

V6R1: Is it Ready?

By Pete Massiello

Someone recently asked me if i5/OS V6R1 was ready to be installed on their production environment. I told them that they couldn't upgrade to i5/OS V6R1. They had a confused look on their face, because we had only last year sold them a new 525. I told them first we need to get the name of the operating system correct. I said remember last spring during the annual COMMON conference when IBM made that big announcement, and changed the name of the operating system? IBM had renamed the operating system from i5/OS V6R1 to IBM i 6.1. They nodded their head in agreement, and then they asked if i 6.1 was ready?

I told them the question is not whether 6.1 is ready, because from my experience 6.1 most definitely is. The question is "Are you ready for 6.1?" The confused look surfaced again. I have already done quite a few upgrades of the operating system to 6.1 at various clients, and we have had great success at each and every one of them, but that was because we did a lot of planning. In every operating system upgrade that you do, you need to read the manuals, "read-me first" guides, find out what steps are required for the upgrade, get any pre-requisites you need to load, learn any hardware that won't be supported on the new release, learn what conversions are required afterwards, etc. Well 6.1 is no different; in fact I think there is significantly more planning involved in this upgrade than perhaps in your last upgrade of i5/OS V5R3 to V5R4.

The secret to the success of this upgrade to i 6.1 is plan, plan, and plan. I am not kidding: there is some serious planning that needs to be done prior to performing the upgrade. The upgrade process itself is very similar to previous upgrades, so that is not anything to worry about. What is a concern is that after the upgrade, every program on your system will need to be converted before it is able to run on the new release. This is very similar to what occurred after the upgrade from CISC to RISC. IBM has provided us with a tool called ANZOBJCVN that we can run on our V5R3 and V5R4 systems (as those are the only supported upgrade paths to 6.1) BEFORE the upgrade. During most operating system upgrades, objects get converted, but it seems that there is always more planning that must be done for program conversions.

I recommend that you think about running ANZOBJCVN process between 60 and 90 days before you wish to do your upgrade. First, let's find out what the command does. The ANZOBJCVN command identifies programs that won't convert to run on 6.1, and estimates the times that is required for the program conversions. It also provides information about two other types of conversions: integrated file system names and spooled files. You can get the ANZOBJCVN command and

program by loading and applying the appropriate PTFs for V5R3 or V5R4.

Here are the currently correct PTFs. For V5R3:

SI28425, SI30809, SI25504

and SI27473. For V5R4: SI30802, SI25502 and SI26706.

You can also do a Google search on ANZOBJCVN for the latest PTFs if some time has elapsed since the writing of this article.

Secondly, why are program conversions required? With 6.1, IBM is re-encapsulating each program to improve program performance, use a variety of new operating system and processor capabilities, and provide stronger system integrity.

To enable these improvements, all integrated language environment (ILE) and original program model (OPM) programs get converted at first touch after the upgrade.

Thirdly, how does ANZOBJCVN know which programs will convert and which won't? It looks at every program to determine whether it a) has either observability or b) was created at V5R1 and later and has creation data. Either of these will allow the programs to be re-encapsulated (think of it as re-created from itself) to be run on 6.1. If you have neither observability nor creation data, you had better have the source for the program, otherwise that program will NOT be able to work at 6.1.

Let's start the process and check our system. Load and apply the correct PTFs for your release, and then Run the command ANZOBJCVN OPTION(*COLLECT) LIB(*ALLUSR) SPLFILE(*YES) OBJ('/'). It's a long running command so you will probably want to submit it to batch. The command will analyze all your programs to look for observability or creation data. After you run the command to collect the information, you will want to look at the results with the ANZOBJCVN OPTION(*REPORT) RPTTYPE(*CVNPRB *LIBSUM). There are a few more reports, but I like these two reports as you get a list of all the conversion problems, and then a summary by library. What I have found in running these reports at many companies is that it is primarily third party software that encounters program conversion issues. You have to examine each of the libraries listed in the report, and if there are any problems that are identified, you need to determine where the programs in that library originated from. For instance, if they are your in-house written programs and you removed observability on the programs when you originally compiled them at an operating system version prior to V5R1, then you will need to find the source and recompile them. That way the program would have both observability and creation data and be able to be converted at 6.1. If the programs came from a third party vendor, you need to contact them and get



a new version of the program that has either observability or creation data. You don't require both, just one or the other. You will need to continue to collect data, produce a report, and fix the problems in the report until the report can be run with no programs having issues. This is why I suggest starting this process 90 days before you plan on running the upgrade. Remember, anything on that report will not be able to be converted to 6.1, and therefore will not run when called after the conversion to 6.1. This whole process of collecting, reporting, fixing, and back to collecting seems to take some time, so you will want to plan your time accordingly. There are a few other issues with programs not converting due to certificates and running in the wrong state, but for most people they will probably only need to worry about observability and creation data.

With any upgrade, you should always contact any of your third party application and utility vendors to insure that the version of their software you are currently running will be supported and run on the new version of the operating system you are upgrading to. Now, that we have all our programs able to be converted, what other things should you be looking for? ANZOBJCVN will also tell you about IFS files that need to have their name changed, all the JAVA programs stored in the IFS (which will convert without any problems), and spool files.

There are many other steps to be performed in the upgrade guide, and I don't have the space to get into all of them in this article. So please make sure you read the upgrade planning document. One thing I always look at is the Informational upgrade APARs for each release that I am upgrading to. There are PTFs you need on your current release before you start the upgrade for using Image Catalogs, expanding the Licensed Internal Code space, and other PTFs required prior to the upgrade. The Informational APAR for V6R1 is II14310. If you have a Power5, Power5+, or Power6 box there are firmware licensed code fixes for Flexible Service Processor (FSP) that you need to have. For the Power5 and Power5+ you need to be at a minimum release of 01_SF240_332 and Power6 will require at least Ex310_057 (where x is L for 520 and 550, M for 570, and H for 595). Remember, if you are coming from V5R3 to 6.1 you will need to increase the Licensed Internal Code space and have at least a 17GB load source. Also, for every release, make sure you accept your license agreements.

Let's get back to our programs. When does the conversion occur after the upgrade? Well it can occur at first touch, or we can invoke it manually. I highly recommend that we do it manually, as we don't want the programs to be converted on the first touch by the user, as it would be terribly slow for the user. You can use the STROBJCVN command. I like running this command once for each library as a separate job, and I usually write a small program like the one below that creates a separate batch job to submit the STROBJCVN LIB(library-name) OBJTYPE(*PGM) for each library. I prefer to do my STROBJCVN after I have loaded and applied the current cumulative PTF set, and the Hiper PTFs. Also note that there currently is a PTF, MF44237 which should be applied before STROBJCVN is run.

```
LIBCONVERT:  PGM
              DCLF   FILE(QSYS/QADSPOBJ)
/*          Created by Pete Massiello - iTech Solutions
              http://www.itechsol.com */
              DSPOBJD  OBJ(*ALLUSR) OBJTYPE(*LIB)
              OUTPUT(*OUTFILE) + OUTFILE(QTEMP/
              DSPOBJD1)
              OVRDBF  FILE(QADSPOBJ) TOFILE(QTEMP/
              DSPOBJD1)
LOOP:       RCVF
              MONMSG  MSGID(CPF0864) EXEC(GOTO
              CMDLBL(END))
              SBMJOB  CMD(STROBJCVN
              LIB(&ODOBNM) + OBJTYPE(*ALLPGM))
              JOB(&ODOBNM) JOBQ(QBATCH)
              GOTO    CMDLBL(LOOP)
END:        ENDPGM
```

Then I can just scroll through my job completion messages in my message queue and look for any one of the jobs that failed and see why. If I ran my ANZOBJCVN program repetitively until I had no issues, then I shouldn't have any problems. I have also found that running the STROBJCVN program once for each library makes the conversion time much quicker than just running one single threaded batch job for all my libraries.

There are many steps to perform when it comes to do an upgrade, but I have always found that the success of any upgrade comes from the planning done prior to the upgrade. This is definitely the case with 6.1 and ANZOBJCVN. Remember, that 6.1 is ready for production, just make sure you follow **all** the steps required in the upgrade process so that your upgrade goes as smooth as possible. ■

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