

Introduce all the commands that dashboard server can support. Take an example , connecting Dashboard Server with SocketTest software.

Examples are valid for:

**CB2 Software version: 1.4 and upwards**

**CB3 Software version: 3.0 and upwards**

**Note that older or newer software versions may behave differently.**

A Universal Robot can be controlled from remote by sending simple commands to the GUI over a TCP/IP socket. This interface is called the "DashBoard server". The server is running on port 29999 on the robots IP address. Each command should be terminated by a '\n' also called a newline.

Command	Return value	Description	Supported from	CB1	CB2	CB3	CB3.1
load <program.urp>	<p>On success:</p> <ul style="list-style-type: none"> <li>"Loading program: &lt;program.urp&gt;"</li> </ul> <p>On Failure:</p> <ul style="list-style-type: none"> <li>"File not found: &lt;program.urp&gt;"</li> <li>"Error while loading program: &lt;program.urp&gt;"</li> </ul>	Start loading the specified program. Returns immediately before loading completes.	v1.4 to v3.2	x	x	x	x
		Load the specified program. Returns when loading has completed.	v3.3			x	x
		Returns when both program and associated installation has loaded (or failed).					
		The load command fails if the associated installation requires confirmation of safety. The return value in this case will be 'Error while loading program'.	v3.4.0			x	x
play	<p>On success:</p> <ul style="list-style-type: none"> <li>"Starting program"</li> </ul> <p>On failure:</p> <ul style="list-style-type: none"> <li>"Failed to execute: play"</li> </ul>	Starts program, if any program is loaded and robot is ready. Returns immediately before starting has completed.	v1.4 to v3.2	x	x	x	x
		Starts program, if any program is loaded and robot is ready. Returns when the program execution has been started.	v3.3			x	x

Command	Return value	Description	Supported from	CB1	CB2	CB3	CB3.1
stop	<p>On success:</p> <ul style="list-style-type: none"> <li>"Stopped"</li> </ul> <p>On failure:</p> <ul style="list-style-type: none"> <li>"Failed to execute: stop"</li> </ul>	Returns failure if the program fails to start. In previous versions this did not happen in all cases.	v3.4.0			x	x
		Stops running program and returns immediately.	v1.4 to v3.2	x	x	x	x
		Stops running program and returns when stopping is completed.	v3.3			x	x
		Returns failure if the program fails to stop. In previous versions this did not happen in all cases..	v.3.4.0			x	x
		Pauses the running program and returns immediately.	v1.4 to v3.2	x	x	x	x
pause	<p>On success:</p> <ul style="list-style-type: none"> <li>"Pausing program"</li> </ul> <p>On failure:</p> <ul style="list-style-type: none"> <li>"Failed to execute: pause"</li> </ul>	Pauses the running program and returns when pausing is completed.	v3.3			x	x
		Returns failure if the program fails to pause. In previous versions this did not happen in all cases.	v3.4.0			x	x
		Closes connection	v1.4	x	x	x	x
shutdown	"Shutting down"	Shuts down and turns off robot and controller	v1.4	x	x	x	x
running	"Program running: True" OR "Program running: False"	Execution state enquiry	v1.6		x	x	x

Command	Return value	Description	Supported from	CB1	CB2	CB3	CB3.1
robotmode	CB2: integer is returned  <ul style="list-style-type: none"> <li>• NO_CONTROLLER_MODE = -1</li> <li>• ROBOT_RUNNING_MODE = 0 (This is "normal" mode)</li> <li>• ROBOT_FREEDRIVE_MODE = 1</li> <li>• ROBOT_READY_MODE = 2</li> <li>• ROBOT_INITIALIZING_MODE = 3</li> <li>• ROBOT_SECURITY_STOPPED_MODE = 4</li> <li>• ROBOT_EMERGENCY_STOPPED_MODE = 5</li> <li>• ROBOT_FAULT_MODE = 6</li> <li>• ROBOT_NO_POWER_MODE = 7</li> <li>• ROBOT_NOT_CONNECTED_MODE = 8</li> <li>• ROBOT_SHUTDOWN_MODE = 9</li> </ul> CB3: text is returned "Robotmode: <mode>", where <mode> is	Robot mode enquiry	v1.6		x	x	x
get loaded program	<ul style="list-style-type: none"> <li>• NO_CONTROLLER</li> <li>• DISCONNECTED</li> <li>• CONFIRM_SAFETY</li> <li>• BOOTING</li> <li>• POWER_OFF</li> <li>• POWER_ON</li> <li>• IDLE</li> <li>• BACKDRIVE</li> <li>• RUNNING</li> </ul> "Loaded program: <path to loaded program file>" OR "No program loaded"	Which program is loaded	v1.6		x	x	x
popup <popup-text>	"showing popup"	The popup-text will be translated to the selected language, if the text exists in the language file	v1.6		x	x	x
close popup	"closing popup"	Closes the popup	v1.6		x	x	x
addToLog <log-message>	"Added log message" Or "No log message to add"	Adds log-message to the Log history	v1.8.11657		x	x	x
isProgramSaved	"True" OR "False"	Returns the save state of the active program and path to loaded program file.	v1.8.11997		x	x	x
programState	"STOPPED" if no program is running "PLAYING" if program is running "PAUSED" if program is paused(CB3/CB3.1 only)	Returns the state of the active program and path to loaded program file, or STOPPED if no program is loaded	v1.8.11997		x	x	x
PolyscopeVersion	version number, like "3.0.15547"	Returns the version of the Polyscope software	v1.8.14035		x	x	x

Command	Return value	Description	Supported from	CB1	CB2	CB3	CB3.1
setUserRole <role>, where <role> is <ul style="list-style-type: none"> <li>programmer</li> <li>operator</li> <li>none</li> <li>locked</li> </ul>	"Setting user role: <role>" OR "Failed setting user role: <role>" <ul style="list-style-type: none"> <li><i>programmer</i> = In Setup Robot, buttons "Update", "Set Password", "Network", "Time" and "URCaps" are disabled, "Expert Mode" is available (if correct password is supplied)</li> <li><i>operator</i> = Only "RUN Program" and "SHUTDOWN Robot" buttons are enabled, "Expert Mode" cannot be activated</li> <li><i>none</i> ( or send <i>setUserRole</i>) = All buttons enabled, "Expert Mode" is available (if correct password is supplied)</li> <li><i>locked</i> = All buttons disabled and "Expert Mode" cannot be activated</li> </ul>	Control of user privileges: controls the available options on the Welcome screen.  Note: If the Welcome screen is not active when the command is sent, the user privileges defined by the new user role will not be effective until the user switches to the Welcome screen.	v1.8.14035		x	x	x
setUserRole <role> extended with new role: <ul style="list-style-type: none"> <li>restricted</li> </ul>	"Restricted" works like "operator" but does not give access to the move tab.		v3.1.17136			x	x
power on	"Powering on"	Powers on the robot arm	v3.0			x	x
power off	"Powering off"	Powers off the robot arm	v3.0			x	x
brake release	"Brake releasing"	Releases the brakes	v3.0			x	x
safetymode	"Safetymode: <mode>", where <mode> is <ul style="list-style-type: none"> <li>NORMAL</li> <li>REDUCED</li> <li>PROTECTIVE_STOP</li> <li>RECOVERY</li> <li>SAFEGUARD_STOP</li> <li>SYSTEM_EMERGENCY_STOP</li> <li>ROBOT_EMERGENCY_STOP</li> <li>VIOLATION</li> <li>FAULT</li> </ul>	Safety mode enquiry	v3.0			x	x
unlock protective stop	"Protective stop releasing"	Closes the current popup and unlocks protective stop	v3.1			x	x
close safety popup	"closing safety popup"	Closes a safety popup	v3.1			x	x
load installation  <default.installation>	On success: <ul style="list-style-type: none"> <li>"Loading installation: &lt;default.installation&gt;"</li> </ul> On failure: <ul style="list-style-type: none"> <li>"File not found: &lt;default.installation&gt;"</li> <li>"Failed to load installation: &lt;default.installation&gt;"</li> </ul>	Loads the specified installation file.	v3.2.18654			x	x

Command	Return value	Description	Supported from	CB1	CB2	CB3	CB3.1
		Loads the specified installation file but does not return until the load has completed (or failed).					
		The load command fails if the associated installation requires confirmation of safety. The return value will be 'Failed to load installation'.	v3.4.0			x	x

### Testing the Dashboard server:

For testing purposes a program for testing sockets can be used, like HyperTerminal, or similar. In this example the freeware program SocketTest is used.

Setup a static IP-address and subnet mask on PC, so it matches the robot, e.g.:

PC: IP-addr: 192.168.3.10 Robot: IP-addr: 192.168.3.3  
Subnet: 255.255.255.0 Subnet: 255.255.255.0

In the socket test program, use the Client tab to send commands to robot:



