command completed successfully.

[ctginst1@mx761 apr20]$ /opt/IBM/db2/V11.1/bin/db2 terminate
DB20000I  The TERMINATE command completed successfully.

[ctginst1@mx761 apr20]$ /opt/IBM/db2/V11.1/bin/db2 deactivate db maxdb76
DB20000I  The DEACTIVATE DATABASE command completed successfully.

[ctginst1@mx761 apr20]$ /opt/IBM/db2/V11.1/bin/db2look -d maxdb76 -e -z maximo -l -x -f -o maxdb76.ddl
-- No userid was specified, db2look tries to use Environment variable USER
-- USER is: CTGINST1
-- Specified SCHEMA is: MAXIMO
-- Creating DDL for table(s)

-- Schema name is ignored for the Federated Section
-- Output is sent to file: maxdb76.ddl
-- Binding package automatically ...
-- Bind is successful

[ctginst1@mx761 apr20]$ ls
maxdb76.ddl
```

```
[ctginst1@mx761 apr20]$ /opt/IBM/db2/V11.1/bin/db2move maxdb76 export -sn maximo -l ./lobs
***** DB2MOVE *****
Action: EXPORT
Start time: Thu Apr 20 14:38:57 2023

All schema names matching: MAXIMO;
Connecting to database MAXDB76 ... successful! Server : DB2 Common Server V11.1.0
Binding package automatically ... /home/ctginst1/sqllib/bnd/db2common.bnd ... successful!
Binding package automatically ... /home/ctginst1/sqllib/bnd/db2move.bnd ... successful!

EXPORT:      53 rows from table "MAXIMO" "."ACCOUNTDEFAULTS"
EXPORT:       0 rows from table "MAXIMO" "."ACTCI"
EXPORT:       0 rows from table "MAXIMO" "."ACTCIRELATION"
...
...
...
EXPORT:     312 rows from table "MAXIMO" "."WPITEM"
EXPORT:     362 rows from table "MAXIMO" "."WPLABOR"

Disconnecting from database ... successful!

End time: Thu Apr 20 14:39:42 2023
```

All the above commands should be successful, unlike the following example:

```
db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 terminate
DB20000I The TERMINATE command completed successfully.
db2inst1@c-db2w-shared-db2u-0 - Db2U export]$
db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 deactivate db BLUDB
SQL1495W Deactivate database is successful, however, there is still a
connection to the database.
db2inst1@c-db2w-shared-db2u-0 - Db2U export]$
```

c. Updating the tar export file

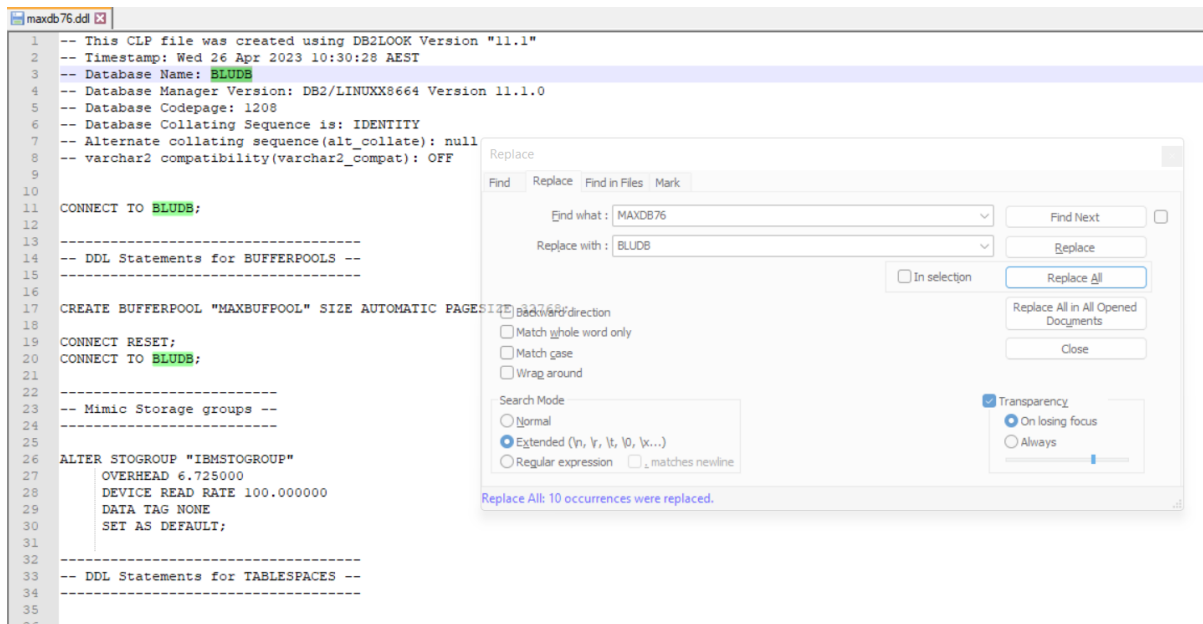
The tar file from the export is now available in the Windows Host of the Maximo76 VM.

Certain sections of the maxdb76.ddl file needs to be modified.

- Extract the maxdb76.ddl file from the tar (I am using 7zip here), after extraction:

Name	Size	Packed Size	Modified	Mode	User	Group	Symbolic Link
lobs	46 698 091	46 704 640	2023-04-26 10:31	drwxr-x---	ctginst1	ctgiadm1	
db2move.lst	59 517	59 904	2023-04-26 10:32	-rw-r--r--	ctginst1	ctgiadm1	
EXPORT.out	68 121	68 608	2023-04-26 10:32	-rw-r--r--	ctginst1	ctgiadm1	
maxdb76.ddl	2 727 314	2 727 424	2023-04-26 10:30	-rw-r--r--	ctginst1	ctgiadm1	
tab1.ixf	16 246	16 384	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab1.msg	142	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab2.ixf	13 551	13 824	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab2.msg	141	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab3.ixf	15 807	15 872	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab3.msg	141	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab4.ixf	21 699	22 016	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab4.msg	141	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	

- Find Replace the DB Name from MAXDB76 to BLUDB. The BLUDB is the default DB Name used by MAS Manage.



- Remove the following sections from the file:
 - Mimic Storage groups
 - DDL Statements for Tablespaces
 - Mimic Tablespaces

The purpose behind doing this is to keep the IBM DB2 settings close to default installed settings in the MAS environment, we just want to replace the Maximo Schema and its objects.

```

22 -----
23 -- Mimic Storage groups --
24 -----
25
26 ALTER STOGROUP "IBMSTOGROUP"
27     OVERHEAD 6.725000
28     DEVICE READ RATE 100.000000
29     DATA TAG NONE
30     SET AS DEFAULT;
31
32 -----
33 -- DDL Statements for TABLESPACES --
34 -----
35
36
37 CREATE REGULAR TABLESPACE "MAXDATA" IN DATABASE PARTITION GROUP IBMDEFAULTGROUP
38     PAGESIZE 32768 MANAGED BY AUTOMATIC STORAGE
39     USING STOGROUP "IBMSTOGROUP"
40     AUTORESIZE YES
41     INITIALSIZE 5000 M
42     MAXSIZE NONE
43     EXTENTSIZE 32
44     PREFETCHSIZE AUTOMATIC
45     BUFFERPOOL "MAXBUFFPOOL"
46     DATA TAG INHERIT
47     OVERHEAD INHERIT
48     TRANSFERRATE INHERIT
49     DROPPED TABLE RECOVERY ON;
50
51
52 CREATE TEMPORARY TABLESPACE "MAXTEMP" IN DATABASE PARTITION GROUP IBMTEMPGROUP
53     PAGESIZE 32768 MANAGED BY AUTOMATIC STORAGE
54     USING STOGROUP "IBMSTOGROUP"
55     EXTENTSIZE 32

```

```

106 -----
107 -- Mimic tablespace --
108 -----
109
110 ALTER TABLESPACE "SYSCATSPACE"
111     PREFETCHSIZE AUTOMATIC
112     OVERHEAD INHERIT
113     AUTORESIZE YES
114     TRANSFERRATE INHERIT;
115
116
117 ALTER TABLESPACE "SYSCATSPACE"
118     USING STOGROUP "IBMSTOGROUP";
119
120
121 ALTER TABLESPACE "TEMPSPACE1"
122     PREFETCHSIZE AUTOMATIC
123     OVERHEAD INHERIT
124     FILE SYSTEM CACHING
125     TRANSFERRATE INHERIT;
126
127
128 ALTER TABLESPACE "USERSPACE1"
129     PREFETCHSIZE AUTOMATIC
130     OVERHEAD INHERIT
131     AUTORESIZE YES
132     TRANSFERRATE INHERIT
133     DATA TAG INHERIT;
134
135
136 ALTER TABLESPACE "USERSPACE1"
137     USING STOGROUP "IBMSTOGROUP";
138
139 -----
140 -- DDL Statements for Schemas
141 -----
142 -----
143

```

Until end of “ALTER TABLESPACE ...” commands.

- Save the changes to maxdb76.ddl file
- Add it back to the tar:

The screenshot shows a file explorer window with a list of files and a detailed view of the 'maxdb76.exp.tar' file.

Name	Date modified	Type	Size
MAXDB76.0.ctginst1.DBPART000.2023042...	20/04/2023 1:04 PM	001 File	5,939,000 KB
maxdb76.ddl	26/04/2023 3:52 PM	DDL File	2,661 KB
maxdb76exp.tar	26/04/2023 3:54 PM	TAR File	414,640 KB
maxdb76exp_original.tar	26/04/2023 10:33 AM	TAR File	414,650 KB

Name	Size	Packed Size	Modified	Mode	User	Group	Symbolic Lin
iofs	46 698 091	46 704 640	2023-04-26 10:31	drwxr-x---	ctginst1	ctgiadm1	
db2move.lst	59 517	59 904	2023-04-26 10:32	-rw-r--r--	ctginst1	ctgiadm1	
EXPORT.out	68 121	68 608	2023-04-26 10:32	-rw-r--r--	ctginst1	ctgiadm1	
maxdb76.ddl	2 724 573	2 724 864	2023-04-26 15:52	-rw-r--r--	ctginst1	ctgiadm1	
tab1.ixf	16 246	16 384	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab1.msg	142	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab2.ixf	13 551	13 824	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab2.msg	141	512	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	
tab3.ixf	15 807	15 872	2023-04-26 10:31	-rw-r--r--	ctginst1	ctgiadm1	

- Move the tar file to another directory. This new directory to contain only the exported tar file:

The screenshot shows a file explorer window with the following path: (C:) > Govind > VMs > VMSharedFolder > Mx76 > export. The file list shows:

Name	Date modified
maxdb76exp.tar	26/04/2023 3:56 PM

7. Installing MAS Core and Manage

Use the standard procedures to install MAS Core and Manage with DB2. I have used the [IBM ansible playbook](#) to install Manage.

After the install we will have just Manage application running in MAS. MAS itself has various services running in OpenShift to support Manage (and other applications like Health, Monitor, etc). No add-ons or industry solutions were chosen when installing Manage.

Following values are recorded here after the install and most of them will be used in the steps during upgrade.

MAS Instance name	gjmasinst1
MAS Workspace name	masdev

MAS DB2 Namespace	db2u
MAS DB2 Pod name	c-db2w-shared-db2u-0
MAS DB2 Container name	db2u
MAS DB2 Database name	BLUDB
MAS DB2 Manage Schema name	MAXIMO
MAS DB2 Username	db2inst1
MAS DB2 Password	ssAcQsVKWt8qe2

MAS Manage Namespace	mas-gjmasinst1-manage
MAS Manage MAXINST Pod name	gjmasinst1-masdev-manage-maxinst- <random_chars>-<random_chars>
MAS Manage MAXINST Container name	manage-maxinst-maxinst
MAS Manage Application Pod name	gjmasinst1-masdev-all- <random_chars>-<random_chars>
MAS Manage Application Container name	all

Note: For those new to MAS environment:

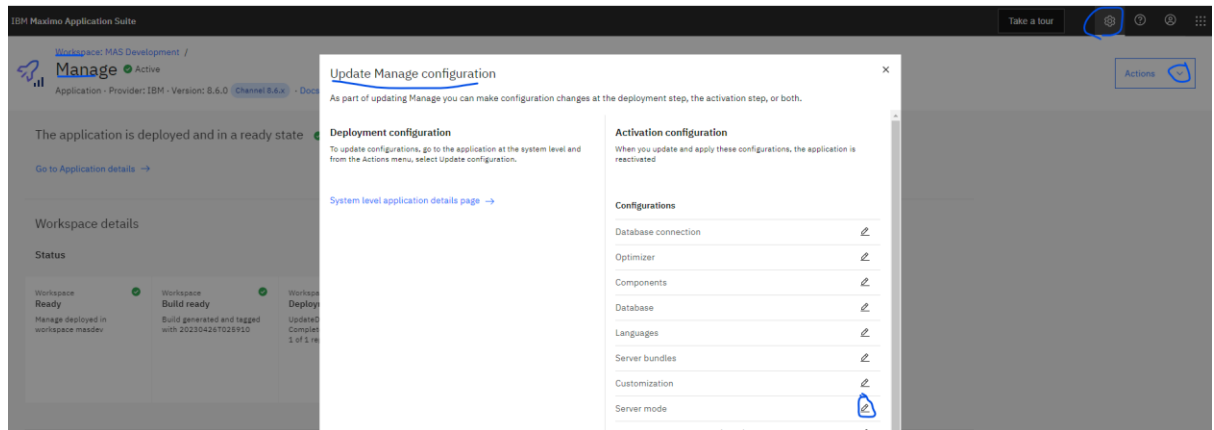
- All components of MAS run as Containers.
- One or more containers are encapsulated in a Pod
- Pod is the least deployable unit in OpenShift/Kubernetes.
- The “maxinst” pod contains the Maximo SMP folder structure
- The “c-db2w-shared-db2u-0” pod runs the DB2 engine
- The “gjmasinst1-masdev-all-b9f64c7db-gsg7f” pod runs the actual Manage application
- “all” is the name of server bundle synonymous to a Maximo 76’s “cluster of MX Servers”.
- Here “all” refers to one bundle for the purpose of UI, MIF, Cron and Reports.
- Please go through the IBM Maximo Application Suite documentation for more details.

8. Importing Maximo76 data into Manage DB

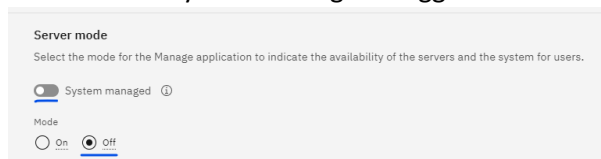
At this point, we have installed OOTB MAS Manage8.6 which has also installed the DB2 database called BLUDB. Did not choose to install demo data in MAS Manage. The Maximo76 data export however has the demo data.

a. Turn Server Mode Off

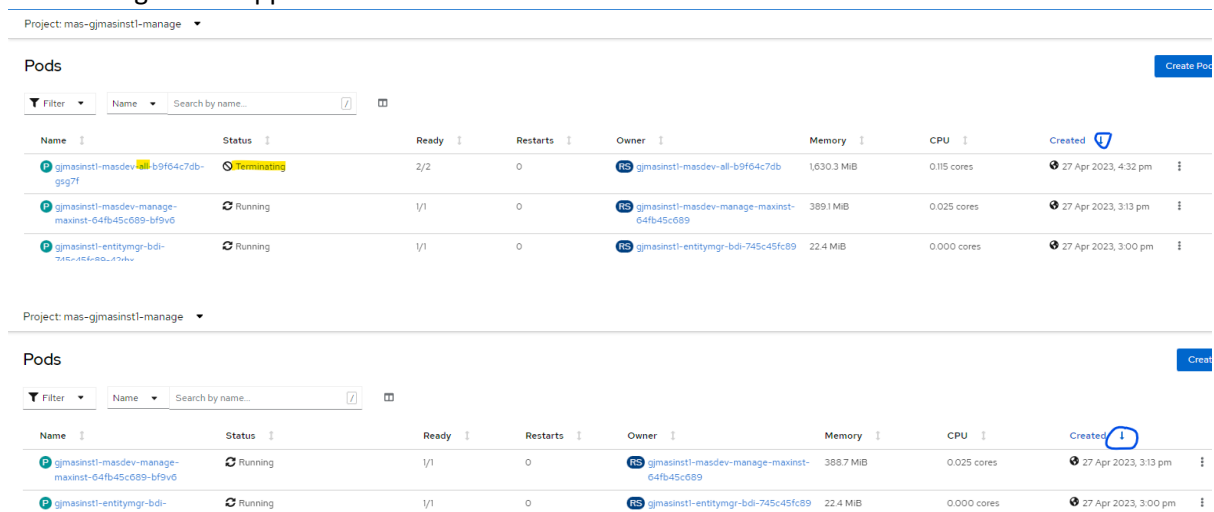
- Login to the MAS Console
- Navigate to “Update Configuration” page of Manage (MAS Console > Suite Administration > Workspace > Manage tile > Action button drop down > Update Configuration > “Server mode” pencil icon)



- Turn off the “System Managed” toggle button and Click on the “Off” option



- Scroll up the page, click on the “Apply Changes” blue button, then Confirm.
- Wait for some time, let the changes be applied.
- To verify, login to OpenShift console and verify the “all” pod under of Manage application is terminating and disappear from the list.



b. Backup MAS Manage DB

Back the database as a safe return point. I used the following commands in `c-db2w-shared-db2u-0` pod's terminal. At the end create a directory called "mx76exp" to hold the Maximo76's exported files.

<code>su db2inst1</code>
<code>db2 terminate</code>
<code>db2 disconnect all</code>
<code>db2 deactivate db BLUDB</code>
<code>mkdir /mnt/backup/m8_ootb_asis</code>
<code>db2 backup database BLUDB to /mnt/backup/m8_ootb_asis</code>
<code>exit</code>

Create a directory to place the Maximo76 export files:

<code>mkdir /mnt/backup/mx76exp</code>
<code>chmod -R 777 /mnt/backup/mx76exp</code>

Example:

```
sh-4.4$ su db2inst1
[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ cd

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ pwd
/mnt/blumeta0/home/db2inst1

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ db2 terminate
DB20000I The TERMINATE command completed successfully.

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ db2 deactivate db BLUDB
SQL1495W Deactivate database is successful, however, there is still a
connection to the database.

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ db2 disconnect all
DB20000I The SQL DISCONNECT command completed successfully.

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ db2 deactivate db BLUDB
DB20000I The DEACTIVATE DATABASE command completed successfully.

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ mkdir /mnt/backup/m8_ootb_asis

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ db2 backup database BLUDB to /mnt/backup/m8_ootb_asis

Backup successful. The timestamp for this backup image is : 20230426051940

[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ ls -ltr /mnt/backup/m8_ootb_asis
total 1815972
drwxrwxrwx. 3 db2inst1 db2iadml      1 Apr 26 05:19 ..
drwxr-xr-x. 2 db2inst1 db2iadml      1 Apr 26 05:19 .
-rw-----. 1 db2inst1 db2iadml 1859555328 Apr 26 05:20 BLUDB.0.db2inst1.DBPART000.20230426051940.001
```

I had to issue the `deactivate` command again after issuing `db2 disconnect all`.

```
[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ exit

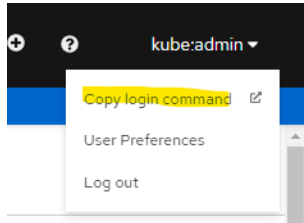
sh-4.4$ mkdir /mnt/backup/mx76exp

sh-4.4$ ls -ltr /mnt/backup
total 0
drwxr-xr-x. 1 root      root      91 Apr 26 02:42 ..
drwxr-xr-x. 2 db2inst1 db2iadml   1 Apr 26 05:19 m8_ootb_asis
drwxr-xr-x. 2 db2uadm  wheel     0 Apr 26 06:08 mx76exp
drwxrwxrwx. 4 db2inst1 db2iadml   2 Apr 26 06:08 .
```

c. Transfer the export file

Use the OpenShift CLI in VM2 to transfer the exported tar file from local setup to MAS DB2 pod's file system.

- Get the command to login from the OpenShift Console, follow the links and copy the command text:



- Login to OpenShift Console using the copied command:

```
oc login --token=sha256~qrhq6WRjmJW0TfhLhEC4geyoQGYpYtupr5SFnGLfT0 --
server=https://api.ocp-550008e5ux-af52.cloud.techzone.ibm.com:6443
```

- Copy the folder containing the export file to DB2 Pod's backup directory:

```
oc rsync /media/sf_VMSharedFolder/Mx76/export c-db2w-shared-db2u-0:/mnt/backup/mx76exp -
c db2u -n db2u
```

```
ubuntu@Ubuntu22040OpenShift:~$ oc rsync /media/sf_VMSharedFolder/Mx76/export c-db2w-shared-db2u-0:/mnt/backup/mx76exp -c db2u -n db2u
sending incremental file list
export/
export/maxdb76exp.tar

sent 424,694,636 bytes  received 39 bytes  2,206,206.10 bytes/sec
total size is 424,590,848  speedup is 1.00
ubuntu@Ubuntu22040OpenShift:~$
```

- Verify the file transfer in DB2 Pod's terminal:

```
[db2uadm@c-db2w-shared-db2u-0 /]$ su db2inst1
[db2inst1@c-db2w-shared-db2u-0 - Db2U]$ cd
[db2inst1@c-db2w-shared-db2u-0 - Db2U db2inst1]$ cd /mnt/backup/mx76exp/export/
[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ ls -ltra
total 414640
-rwxrwxrwx. 1 db2uadm wheel 424590848 Apr 26 05:56 maxdb76exp.tar
drwxrwxrwx. 3 db2uadm wheel          1 Apr 26 06:09 ..
drwxrwxrwx. 2 db2uadm wheel          1 Apr 26 06:12 .
```

- In the DB2 Pod's terminal, extract the contents of the tar file:

```
su db2inst1
cd /mnt/backup/mx76exp/export/
tar -xf maxdb76exp.tar
```

d. Import Maximo76 DDL into BLUDB

While the DB2 pod's terminal is still active -or- use the OpenShift CLI to login to DB2 pod and perform the following.

- Ensure you have switched user to db2inst1, if not already. And change to the "export" folder.

```
su db2inst1
cd /mnt/backup/mx76exp/export/
```

- Drop MAXIMO Schema:

```
db2 connect to BLUDB user db2inst1 using ssAcQsVKWt8qe2
db2 "call SYSPROC.ADMIN_DROP_SCHEMA ('MAXIMO', NULL, 'ERRORSCHEMA', 'ERRORTABLE')"
```

Example:

```
[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 connect to BLUDB user db2inst1 using ssAcQsVKWt8qe2

Database Connection Information

Database server      = DB2/LINUX8664 11.5.8.0
SQL authorization ID = DB2INST1
Local database alias = BLUDB

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 "call SYSPROC.ADMIN_DROP_SCHEMA ('MAXIMO', NULL, 'ERRORSCHEMA', 'ERRORTABLE')"
```

Value of output parameters

```
-----
Parameter Name : ERRORTABSCHEMA
Parameter Value : -

Parameter Name : ERRORTAB
Parameter Value : -

Return Status = 0
[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$
```

The “Return Status” should be 0 for a successful drop schema command.

- Drop ERRORSCHEMA

The SYSPROC.ADMIN_DROP_SCHEMA command above creates an ERROSCHEMA in BLUDB Database. If the Return Status is 0 for this command, then you can drop the ERRORSCHEMA. It would have no objects under it for Return Status 0.

```
db2 drop schema ERRORSCHEMA restrict
```

Example:

```
[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 drop schema ERRORSCHEMA restrict
DB20000I The SQL command completed successfully.
```

- Load DDL:

Ensure you have changed to the export directory.

```
cd /mnt/backup/mx76exp/export/
db2 connect reset
db2 disconnect all
db2 connect to BLUDB user db2inst1 using ssAcQsVKWt8qe2
db2 -tf maxdb76.ddl > ddloutput.log
db2 connect reset
```

Here the output of DDL import is captured in “ddloutput.log”file.

Meanwhile, you can monitor the logs in DB2 pod terminal in OpenShift console:

```
for i in {1..1000}; do echo `cat /mnt/backup/mx76exp/export/ddloutput.log | wc -l` ;
sleep 1; done
```

Ctrl+C the above command once you see the last line of the output is not changing i.e., it has no more new lines in the ddloutput.log file.

Example:

```
[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 connect reset
DB20000I The SQL command completed successfully.

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 disconnect all
DB20000I The SQL DISCONNECT command completed successfully.

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 connect to BLUDB user db2inst1 using ssAcQsVKWt8qe2

Database Connection Information

Database server      = DB2/LINUX8664 11.5.8.0
SQL authorization ID = DB2INST1
Local database alias = BLUDB

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ ls *.ddl
maxdb76.ddl

[db2inst1@c-db2w-shared-db2u-0 - Db2U export]$ db2 -tf maxdb76.ddl > ddloutput.log
```

ddloutput.log contents:

Start of log file:

```
Database Connection Information

Database server      = DB2/LINUX8664 11.5.8.0
SQL authorization ID = DB2INST1
Local database alias = BLUDB

DB21034E The command was processed as an SQL statement because it was not a
valid Command Line Processor command. During SQL processing it returned:
SQL0601N The name of the object to be created is identical to the existing
name "MAXBUFFERPOOL" of type "BUFFERPOOL".  SQLSTATE=42710

DB20000I The SQL command completed successfully.

Database Connection Information

Database server      = DB2/LINUX8664 11.5.8.0
SQL authorization ID = DB2INST1
Local database alias = BLUDB

DB20000I The SQL command completed successfully.
DB20000I The SQL command completed successfully.
DB20000I The SQL command completed successfully.
DB20000I The SQL command completed successfully.
--More--
```

End of log file:

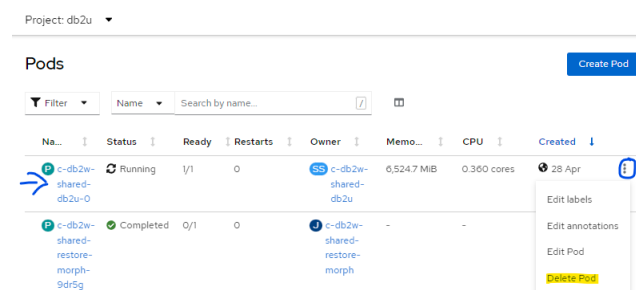
```
successfully.
DB20000I The UPDATE DATABASE MANAGER CONFIGURATION command completed
successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
DB20000I The UPDATE DATABASE CONFIGURATION command completed successfully.
SQL1363W One or more of the parameters submitted for immediate modification
were not changed dynamically. For these configuration parameters, the database
must be shutdown and reactivated before the configuration parameter changes
become effective.

DB20000I The SQL command completed successfully.
DB20000I The SQL command completed successfully.
DB20000I The TERMINATE command completed successfully.

$? - 4.45
```

e. Restart DB2 Pod

Delete the DB2 Pod from the OpenShift Console, using the 3 dots button and Delete Pod option:



And wait for the DB2 pod to terminate in OpenShift Console and start again in “Running” status and “1/1” Ready state.

Project: db2u		
Pods		
Filter	Name	Search by name...
Name	Status	
c-db2w-shared-db2u-0	Terminating	

Project: db2u		
Pods		
Filter	Name	Search by name...
Name	Status	Ready
c-db2w-shared-db2u-0	Running	1/1

f. Import Maximo76 Data into BLUDB

- From the OpenShift CLI, login to DB2 Pod's terminal

```
oc exec --stdin --tty c-db2w-shared-db2u-0 -c db2u -n db2u -- /bin/bash
```

We use this approach because the data load might take long time and we don't want the terminal to timeout and disconnect, which happens quite often in Terminal of OpenShift Console.

- Run the following commands:

```
su db2inst1
cd /mnt/backup/mx76exp/export/
db2 terminate
db2 disconnect all
db2 deactivate db BLUDB
db2 connect to BLUDB user db2inst1 using ssAcQsVKWt8qe2
db2 set current schema=maximo
db2move BLUDB load -l /mnt/backup/mx76exp/export/lobs/ > dmloutput.log
db2 connect reset
exit
exit
```

Note: the `db2move` command takes long time.

Meanwhile, you can monitor the logs in DB2 pod terminal in OpenShift console:

```
tail -f /mnt/backup/mx76exp/export/dmloutput.log
```

Example dmloutput.log file (end of file section):

```

-Rejected:      0
-Deleted:      0
-Committed:    0

* LOAD: table "MAXIMO" "."WPEDITSETTING"
-Rows read:    18
-Loaded:       18
-Rejected:     0
-Deleted:     0
-Committed:   18

* LOAD: table "MAXIMO" "."WPITEM"
-Rows read:   312
-Loaded:     312
-Rejected:    0
-Deleted:    0
-Committed:  312

* LOAD: table "MAXIMO" "."WPLABOR"
-Rows read:   362
-Loaded:     362
-Rejected:    0
-Deleted:    0
-Committed:  362

Disconnecting from database ... successful!

```

g. Restart DB2 Pod

Restart the DB2 pod as mentioned in the step one above the previous step.

9. Upgrading Maximo76

a. Reset Crypto Keys

Using the OC CLI, login to MAXINST Pod's terminal:

```
oc exec --stdin --tty gjmasinst1-masdev-manage-maxinst-64fb45c689-l267w -c manage-maxinst-maxinst -n mas-gjmasinst1-manage -- /bin/bash
```

Run the following command:

```
./resetcryptocryptox.sh
exit
```

Example:

```

shunt@shunt02264openshift:~$ oc exec --stdin --tty gjmasinst1-masdev-manage-maxinst-64fb45c689-l267w -c manage-maxinst-maxinst -n mas-gjmasinst1-manage -- /bin/bash
bash-4.4$ ./resetcryptocryptox.sh
Thu Apr 27 02:48:54 GMT 2023 --- Starting ---
BMXAA68061 - Reading the properties file maximo.properties.
BMXAA6814W - ResetCryptoCryptox connection warning: com.ibm.db2.jcc.an.SqlWarning: DB2 SQL Warning: SQLCODE=0, SQLSTATE=00000, SQLERRMC=1;1208;DB2INST1;BLUDB;QDB2/LINUX8664;1928;1928;0;1208;1;0;, DRIVER
+4;32;20
Instance of psdt.tools.ResetCryptoCryptox
27 Apr 2023 02:48:57:565 [WARN ] [maximo] BMXAA6423W - The value for MAXPROP mxr.con.port could not be cached. No value for the property was found.
27 Apr 2023 02:48:57:577 [WARN ] [maximo] BMXAA6423W - The value for MAXPROP mxr.rml.port could not be cached. No value for the property was found.
27 Apr 2023 02:48:58:127 [WARN ] [maximo] BMXAA6423W - The value for MAXPROP mxr.db.DB2sslConnection could not be cached. No value for the property was found.
27 Apr 2023 02:48:58:139 [WARN ] [maximo] BMXAA6423W - The value for MAXPROP mxr.db.DB2sslTrustStoreLocation could not be cached. No value for the property was found.
27 Apr 2023 02:48:58:132 [WARN ] [maximo] BMXAA6423W - The value for MAXPROP mxr.db.DB2sslTrustStorePassword could not be cached. No value for the property was found.
BMXAA68181 - ResetCryptoCryptox started for schema MAXIMO, connected to database jdbc:db2://c-db2w-shared-db2u-engn-svc.db2u.svc:50001/BLUDB:sslConnection=true;sslVersion=TLSv1.2; Thu Apr 27 02:48:59 GMT
2023
BMXAA68181 - ResetCryptoCryptox started for schema MAXIMO, connected to database jdbc:db2://c-db2w-shared-db2u-engn-svc.db2u.svc:50001/BLUDB:sslConnection=true;sslVersion=TLSv1.2; Thu Apr 27 02:48:59 GMT
2023
Insert sql insert into syschangetracker (processname, message, changeby, changedate, syschangetrackerid, workspaceid, appid, instanceid) values ('ResetCryptoCryptox', '..... Start reset CRYPTOX.....
', 'db2inst1', current timestamp, syschangetrackerseq.nextval, 'masdev', 'manage', 'gj
Insert to audit table failed.
Skipping Required CRYPTO RECORDS FOR REPORTS/ARAB/PASSWORD Thu Apr 27 02:49:03 GMT 2023
Updating CRYPTO: WEATHERENDPOINT.PASSWORD Thu Apr 27 02:49:03 GMT 2023
Updating CRYPTO: WEATHERORC.CLIENTSECRET Thu Apr 27 02:49:03 GMT 2023
Updating CRYPTO: WEATHERORC.CLIENTSECRET Thu Apr 27 02:49:03 GMT 2023
Deleting APIKEYTOKEN rows Thu Apr 27 02:49:03 GMT 2023
Deleting APIKEYTOKEN rows Thu Apr 27 02:49:03 GMT 2023
Insert sql insert into syschangetracker (processname, message, changeby, changedate, syschangetrackerid, workspaceid, appid, instanceid) values ('ResetCryptoCryptox', '..... Start reset CRYPTOX.....
', 'db2inst1', current timestamp, syschangetrackerseq.nextval, 'masdev', 'manage', 'gj
Insert to audit table failed.
BMXAA6820I - ResetCryptoCryptox completed without errors. Thu Apr 27 02:49:03 GMT 2023
BMXAA6820I - ResetCryptoCryptox completed without errors. Thu Apr 27 02:49:03 GMT 2023
bash-4.4$

```

Not performing this step would most likely result in the following
 javax.crypto.BadPaddingException in next step (updatedb):

```

javax.crypto.BadPaddingException: Given final block not properly padded. Such issues can arise if a bad key is used during decryption.
    at java.base/com.sun.crypto.provider.CipherCore.unpad(CipherCore.java:1028)
    at java.base/com.sun.crypto.provider.CipherCore.fillOutputBuffer(CipherCore.java:1109)
    at java.base/com.sun.crypto.provider.CipherCore.doFinal(CipherCore.java:906)
    at java.base/com.sun.crypto.provider.DESedeCipher.engineDoFinal(DESedeCipher.java:294)
    at java.base/javax.crypto.Cipher.doFinal(Cipher.java:2202)
    at psdi.util.MXCipher.decData(MXCipher.java:293)
    at psdi.tools.ReEncryptFromSecret.doCryptoUpdates(ReEncryptFromSecret.java:210)
    at psdi.tools.ReEncryptFromSecret.updateCryptoFields(ReEncryptFromSecret.java:147)
    at psdi.tools.UpgradeEncryption.processEncryption(UpgradeEncryption.java:151)
    at psdi.tools.UpgradeEncryption.process(UpgradeEncryption.java:88)
    at psdi.tools.UpdateDB.main(UpdateDB.java:3430)
system#major: A major exception has occurred. Check the system log to see if there are any companion errors logged. Report this error to your syst
psdi.util.MXApplicationException: system#major
    at psdi.tools.ReEncryptFromSecret.doCryptoUpdates(ReEncryptFromSecret.java:260)
    at psdi.tools.ReEncryptFromSecret.updateCryptoFields(ReEncryptFromSecret.java:147)
    at psdi.tools.UpgradeEncryption.processEncryption(UpgradeEncryption.java:151)
    at psdi.tools.UpgradeEncryption.process(UpgradeEncryption.java:88)
    at psdi.tools.UpdateDB.main(UpdateDB.java:3430)
Caused by: psdi.util.MXSystemException: system#major
    at psdi.util.MXCipher.decData(MXCipher.java:299)
    at psdi.tools.ReEncryptFromSecret.doCryptoUpdates(ReEncryptFromSecret.java:210)
    ... 4 more
Caused by: javax.crypto.BadPaddingException: Given final block not properly padded. Such issues can arise if a bad key is used during decryption.
    at java.base/com.sun.crypto.provider.CipherCore.unpad(CipherCore.java:1028)
    at java.base/com.sun.crypto.provider.CipherCore.fillOutputBuffer(CipherCore.java:1109)
    at java.base/com.sun.crypto.provider.CipherCore.doFinal(CipherCore.java:906)
    at java.base/com.sun.crypto.provider.DESedeCipher.engineDoFinal(DESedeCipher.java:294)
    at java.base/javax.crypto.Cipher.doFinal(Cipher.java:2202)
    at psdi.util.MXCipher.decData(MXCipher.java:293)
    ... 5 more
psdi.util.MXSystemException: system#major
    at psdi.util.MXCipher.decData(MXCipher.java:299)
    at psdi.tools.ReEncryptFromSecret.doCryptoUpdates(ReEncryptFromSecret.java:210)
    at psdi.tools.ReEncryptFromSecret.updateCryptoFields(ReEncryptFromSecret.java:147)
    at psdi.tools.UpgradeEncryption.processEncryption(UpgradeEncryption.java:151)
    at psdi.tools.UpgradeEncryption.process(UpgradeEncryption.java:88)
    at psdi.tools.UpdateDB.main(UpdateDB.java:3430)
Caused by: javax.crypto.BadPaddingException: Given final block not properly padded. Such issues can arise if a bad key is used during decryption.
    at java.base/com.sun.crypto.provider.CipherCore.unpad(CipherCore.java:1028)
    at java.base/com.sun.crypto.provider.CipherCore.fillOutputBuffer(CipherCore.java:1109)
    at java.base/com.sun.crypto.provider.CipherCore.doFinal(CipherCore.java:906)
    at java.base/com.sun.crypto.provider.DESedeCipher.engineDoFinal(DESedeCipher.java:294)
    at java.base/javax.crypto.Cipher.doFinal(Cipher.java:2202)
    at psdi.util.MXCipher.decData(MXCipher.java:293)
    ... 5 more
/dev/shm/dev761-maxinst#

```

b. Trigger UpdateDB

To trigger updatedb, you can manually do it via maxinst’s terminal. Or just delete the maxinst pod from the Mange namespace and let it start again. Instructions to delete the Pod are like deleting the DB2 pod.

MAS Manage Namespace	mas-gjmasinst1-manage
MAS Manage MAXINST Pod name	gjmasinst1-masdev-manage-maxinst- <random_chars>-<random_chars>

Project mas-gjmasinst1-manage								
Pods Create Pod								
Filter	Name	Search by name...						
Name	Status	Ready	Restarts	Owner	Memory	CPU	Created	
gjmasinst1-masdev-manage-maxinst-64fb45c689	Running	1/1	0	gjmasinst1-masdev-manage-maxinst-64fb45c689	388.8 MiB	0.005 cores	27 Apr 2023, 3:13 pm	
gjmasinst1-entitymgr-bdi-745c45fc89	Running	1/1	0	gjmasinst1-entitymgr-bdi-745c45fc89	22.4 MiB	0.000 cores	27 Apr 20	Edit labels Edit annotations
gjmasinst1-entitymgr-appstatus-857c979f4c	Running	1/1	0	gjmasinst1-entitymgr-appstatus-857c979f4c	88.8 MiB	0.231 cores	27 Apr 20	Edit Pod
gjmasinst1-entitymgr-ws-89a8d7588a-6cwmn	Running	1/1	0	gjmasinst1-entitymgr-ws-590ff47588	148.5 MiB	0.001 cores	27 Apr 20	Delete Pod

The new maxinst pod starts automatically, and you can monitor the logs for updatedb logs:

Project: mas-gjmasinst1-manage

gjmasinst1-masdev-manage-maxinst-64fb45c689-bf9v6 Running

Details Metrics YAML Environment Logs Events Terminal

Some lines have been abridged because they are exceptionally long.
To view unabridged log content, you can either open the raw file in another window or download it.

Log streaming... manage-maxinst-maxinst Current log Search

377998 lines

```
377967 System uses encrypted API keys.
377968 Inserting API key CN=hputilities-tenant-masdev.mas-gjmasinst1-hputilities.client with usermapper prop:hputilities.health.user
377969 Insert complete.
377970 System uses encrypted API keys.
377971 Inserting API key CN=hputilities-tenant-masdev.mas-gjmasinst1-hputilities.client, o-cert-manager with usermapper prop:hputilities.health.user
377972 Insert complete.
377973 System uses encrypted API keys.
377974 Inserting API key CN=*.mas-gjmasinst1-hputilities.svc, o-cert-manager with usermapper prop:hputilities.health.user
377975 Insert complete.
377976 System uses encrypted API keys.
377977 Inserting API key CN=*.mas-gjmasinst1-hputilities.svc with usermapper prop:hputilities.health.user
377978 Insert complete.
377979 After inserting apiketoken...
377980 Done Calling insertClientCertAPIKeys.sh ...
377981 SynchMetadata started after updatedb. Will do real sync...
377982 Starting SynchMetadata... Logs available at cd /opt/IBM/SMP/maximo/tools/maximo/log
377983 Thu Apr 27 05:39:17 GMT 2023 --- Starting ---
377984 BPOAA6886I - Reading the properties file maximo.properties.
377985 Instance of psdi.tools.SynchManageMetadata
377986 27 Apr 2023 05:39:20:267 [WARN ] [maximo] BPOAA6423W - The value for MAXPROP mxe.db.db2sslconnection could not be cached. No value for the property was found.
377987 27 Apr 2023 05:39:20:277 [WARN ] [maximo] BPOAA6423W - The value for MAXPROP mxe.db.db2ssltruststorelocation could not be cached. No value for the property was found.
377988 27 Apr 2023 05:39:20:279 [WARN ] [maximo] BPOAA6423W - The value for MAXPROP mxe.db.db2ssltruststorepassword could not be cached. No value for the property was found.
377989 27 Apr 2023 05:39:21:388 [WARN ] [maximo] BPOAA6423W - The value for MAXPROP maximo.mobile.statusforphysicalsignature could not be cached. No value for the property was found.
377990 BPOAA6818I - SynchManageMetadata started for schema MAXIMO, connected to database jdbc:db2://c-db2w-shared-db2u-engn-svc.db2u.svc:50001/BLUDB:sslConnection=true;sslVersion=TLSv1.2; Thu Apr 27 05:39:21 GMT 2023
377991 BPOAA6818I - SynchManageMetadata started for schema MAXIMO, connected to database jdbc:db2://c-db2w-shared-db2u-engn-svc.db2u.svc:50001/BLUDB:sslConnection=true;sslVersion=TLSv1.2; Thu Apr 27 05:39:21 GMT 2023
377992 BPOAA6820I - SynchManageMetadata completed without errors. Thu Apr 27 05:39:21 GMT 2023
377993 BPOAA6820I - SynchManageMetadata completed without errors. Thu Apr 27 05:39:21 GMT 2023
377994 SynchMetadata result = 0
377995 SynchMetadata process ended successfully...
377996 BPOAA6818I - SynchManageMetadata started for schema MAXIMO, connected to database jdbc:db2://c-db2w-shared-db2u-engn-svc.db2u.svc:50001/BLUDB:sslConnection=true;sslVersion=TLSv1.2; Thu Apr 27 05:39:21 GMT 2023
377997 BPOAA6820I - SynchManageMetadata completed without errors. Thu Apr 27 05:39:21 GMT 2023
377998 maximo install update completed.
```

Let the updatedb finish successfully. You may have to troubleshoot the updatedb if it encounters issues and restart the updatedb manually or by deleting the maxinst pod.

The MAXVARS after the upgrade:

```
select * from maximo.maxvars where varname like '%UPG%' AND VARNAME NOT LIKE 'HF%' ORDER BY varname;
```

Grid	ABC VARNAME	ABC VARVALUE	ABC ORGRID	ABC SITEID	123 MAXVARSID	123 ROWSTAMP	ABC VARTYPE
1	AHUPG	V7611-19	[NULL]	[NULL]	2,287	1,079,172	[NULL]
2	DYNAMICJOBPLANUPG	V7613-1	[NULL]	[NULL]	2,242	1,130,635	[NULL]
3	EAMUPG	V7100-001	[NULL]	[NULL]	607	363,763	SYSTEM
4	FIXIDUPG	1	[NULL]	[NULL]	2,296	1,110,529	[NULL]
5	MANAGEUPG	V8600-1	[NULL]	[NULL]	2,385	1,131,276	[NULL]
6	MAXUPG	V8600-60	[NULL]	[NULL]	353	1,128,367	SYSTEM
7	METAUPG	2	[NULL]	[NULL]	2,297	1,110,620	[NULL]
8	MHINTUPG	V8400-3	[NULL]	[NULL]	2,176	1,130,518	[NULL]
9	MIFENTUPG	V8600-3	[NULL]	[NULL]	2,174	1,129,690	[NULL]
10	MIFUPG	V7610-38	[NULL]	[NULL]	910	494,112	[NULL]
11	SKDUPG	V8600-12	[NULL]	[NULL]	830	1,139,163	SYSTEM
12	TAMITBASE_UPG	V7506-4	[NULL]	[NULL]	789	948,407	SYSTEM
13	UPGRADEALGORITHM	0	[NULL]	[NULL]	2,298	1,110,877	[NULL]
14	X_MAXUPG	X_979	[NULL]	[NULL]	832	364,270	SYSTEM

c. Generate APIKEYTOKEN

The resetcryptocryptox.sh command executed earlier would have deleted the APIKEYTOKEN table rows, we need to regenerate the rows and as per the IBM TechNote [Corrupted APIKEY after upgrade MAS to 8.8 \(ibm.com\)](#). We do this now, to avoid “user synchronisation” errors, thus letting you login/use Manage app.

Using the OC CLI, login to MAXINST Pod’s terminal:

```
oc exec --stdin --tty gjasinst1-masdev-manage-maxinst-64fb45c689-l267w -c manage-maxinst-maxinst -n mas-gjasinst1-manage -- /bin/bash
```

Run the following commands:

```
cd /opt/IBM/SMP/maximo/tools/maximo
./insertapikey.sh -v'${MANAGE_APIKEY}' -m'prop:mxe.int.dfltuser'
./insertapikey.sh -v'${MANAGE_APIKEY}, O=cert-manager' -m'prop:mxe.int.dfltuser'
./insertapikey.sh -v'${HEALTH_APIKEY}' -m'prop:mxe.MASUserSyncAgentUser'
./insertapikey.sh -v'${HEALTH_APIKEY}, O=cert-manager' -m'prop:mxe.MASUserSyncAgentUser'
./insertapikey.sh -v'${PMI_APIKEY}' -m'prop:mxe.PMIUser'
./insertapikey.sh -v'${PMI_APIKEY}, O=cert-manager' -m'prop:mxe.PMIUser'
./insertapikey.sh -v'${PMI_APIKEY_NEW}, O=cert-manager' -m'prop:mxe.PMIUser'
./insertapikey.sh -v'${PMI_APIKEY_NEW}' -m'prop:mxe.PMIUser'
./insertapikey.sh -v'${EU_APIKEY}' -m'prop:hputilities.health.user'
./insertapikey.sh -v'${EU_APIKEY}, O=cert-manager' -m'prop:hputilities.health.user'
./insertapikey.sh -v'${EU_APIKEY_NEW}, O=cert-manager' -m'prop:hputilities.health.user'
./insertapikey.sh -v'${EU_APIKEY_NEW}' -m'prop:hputilities.health.user'
exit
```

Example:

```
bash-4.4$ cd /opt/IBM/SMP/maximo/tools/maximo
bash-4.4$
bash-4.4$
bash-4.4$ ./insertapikey.sh -v'${MANAGE_APIKEY}' -m'prop:mxe.int.dfltuser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-manage.svc with usermapper prop:mxe.int.dfltuser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${MANAGE_APIKEY}, O=cert-manager' -m'prop:mxe.int.dfltuser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-manage.svc, O=cert-manager with usermapper prop:mxe.int.dfltuser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${HEALTH_APIKEY}' -m'prop:mxe.MASUserSyncAgentUser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-health.svc with usermapper prop:mxe.MASUserSyncAgentUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${HEALTH_APIKEY}, O=cert-manager' -m'prop:mxe.MASUserSyncAgentUser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-health.svc, O=cert-manager with usermapper prop:mxe.MASUserSyncAgentUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${PMI_APIKEY}' -m'prop:mxe.PMIUser'
System uses encrypted API keys.
Inserting API key CN=predict-tenant-masdev.mas-gjasinst1-predict.client with usermapper prop:mxe.PMIUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${PMI_APIKEY}, O=cert-manager' -m'prop:mxe.PMIUser'
System uses encrypted API keys.
Inserting API key CN=predict-tenant-masdev.mas-gjasinst1-predict.client, O=cert-manager with usermapper prop:mxe.PMIUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${PMI_APIKEY_NEW}, O=cert-manager' -m'prop:mxe.PMIUser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-predict-ws.svc, O=cert-manager with usermapper prop:mxe.PMIUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${PMI_APIKEY_NEW}' -m'prop:mxe.PMIUser'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-predict-ws.svc with usermapper prop:mxe.PMIUser
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${EU_APIKEY}' -m'prop:hputilities.health.user'
System uses encrypted API keys.
Inserting API key CN=hputilities-tenant-masdev.mas-gjasinst1-hputilities.client with usermapper prop:hputilities.health.user
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${EU_APIKEY}, O=cert-manager' -m'prop:hputilities.health.user'
System uses encrypted API keys.
Inserting API key CN=hputilities-tenant-masdev.mas-gjasinst1-hputilities.client, O=cert-manager with usermapper prop:hputilities.health.user
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${EU_APIKEY_NEW}, O=cert-manager' -m'prop:hputilities.health.user'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjasinst1-hputilities.svc, O=cert-manager with usermapper prop:hputilities.health.user
Insert complete.
bash-4.4$ ./insertapikey.sh -v'${EU_APIKEY_NEW}' -m'prop:hputilities.health.user'
```

```
bash-4.4$ ./insertapikey.sh -v'{EU_APIKEY_NEW}' -m'prop:hputilities.health.user'
System uses encrypted API keys.
Inserting API key CN=*.mas-gjmasinst1-hputilities.svc with usermapper prop:hputilities.health.user
Insert complete.
bash-4.4$
```

d. Backup DB

We have now completed the Maximo DB Upgrade. You may now take a DB backup using the commands described [above](#) in this document.

e. Server Mode Up

Like steps described in turning the server mode Off [above](#), now you can turn the server mode On

Server mode

Select the mode for the Manage application to indicate the availability of the servers and the system for users.

☒ System managed ⓘ

Mode

☒ On ☐ Off

After starting the activation, you can monitor the pods in manage namespace for the “all” pod status:

Project: mas-gjmasinst1-manage ▾								
Pods Create Pod								
Filter ▾	Name ▾	Search by name... ⓘ						
Name	Status	Ready	Restarts	Owner	Memory	CPU	Created	
gjasinst1-masdev-6b9f64c7db-gsg7f	Running	2/2	0	RS gjasinst1-masdev-all-b9f64c7db	1,597.0 MiB	0.301 cores	8 minutes ago	⋮
gjasinst1-masdev-manage-maxinst-64fb45c689-bf9v6	Running	1/1	0	RS gjasinst1-masdev-manage-maxinst-64fb45c689	379.5 MiB	0.027 cores	27 Apr 2023, 3:13 pm	⋮
gjasinst1-entitymgr-bdi-745c45fc89-42thx	Running	1/1	0	RS gjasinst1-entitymgr-bdi-745c45fc89	22.1 MiB	0.000 cores	27 Apr 2023, 3:00 pm	⋮

In MAS Console:

IBM Maximo Application Suite

Suite administration

Overview

Catalog

Applications

Workspace



Configurations


License consumption

Users

Applications

Maintain the applications that are deployed and configured for use in this environment.

Name	Category	Status	Version
 Manage	Application	 Active in MAS Development	8.6.0

 Can't find what you're looking for?

f. Setup Users

You may now setup the users, or atleast the password for maxadmin user and let it synchronise successfully.

Edit user

1. Identity

Provide the information that is required to identify the user. You can also enter optional user information such as email and address.

Authentication type

☒ Local

Display name

MAXADMIN

User ID

maxadmin

Login details

Username

maxadmin

Password

☐ Autogenerated

☒ Custom

☐ Send account password in email

New password

.....



✓ Maximum password length: 35

✓ Minimum password length: 15

Save and let it synchronise the users.

User management

Add, remove, and manage your suite users, their entitlements, and access rights. To set password rules and requirements, configure password settings.

Users

Password settings

Q maxadmin x ↕ Create user					
User ID	Username	Display name	Email	System administrator	Last updated by
maxadmin	maxadmin	Ⓜ MAXADMIN	gjaiswal.work+mxadmtz@gmail.com	No	ODQHfFu8zZDjq10K673N0qKDyur16Z9R
					🔄 Synchronizing changes...
Items per page: 20 ▾ 1-20 of 85 items 1 of 5 pages ⏪ ⏩					

Project: mas-gjmasinstl-manage

gjmasinstl-usersyncagent-6c4cc65776-pts8d

Running

Actions

DetailsMetricsYAMLEnvironmentLogsEventsTerminal

⚠ Some lines have been abridged because they are exceptionally long.
To view unabridged log content, you can either [open the raw file in another window](#) or [download it](#).

Log streaming

manage-usersyncagent

Current log

Search

Wrap lines

Raw

Download

Expand

299 lines

```
269 urllib3.exceptions.MaxRetryError: HTTPConnectionPool(host='gjmasinstl-masdev.mas-gjmasinstl-manage.svc', port=443): Max retries exceeded with url: /maweb/es/MASSYNC/MASPERUSER?clientcert=1 (Caused by NewConnectionError('<urllib3.
270 During handling of the above exception, another exception occurred:
271 Traceback (most recent call last):
272   File "/usr/local/lib/python3.9/site-packages/mas/utils/usersync/usersync.py", line 294, in doSync
273     agent.syncUser(user)
274     File "/opt/ibm/usersync/agent.py", line 69, in syncUser
275       r = self.sendrequest({'workspaceid': [userid]} sync user', url, 'POST', headers, json.loads(json.dumps(user.__dict__)))
276     File "/opt/ibm/usersync/agent.py", line 83, in sendrequest
277       r = requests.post(url, json=data, headers=headers, cert=self.cert, verify=self.cacert)
278     File "/usr/local/lib/python3.9/site-packages/requests/api.py", line 115, in post
279       return request('post', url, data=data, json=json, **kwargs)
280     File "/usr/local/lib/python3.9/site-packages/requests/api.py", line 59, in request
281       return session.request(method=method, url=url, **kwargs)
282     File "/usr/local/lib/python3.9/site-packages/requests/sessions.py", line 587, in request
283       resp = self.send(prep, **send_kwargs)
284     File "/usr/local/lib/python3.9/site-packages/requests/sessions.py", line 781, in send
285       r = adapter.send(request, **kwargs)
286     File "/usr/local/lib/python3.9/site-packages/requests/adapters.py", line 565, in send
287       raise ConnectionError(e, request=request)
288 requests.exceptions.ConnectionError: HTTPConnectionPool(host='gjmasinstl-masdev.mas-gjmasinstl-manage.svc', port=443): Max retries exceeded with url: /maweb/es/MASSYNC/MASPERUSER?clientcert=1 (Caused by NewConnectionError('<urllib
289 2023-04-27 04:32:06.079 usersync-agent-manage INFO [ssnarasi] Updating user sync state for application manage to ERROR
290 2023-04-27 04:43:23.942 usersync-agent-manage INFO [maxadmin] Starting executor
291 2023-04-27 04:43:23.942 usersync-agent-manage INFO Current queue size is 0
292 2023-04-27 04:43:23.943 usersync-agent-manage INFO [maxadmin] Submitted executor
293 2023-04-27 04:43:23.943 usersync-agent-manage INFO Sync user maxadmin, status PENDING
294 2023-04-27 04:43:23.943 usersync-agent-manage INFO [masdev maxadmin] Sync user url: https://gjmasinstl-masdev.mas-gjmasinstl-manage.svc/maweb/es/MASSYNC/MASPERUSER?clientcert=1, method: POST, headers: {'content-type': 'application/
295 2023-04-27 04:43:23.944 usersync-agent-manage INFO [masdev maxadmin] Sync user data: {'id': 'maxadmin', 'added': {'appid': 'manage', 'timestamp': '2023-04-27T06:34:42.238357'}, 'addresses': [], 'applications': {'assist': {'sync': {
296 2023-04-27 04:43:54.598 usersync-agent-manage INFO [masdev maxadmin] Sync user response: r.status: 200, r.text: <xml version="1.0" encoding="UTF-8"><syncMASPERUSERresponse xmlns="http://www.ibm.com/maximo" xmlns:xsi="http://www.w3
297 2023-04-27 04:43:54.599 usersync-agent-manage INFO [masdev maxadmin] synched: status_code: 200 r.text <xml version="1.0" encoding="UTF-8"><syncMASPERUSERresponse xmlns="http://www.ibm.com/maximo" xmlns:xsi="http://www.w3.org/2001/
298 2023-04-27 04:43:54.599 usersync-agent-manage INFO [maxadmin] Updating user sync state for application manage to success
```

User is now synchronised:

User management

Add, remove, and manage your suite users, their entitlements, and access rights. To set password rules and requirements, configure password settings.

UsersPassword settings

maxadmin

Create user

User ID	Username	Display name	Email	System administrator	Last updated by
maxadmin	maxadmin	MAXADMIN	gjaishwal.work+maxdmr@gmail.com	No	00QHfFu8z2Djq10K67JN0qKDyurI629R

Items per page: 201-20 of 85 items1 of 5 pages

g. Test MAXADMIN login

⏪ ⏩ 🔍 ⚠ Not secure | https://masdev.manage.gjmasinstl.apps.ocp-550008e5ux-af52.cloud.techzone.ibm.com/maximo/olscl/graphite/manage-shell/index.html?event=loadapp&value=asset&_tt=77jsp34ifrkil52vmas0q2gk0hr

IBM Maximo Application SuiteManage

Assets

Find Navigation Item

Assets (1-20 of 551)

AssetDescriptionLocationLoon LocationParentRotating Item

Available Queries

Common Actions

More Actions

Create

1001

1002

1003

1004

1005

1006

1007

1008

1009

1010

1011

System information

App Server

IBM WebSphere Liberty Server 22.0.0.13

Server Operating System

Linux 4.18.0-305.86.2.el8_4.x86_64 amd64

Server Database

DB2/LINUXx8664 11.5 SQL110580

Version

Maximo Integration Framework 8.6.0 Build 20230316-1337 DB Build V8600-03

IBM Maximo Mobile 8.10.0 Build 20230316-1412 DB Build V81000-29

Maximo Application Framework 8.10.0 Build 20230316-1532 DB Build V7600-27

Maximo Manage 8.6.0 Build 20230316-1337 DB Build V8600-01

Maximo Process Automation Engine 8.6.0 Build 20230316-1337 DB Build V8600-60

Device Information

Chrome::Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36 ... 1920x961

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h. Clean-up

You may now cleanup the contents of `/mnt/backup/mx76exp` folder in the DB2 pod, as the database import and upgrade are now complete.

10. Applying Customisation

The customisation archive prepared earlier in this process can now be applied. Refer to the [section above](#) for sample deployment of customisations.

11. Next Steps

This document deals with Upgrade and Customisations, further setup like Doclinks, LDAP, SAML, Integration, etc would be needed and can be achieved using standard IBM Manage documentation.