z/OS installation strategy education – for packaging software

Introduction:

You hopefully have heard about the z/OS Installation Strategy? This is an undertaking that is across the entire z/OS industry (with strong participation from both IBM and ISVs) to provide a common installation and packaging method that you use from z/OSMF.

First, imagine you work for Kitty Corp, and you have a fabulous new product that you want to package for your awaiting customers. How do you do that today following the z/OS Installation Strategy with z/OSMF? It's easy, and this module can help you do just that by packaging the product into what is known as a **z/OSMF Software Management Portable Software Instanc**e (PSI, for short).

In order to show the most flexibility in the type of products that you can package, this education module will show how to create a PSI composed of one SMP/E-packaged and installed FMID and one product that is not SMP/E-packaged at all!

- The SMP/E-packaged product is a fictitious FMID called **HMLW100.**
- The non-SMP/E packaged product is simply a collection of data sets. It just so happens that we have a very good real-life example of a non-SMP/E packaged product: the **z/OS Cloud Data Access Beta** product.

Available in a separate education module is how to install that Portable Software Instance on a system.

This self-directed module will take you through each step needed to create that PSI (from the point of view of a z/OS software vendor).

What level of z/OSMF do you need to package or install a PSI? Ensure you have the appropriate z/OSMF Software Management support installed:

- *z/OSMF V2.2 with PTF UI44516 , or*
- *z/OSMF V2.1 with PTF UI42018*

What exactly are we packaging into a PSI for this module?
This imaginary product we are packaging is two very different "elements" to show the power of this new z/OS Installation Strategy, and how any z/OS software manufacturer can use it, and how a customer can handle all types of z/OS products. Here's the details on what composes our PSI:

1. A beta product called **z/OS Cloud Data Access Beta.** This beta product contains the following six data sets which can be found on the system:
    a. MWALLE.PSI.CDA.H

   b. MWALLE.PSI.CDA.LINK
   c. MWALLE.PSI.CDA.LPA
   d. MWALLE.PSI.CDA.PANELS
   e. MWALLE.PSI.CDA.PDSE.LOAD
   f. MWALLE.PSI.CDA.REXX
2. An imaginary SMP/E-packaged product (FMID **HMLW100**) that is already SMP/E applied and ACCEPTed into an SMP/E CSI. This is to show that you could provide any preinstalled FMID you wanted, and include all the SMP/E information also into a PSI.including the SMP/E CSI! Of course, if you wanted to ship the uninstalled FMID (SMPMCS and RELFILEs), that would be fine too, but that's not what we showing. This preinstalled SMP/E-packaged product can be found in the system in the following data sets:
   a. MWALLE.PSI.AMLWHFS : dlib data set associated with the product.
   b. MWALLE.PSI.CSI : CSI data set from the install
   c. MWALLE.PSI.SMPLTS : associated SMPLTS
   d. MWALLE.PSI.SMPMTS : associated SMPMTS
   e. MWALLE.PSI.SMPPTS : associated SMPPTS
   f. MWALLE.PSI.SMPSCDS : associated SMPSCDS
   g. MWALLE.PSI.SMPSTS : associated SMPSTS
   h. MWALLE.PSI.ZFS : file system where the product is installed.

When you follow this self-directed module, here is a high level overview of what you will learn:

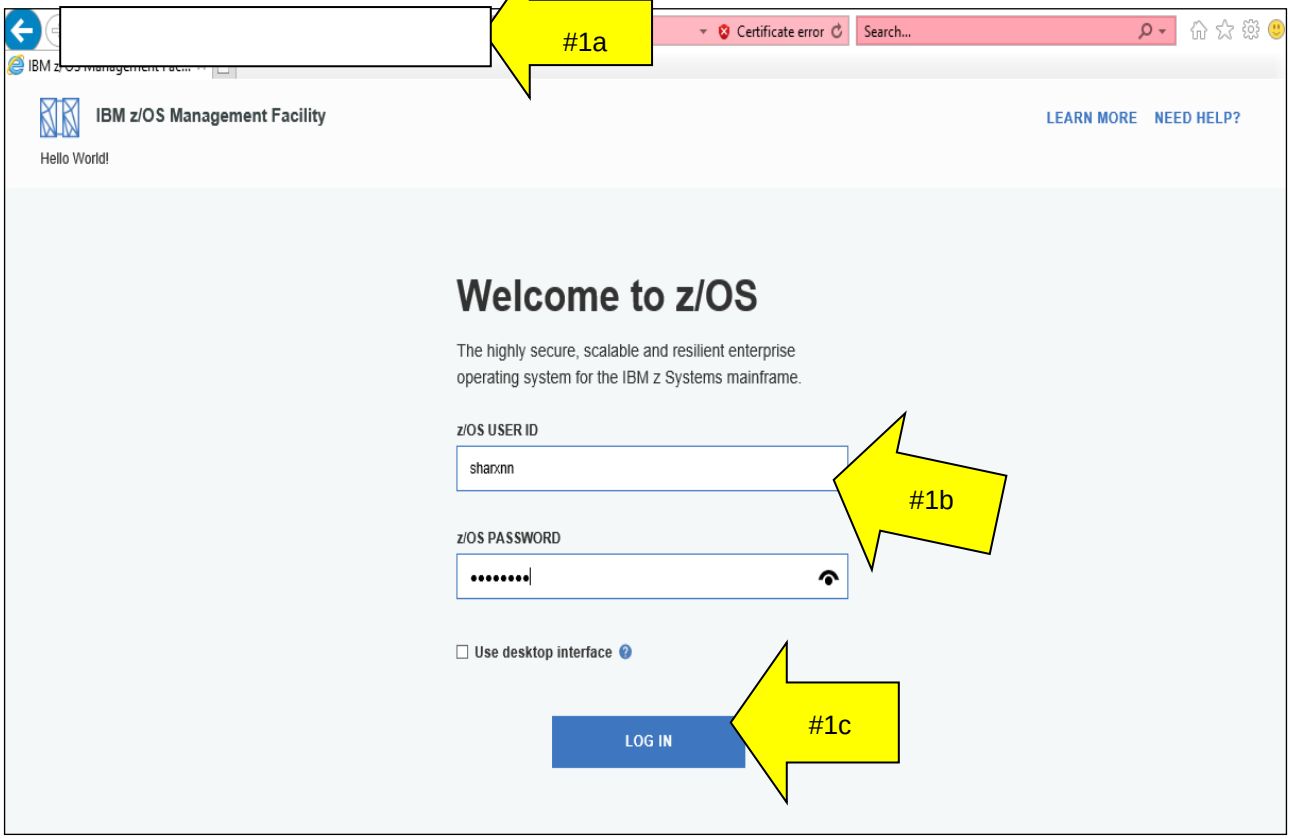
1. Logon to z/OSMF.
2. z/OS Software view: package a composite product into a Portable Software Instance (PSI).

1. Logon to z/OSMF.

In this step, we will now go into z/OSMF to use the Software Management function. For this module, we are using a z/OSMF V2.3 system.

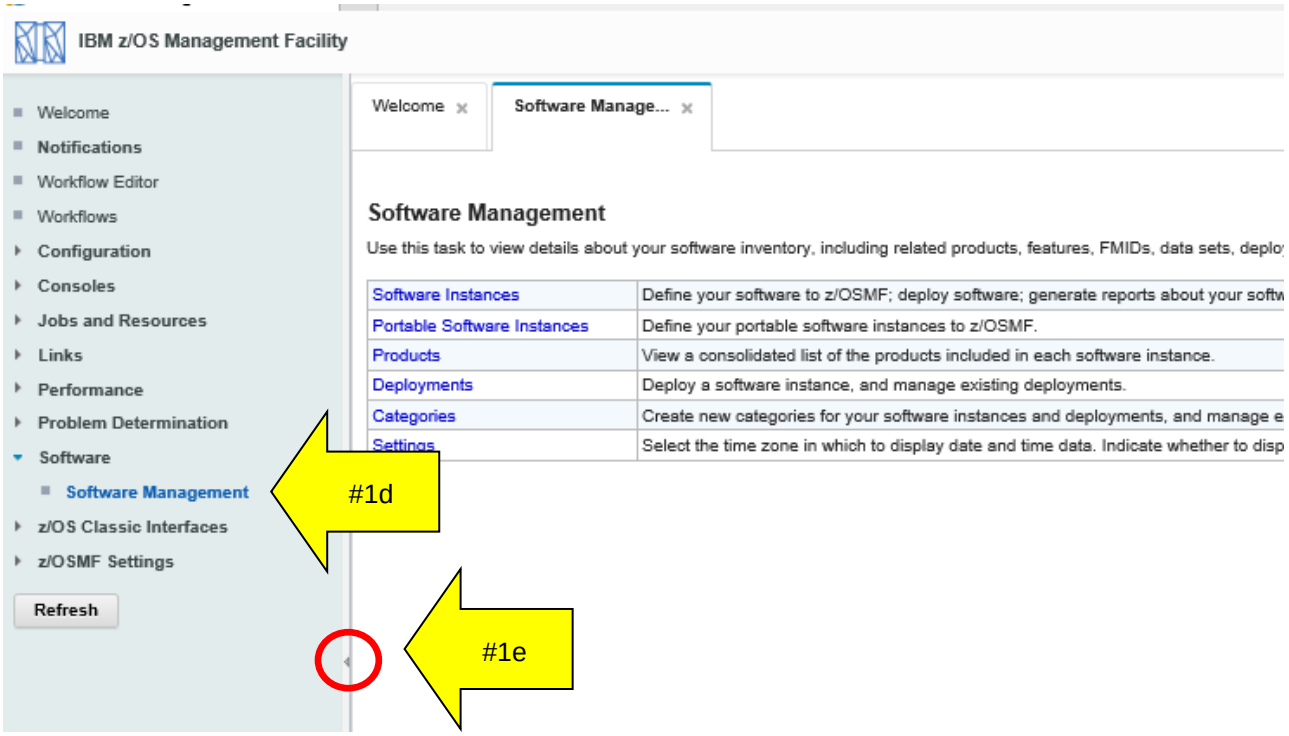
a. Go to your z/OSMF system (using the URL that is appropriate for your installation).

b. Click on “Log in”. (Do not click on “Use desktop interface”, to match this module.



c. Click on “Software”, to untwist the choices, then “Software Management” to launch the function.

d. You can click on the “close” arrow head (in the red circle) below to show Software Management as the full screen.



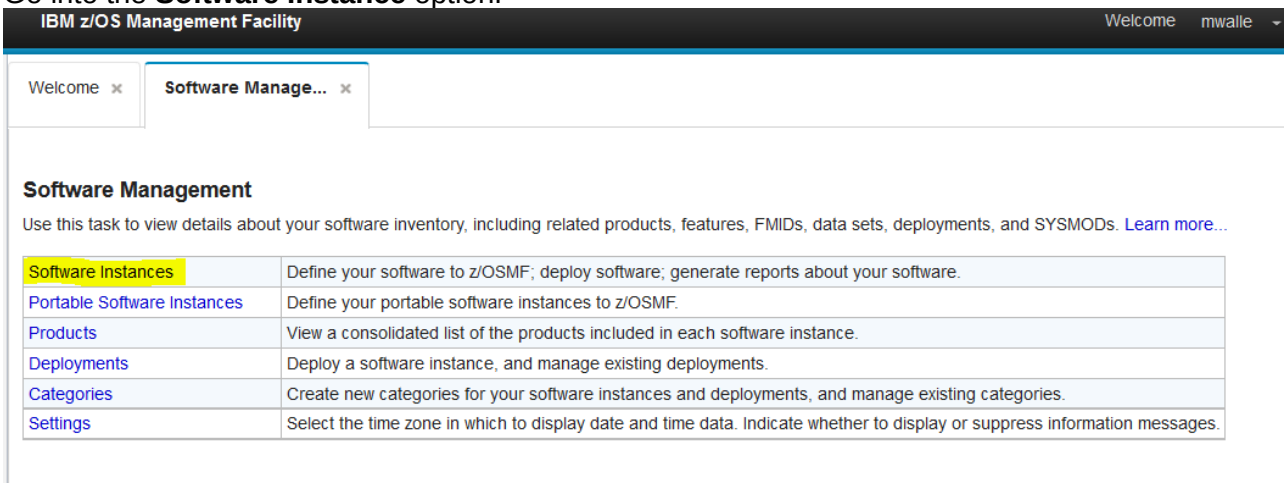
Role of the Software Vendor: define a Portable Software Instance

First, let's see how anyone, including z/OS software vendor could provide the product we described before. There are two portions of defining a Portable Software instance:

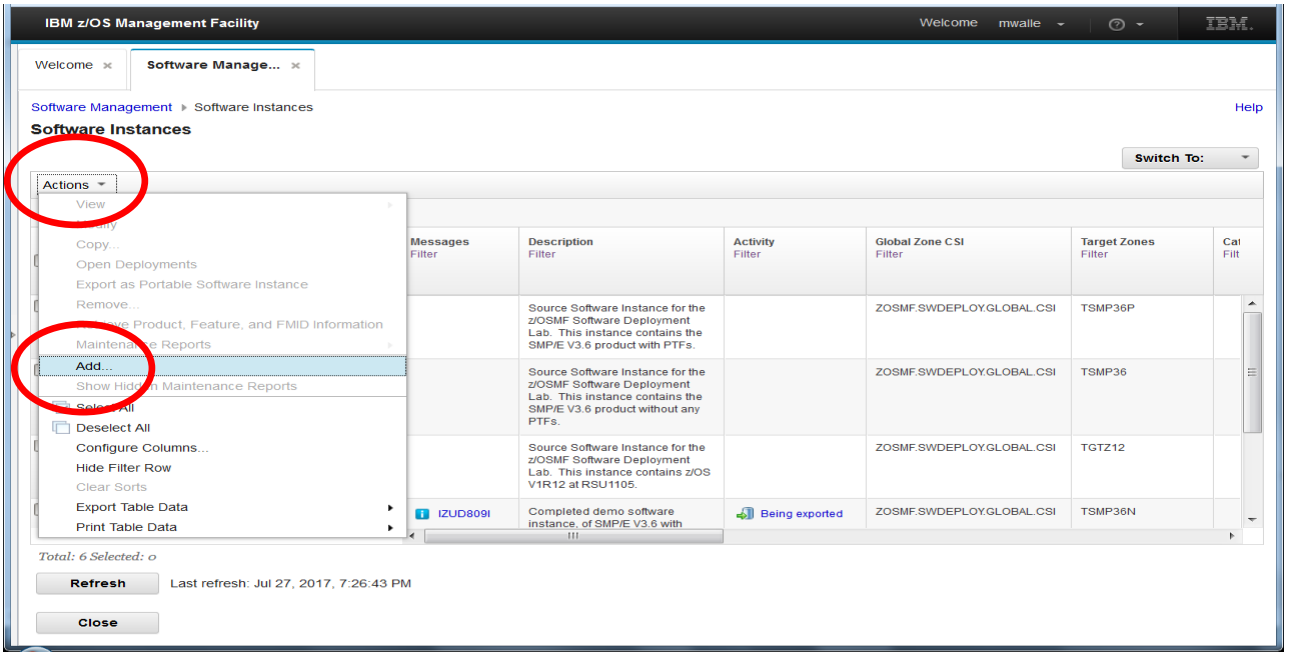
1) Creating a Software Instance, and
2) Taking that Software Instance and making it ("exporting") a Portable Software Instance.

We will now go through the creation of a Software Instance.

a. Go into the **Software Instance** option.



b. You will probably see many Software Instance already on the system. You want to create a new one. Click on Actions-> Add.

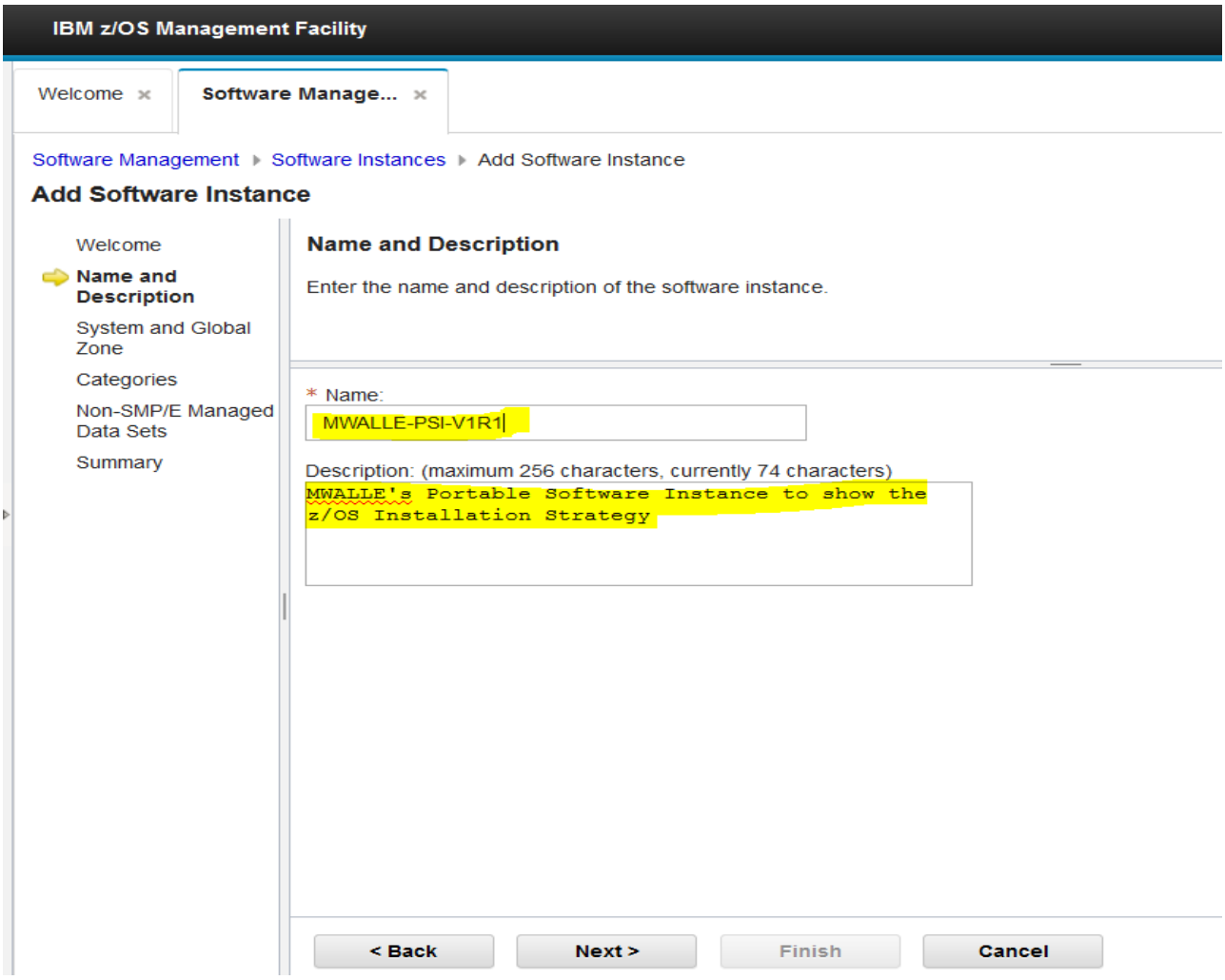


c. Now, we have to provide some details for our Software Instance. You can see the mini-wizard on the left; the steps we need to go through. Provide the following information:

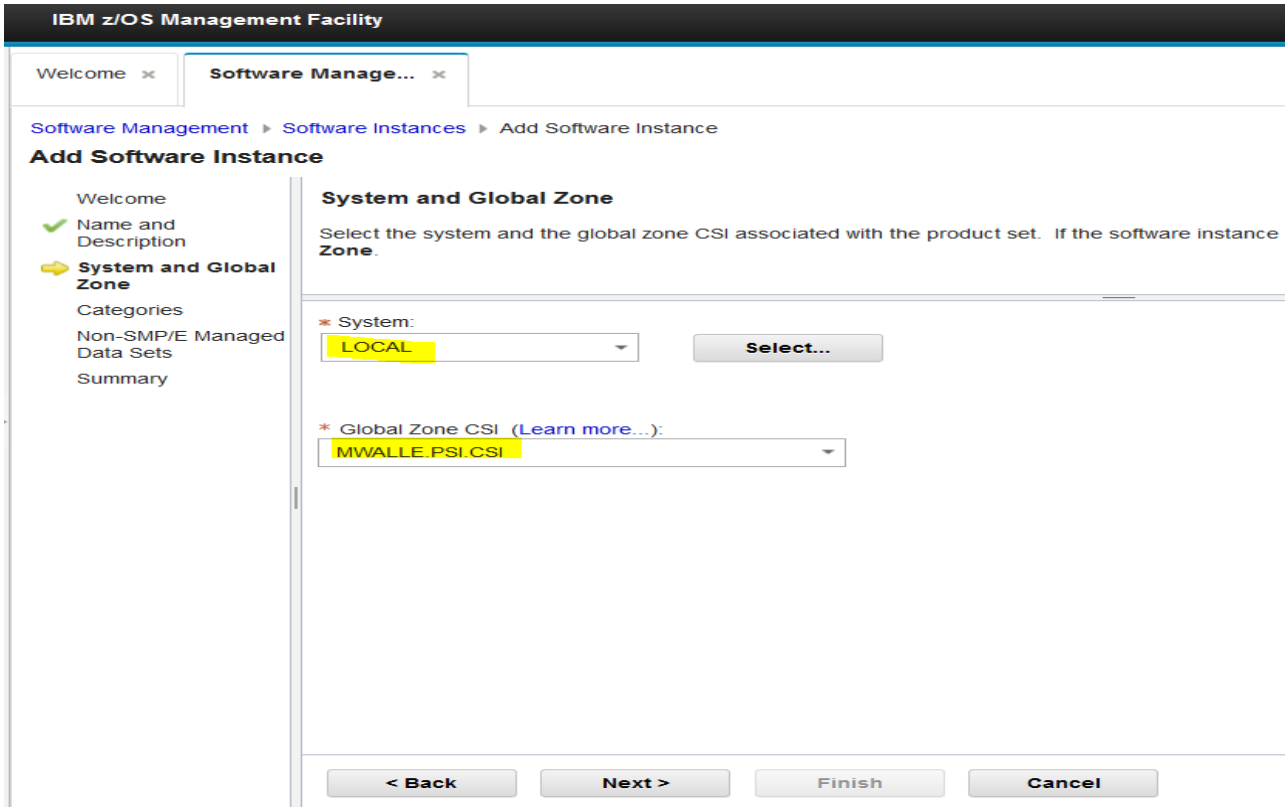
   i. **Name** : use the a name that is meaningful to you. For the purposes of this module, we'll use **MWALLE-PSI-V1R1.** We are putting the V1R1 to indicate the release level of this product.

   ii. **Description** : give whatever description you like, to describe this product (Software Instance).

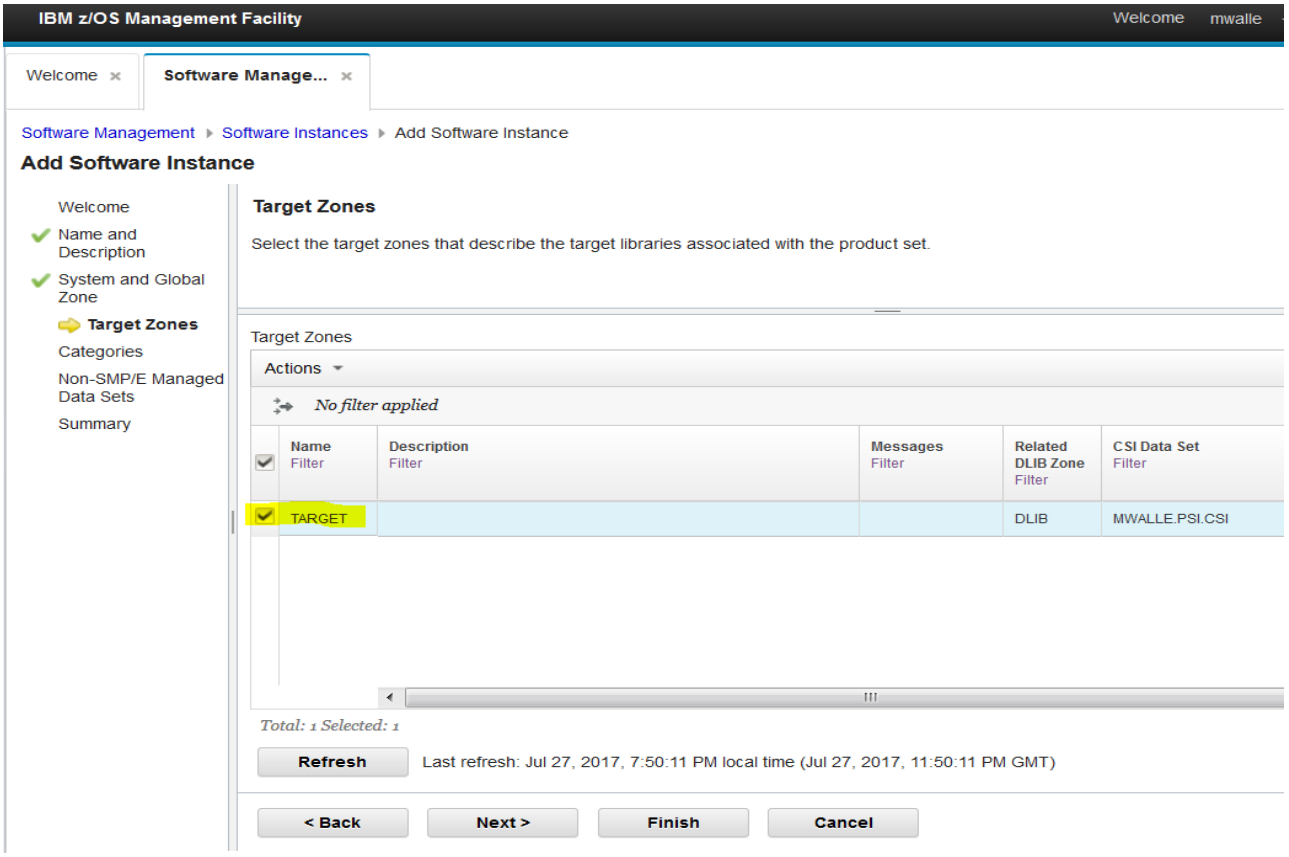
   iii. Click **Next>** to continue.



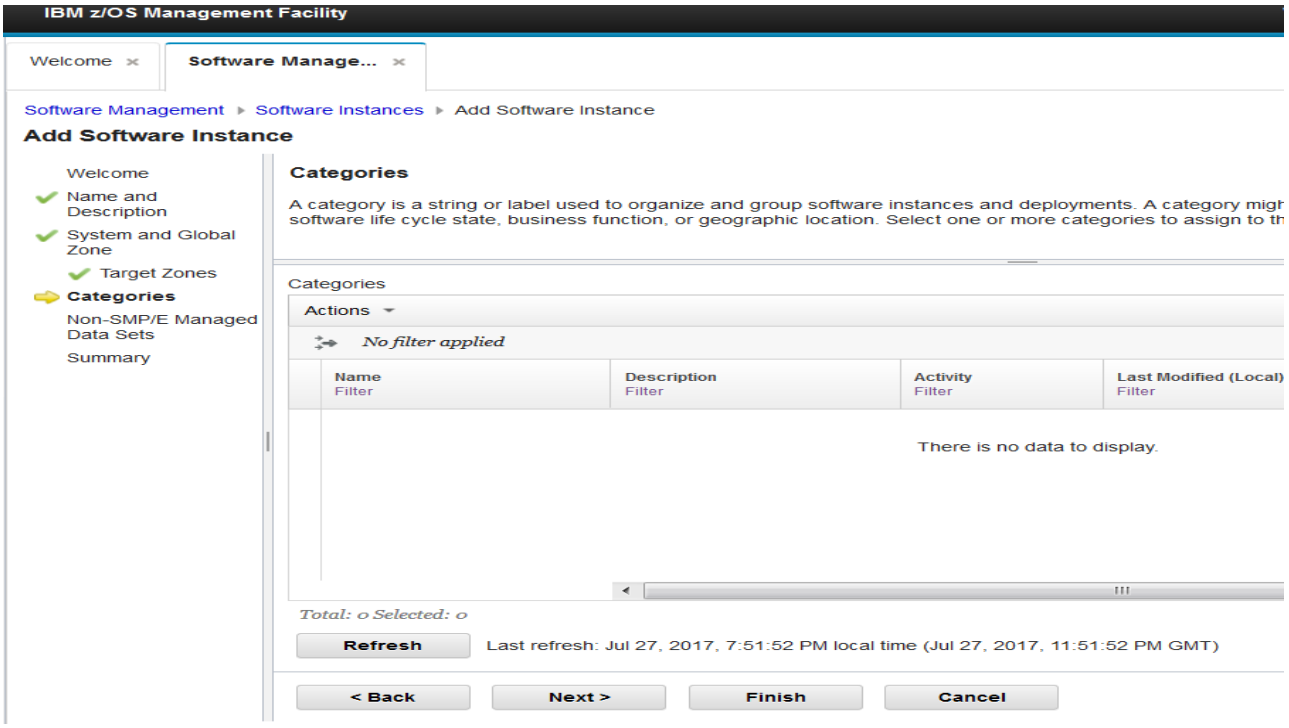
d. This is where you say what system contains the contents of your Software Instance. We are using the same system we are logged onto so we select **LOCAL** from the System pull-down.
e. We need to add the name of the SMP/E CSI we have installed into. We enter **MWALLE.PSI.CSI** here, because that is where the SMP/E-installed portion of our product has been installed.
f. Continue on with **Next>.**



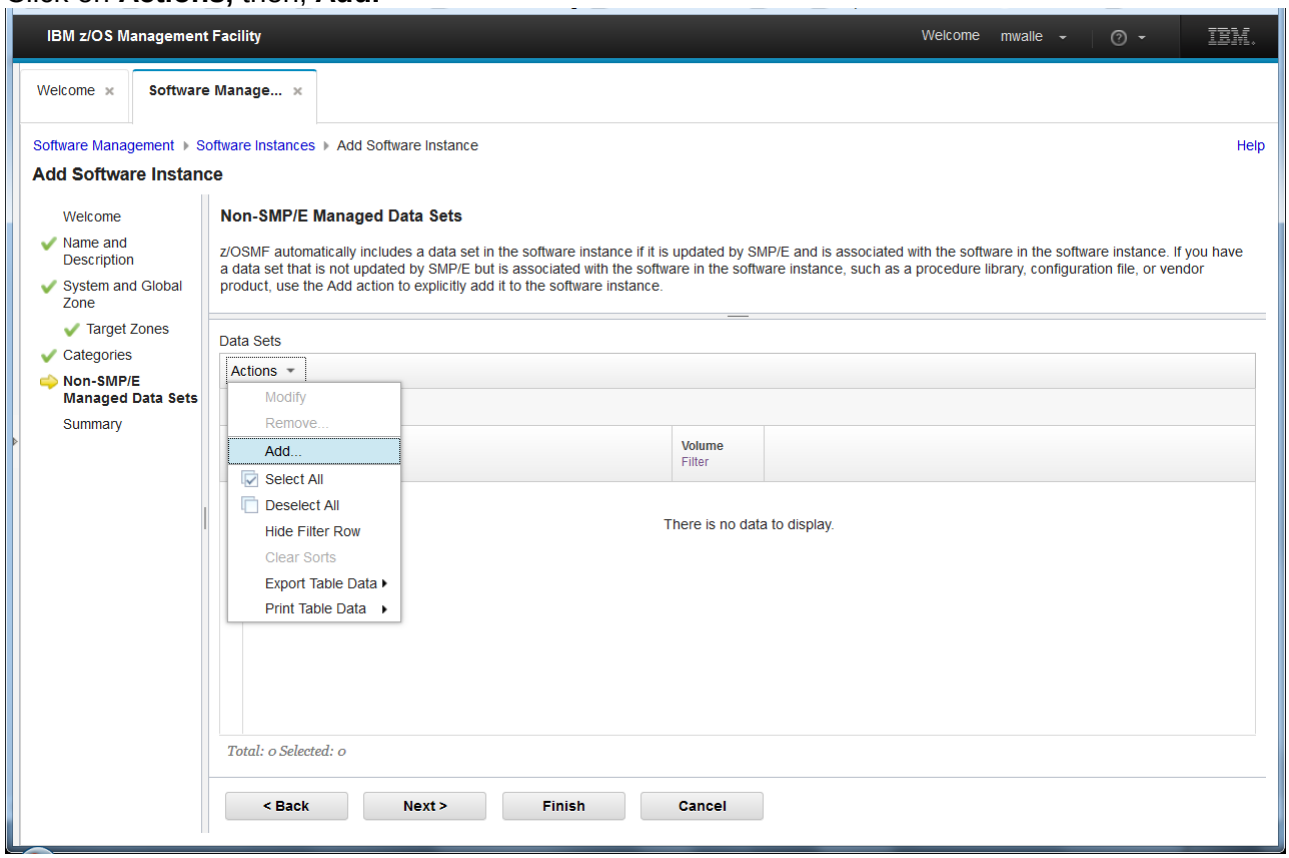
g. This is where you can say which zones you what of the CSI. We want to include all the zones, so select the box next to Target.
h. Then click **Next> .**



i. The next screen is for a Category, if we wanted to specify one. We aren't going to use a Category, just click on **Next>.**

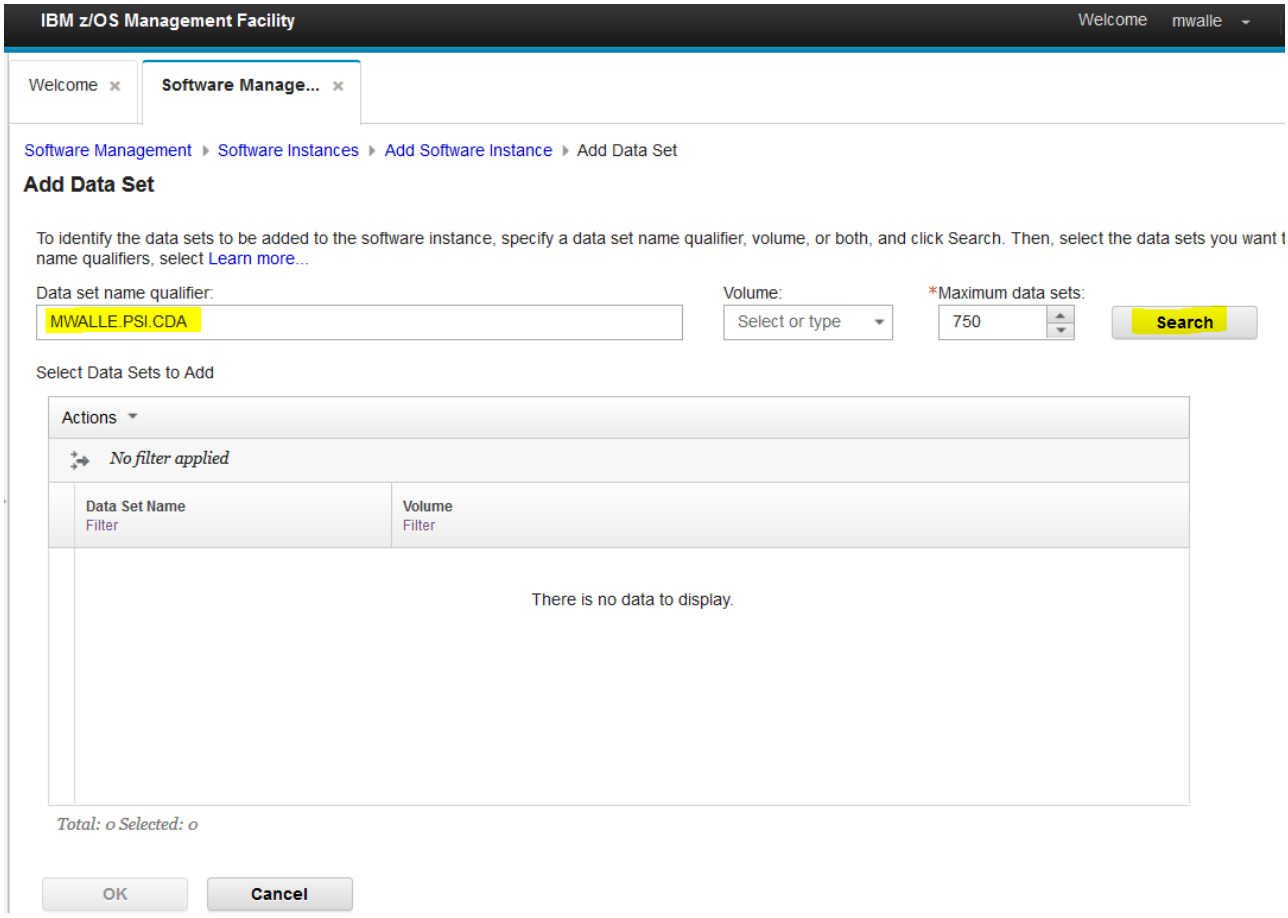


j. Now, we get to the part we have to add the non-SMP/E product to our Software Instance. Click on **Actions,** then, **Add.**



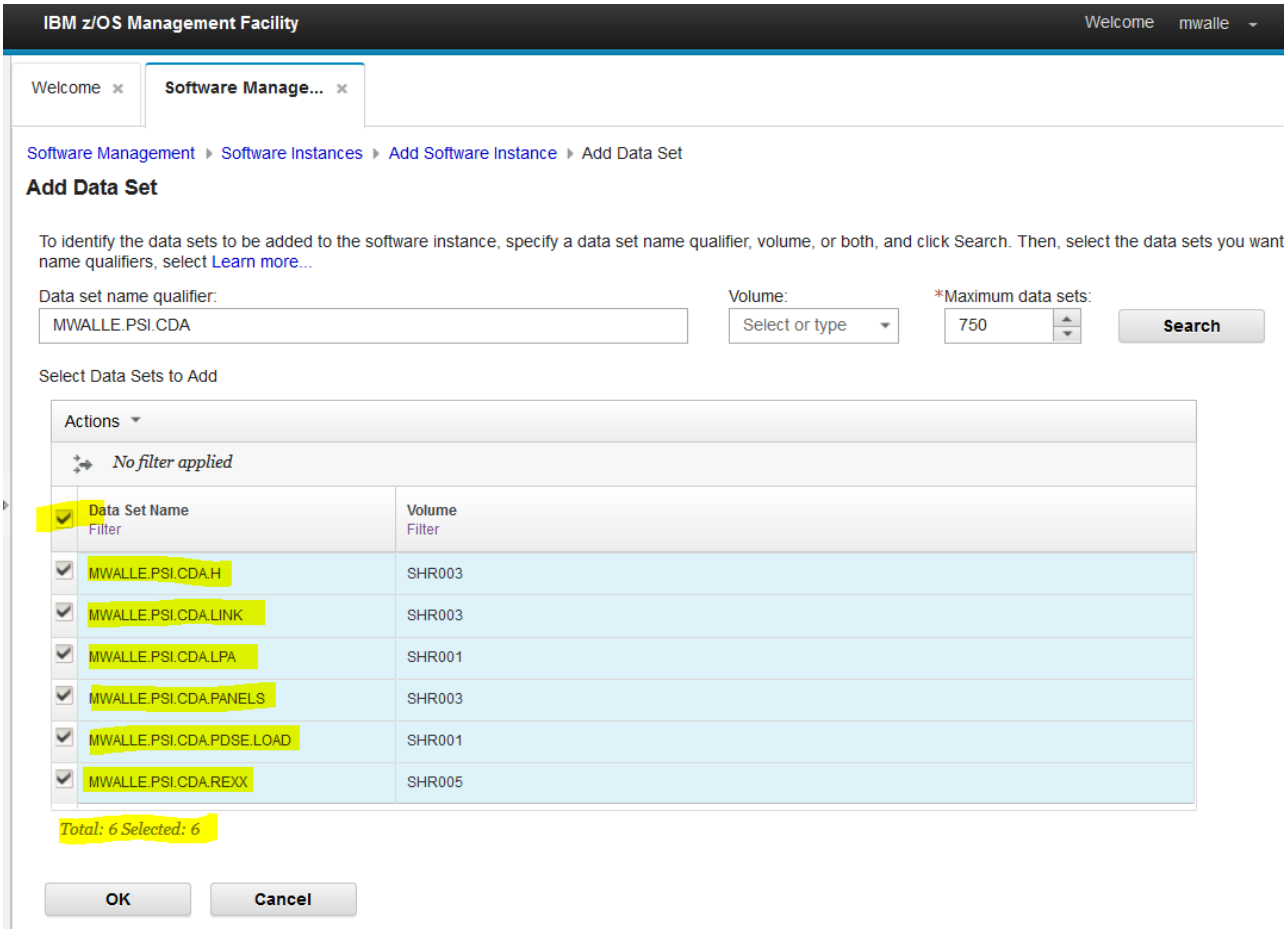
k. We need to add the location of all the **z/OS Cloud Data Access Beta** data sets. We know from the description of this module, that all these six data sets start with MWALLE.PSI.CDA . Type **MWALLE.PSI.CDA** in the Data Set Qualifier field and then Search.

Then wait a minute or two for the system to find them…

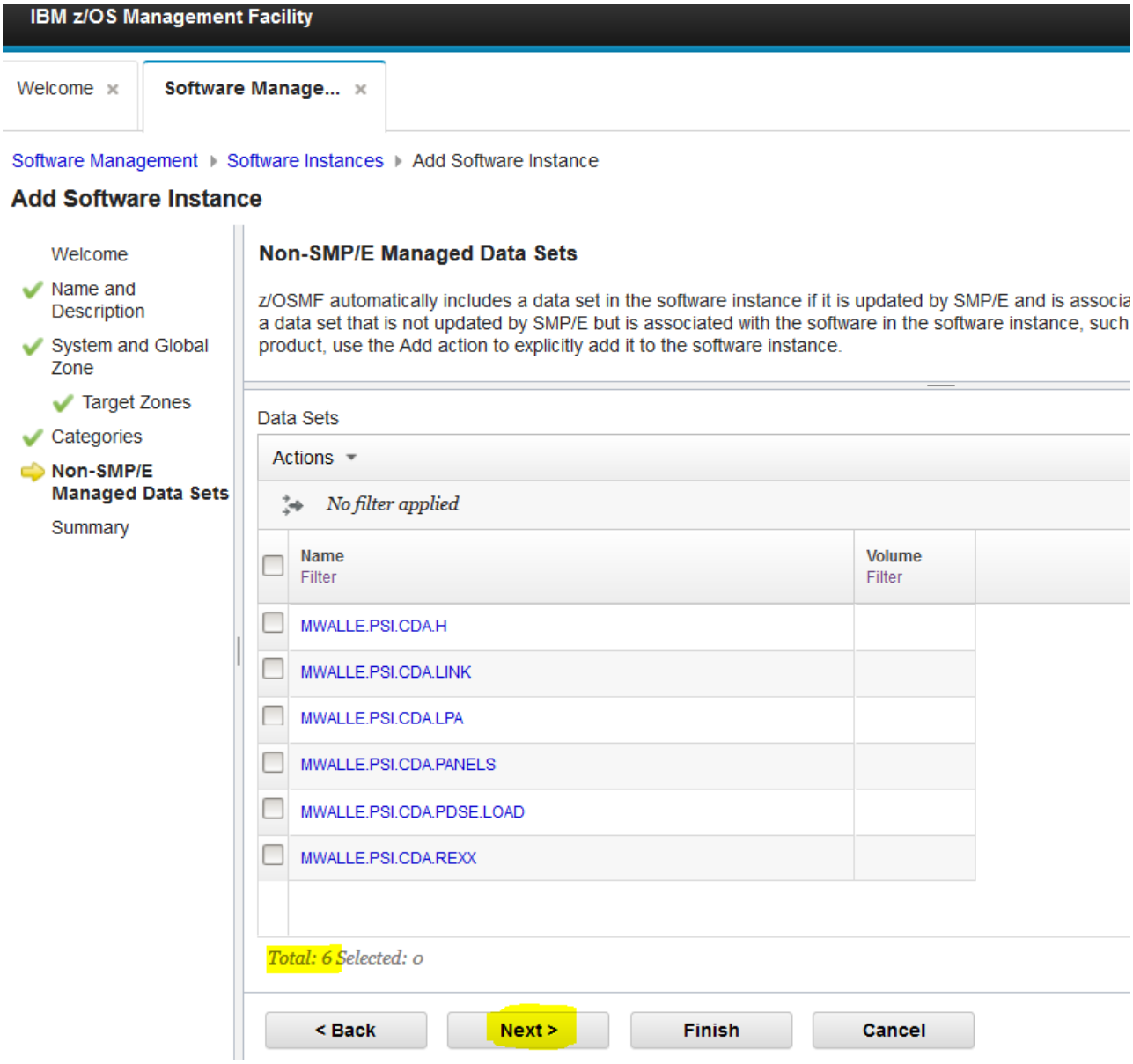


l. This is what is returned. How convenient! Our six data sets for the **z/OS Cloud Data Access Beta** are found. Now, select all six by clicking on the box next to Data Set Name (to select all them), or you could just click six times next to each data set. For some reason, if you didn't want to include a data set in the Software Instance, you just wouldn't click it here.

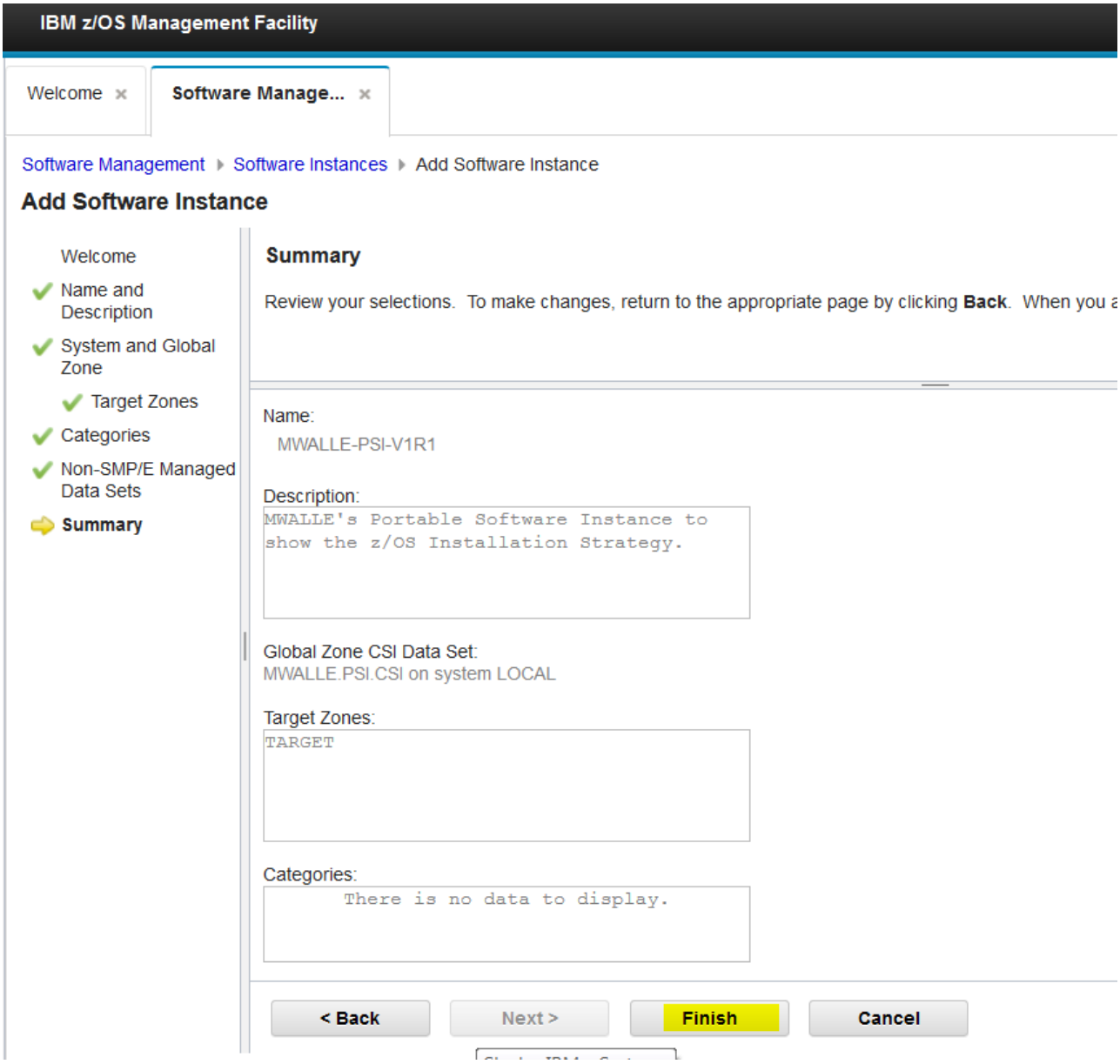
m. Click **OK.**



Then click on **Next>** to move along, after confirming that your six data sets are shown:



We are almost done packaging up our Software Instance… This screen summarizes the contents of our package. You can browse through it. You'll see the SMP/E portion of our product (only the Global CSI), and the non-SMP/E portion of our product (the six data sets we added). Click **Finish** and we are done!



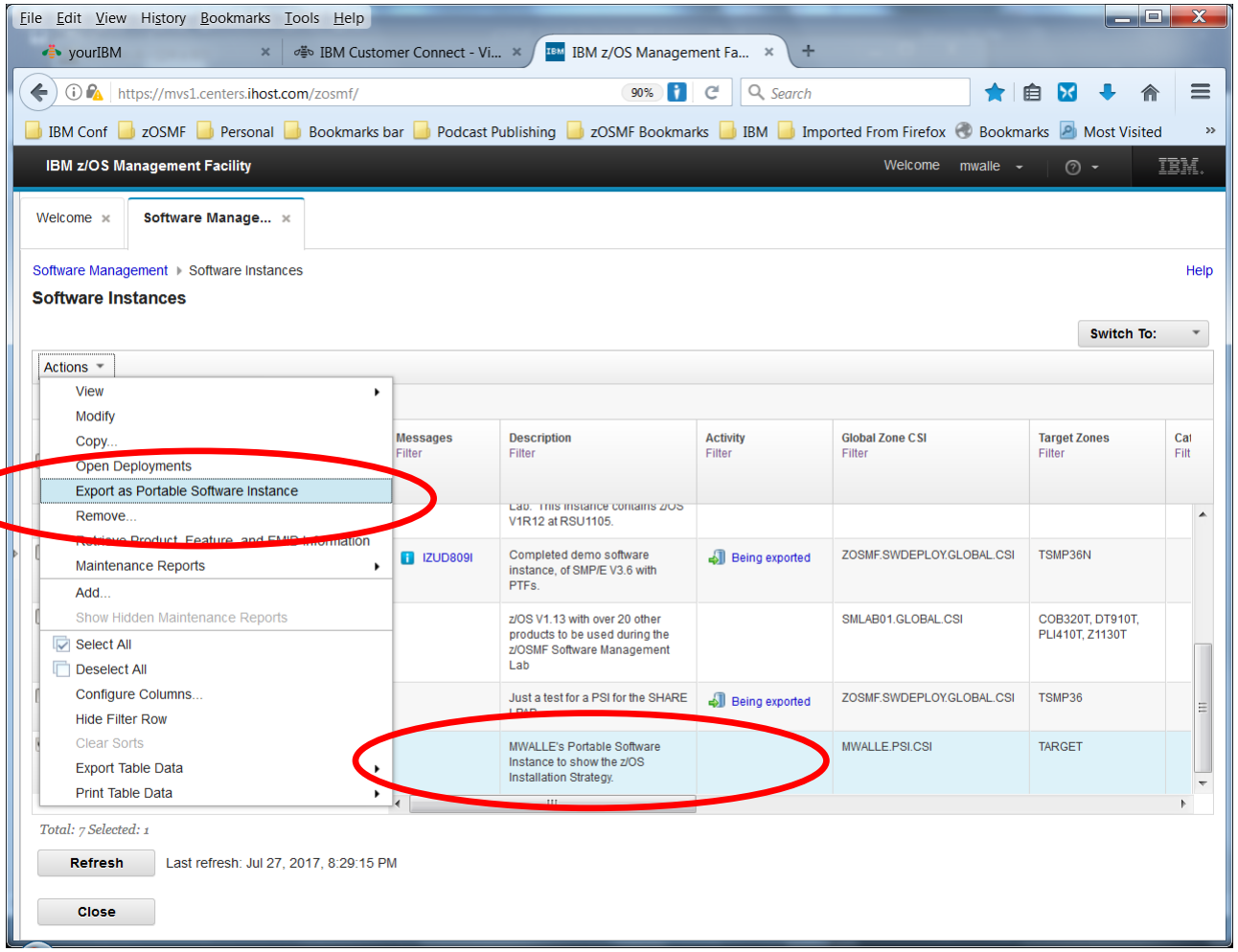
It might take a moment to finish, but you should see this when it is complete:

Let's recap: we packaged a product into a Software Instance that contained the contents we desired. This isn't new, and creating Software Instances is a very old function in z/OSMF Software Management. Now, let's get to the newer part specifically…taking that Software Instance and making it a **Portable Software Instance (PSI).**

We need to make the PSI so that we can distribute it to our paying customers and they can use this great new product our company (Kitty Corp) has produced.

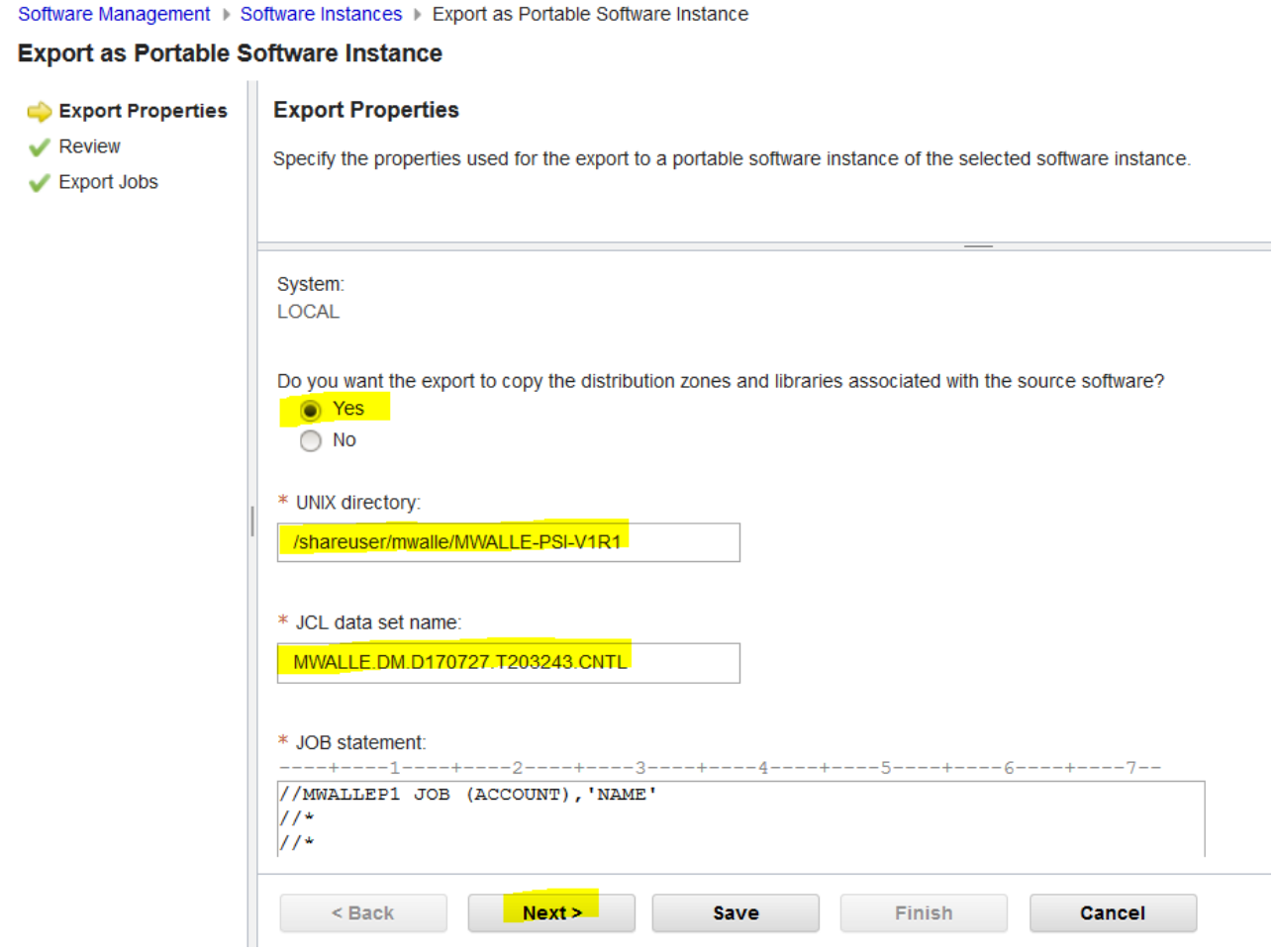
The PSI is a package that can be acquired by our paying customers, and stored into z/OSMF for installation. Creating a PSI is very easy, once you've got your Software Instance defined!

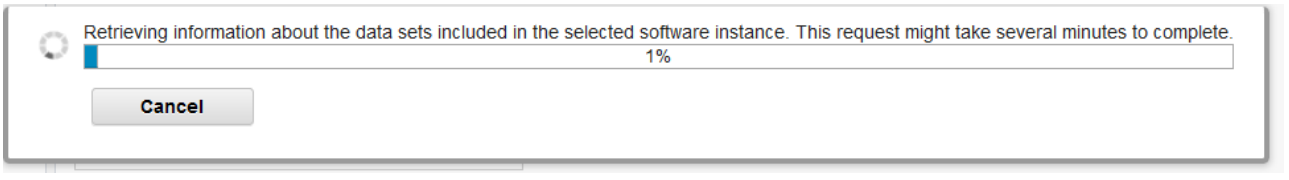
On the Software Instances main screen (where all the system's Software Instances have been defined), select your Software Instance (called something like **MWALLE-PSI-V1R1),** and then **Actions -> Export as Portable Software Instance.**



You need to provide some information. Say:

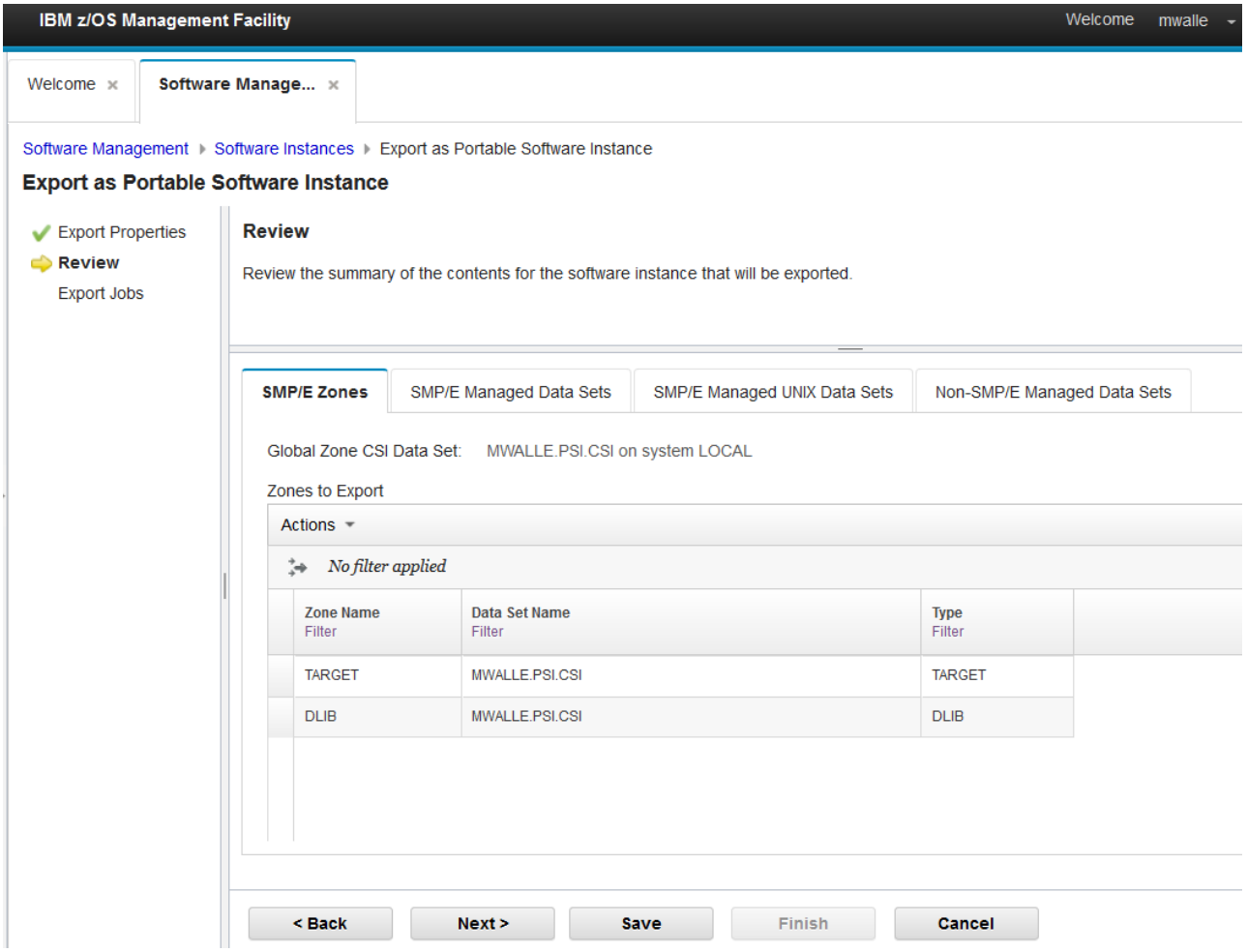
- **Yes**, for exporting the distribution zones and libraries. We definitely want our customers to have all the complete SMP/E installation information.
- a location where the PSI will be stored. This location will be filled in by default, however that default may not be what we want. Change to what is appropriate for you, such as the UNIX directory **/shareuser/mwalle/SHARC15-PSI-V1R1 ..** This is case sensitive.
- The JCL data set name default should be fine. This is the location where the export JCL will be saved, in case you want to see it later.
- Click **Next>.**



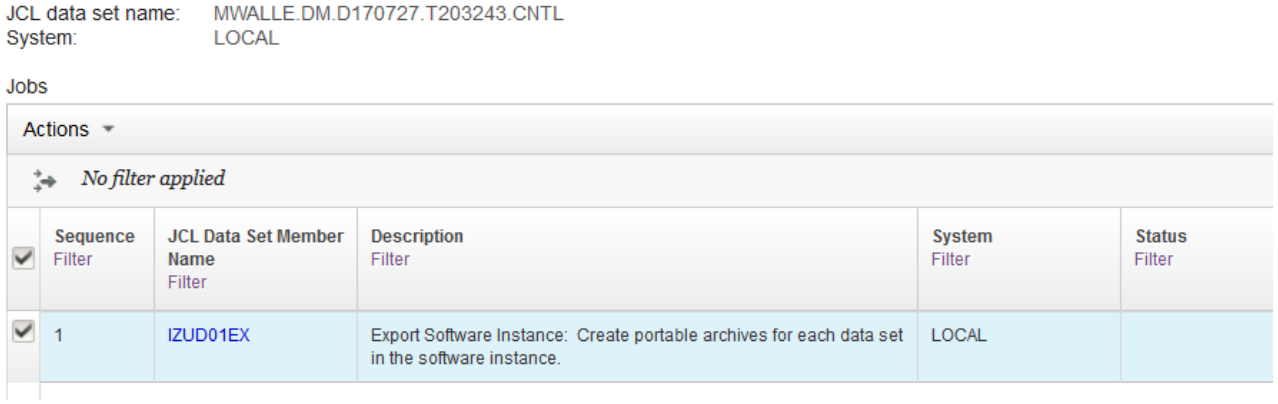


You should then see several review tabs. Click through each one…this is what will be put into your PSI. You can see that there is both SMP/E information, and non-SMP/E information included. We've even got a z/OS UNIX file system to include (from the SMP/E FMID). Just what we wanted! Notice, PSIs can be any type of data set: file system, VSAM, PDS, PDSE, sequential …

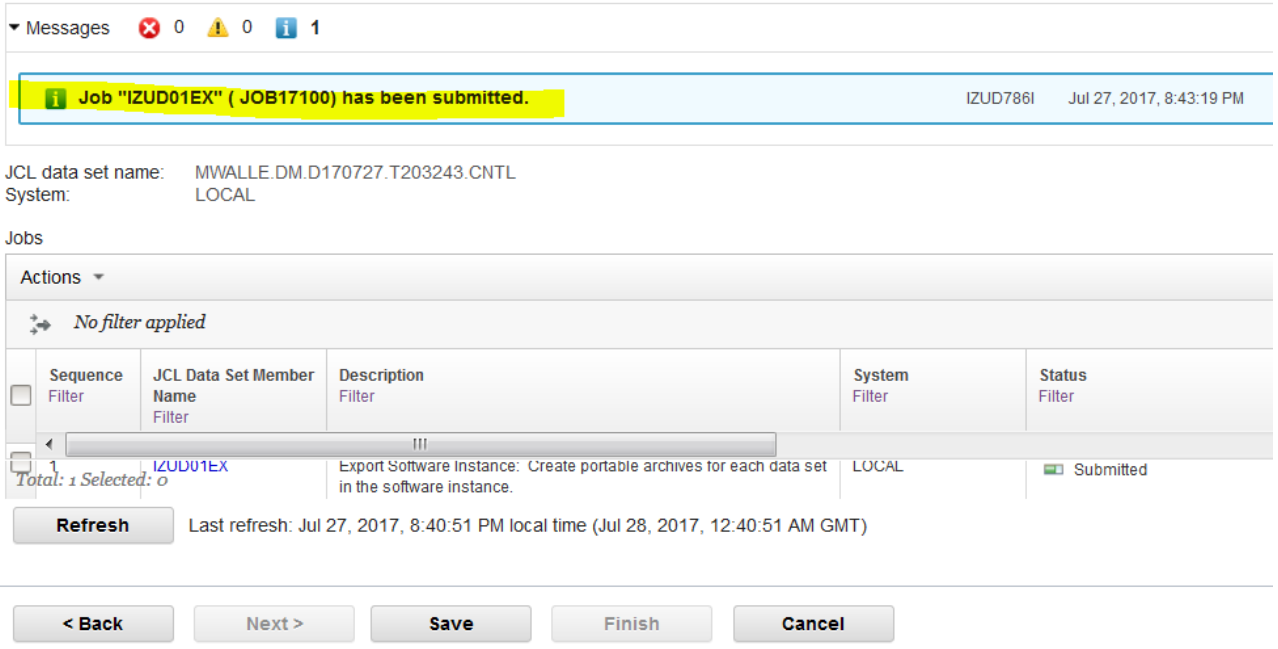
Click **Next>.**



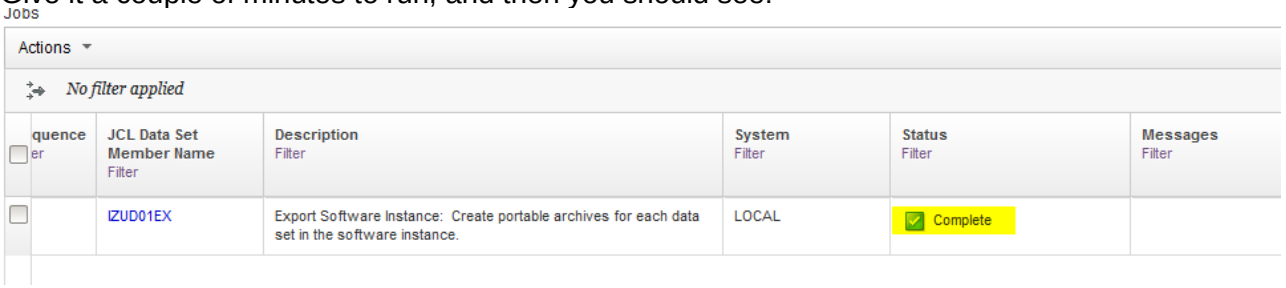
You can now see the JCL that will do the export to the PSI. You can browse it if you like, by clicking on the blue job name:



Then select it by clicking on the box on the left, and do **Actions -> Submit job.**



Give it a couple of minutes to run, and then you should see:



Click on **Finish** and you are done! You now have a PSI that you can sell to any happy customer in your UNIX file system **/shareuser/mwalle/MWALLE-PSI-V1R1** ! Remember that location for

the next part if you want to continue with the other module, which is how to deploy (install) that Portable Software Instance.

What happens now, to get the PSI to a paying customer?

The PSI is in the file system into a zipped format that z/OSMF Software Management can understand. (It happens to be the GIMZIP format from SMP/E, but that is not something that is of concern here. Customers might not even be aware of that.) What is important that is that a z/OS software vendor can take that format and send it to a customer for installation. There are a couple of ways to do that:

- One is to use the GIMGTPKG service routine, and it is probably the simplest, so Kitty Corp. sets up a download server and provides JCL like this for customers to run:

```
//job JOB ...
//GOGETIT  EXEC PGM=GIMGTPKG
//SMPOUT   DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SMPNTS   DD PATH='/u/usr01/pkgs/',PATHDISP=KEEP
//SMPCPATH DD PATH='/usr/lpp/smp/classes/',PATHDISP=KEEP
//SMPJHOME DD PATH='/usr/lpp/java/J6.0/',PATHDISP=KEEP
//SMPSRVR  DD *
<SERVER host="host.sample.com"
user="usr01"
pw="n0peekng">
<PACKAGE file="CBPROC/O12345/RIMTAPE/GIMPAF.XML"
hash="12345678901234567890123456789012345678901234567890"
id="O12345">
</PACKAGE>
</SERVER>
/*
//SMPCLNT DD *
<CLIENT retry="3">
</CLIENT>
/*
```

- Another way is to perhaps use the pax utility to put it into a single MVS data set, such as:

```
//PAXITUP  EXEC PGM=IKJEFT01,REGION=0K
//SYSPROC   DD DSN=SYS1.SBPXEXEC,DISP=SHR
//SYSTSPRT  DD DSN=&&HFSOUT,
//          DISP=(NEW,PASS,DELETE),SPACE=(TRK,(10,10)),
//          DCB=(RECFM=FB,LRECL=121,BLKSIZE=12100)
//SYSTSIN   DD *
  oshell cd /KittyCorp/PSI-V1R1/                  &&             +
  pax -wzvf "//'PSIV1R1.ARCHIVE"  *
//*
```

What is probably a very likely scenario is the following:

1. Kitty Corp. uses a utility (such as z/OS UNIX pax) to create an archive of that PSI in the file system. This will put it in a single file.
2. With fabulous advertising, the customers decide they want that PSI. The customers can FTP the PSI from the Kitty Corp to their own system, into a z/OS UNIX file location. How they transfer that single file from one place to another is a decision that vendor would take, but conceptually, think that FTP could be one method to get it from Kitty Corp to the customer.
3. Now that the customer has acquired the PSI from Kitty Corp…they unload the archive into the z/OS UNIX file system (perhaps using the z/OS UNIX pax command to un-archive it into several files in a directory).

4. The PSI is in the z/OS UNIX file system on z/OS and is ready for z/OSMF to install it.