

Product Manual 35075 (Revision NEW, 2/2017) Original Instructions



Control Interface Studio – Getting Started

Installation Guide



Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or using this software.

General Precautions ^{Failu}

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.



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Chapter 1. Introduction

The Woodward Control Interface Studio (CIS) Kit is a cross-platform application used for developing Graphical User Interfaces (GUI) for Woodward GAP based controllers.

The CIS provides a design environment that allows programmers to easily develop GUI applications in a visual editor. The CIS includes a library of Woodward components that can be tied to GAP variables enabling users to read and write data to and from the control application.

This document describes the process of environment setup for Woodward GUI development on aWindows based PC as a host. The tools included in the CIS kit allow for the development, testing, and debugging of GUI applications without the target hardware using a PC simulator. The CIS also provides the tools to generate Woodward GUI (WGUI) files that run on compatible Woodward controllers with an integrated display.

There are two installation packages needed to develop Woodward GUI applications. The first is the CIS Kit which provides the Integrated Development Environment (IDE) for developing GUI applications. The second is the CIS Library Kit which provides platform specific Woodward component libraries and PC simulation tools.

Included screen captures may vary depending on versions being used and other already installed components (other Qt's, compilers, etc.). Recommend removing old versions before proceeding. Please follow naming convention installing different versions.

Chapter 2. Framework Installation

Hardware Requirements

CIS Kit installers are available for computers running 32-bit or 64-bit version of Windows 7, Windows 8, Windows 8.1, or Windows 10 operating system. The computer must meet hardware requirements specified for the operating system and include graphics adapter with OpenGL 2.1 or DirectX 9 as minimum.

Licensing and Distribution

CIS Kit is licensed software and licenses are assigned to named individuals who must obtain a license through Woodward and accept Woodward license agreement to develop GUI applications.

The CIS Kit is software based on the Qt framework. The Qt Company (a sublicense beneficent of an agreement with Woodward) provides distribution and license verification mechanisms through its Qt Account Web portal (<u>https://account.qt.io</u>).

Qt Account Web Portal

CIS Kit users (identified by its email address) obtain individual access to the Qt Account Web portal (<u>https://account.qt.io</u>) when ordering a license. The user receives an email notification of Qt account creation and is required to activate it within 72 hours by clicking the emailed link and setting a password.

The Qt Account is a unified login to all Qt resources, including those specific to Woodward and those generically distributed by The Qt Company. It provides details about user licenses, available downloads and guides on where to get additional help.



License verification

The CIS Kit license verification happens at installation time. The installation process will require the Qt Account login and password (for online verification) **or** license key (for offline verification). The license key and other license details (including license agreement and certificate) are available in Qt Account, in *"Licenses and Subscriptions"* section.

It Account Home icenses and Subscriptions	Licenses a	nd Subscriptions			
)ownloads Ay Profile	Here you can find information	about your Qt licenses and subscriptions.			
Support Center	Select License				
	Woodward CIS Kit - Flex500 (1796-3131) 2693898	¢		
	Woodward CIS Kit		Woodwar		
	License ID:	2693898			
	Product:	Flex500 (1796-3131)			
	License Type:	Perpetual			
	Status:	Active			
	Created:	03.02.2017 18:44			
	Next renewal:	03.02.2018			
	License Key:	Y	2		
	Deployment Platforms:	Flex500 and derivates, including Flex505			
	Development Platforms:	Windows			

Figure 2-1. Qt Account, Licenses, and Subscriptions

CIS Library Kit

The CIS Library Kit is a platform specific, supporting package for Control Interface Studio Kit. The package includes all necessary libraries, add-ons, and control simulator for Woodward devices only.

CIS Library Kit installers are available for download in Qt Account, in the "*Downloads*" section. Correct version (Part Number and Revision) supporting a specific Woodward device are automatically pulled based on selected license.

Select the desired license for Woodward devices (note: license selection is visible only when more than one license is available), "*Woodward CIS Library Kit*" product and the version. Under "*Downloads*", the unfold title to see details and download link. See Figure 2-2 for Flex500 example.

Qt			Log out	Menu
Qt Account Home Licenses and Subscriptions	Downloads			
Downloads My Profile Support Center	Find and download Qt libraries and a	dd-ons.		
	Woodward CIS Kit - Flex500 (1796-	3131) 2693898		*
	Product:	Version:		
	Woodward CIS Library Kit	♦ NEW		\$

Downloads

> Woodward Flex500 CIS Library Kit (9927-2537) offline installer for Windows

Download

Description: Woodward CIS Library Kit (9927-2537) is a hardware support package for Woodward Control Interface Studio Kit (9927-2521) allowing to develop GUI for Woodward Flex500 platforms and derivates, including Flex505

Get Started

Woodward getting started instructions Qt getting started instructions Qt documentation

Figure 2-2. Qt Account, CIS Library Kit Download

Uninstall the current version using the uninstaller from Start Menu, and then run the downloaded package. When asked by installer to verify license, enter your Qt Account details or license key.

The installer is set to automatically add newly installed CIS Library Kits that should be visible as a "*Kit*" and "*Qt version*" in Qt Creator settings.

Note: A red exclamation mark may be visible next to "*Kit*" as there may be no compatible compiler installed. A compiler is not needed to build GUI applications, so the mark may be ignored.

CIS Kit

Control Interface Studio Kit for Windows is an Integrated Development Environment used for GUI development and debugging based on Qt Creator software.

CIS Kit installers are available for download in Qt Account, in the "*Downloads*" section. A correct version (Part Number and Revision) supporting a specific Woodward device is pulled automatically based on the selected license.

Select the desired license for Woodward devices (note: license selection is visible only when more than one license is available), "*Woodward CIS Kit*" product, and the version. Under "*Downloads*", unfold title to see details and download link. See Figure 2-3 for Flex500 example.

Note: CIS Kit is intended to be as common as possible and in most cases, the same version can be used for development for various Woodward devices. Before downloading and installing, verify if the same version (Part Number and Revision) is not installed yet.

Qt			Test2 Woodward Log out	Menu				
Qt Account Home Licenses and Subscriptions	Downloads	5						
Downloads My Profile	Find and download Qt libraries	and add-ons.						
Support Center	Select License							
	Woodward CIS Kit - Flex500 (1796-3131) 2693898							
	Product:		Version:					
	Woodward CIS Kit	*	NEW	\$				
	Downloads Woodward CIS Kit (9927-252 Download Description: Woodward Cor development environment (platforms	1) offline installer for htrol Interface Studio IDE) tailored to the n	r Windows Kit (9927-2521) is a cross-platform integrated eeds of GUI developers for Woodward hardware					
	Get Started							
	Woodward getting started instr Qt getting started instructions	ructions						

Qt documentation

Figure 2-3. Qt Account, CIS Kit Download

Uninstall the current version using the uninstaller from Start Menu and then run downloaded package next. When asked by the installer to verify license, enter your Qt Account details or license key. The installer is set to automatically detect previously installed CIS Library Kits.

Further Reading

The Help system is available in Qt Creator under the "*Help*" button from left menu or F1 when QML component is selected.

Use the integrated help system to assist with GUI application development.

Contents T E	+ 🔲 🧃 🕵 🗣 🧧 Control Interface Studio Library Kit : Control Interface Studio Library Kit Manual		 Unlitered
Qt Creator Manual 3:4.2 QMake Manual Qt Linguist Manual	Control Interface Studio Library Kit Manual		W WOODWAR
Qt Designer Manual	A kinma k Control Interface Studio Library (Ct Manual		
Control Interface Studio Library Kit Manual	The Post of the state and boary fit mandal		
 QE Beference Documentation 	Control Interface Studio Kit provides a cross-platform, complete integrated developmen Interfaces for multiple Woodward Control platforms with no need for C++ coding and compl The Kit essentially includes two pieces: The PC development environment used to manage projects and develop GBL It is in The nun time libraries used to execute designed GUL it is cross platform framework execute designed GUL and handle display operations. The libraries are available al designed pages with no needs to kase them on the target devec. The simulation ver-	It environment (IDE) for application developers to create Grap ling. based on CI Creator and is distributed as Control Interface Studio build on lop of CI and CI Cuick. The libraries are installed on the so for installation on a development PC, where they are used as a sin of thorary is destrotuded as Control Interface Studio Library K8	hical User Kit, a Woodward customized package. target device (e.g. Fies500), where they ismulation environmet allowing to previe and this help article is part of it.
	The kit is based on existing technologies but it does deliver Woodward specific custor successful design of rich GUI it is necessary to get familiar with both Woodward and GVQ1 Getting Started If you have not used the Woodward Kit before, or want to know its basics, review the topics.	mization like GUI components (buttions, checkboxes, etc.), hard Quick/CI Creater documentation. Ot and OML Basics This section list useful tipics from official CI documentation. Use this place as statistic point to research technology basics that	ware access or Servlink communication Woodward Concepts Beside reusing Ot Inchnologies, It Woodward Kit Introduces new concept mention in we thread tensors
Search 🔹 🗘 B	Creating Projects Creating GUI Application	OE Guick OML Elements	CUI Files Organization Overview Protecting GUI Application Files
Advanced search O - 0 of 0 Hits	Delming Pages Using OIL Designer Connecting to GAP application Multianguage Support	OML Tutorial OML Tutorial OML Tutorial 1 Basic Types Getting Started Programming with QML Developing Of Quick Applications	Accessing SID Variables Supported Woodward Platforms
	Custom GML Components Beside build-in QL Quick: components available for every application, it is possible to create custom components. Review the section to find out what are Woodward custom components and havio create you own.	Tutorials Find out additional the step-by-step tutorials presenting usefull topics.	Getting Help Use listed topics as starting point for furth research on Qt concepts.
	Woodward GML Components Creating Own Components	Handling Keyboard Events Handling Hardware Funtional Buttons Driving Hardware Indicators on the Front Panel	Of Creator Manual Of Quick Designer Manual Of Linguist Manual
		Using Themes and Platform Style Screensaver more	Ot Reference Documentation Ot and QML Web Resources
	note: Internal users, to report bugs and suggestions to the Control Interface Studio Library Kit use	e Bug Tracker appropriate for your platform under 🔿 RedMine.	

Figure 2-5. Help

Troubleshooting

Kit or Qt version

The CIS Kit and CIS Library Kit installers are set to automatically configure Qt Creator with Kit and matching Qt version. Follow the manual instruction if this was not successful or there is a need to do a custom configuration.

Start Qt Creator from Start Menu and configure available Qt versions by opening "*Tools->Options*" (see Figure 2-6).

Manual 35075

File Edit Build Debug Analyze Tools Window Help Image: Second Debug Analyze Image: Second Debug Analyze Image: Second Debug Analyze Image: Projects Image: Second Debug Analyze Image: Second Debug Analyze <	😳 Qt Creato	pr				_ D X
Vectors Projects Examples Examples Cut + K Bokmarks Cut - K Cut - K <t< td=""><td>File Edit</td><td>Build Debug Analyze Too</td><td>ols Window Help</td><td>_</td><td></td><td></td></t<>	File Edit	Build Debug Analyze Too	ols Window Help	_		
Vector Vector <td></td> <td></td> <td>Locate Ctrl+K</td> <td></td> <td></td> <td></td>			Locate Ctrl+K			
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Person Project Analyze Belp Online Community Blogs W User Guide	Design	Tutorials	External >	n)		
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Analyze (a) Qt Account (b) Qt Cloud Services (c) Online Community (c) Blogs (c) User Guide (c) Services (c)	Projects	Qt Creator. Get Started Now				
C Qt Cloud Services Help Online Community Blogs User Guide User Guide	Analyze	L Qt Account				
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P- Type to locate (Ctrl+K) I Issues 2 Search Results 3 Application Output 4 Compile Output 5 QML/JS Console	77	■ P• Type to locate (Ctrl+K	() 1 Issues 2 Search F	tesults 3 Application Output 4 Co	ompile Output 5 QML/JS Console 🗢	

Figure 2-6. Tools->Options Dropdown Menu

Switch to the "*Build* & *Run*" tab on the left menu and then to the "*Qt Versions*" tab on the upper tab list (see Figure 2-7.).

Options		×
Filter	Build & Run	
Environment	General Kits Qt Versions Compilers CMake	
Text Editor	Name qmake Location	Add
FakeVim	Auto-detected	Remove
P Help	Manual	
{} C++		Clean up
🗸 Qt Quick		
Build & Run ≡		
🔍 Debugger		
💓 Designer		
Analyzer		
Version Control		
d Android		
BlackBerry		
Devices The second se		
	OK Cancel	Apply



Press the "*Add…*" button and navigate to qmake.exe located in "*C*:*WcQt**Qt*\9927-2537_*NEW**bin*". The Qt version from Control Interface Studio Library Kit should be added (see Figure 2-8.). Apply changes.

ter	Build & Run							
Environment	General Kits	Qt Versions	Compilers	Debuggers	CMake			
Text Editor	Name		qmake Lo	cation				Add
FakeVim	Auto-detect	ed						Remove
Help	Qt 4.8.5	(9927-2537_NEW) C:\WcQt\(Qt\9927-2537_	VEW\bin\qma	ke.exe		
								Clean Up
Qt Quick								
💺 Build & Run 🗧								
Debugger								
Analyzer								
Version Control								
Android	Version name:	Qt %{Qt:Version	} (9927-2537	_NEW)				
BlackBerry	qmake location:	C:\WcQt\Qt\9927	7-2537_NEW\¢	oin\qmake.exe			Browse	
NX QNX	Qt version 4.8.5	for Desktop					Details 🔻	
							Details 🔻	
Devices	Helpers: QML Du	mp.						

Figure 2-8. Qt Version Configuration

Note: A red exclamation mark may be visible, as you may not have any compatible compiler installed. You do not need compiler to build GUI applications.

Note: Remove all other Qt versions if they are unused, some are created automatically, and do not have any value added.

Switch to the "*Kits*" tab in the upper tab list. Create a new Kit by pressing "*Add*". Fill in all fields as on Figure 2-9. Set the new kit as default by selecting it and pressing "*Make Default*" button.

Options			×
Filter	Build & Run		
Environment	General Kits	Qt Versions Compilers Debuggers CMake	
Text Editor	Name		Add
	Auto-detected		Clone
FakeVim	4 Manual Ot 4.8.5 (99)	127-2537 NFW) (default)	Bamaya
Relp	Q1	E. EREALINE AND	Remove
{} c++			Make Default
Qt Quick	Name:	Qt %{Qt:Version} (9927-2537 NEW)	
🕕 Build & Run 🗉	File system name:		
🔍 Debugger	Device type:	Desktop 🗸	
Analyzer	Device:	Local PC (default for Desktop)	Manage
Version Control	Sysroot:		Browse
—	Compiler:	Microsoft Visual C++ Compiler 10.0 (x86)	Manage
Android Android Rectification	Environment:	No changes to apply.	Change
Blackberry	Debugger:	Auto-detected CDB at C:\Program Files\Debugging Tools for Windows (x86)\cdb.exe	Manage
≑anx QNX	Qt version:	Qt 4.8.5 (9927-2537_NEW)	Manage
Devices	Qt mkspec:		
Code Pasting 🔹			
		OK Cancel	Apply

Figure 2-9. Kit Configuration

Note: Remove all other Kits if they are unused, some are created automatically, and do not have any value added.

Installed Qt package contains few documentation/help files. The files are usually detected automatically during "Qt Versions" setup.

Switch to "*Help*" tab on the left menu and then to "*Documentation*" tab on upper tab list (see Figure 2-10Figure 2-7.). Check if all files have been detected, otherwise use "*Add…*" button to add all files from Qt "*doc*" subdirectory.

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Options		×
Filter	Help	
Environment	General Documentation Filters	
Text Editor	Registered Documentation	
EakeVim	com.trolltech.assistant.485 (auto-detected)	Add
	com.trolltech.linguist.485 (auto-detected)	Remove
Help	com.trolltech.qmake.485 (auto-detected) com.trolltech.qt.485 (auto-detected)	
{} C++	com.woodward.cislk (auto-detected)	
Qt Quick	org.qt-project.qtcreator.342 (auto-detected)	
🚯 Build & Run 🗉		
🔍 Debugger		
Analyzer		
Version Control		
🧔 Android		
BlackBerry		
⇒awx QNX		
Devices		
Code Pasting 🔻		
	OK Cance	Apply

Figure 2-10. Documentation Files

Debugging

Debugger is an additional software for tracking/analyzing/monitoring running applications. Although it is not necessary for QML development, it may help debugging Java Script code. Installation is optional.

Debugger depends on platform and compiler being used. Here a CDB debugger for Windows applications will be described. Download installation package from following page: <u>http://msdn.microsoft.com/pl-pl/windows/hardware/hh852363</u>. Run it and follow instructions as on Figure 2-11.

dows Software Development Kit	K 😽 Windows Software Development Kit
Specify Location	Join the Customer Experience Improvement Program (CEIP)
Install the Windows Software Development Kit to this computer Install Path: C1/Program Fleet/Windows Kts/8.0(Download the Windows Software Development Kit for installation on a separate computer Download Path: C1/Decoment and Settingsignius/download/Windows Kts/8.0(StandaloneSOK Broggie	The Customer Experience Improvement Program (CEIP) collects and sends anonymous usage data to Microsoft about how our customers use Microsoft programs and about some of the problems they encounter. Microsoft uses this information to improve the products and features. Participation in the program is voluntary, and the end results are software improvements to better meet the needs of our customers. No code or software produced by you will be collected. Tell me more about the program C trees C tree R No Privacy-Statement
Estimated disk space required: 261,1 MB Disk space available: 42,8 GB	
Next Cancel	Back Next Cancel
ouws software development for	CAMING AND
Important Information! Some features of the Windows 8 Software Development Kit (SDK) are not supported on this version of Windows. The Windows 8 DS supports some versions of Windows as a targeting platform only, not as a development platform. For detailed information, see the Release Notes for the Windows 8 SDK. If you continue with this installation, only those components that are supported on this version of Windows will be available to install. To continue with setup, choose Next.	Select the features you want to install Click a feature name for more information. Debugging Tools for Windows Debugging Tools for Windows Stat: 256,2 MB Kornel and user-mode debuggers as well as help and tips for using Debugging Tools for Windows.
	Estimated disk space required: 261,1 MB Disk space available: 42,8 GB
Back Next Close	Back Install Cance

Figure 2-11. Debugger Installation Steps

Update Kit configuration in Qt Creator and specify newly installed debugger.

Start Qt Creator from Start menu, from menu open "*Tools->Options*", switch to "*Build & Run*" tab on the left menu and then to "*Kits*" tab on upper tab list, select kit and press "*Manage…*" button next to "*Debugger.*". Try auto detect or specify manually location of the debugger (see Figure 2-12). Apply changes.

0 Options		×
Filter Build & Run		
Environment - General Kits	Qt Versions Compilers Debuggers CMake	
Text Editor		Add
Auto-detecte	d	Clone
Qt (9927-	2189_B) (default)	Remove
Provide the second seco		Make Default
() C++		
Qt Quick Name:	Qt (9927-2189_B)	
Build & Run		
Debugger Device type:	Desktop 🗸	
Analyzer Device:	Local PC (default for Desktop)	Manage
Version Control Sysroot:		Browse
Compiler:	Microsoft Windows SDK for Windows 7 (7.1.7600.0.30514) (x86)	Manage
Environment:	No changes to apply.	Change
BlackBerry Debugger:	Auto-detected CDB at C:\Program Files\Debugging Tools for Windows (x86)\cdb.exe	Manage
awx QNX Qt version:	Qt (9927-2189_B)	Manage
Devices Qt mkspec:		
Code Pasting		
	OK Cance	Apply

Figure 2-12. Kit Configuration with Debugger

Debugger is setup. Once a project is open, it would be possible to switch to "*Debug*" view (see Figure 2-13.) and start debugging by "*Debug->Start Debugging->Start Debugging*", F5 or second from bottom icon on left side menu.



Figure 2-13. Debug View

Graphics Drivers

Due to the wide range of graphic adapters available on the market, driver versions, virtualization and remote connection methods, issues with proper operation may occur.

This is due to the fact that some parts of Qt Creator use Qt Quick 2, which relies on OpenGL 2.1 (or higher) API for faster drawing. Mostly in the Welcome mode, but it's also used for the Qt Quick Designer, and the QML Profiler.

The use of OpenGL can cause problems, especially in virtual machines, using remote connections and with outdated drivers. In such cases Qt Creator tries to failover to a backup driver and use ANGLE/DirectX. Mostly, this failover is unnoticeable for the user and solves all the problems.

In rare cases, the failover does not act properly and, as a result, Qt Creator shows only blank window, Qt Quick Designer has no styles or has blank sections.

When any of the mentioned issues occur, try:

- 1. Update graphics drivers. Obtain latest version from the vendor support.
- 2. Make sure the system is using 32bit color depth.
- 3. For virtual machines, try to enable 3D acceleration in your virtual machine's settings and install latest Guest Addons.
- 4. Manually instruct Qt Creator to use desired driver by setting QT_OPENGL system environment variable:
 - a. QT_OPENGL=desktop to use system OpenGL 2.1 or newer
 - b. *QT_OPENGL=angle* to failover to ANGLE and DirectX 9 or newer.

Restart to apply changes.

Chapter 3. CIS Overview and Project Creation

This chapter contains an overview of the CIS Kit and instructions for starting new projects.

CIS Overview

The CIS tool Welcome screen is shown below.

File Edit	Build Debug Analyze Tools W	índow Help						
		-					-	-
	Projects	• New P	roject		0	pen Project		
2 Edit	Examples	Sessions			Recen	t Proiects		
3 X Design	Tutorials	D default	(current session)				
4 Sebug	New to Qt? Learn how to develop your							
5 Projects	own applications and explore Qt Creator.							
Analyze	Get Started Now							
6 🕐 _{Неір}	Qt Cloud Services							
	Blogs							
- 131 - 14	Ø User Guide							
untied4								
_N [™]	P- Type to locate (Ctrl+K)	1 Issues	2 Search Results	3 Application Output	4 Compile Output	5 QML/JS Console	6 General Messages	\$ ^

Figure 3-1. CIS Tool Welcome Screen

The functions of the navigation menu on the left are described as follows:

- 1. **Welcome** this menu is where new GUI application projects can be started or recent/existing projects can be opened
- 2. Edit Mode A text editor for GUI pages. This code is auto generated from Design Mode and can be modified here.
- 3. Design Mode Where individual pages are designed in the visual editor
- 4. Debug Inspect the state of the application while running
- 5. Projects Setup the PC Simulation of the GUI project
- 6. Help Contains help files for Woodward projects and generic Qt tutorials
- 7. Run Once a Project has been setup, the Run button will launch a PC simulation of the GUI application

Project Creation

To start a new project, go to the Welcome Menu and select "New Project". The CIS kit includes Woodward Template applications. The template applications can be used as a starting point for developing new applications.

Sample_F	lexGUI_1/main.qml - Sample_FlexGUI_	1 - Qt Creator		
File Edit	Build Debug Analyze Tools	Window Help		
Welcome Edit	Projects Examples	• New Project	Open Pro	nject
%		New Project	Record Proj	23 No. 10
Design	Tutorials	Choose a template:		Desktop Templates 💌
		Projects	Elex500 GUI and GAP Application Templat	Creating a project from this template will include a
Projects Analyze	New to Qt? Learn how to develop your own applications and explore Qt Creator. Get Started Now	Woodward Projects Application Library Other Project Non-Qt Project	Hello World	GUI project folder and GAP project folder. The template applications include working screens and GAP for all hardware IO, Alarm and Trip Latches, Overview, and Trend screen. Supported Platforms: Desktop
Help	Qt Account Qt Cloud Services Conline Community	Files and Classes		
	Blogs User Guide	< <u>m</u> ,	κ. <u> </u>	Choose Cancel

Figure 3-2. Welcome Menu

Once a project has been opened, going to Edit Mode shows the overall project structure, shown below. A Woodward GUI application consists of the following files:

- 1. main.qml
- 2. Images (if used)
- 3. Pages (*.qml flies)
- 4. Custom Components (if used, *.qml files)

🥑 Sample_F	FlexGUI_1/main.qml - Sample_FlexGUI_1 - Qt Creator			
File Edit	Build Debug Analyze Tools Window Help			
	Projects • V. & H+	• • •	💼 🚍 Sample_FlexGUI_1/main.qml 🔻 🗙	✓ Line: 4, Col: 15 ==+
-	✓ → Sample_FlexGUI_1	^ 1	import QtQuick 1.0	A
	Sample_FlexGUI_1.qmlproject	2	import Woodward 1.0	
Welcome	A 👪 .	3	import Woodward.Theme 1.0	
179	a main.gml	1	import "Vages"	=
	A 🏭 Images	64	Application {	
Edit	Querview_Comp_1V.png	7	id: main	
~/	Querview Comp 2V.png	8	width: 800	
<u>×</u>	Querview_Comp_Extract_1V.png	10	Component.onCompleted: simulation.grid = false	//remove to show
Design	Overview GEN 1V.png	11		,,,
	Qverview_GEN_2V.png	12 4	PageStack {	
-	Querview GEN Extract 1V.png	13	id: rootStack	
Debug	Screen_saver.png	15	pushOnInit: home	
	A Dages	16		
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Projects	HW_Actuators.gml	E 10		
1200	HW Analog Input Calib Pop.gml	20	BOOTUP PAGES:	
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Ananyze	HW_Analog_Outputs.gml	22	Because the pages are pre-loaded in mem	ory, they can be navigate
2	HW Contact Inputs.gml	23	In contrast, using 'DynamicPage' only 1 Idding pages in this way greatly increa	cads the page into memory
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	HW_Summary_AO.gml	32	Once a page is navigated to, the page r	emains in memory, so that
	HW_Summary_BI_17_20.qml	34	anen ustny synamic sayes, one paye quit	TTE must derine one page
	HW_Summary_BI_1_8.qml	35	NOTE: When a page is a pop-up (parially	covers other page), use
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Figure 3-3. main.qml File

The "main.qml" file defines the overall application. This is the only file in a GUI application that must be modified through Edit Mode. It cannot be modified in Design Mode. The figure below provides an overview of a Woodward GUI application. The "main.qml" file consists of

- 1. Page Stack The Page Stack controls the currently opened page and page history
- 2. Screen Saver Defines what is displayed and inactively timeout
- 3. Global Variables Can be used by components on the active page
- 4. Front Panel Commands Define action to be taken after detecting a key press
- 5. Device Connection Specifies the IP address of the device running the GAP application



Figure 3-4. main.qml File Contents

To setup the project for PC Simulation, go to the Projects Menu and select Run (circled in Red below). Under the Run section (circled in Green below), press "Add" and select "Custom Executable" from the dropdown menu.

Control Interface Studio – Getting Started

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	Custom Executable	
	Arguments: QML Viewer	
	Main QML file: main.gml *	
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×		•
	D+ Type to locate (Ctrl+K) Issues 2 Search Results 3 Application Output 4 Comple Output 5 QML/JS Console 6 General Messages	2

Figure 3-5. PC Simulation Projects Menu

In the fields that appear for the Custom Executable, set the following:

Executable – Select 'Browse' or paste in the following path: C:\WcQt\Qt\9927-2537_NEW\bin\qmlcontrolsimulator.exe

Arguments:

-p 505 -s 1 main.qml

Working Directory: %{sourceDir}

Once setup, the Run button in the left menu will launch the PC simulation of the GUI application. It is good to use the PC simulation often to verify development is working properly.

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Figure 3-6. PC Simulation Run Button

Using the Help Files for Project Development

The CIS Kit has project development help files embedded in the help system of the tool. The help menu can be accessed from the left menu and going to "Control Interface Studio Library Kit Manual". The manual consists of the following menus which can be used to guide your development.

- 1. Getting Started Guides on project setup and design tool
- 2. Qt and QML Basics Links to generic Qt development topics
- 3. Woodward Concepts Guides on GUI structure and device connection
- 4. Custom QML Components Guides for creating your own components
- 5. Tutorials Woodward guides for programming GUI tasks
- 6. Getting Help Additional links to Qt topics

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Figure 3-7. CIS Library Kit Manual

Chapter 4. Setting up Hardware

Control Interface Studio Library Kit is a set of features (and tools) compiled for both the target device and a PC where development happens. This section describes installation of a Flex500 target version of the library. Installed package includes all necessary libraries, add-ons, and QML Control Application.

Service Packs

When making updates to the footprint of a Flex500, service pack updates are created. Check the Woodward site for service packs updates.

Using AppManager, new service packs can be installed as follows:

- 1. On your PC, open AppManager.exe.
- 2. You should see the Woodward control's Computer Name in the AppManager window. Select the control's Computer Name. If the control name is not listed, check your connections and verify that the Link lights are on.
- 3. Login to the Control with a valid Account name and password which has "Execute control Service Pack" permission.
- 4. Click "Control" in the top header of the AppManager window, use the pull down menu, and select "Install Service Pack...".

🔒 AppMana	ger - Woodward Control Application Manager		• X
Administer	Control Security Automated file collection	Options Help	
Control Nam - V&V_TMR - V&V_TMR - V&V_TMR VADER_AL VXA000056 VXA000056 VXA000054 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA000056 VXA0056 VXA056 VXA056 V	Change Network Settings Control Identifier Control Information Install Service Pack Manage Modules Manage RTN CPUs Show GUI Applications View	e Size Date Status nalake_u1.out 20042422 2013/11/04 15:56:50 Stopped 381749 2013/01/25 09:50:20 Stopped 383495 2012/10/29 11:50:32 Stopped 863193 2012/05/17 12:36:34 Stopped 752547 2015/05/18 11:42:38 Stopped 391302 2015/06/11 16:19:40 Stopped 392151 2012/09/12 14:01:56 Stopped 2013/03/15 32157 2013/03/14 Stopped 322151 2012/09/12 14:01:56 Stopped 2013/03/14 13:40:04 Stopped 2013/03/14 13:40:04 Stopped	
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WW_P102 WW_P102 WW_P102 Connected to	Stop Application Start Application Restart Application Reboot Control Logout	work for new files Com Status	

Figure 4-1. AppManager Window, Control Pull Down Menu

5. Read the license agreement and select YES if you agree. If you select NO, AppManager will not install the Service Pack.

-	Software License Agreement	x
	Please read the following License Agreement.	
	WOODWARD STANDARD SOFTWARE LICENSE AGREEMENT	* III
	PLEASE CAREFULLY READ THE FOLLOWING SOFTWARE LICENSE AGREEMENT (THE "AGREEMENT"). BY OPENING THE PACKAGE, INSTALLING, DOWNLOADING, USING OR CONTINUING TO USE THE SOFTWARE PRODUCT ("PRODUCT" or "Product") OR AUTHORIZING OTHERS TO DO SO, YOU IN YOUR PERSONAL CAPACITY AND ON BEHALF OF THE ENTITY WITH WHOM YOU ARE EMPLOYED (HEREINAFTER COLLECTIVELY REFERRED TO AS "YOU" AND "you"), AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT AND CREATE A BINDING CONTRACT BETWEEN YOU AND WOODWARD, INC. ("WOODWARD" or "Woodward"). IF YOU ARE ACCEPTING THESE SOFTWARE LICENSE TERMS ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO ALL OF THE TERMS AND CONDITONS HEREIN. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, DO NOT COMPLETE THE INSTALLATION, USE OR CONTINUE TO USE THE PRODUCT AND, IF APPLICABLE, RETURN THIS PRODUCT TO THE PLACE OF PURCHASE.	
	IMPORTANT WARNING: TO PREVENT PERSONAL INJURY AND/OR PROPERTY DAMAGE, PERSONNEL USING THIS PRODUCT MUST BE KNOWLEDGEABLE REGARDING THE PRODUCT. WHILE THE	Ŧ
	Do you accept all of the terms of the preceding License Agreement? If you choose NO, the ServicePack Installation will close. To continue with the ServicePack Installation, you must accept this agreement.	
	(YES) NO	

Figure 4-2. License Agreement Page

6. Explore to the service pack downloaded from the Woodward web site and click install.

Organize 🔻 New fol	der		8==	• 🔳 🔞
🔶 Favorites	Name	Date modified	Туре	Size
	👪 IDE	2/1/2017 2:32 PM	File folder	
🥽 Libraries	🍌 Qt	1/27/2017 11:32 AM	File folder	
	5418-6755_D_Qt_for_VxWorks_PPC32.exe	1/24/2017 6:40 AM	Application	24,797
Network				
🙀 Network				
Network	۲	111		

Figure 4-3. Service Pack File Directory

- 7. AppManager will install the new service pack on the selected CPU. This will take some time, and AppManager will report progress as files are transferred. When AppManager is finished transferring files, it will suggest a reboot. When the CPU reboots, the new service pack will be installed.
- 8. Confirm the new service pack is installed by checking the current revision of the footprint by using AppManager Control->Control Information screen.

	Control Information	A.A.	×
	Computer Name :	505_RIGB2	
	Computer IP Address :	10.45.142.247	
	Footprint Part Number :	5418-6479	
	Footprint Revision :	A	
	AMService Version :	5.1 (User Version- 1.30)	
VxWorks Revision	Footprint Description :		
	FLEX500_505 MPC5125 VXWorks 6.9 - gnu Creation Date - Feb 3 20 RAMDrive Capacity - 670 RAMDrive FreeSpace - FLASHDrive FreeSpace Memory Free - 38202K Adapters - Address Subi Ethernet1 10.45.142.247 2 Ethernet2 192.168.128.20 Ethernet3 192 168.129.20	16 14:09:02 118K 34644K - 177007K het Gateway MAC 255.255.240.0 10.45.128.1 00128c0091ff 255.255.255.0 Not Set 00128c009200 255.255.255.0 Not Set 00128c009201	*
Qt Revision	Ethernet4 192.168.130.20 FPGA - 29 CPU Type - Flex 500 Ot - 5418-6755 - B Account/Management - E Run hours - 12223 Control PN - 8200-1301 Control Rev - Model - 505XT CPU PN - 701-1486 CPU Rev - 1 CPU SN - 19798185 WW_Abstraction - 2.12.0	255.255.255.0 Not Set 00128c009202	
			+
		Close	

Figure 4-4. AppManager Control Information Screen

Revision History

New Manual—

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We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com

Please reference publication **35075**.





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