# Procedure to Upgrade Sutron Xpert DCPs Firmware to OS 3.4.0.6

Procedure Number: SOP # 6.3.2.1.7 Created: 9/1/2010 Created By: Kevin Harrison Approved By: David Lane, Branch Chief, Field Operation Division

#### 1. <u>Title</u>

Procedure to Upgrade Sutron Xpert DCPs Firmware to OS 3.4.0.6

#### 2. <u>Purpose</u>

The purpose of this SOP is to provide guidance for CO-OPS field parties, both in-house and contractors, on upgrading Xpert DCPs associated with field measurement systems.

#### 3. <u>Background/History</u>

Sutron Xperts are our main DCP module and require routine firmware upgrades as our measurement systems evolve.

#### 4. <u>Scope/Applicability</u>

This SOP is for all CO-OPS field parties, both in-house and contract field teams. The SOP describes the detailed procedure for applying the 3.4.0.6 upgrade to an Xpert DCP at a CO-OPS measurement Station.

#### 5. <u>Main Processes</u>

Download/Acquire upgrade software package Backup Original setup Files Perform Upgrade Verify Upgrade Reapply original setup files.

#### 6. Detailed Sub-Processes/Checklists

A new version of XTerm is included with this software upgrade and should be used in place of any older version you may have. **Be careful keeping your versions correct.** Archive versions of Xpert2 and 9210B firmware can be downloaded <u>here</u>: <u>http://www.sutron.com/downloads/XpertArchive.htm</u>

Make sure the XTerm software is current, functional and can talk to an Xpert2 prior to departure.

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Before beginning the upgrade, be sure to backup the original station files!

#### Step 1: Connecting to Xpert

Connect directly via serial cable to com1 (or the bulkhead connector) on the Xpert. Launch XTerm. Select the local com port on your computer that the Xpert is connected to (usually COM1). Select the proper baud rate (usually 115200).

LOGIN:

XTerm Con	munications		×
Com Port:	Baud Rate: 115200 ▼	Setup	Hardware © Direct
URL: To:	localhost ×		C Radio
From:	PC		C TELNET
User Name:			🔽 640x480
Password:	xxx		Telnet Port:
Phone #:			23
Sample Comr	nand Line:	Create De	esktop Shortcut
[	ОК	Exit	

#### Step 2: Exiting the Application

The Main page will open. Click on the "Status" tab to open the status page.

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Click on "Exit App"

X= XTem	
Main Setup Sensors Data Log Status	OBx OTx ● Xpe OEm
Recent Status: 06/15 08:33 (Stat) - User Anonymous logged 06/15 08:32 (Stat) - Reloading Basic Program 06/15 08:32 (Stat) - Running. 06/15 08:32 (Stat) - Self-test: Nothing to do. 06/15 08:32 (Stat) - Com Status: Stoppod	
Com Status: Stopped	
Refresh Options About Exit App	

Click **Yes** to the recording warning...



### Step 3: Backup original files

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Upon connection, click on File Transfer.



"File Transfer" screen will open. Make sure the "Xpert Files" location is \Flash Disk on the right side of the screen and select a new directory on your computer in the "PC Files" field on the left side of your screen.

6.3.2.1.7 Procedure to Upgrade Sutron Xpert DCPs Firmware to OS 3.4.0.6 9/1/2010 Page 4 of 17 While holding the Ctrl key on your computer Left Click on all the files so they are all highlighted. Press the "<==" button to transfer the files to the new folder on your computer.

File Transfer				
PC Files n\My Documer	ntsWpert2_v3.4.0.6	XPert Files   \Flash Disk		
[] < [.] (Xpert2_v3.4.0.6] Autoexec.bat 1 NOSGoesFormat.txt 3	(DIR> 07/14/2010 15:15 (DIR> 07/14/2010 15:15 (DIR> 07/14/2010 15:15 103 09/14/2009 10:44 386 04/21/2010 10:35	[] [] 123ABC1.ssf 123ABC1.ssf.bak Autoexec.bat NOS.sll NOSGoesFormat.txt ssp.log station.dat system.log TSU1MIN.LOG users.dat	<dir>2879625500010305222404160120000001200000012000000480</dir>	7/19/2010 13: 8/21/2009 16: 7/19/2010 13:0 2/06/2010 14:4 8/21/2009 16: 7/19/2010 13:0 8/21/2009 16: 7/19/2010 13:0 7/19/2010 13:0 8/21/2009 16:5
<	>	<		>
Sel All Delete	==>		Run Sel	All Delete

This may take a while with large log files, please be patient and try to get all the files.

Exit the File Transfer screen by clicking the X in the upper right corner of the window. You will be returned to the default Sutron screen.

#### <u>3: Upgrading Xpert2 Software/Firmware</u>

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The default Sutron page should be on screen, if at the Access home page, Click on the 'Setup Access' button, and exit application as detailed above.



Click the 'Upgrade' button...

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The following Open screen will appear. Navigate to the directory containing your Xpert2 3.4.0.6 upgrade files.

	Open (	? 🔀
	Look jn: 📔 My Documents 💿 🖛 🗈 📸 📰 🕶	
	🗁 WLBOX 🗀 XTend	
	🚞 x2.8.0.3	
	C XPERT	
	DXPERT2	
	Thert2_v3.3.0.6	
٩	Xpert2_v3.4.0.6	
	Size: 15.1 MB	>
	File nar Files: Autoexec.bat, NOSGoesFormat.txt	
	Files of type: Upgrade Files (*.upg)	
	🗖 Open as <u>r</u> ead-only	

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Open	<u></u>	2
Look in:	) Xpert2_v3.4.0.6	
Extra SLLs	4.0.6.upg	
File <u>n</u> ame:	Xpert2 v3.4.0.6.upg	,
Files of type:	Upgrade Files (*.upg)	
	C Open as read-only	

Select the Xpert2\_v3.4.0.6.UPG file and click OPEN.

The upgrade process will begin...

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Rebooting	XPert
Progress:	Rebooting XPert
Last Error:	None
# Errors:	0 Cancel

#### NOTE: AT THIS POINT - INTERRUPTING THE PROCESS, LOSING POWER OR CONNECTIVITY CAN DAMAGE THE UNIT.

Some reboots and sounds will occur...

Rebooting	Rebooting XPert		
Progress:	Bypassing Autoexec		
Last Error:	None		
# Errors:	0 Cancel		

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Rebooting XPert	
Progress:	Waiting for Remote
Last Error:	None
# Errors:	0 Cancel

Some files will be deleted/added...

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Deleting fi	ile \Flash Disk\Basic.sll
Progress:	Processing
Last Error:	None
# Errors:	0 [Cancel]
Sending B	asic.sll to XPert
Progress:	66560/301568 bytes
Last Error:	None
# Errors:	0 [Cancel]
Sending D	eflib.sll to XPert
Progress:	61440/702976 bytes

Cancel

A pause and another reboot...

Last Error: None

0

# Errors:

	Sleep for 4 seconds (saving registry)	
	Progress: 1 more seconds	
	Last Error: None	
	# Errors: 0 Cancel	
	Firmware Upgrade Xpert2.ker (kernel)	
	Progress: Checking for Reboot	
	Last Error: None	
	# Errors: 0 Cancel	
	Firmware Upgrade Xpert2.ker (kernel)	
	Progress: 4681728/10205295 bytes	
	Last Error: None	
	# Errors: 0 Cancel	
Unit will r	eboot a final time.	

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m1	
The process	s is complete when the following message appears
THE PLOCESS	s is complete when the following message appears.
1	

Last Error: None

# Errors: 0

XTerm	
⚠	Upgrade completed.
Ĺ	OK

Cancel

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RANGE REPORT OF THE REPORT OF	
About to start recording. Press Cancel to inhibit start. Press OK to proceed immediately. 2 OK Cancel	<ul> <li>■ IX</li> <li>Rx TX</li> <li>Xp Err</li> <li>File Transfer</li> <li>Set Clock</li> <li>Connect</li> <li>Upgrade</li> <li>Status</li> <li>✓ Web Server</li> <li>✓ Auto Update</li> </ul>

# <u> Step 4 – File Uploads-Transfers</u>

Go back to the Main tab and logout. Click on 'File Transfer'



Navigate to the "Extra SLLs" directory on your local hard drive and select NOS.SLL to transfer to the Xpert2. *(NOTE: Some installations will require the upload of other SLL files as needed, CIL will specify the stations where this is necessary)* 

rite fransfer				
PC Files Xpert2_v3.4	4.0.6\Xpert2_v3.4.0.6	XPert Files	s VFlash Disk	
[] ISpeechl Autoexec.bat Basic.sll Coms.sll Deflib.sll DumpWatch.exe Engine.dll EzSetup.sll Flash Disk.apg Launch.exe Logger.dll L20.dll readme.txt Remote.exe	<dir>         07/14.           <dir< td="">         02/06.           5120         02/06.           25504         02/06.           25600         02/06.           2120         02/06.           2140         10/22.           259072         02/06.</dir<></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir></dir>	/2011 ▲ [] /2011 Ⅰ 123ABC /2010 123ABC /2010 Autoexe NOSGoe /2010 station.d y2011 System.k /2011 System.k /2011 Users.da /2010 /2010 /2010 /2010 /2010 /2010 /2011 /2010 /2011 /2011 /2011 /2011 /2011 /2011	<dif <dif <dif 1.ssf 2875 1.ssf.bak 2550 c.bat 103 esFormat.txt 416 1200 lat 18 og 1200 N.LOG 1200 t 48</dif </dif </dif 	R> R> 96 07/19/2010 07/19/2010 08/21/2009 0000 07/19/2010 08/21/2009 0000 07/19/2010 0000 07/19/2010 08/21/2009
Sel All Delete		=> <=	Run	Sel All De
rite fitalister		-	[	
PC Files .4.0.6\Xpert2	2_v3.4.0.6\Extra SLL:	XPert Files	s VFlash Disk	

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After uploading the SLL file(s) manually **reboot the system**.

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#### Step 5: Version Check

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Upon reboot, the new operating system will load and will contain a bit more information during the boot cycle. After booting completely, proceed to the 'Status' tab.





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# 7. <u>Ouality Assurance/Control</u>

× XTerm				
Select type of access:	C Rx C Tx C Err File Transfer Set Clock Connect			
Retrieval Access for data retrieval	Upgrade Status			
Setup Access for station setup	Auto Update			

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	-
X XTerm COM1:115200	
Main Setup Sensors Data Log Status	CBx C €XB C
Basic Status: [Run when Recording On, Running No Subroutines Are Scheduled No Tasks Are Scheduled	File Transf Set Clock Connect
Com Status: Waiting. SSP4: LastAlert:13:09:20 LastAlarm:13:09:20 TCPIP App init at 07/19/2010 13:08:31	Status Veb Se Auto Upr
Refresh Options About. Exit App	

Check to make sure all SLL files are upgraded.

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X- XTerm COM1:115200					
	Xpert		ок 🗙	ORx OTx ● Xp OEm	
	Ynort vor 340	6		File Transfer	
	Sutron, Corn, Convright (C) 2009				
	<u>S/N: 804016</u>	Firsh ()			
	Versions of files in use:				
	File	Version		Veb Server	
	\\\Indows\Utils.dll	3.4.0.6		🔽 Auto Update	
1	VFlash Disk\NOS.sll	3.4.0.6			
	\Windows\Basic.sll	3.4.0.6			
V	\Windows\Coms.sll	3.4.0.6			
	\windows\DefLib.sll	3.4.0.6			
	Muliodowell-25-days ell	2406			

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To verify the upgrade was successful, scroll down and check the versions of all SLL files to ensure they are **all** 3.4.0.6 (especially NOS.sll). *Note: The Kernel, Monitor and Loader version will be different*.

NOTE: For hourly stations, you will need to edit the NOSGOESFormat.txt file. This new OS assumes a "/HEADER=P" 6 minute transmission. The file should be edited to read "/HEADER=N" for hourly stations.

**Upgrade complete! The system should now be running properly with the new version. Please make a note of the date and version on the Station Report.** Also, double check the Xpert's serial number against the station report.

#### 8. <u>Management/Responsibility</u>

CIL is responsible for maintaining this and future Xpert upgrade SOPs