**Automatic Re-flashing Script for Digital Controllers: /vnmr/adm/acq/verifyCntrlsFlash**

# Scope

The purpose of this document is to inform you of a procedure that can be used to update/re-flash the firmware of the digital controllers on all Direct Drive consoles.

# Background

Running setacq often fails and cannot update the firmware in the following scenarios, but the new script can be used to update the controller firmware in the following scenarios and a null-modem cable is NOT required:

1. When upgrading the OVJ software:

In the past, updating the firmware from VJ software older than and including VJ 2.2C with the 104 patch required multiple steps. Running the script is the only required step.

1. Installing a new digital controller:

New controllers often come with older NDDS firmware versions requiring a manual reflashing procedure. The script will now correctly reflash these controllers.

1. If one or more controllers have not booted (i.e., no LED activity such as scrolling or blinking) due to missing files, OTHER than boot.ini or vxWorks, the script will reflash the controllers. **These 2 files must be present in the controller’s flash for the script to update that controller.**

The script **cannot** be used to update the controller firmware in the following scenarios:

1. If the boot.ini or vxWorks405gpr.bdx is missing or corrupted, a null-modem cable and minicom are required. **These 2 files must be present in the controller’s flash for the script to update that controller.** In this case, minicom must be set up, boot.ini must be created, and vxWorks must be copied to the controller as indicated in the Controller\_Reflashing.pdf document. Afterwards, you can then use the script as indicated in this document.
2. If there is a network/communication issue between a controller and the host, the script will not function. The communication issue must be resolved first before using this script.

# How to use the re-flashing script

1. Open a terminal window
   1. Do an rlogin to the controller to be flashed
   2. Type: ffdir
   3. Make note of the current firmware files
   4. Type: logout
2. The script uses rsh to communicate to the controllers so it bypasses any NDDS version clash issues.  (3x vs 4x). The rsh service is enabled by the setacq command.

**Note: Make sure to close any rlogin sessions to the controllers or else you get an rsh error**

1. Running the script
2. **Note: Updating one controller can take over 6 - 7 minutes** (nddslib alone may take over 4 minutes) depending on how many files need re-flashing. This script checks one controller at a time sequentially and re-flashes needed files on it before proceeding to the next controller (setacq flashes a file to all controllers simultaneously). A progress bar shows status of the file being flashed.
3. Usage of the script (do ONE of the following)
   * 1. type **/vnmr/adm/acq/verifyCntlrsFlash**

To verify flash content of all controllers and update if needed from /vnmr/acq/download. It will prompt if you want to update the files on the flash, prior to writing anything to flash. If you do not want to be prompted every time for each controller, use  **/vnmr/adm/acq/verifyCntlrsFlash -y**

* + 1. type /vnmr/adm/acq/verifyCNtrlsFlash [list of controllers]

**/vnmr/adm/acq/verifyCntlrsFlash rf1,rf2,lock1,ddr1**

To select specific controllers to check and flash only these controllers

1. Other usages of the script
   * 1. type /vnmr/adm/acq/verifyCntlrsFlash -h

For the complete usage text and options

* + 1. type /vnmr/adm/acq/verifyCntlrsFlash -d [list of controllers]

For debugging purposes and will check and/or flash controllers listed

1. At the end of the process, the script will create a time-stamped log file in the current work directory for record keeping and the controller(s) will be rebooted.
2. Perform step III A above to confirm new firmware is installed in the controller(s)
3. You should run setacq, which will run quickly, to confirm it has no issues.
4. Below is an example of running the script for master1 and ddr1. On master1, all files were removed except for boot.ini and vxWorks while the ddr1 had all its files present in flash before running the script. After running the script, notice the master’s NDDS version is indeterminate because the nddslib.o file was not originally present, but the ddr1 shows it has NDDS version 4.x. The master1’s files were updated in its flash while the ddr1 did not require updating.

*vnmr1 >****/vnmr/adm/acq/verifyCntlrsFlash master1 ddr1***

*------ 2012-07-26:15:54:12 -------*

*Log file: "verifyCntlrsFlash\_2012-07-26:15:54:12.log"*

*Debug Log file: "verifyCntlrsFlash\_Debug-2012-07-26:15:54:12.log"*

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*Digital Controller:* ***master1****, Unique ID: 0x7d024b6c, NDDS Ver: Indeterminate*

*Obtaining Directory Info: ..*

*Controller Directory listing: 2 file(s) 1322104 bytes, 14275464 bytes free*

*vxWorks405gpr.bdx 1320720 bytes md5: unknown: Controller not fully booted*

*boot.ini 1384 bytes md5: unknown: Controller not fully booted*

*Files Not Requiring Updating: None*

*Files Requiring Updating:*

*nddslib.o*

*nvScript*

*gradientexec.o*

*ddrexec.o*

*vxWorks405gpr.bdx*

*rfexec.o*

*nvlib.o*

*pfgexec.o*

*masterexec.o*

*lockexec.o*

*icat\_top01.bit*

*icat\_top.bit*

*icat\_config.4th*

*Update the files? (y/n): y*

*Update: nddslib.o*

*Update: nvScript*

*Update: gradientexec.o*

*Update: ddrexec.o*

*Update: vxWorks405gpr.bdx*

*Update: rfexec.o*

*Update: nvlib.o*

*Update: pfgexec.o*

*Update: masterexec.o*

*Update: lockexec.o*

*Update: icat\_top01.bit*

*Update: icat\_top.bit*

*Update: icat\_config.4th*

*Rebooting Controller: master1*

*------------------------------------------------------------------*

*------------------------------------------------------------------*

*Digital Controller:* ***ddr1****, Unique ID: 0x7e024922, NDDS Ver: NDDS 4.x*

*Obtaining Directory Info: ..............*

*Controller Directory listing: 14 file(s) 12250072 bytes, 3347496 bytes free*

*nddslib.o 5844541 bytes md5: 143922079ff397d09f1231cb807c9f71*

*ddrexec.o 681714 bytes md5: 4883aa794643dd02bcbd419647cce707*

*vxWorks405gpr.bdx 1320720 bytes md5: 5dc96afff0f7bdd038d4433c6b7aaa0d*

*boot.ini 1384 bytes md5: aec46c067e501f1443d4bc4028c6652f*

*nvScript 1025 bytes md5: c76c5297926ef38c702729d93fe9586c*

*icat\_top01.bit 341657 bytes md5: 5d883b8cb00fbd0d5ccd52899c44828e*

*pfgexec.o 463126 bytes md5: 381e5ade26d62cf0a990e3f15c7d26cb*

*gradientexec.o 490128 bytes md5: 705845fc0e93e13d9b01f3fa2302ca60*

*rfexec.o 637751 bytes md5: ebe477416c8f68e7aeeceb555fe24ebd*

*lockexec.o 227004 bytes md5: e8a81c154279e9f9ee7bfa98ce55d5e9*

*nvlib.o 771969 bytes md5: 00a0395e971e8bc212b711b4b3a527cd*

*icat\_top.bit 341657 bytes md5: 5d883b8cb00fbd0d5ccd52899c44828e*

*icat\_config.4th 119732 bytes md5: 3e393b531c2824c984e3beb1027fde18*

*masterexec.o 1007664 bytes md5: 16321b54deba1d6ed87f332490cd6533*

*Files Not Requiring Updating:*

*nddslib.o*

*nvScript*

*gradientexec.o*

*ddrexec.o*

*vxWorks405gpr.bdx*

*rfexec.o*

*nvlib.o*

*pfgexec.o*

*masterexec.o*

*lockexec.o*

*icat\_top01.bit*

*icat\_top.bit*

*icat\_config.4th*

*Files Requiring Updating: None*

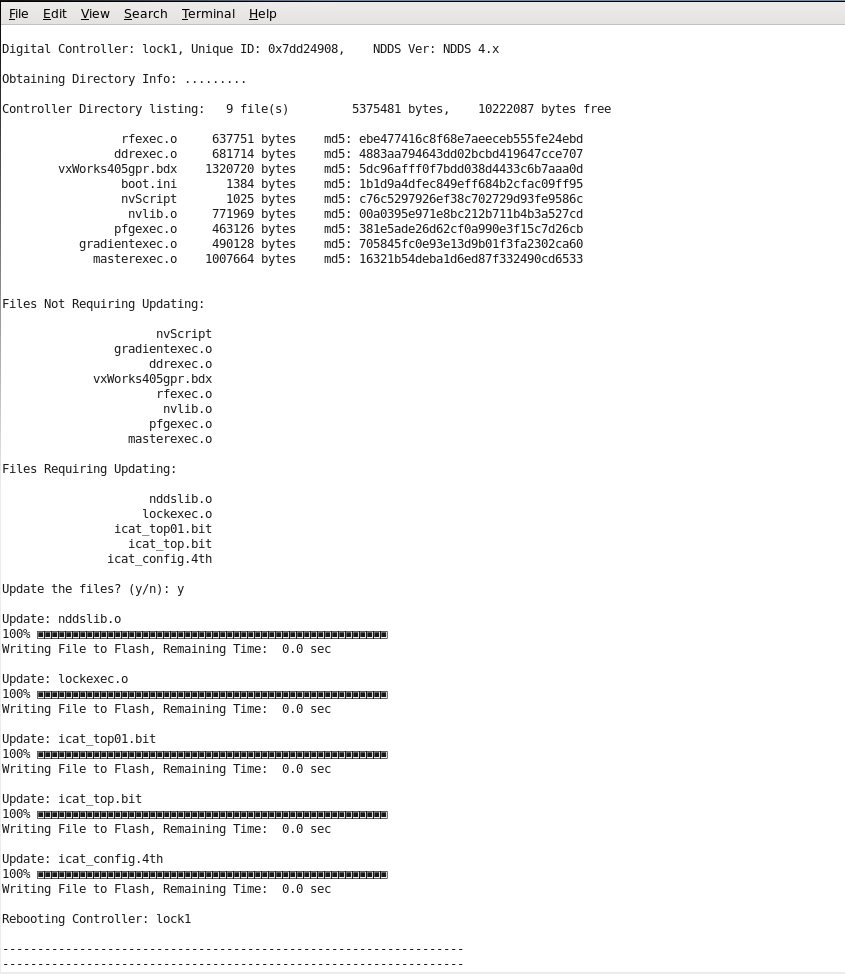
*W A R N I N G !, Incompatible NDDS Versions detected.*

*NDDS 4.x: ddr1*

*Indeterminate: master1*

*------ Completed: 2012-07-26:15:54:12 -------*

1. Below is screen shot of the progress bar seen during the file flashing (Example here is on the lock controller):

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