

Scan Controller Firmware Updates for Software Suite v1.0.0.15136 – Reference Documentation

Purpose

The purpose of this document is to outline a procedure for updating the Scan Controller Firmware versions for IPGScan Software Suite version 1.0.0.15136.

Required Software

The following software is required or recommended.

- 1. The proper controller firmware
 - a. This is provided with the installation of IPGScan Software Suite v1.0.0.15136. Please make sure the "Scan Controller Upgrade Files 3.7.1" box is checked during installation. See Figure 0-1 as an example.
 - b. The firmware update files can be found here after installation:
 "C:\ProgramData\IPGP\ScanPack\ControllerUpgrades"

Figure 0-1 Software Suite Installer Components Selection



- 2. The Scan Controller Utility
 - a. For backing-up Scan Controller files and performing updates.
- 3. (Recommended) PuTTY
 - a. Serial terminal to monitor Scan Controller status during the update process.



Installation Procedure

The following procedure and sections outline how a user can update the Scan Controller Firmware to the appropriate version. The following steps outline the overall process.

- 1. Determine what version of Controller Firmware is currently installed.
 - a. See section "Determining Controller Firmware Version."
- 2. Get a backup of the Scan Controller files using the Scan Controller Utility.
 - a. See section "Backing-Up Scan Controller Files."
- 3. Update to Firmware version 3.4 (Scan Controllers with Firmware version 2.6 Only!)
 - a. See section "Updating to Controller Firmware Version 3.4."
- 4. Update to Firmware version 3.7.1 (Scan Controllers with Firmware version 3.4 or later!)
 - a. See section "Updating to Controller Firmware Version 3.7.1."
- 5. Update the FPGA Image file to 1.7-r119284.
 - a. See section "Updating the Controller FPGA Image file to 1.7-r119284."

Determining Controller Firmware Version

- 1. Open the Scan Controller Utility.
- 2. Connect to the scanner that requires the software update.
- 3. Click "Version Information" in the Actions Bar.
 - a. A pop-up will then appear with the appropriate information. See Figure 0-1, which shows that Controller Firmware version 2.6 is currently uploaded to the connected Scan Controller.

Scan Controller Utility[Version: 1.0.16] \times File Language View Scanner locked: laser-5410EC290105.local. Exit Upgrade Scanner Reboot Scanner Network Version Information Bridge Status Controls • Remove JobDef • ScanControllers ųΧ џх Scanner Files (XML_VDF) 4 Þ 🗕 🗙 Log 4 Þ 🗕 🗙 JobControl ▲ Status Lock Job List ScanPackSupportsListAndRemove: True ScanPackSupportsSocketBinding: True Name Unlock Delete Selected Files Backup All Files index nath Locking laser-5410EC290105.local. ... Handle: 3126770193 ScannerSupportsSftp: True Error reading scan controller's dictionary Install XML Files Restore All Files ServoParams xml CoordinationParams xml AdapterTransform xml ProbeDef xml Using ScanPack Version 0.1.14913.0 from IPG Photonics located at C:\Program Files (x86)\IPGP\ScanPack\bin Scannack.dll Hardware/Software versions dd to Job List Description PartNumbe Version Move Down P60-001371 mark-app.5.9.r5566 tions from the Job List Linux system infrastructure for su... P60-001372 2.6-r5570 nner after Send Job PGA for Scan Controller P60-001383 1.5--51054 Scanner (Sequential) Filter by name Linux keme None 4.1.0ipg-custon to Scanner (Selectable) ProbeControl Remove All Jobs ~ Scanner Settings **μ**× Dictionary List BridgeWarning ◀ ▷ ₹ × = × laser-5410EC290105 OK Stalled Change Name Waiting Scanner Network Settings Move Done C Move Done C Move Done IP Address (current): 169 . 254 . 3 . 129 Add selections to Probes List Job ID ENC Reset A IP Address (new) Probes List misc.photo.a misc.photo.b misc.photo.c misc.photo.d Enal Net Mask: Issued Object ID In View X Time In View Y In View Z Use DHCP Change Settings < < > <

Figure 0-1 Viewing Scan Controller Version Information



Backing-Up Scan Controller Files

- 1. Open the Scan Controller Utility.
- 2. Connect to the scanner that requires the software update.
- 3. Click "Backup All Files" to get a backup of the calibration files currently loaded on the Scan Controller. See Figure 0-2.
 - a. The Logs window in the Scan Controller Utility details where the backup folder is stored.



Figure 0-2 - Backing Up Scanner Files



Updating to Controller Firmware Version 3.4

IMPORTANT Only Scan Controllers that have Controller Firmware version 2.6 require the update to Controller Firmware version 3.4.

- 1. Open the Scan Controller Utility.
- 2. Connect to the scanner that requires the software update.
- 3. Click the "Upgrade Scanner" button in the Actions Bar. See Figure 0-3.

Figure 0-3 Upgrading the Scan Controller Firmware



4. Ensure the file type "ipg files (*.ipg)" is selected and then select the "upgrade-to-3.4customer.ipg" file. See Figure 0-4.

Figure 0-4 Selecting Controller Firmware Upgrade for 3.4

\rightarrow \checkmark \clubsuit This PC \rightarrow Windows (C)	> ProgramData > IPGP > ScanPack > Cont	rollerlingrades		Search Search	h Controller Ingrades	0
	· rightinbata · iror · Scanrack · Cond	loneropyrades		↓ U Scare	in controlleropgiades	~
ganize 🔻 New folder						
OneDrive	^ Name	✓ Date modified	Туре	Size		
This PC	upgrade-to-3.4-customer.ipg	2/28/2022 12:58 PM	IPG File	51,088 KB		
1 3D Objects	upgrade-to-3.7.1-customer.ipg	2/28/2022 12:58 PM	IPG File	70,724 KB		
Data (ipgp-nv-fs01)						
Desktop						
Documents						
- Downloads						
Music						
Pictures						
Videos						
Windows (C:)						
🛫 wcarlson (\\ipgp-nv-fs01\users) (U:)						
ning_Systems (\\ipgp-cd-fs01\Data) (Y:						
Beam_Delivery (\\IPGP-CD-FS01\Data) (Z:)						
Nisk	*					
File name: upgrade-to-3.4-c	ustomer.ipg			∼ ipg f	ʻiles (*.ipg)	
					Open Can ²	icel

- 5. Click "Open."
- 6. The scanner will disconnect from the Scan Controller Utility during the update process. Be patient while the update takes place.



a. Connection to the Scan Controllers Serial Port allows users to see that the Scan Controller is performing the update process.

IMPORTANT The Firmware update can take up to 20 minutes to complete. DO NOT POWER CYCLE THE SCAN CONTROLLER DURING THIS TIME.

- 7. Once the update process is complete, reconnect to the Scan Controller in the Scan Controller Utility.
- 8. Click "Version Information" in the Actions Bar.
- 9. Verify that the Controller Firmware version has updated to 3.4. See Figure 0-5 as an example.

Figure 0-5 Controller Firmware 3.4

File Language View	Scanne	r locked:	laser-5410EC	290105.local.					
Exit Upgrade Scanner	Reboot Sc	anner	Network	Version Information	Bridge Status	Controls -	Remove JobDet	f •	
canControllers	д)	Scanner Files	(XML_VDF)		4 Þ 🗕 🗙	JobControl			
Name	Status	Lock	UnLock	Delete Selecte	d Files	Backup	All Files	Job List	
aser-5410EC290105.local.			<u> </u>	lostal XMI	Files	Restore	All Files	index	file
			Hardwa	Robot Transform TCP Robot Transform TCP MarkerSpecifications Coordination Params Calibration _2 xml LaserSpecifications : Servo ParamsZ xml	2WR.xml xml xml			Maus Ik	Ad
			Descript	ion	PartNumber		Version		ele
			applicatio	on and device drivers th	P60-001371		mark-app.6	0r.0	S
Filter by name:			Linux syst	tem infrastructure for su	P60-001372		3.4-18567		s to :
			FPGA for	Scan Controller	P60-001383		1.7-70514		s to
robeControl			Linux ken	nel	None		4.1.0-ipg-ci	ustom-xeno3.8	
Dictionary List mirror x mirror y axis head x axis head z axis head z axis world x axis world y axis world z	• • • • • • • • • • • • • • • • • • •							ОК	Mo GP _H GF



Updating to Controller Firmware Version 3.7.1

IMPORTANT Scan Controllers must have Controller Firmware version 3.4 or higher before updating to Controller Firmware version 3.7.1.

- 1. Open the Scan Controller Utility.
- 2. Connect to the scanner that requires the software update.
- 3. Click the "Upgrade Scanner" button in the Actions Bar. See Figure 0-3.
- 4. Ensure the file type "ipg files (*.ipg)" is selected and then select the "upgrade-to-3.7.1customer.ipg" file. See Figure 0-6.

Figure 0-6 Selecting Controller Firmware Upgrade for 3.7.1

🛣 Open						×
$\leftarrow \rightarrow \checkmark \uparrow$ his PC \rightarrow Windows (C:)	> ProgramData > IPGP > ScanPack > Controlle	rUpgrades		∨ Ö Sea	rch ControllerUpgrades	Q
Organize 👻 New folder						0
 OneDrive 	^ Name	Date modified	Туре	Size		
💻 This PC	upgrade-to-3.4-customer.ipg upgrade-to-3.7.1-customer.ipg	2/28/2022 12:58 PM 2/28/2022 12:58 PM	IPG File IPG File	51,088 KB 70,724 KB		:
 JD Objects Data (jpgp-nv-fs01) Desktop Documents Downloads 						
Music Pictures Videos Mindeus (C)						
 windows (c.) wcarlson (\\ippg-nv-fs01\users) (U;) Scanning_Systems (\\ippg-cd-fs01\Data) (Y; Beam_Delivery (\\IPGP-CD-FS01\Data) (Z;) 						-
File name: upgrade-to-3.7.1-	customer.ipg			~ ipg	files (*.ipg)	~
					Open Cance	eli

- 5. Click "Open."
- 6. The scanner will disconnect from the Scan Controller Utility during the update process. Be patient while the update takes place.
 - a. Connection to the Scan Controllers Serial Port allows users to see that the Scan Controller is performing the update process.

IMPORTANT The Firmware update can take up to 15 minutes to complete. DO NOT POWER CYCLE THE SCAN CONTROLLER DURING THIS TIME.

- 7. Once the update process is complete, reconnect to the Scan Controller in the Scan Controller Utility.
- 8. Click "Version Information" in the Actions Bar.
- 9. Verify that the Controller Firmware version has updated to 3.7.1. See Figure 0-7 as an example.



Figure 0-7 Controller Firmware 3.7.1

1 Sc	an Controller Ut	ility[Ve	ersion: 1.0.	16]									
File	Language	View	Scanner	locked:	laser-5410EC	2901	05.local.						
Exit	Upgrade Scan	ner I	Reboot Sc	anner	Network	Vers	ion Information	Bridge Stat	us Controls 👻	Remove Job	Def 🕶		
ScanCo	ontrollers				ų ×		Scanner Files ()	(ML_VDF)		4 Þ 🗕 🗙	Jo	bControl	
Name			Status	Lock	UnLock	I r	Delete Celeste		Dealars All	Dise	Job L	List	
laser-54	10EC290105.loc	al.	1	8			Delete Selecte	d Files	васкир Ан	riles	inde	x	file
							Install XML F	iles	Restore All	Files			
						he Ro Se	eartbeatConfig.xml obotTransformR2W ervoParams.xml ervoParams7.xml	'S.xml				_	
			Hardw	/are/So	ftware versio	ns							
			Descri	ption			PartNumber		Version				Add
			applicat	tion and	device driver	s th	P60-001371		mark-app.6.	15.1+13371		Move Un	5
			Linux sy	/stem inf	rastructure fo	su	P60-001372		3.7.1+13371	1		Remo	ve Select
		_	FPGAf	or Scan	Controller		P60-001383		1.7-r108185			🗸 Ur	lock Sca
Filte	er by name:		Linux k	emel			None		4.1.0-ipg-cus	stom-xeno3.8		Send	Jobs to
												Send	Jobs to !
ProbeC	Control											Pause Jol	bs
Dictio	nary List											www.aitEver	4 Þ =
mirror mirror axis.h	x .y lead x						A Data Caunt		Move Done A	OK	.: I	Wait Hex	
axis.h	ead.z					0	ut Byte Count		J Maure Dame D			Dana D	



Updating the Controller FPGA Image file to 1.7-r119284

IMPORTANT The Scan Controller must have Controller Firmware version 3.7.1 prior to updating the FPGA Image file to 1.7-r119284.

- 1. Open the Scan Controller Utility.
- 2. Connect to the scanner that requires the software update.
- 3. Click the "Upgrade Scanner" button in the Actions Bar. See Figure 0-3.
- 4. Ensure the file type "rpm files (*.rpm)" is selected and then select the "fpga-image-1.7r119284.cortexa9hf_neon.rpm" file. See Figure 0-8.

Figure 0-8 Selecting FPGA Image Upgrade

🛣 Open						×
$\leftarrow \rightarrow$ \checkmark \uparrow \square \Rightarrow This PC \Rightarrow Windows (C:)	> ProgramData > IPGP > ScanPack > ControllerUpgra	ades	~	Q	Search ControllerUpgrades	Q
Organize 🔻 New folder					== -	?
len OneDrive	Name	Date modified	Туре	Size		
💻 This PC	fpga-image-1.7-r119284.cortexa9hf_neon.rpm	2/10/2022 11:15 AM	RPM File	7	06 KB	
3D Objects						
📮 Data (ipgp-nv-fs01)						
E Desktop						
🗄 Documents						
🖶 Downloads						
Music						
Pictures						
🔗 Videos						
indows (C:)						
👳 wcarlson (\\ipgp-nv-fs01\users) (U:)						
👳 Scanning_Systems (\\ipgp-cd-fs01\Data) (Y:						
🛫 Beam_Delivery (\\IPGP-CD-FS01\Data) (Z:)						
Alas	*					
File name: fpga-image-1.7-r1	19284.cortexa9hf_neon.rpm			~	rpm files (*.rpm)	~
					Open Canc	el

- 5. Click "Open."
- 6. The scanner will disconnect from the Scan Controller Utility during the update process. Be patient while the update takes place.

This update should only take a few minutes. During this time, the Scan ControllerIMPORTANTwill power cycle automatically. Once the Scan Controller reboots, the user will be
able to reconnect.

- 7. Click "Ok" to acknowledge the update completed.
- 8. Once the update process is complete and the Scan Controller has reboot, reconnect to the Scan Controller in the Scan Controller Utility.
- 9. Click "Version Information" in the Actions Bar.



10. Verify that the "FPGA for Scan Controller" version has updated to 1.7-r119284.

Figure 0-9 FPGA Version 1.7-r119284

🛣 Sc	an Controlle	r Utility[Version:	1.0.16]								
File	Language	View	Sca	nner locke	d: laser-5410E	290105.local.						
Exit	Upgrade Sc	anner	Reboo	t Scanner	Network	Version Info	rmation	obDef 👻				
ScanCo	ontrollers				Ψ×	Scann	er Files ()	(ML_VDF)		4 Þ 🗸 >	< JobCon	trol
Name			▲ State	us Lock	UnLock	Delet	e Selecter	Files	Backup Al	Files	Job List	
laser-5	410EC290105	local.) 🖬	loc			Pactors Al	Files	index	file
								les	Hestore A	Triles	1	
						heartbeatC Robot Trans	onfig.xml sformR2W	S.xml				
						Servo Parar Servo Parar	ms.xml msZ xml					
				Hard	ware/Softwa	re versions						
				Des	cription		PartNum	iber	Ve	ersion		Ad
				applic	ation and devi	ce drivers th	P60-0013	371	mai	rk-app.6.15.1	-r13371	UD
				Linux	system infrastr	ucture for su	P60-0013	372	3.7	1-r13371		move Sele
				FPGA	for Scan Cont	roller	P60-0013	383	1.7	r119284		Unlock S
Filte	er by name:			Linux	kemel		None			.0-ipg-custom	n-xeno3.8	end Jobs to
												end Jobs to
Probe	Control											Johs
Dictio	narv List											
mirror	x y			^							OK	ver • P
axis.head.x					_	Out Byte C	ount		Move Done A	GPI	Move Do	ne A
axis.h axis.v	vorld.x					Out Job Co	ount		Move Done B	GPI	Move Do	one B 📃 G