
SPC Bridge Control4 - User Manual

Revision 1.1



History Record

Revision	Date	Author	Comment
1.0	Nov-2017	Lundix IT	First edition
1.1	Mar-2021	Lundix IT	Generic SPC Bridge manual merged with Control4 instructions

©2021 Lundix IT

Lundix IT
Renvägen 22
S-433 70 Sävedalen
Sweden
info@lundix.se

Contents

1	INTRODUCTION.....	5
1.1	SPC Bridge Control4	5
1.2	Main Features.....	5
1.3	Hardware Specification.....	5
1.4	Terminology and Abbreviations	6
2	INSTALLATION.....	7
2.1	Installation Prerequisites.....	7
2.2	Installation Steps	7
3	CONFIGURATION.....	8
3.1	IP Address.....	8
3.2	Time Setting.....	8
3.3	Change Administration Password.....	8
3.4	SPC Communication (FlexC)	8
3.4.1	SPC Panel FlexC Settings.....	9
3.4.2	SPC Bridge SPC Communication Settings.....	9
3.5	Bridge API	10
3.6	SPC Test Tool.....	12
4	CONTROL4.....	13
4.1	Driver Installation	13
4.1.1	Basic Installation.....	13
4.1.2	User Settings.....	14
4.2	Custom Programming.....	15
4.2.1	Device Variables.....	15
4.2.2	Partition Variables	15
4.2.3	Partition Events.....	16
4.2.4	Partition Commands.....	16
5	TROUBLESHOOTING.....	18
5.1	Troubleshooting communication between SPC Panel and SPC Bridge	18
5.2	Error logging in Control4 Composer.....	18
6	ADVANCED USERS.....	19
6.1	Backup of Configuration Settings	19
6.2	Upgrading software	19
6.3	SSH Access	19
7	LICENSE AGREEMENTS	20
7.1	End-User License Agreement for SPC Bridge (EULA)	20

7.2	Open Source Software	21
7.3	Open Source Hardware	22

1 Introduction

1.1 SPC Bridge Control4



SPC Bridge Control4 is a network device for integration of Vanderbilt SPC intrusion detection system with a Control4 system. SPC Bridge can be used with any SPC Panel that supports the FlexC protocol.

The Control4 integration allows you to use all your SPC connected motion detectors, door/window contacts, fire detectors and alarm status for control of other devices connected to your Control4 system, e.g lights, water valves and blinds. It has also support for arming/disarming the SPC system manually or programmatically. The integration supports Control4 security GUI version 2.

1.2 Main Features

- SPC Bridge Control4 provides SPC zone and area states/status to a Control4 system.
- Support for area and zone commands from the Control4 system, e.g. arm/disarm, inhibit zone.
- SPC Panel Communication based on Vanderbilt official FlexC protocol.
- Web based Admin GUI
- Of performance reasons the SPC Bridge Control4 is recommended for maximum 128 zones and 16 areas. (Actually, the Control4 driver is designed for 512 zones and 16 areas. The actual limit depends on the use case, e.g. number of SPC events and number of motion detectors)

1.3 Hardware Specification

Processor	400MHz, 24K MIPS
Flash	16MB
RAM	64MB

Power input	9 – 12V DC
Network	2 x 10M/100M RJ45 Connectors
WiFi	802.11 b/g/n
USB	1 x USB 2.0 host connector
Type Approval	FCC Part15 Subpart B, Subpart C, CE NB, C-Tick

1.4 Terminology and Abbreviations

Term	Description
FlexC	Vanderbilt SPC Flexible Secure Communications Protocol
REST API	Representational State Transfer
API	Application Programming Interface
URL	Uniform Resource Locator
WebSocket	Two-way TCP protocol RFC 6455

2 Installation

2.1 Installation Prerequisites

- Vanderbilt SPC Pwith firmware \geq 3.8.5
- Network router with DHCP server enabled
- Network connection between the SPC Panel, SPC Bridge and the Control4 system
- Internet access (to be able to use time synchronization via NTP)
- Vanderbilt SPC Control4 driver provided by Lundix IT
- Control4 system with firmware \geq 2.10 (The driver is developed and tested under 2.10.0.542686-res)
- Control4 Composer version \geq 2.10.0

2.2 Installation Steps

1. Read carefully **End-User License Agreement for SPC Bridge (EULA)** in last section in this document. If you do not agree to the terms of the EULA, do not install or use the SPC Bridge.
2. Connect SPC Bridge LAN port, with a regular network cable, to your network switch or router.
3. Power up the device by connecting the included power adapter to a wall socket and then to the SPC Bridge device.
4. Wait (~2 minutes) until the SPC Bridge has fully started.
5. Login to your router and look for the IP address assigned to the SPC Bridge.
6. Open a web browser and enter the IP address of the SPC Bridge.
7. In the login window, enter Username (**root**) and Password (default is **dragino**) and you will see the main menu.
8. You can now proceed with the **configuration of the Bridge** in section 3 and thereafter the installation and **configuration of the Control4** driver in section 0.

3 Configuration

SPC Bridge device is based on a standard Linux platform, OpenWrt, that is normally used for routers, therefore you will find many standard configuration options in the Web GUI. In this manual only configuration specific for the SPC Bridge functions is described. Most of these functions are available in the main menu – *SPC Bridge*. For configuration of generic OpenWrt functions please see wiki.openwrt.org.

3.1 IP Address

Default will SPC Bridge use DHCP to get an IP Address. To set a static IP Address, go to *Network -> Interfaces* and:

1. Select **LAN – Edit**.
2. In **Interfaces – LAN**, select **Static address** in the **Protocol** option menu
3. Click on **Switch Protocol**
4. In **Common Configuration – General Setup** fill in; IPv4 address, netmask, gateway and custom DNS servers.
5. In **DHCP Server – General Setup**; check the checkbox **Ignore interface**.
6. Click on **Save & Apply**.
7. Redirect your browser to the new IP Address.

3.2 Time Setting

To set correct Timezone, go to **System -> System** and select **Timezone** in section **System Properties – General Settings**.

The device is as default using NTP to synchronize time. This setting is in **System -> System** section **Time Synchronization**.

NOTE! The device has no RTC clock. During boot the device can have incorrect time. Some events in the system log can therefore have incorrect timestamps.

3.3 Change Administration Password

The default administration password for accessing the device is **dragino**. Of security reasons it is highly recommended to change the password as soon as possible. Go to **System -> Administration** section **Device Password** to change the password. The same password is used in both Web GUI and for ssh access to the device.

3.4 SPC Communication (FlexC)

To setup the communication link between SPC Panel and SPC Bridge you have to configure the link in both SPC Panel and SPC Bridge ends.

3.4.1 SPC Panel FlexC Settings.

Use **Vanderbilt SPC Web interface** and define the FlexC communication following this instructions:

1. Select **Full Engineer** mode
2. Create a specific user for the SPC Bridge communication, e.g **spcbridge**. User profile should be **Manager** and you need also to define a **web password** for the user. (Hint: To set a web password for a new user in SPC you need to login as the user first, using the pin code and go to Configuration -> Change Own Pin -> Change Web Password)
3. Select **Communications -> FlexC -> Event Profiles**. Click on **Add** to add a new event profile. Give the event profile the name **SPC Bridge Events** and select (check) the report checkboxes for all event types. (You may consider reducing these settings later to just necessary events for the third-party application)
4. Select **Communications -> FlexC -> Command Profile**. Click on **Add** to add a new command profile. Give the command profile the name **SPC Bridge Commands** and select (check) the checkboxe for **Get the configuration of a User**. Keep the defaults for all other settings. (This step is mandatory to be able to fetch and configure the SPC users in Control4 composer)
5. Select **Communications -> FlexC -> FlexC ATS**. Select **Add Custom ATS** and change following from the default settings:
 - ATS Name = SPC Bridge
 - Event Profile = SPC Bridge Events (created in step 3)
 - ATS Polling Timeout = 60 seconds
 - Uncheck Generate FTC and Re-queue Events
6. Select **Add ATP to FlexC RCT** and change following from the default settings:
 - SPT Account Code = 999
 - RCT URL or IP Address = IP Address of the SPC Bridge
 - ATP Category = Cat 6 [Ethernet]
7. Open **Advanced ATP Settings** and change following from the default settings:
 - Encryption Key Mode = Fixed Encryption
 - Encryption key (64 hex digits) = Your own key (must match the key in the SPC Bridge)

3.4.2 SPC Bridge SPC Communication Settings

In the **SPC Bridge Web interface** select **SPC Bridge->SPC Communication** and fill in the form according to:

SPC Communication

Configuration of FlexC Communication to Vanderbilt SPC Panel. It is very important that this settings corresponds with the settings in the SPC Panel.

FlexC Settings

ATP Encryption Key	<input type="text" value="encryption key"/>	
	64 hex digits (0-9, a-f, A-F)	
SPC Account Code	<input type="text" value="999"/>	
RCT ID	<input type="text" value="1"/>	
RCT TCP Port	<input type="text" value="52000"/>	
SPC Username	<input type="text" value="spcbridge"/>	
SPC Password	<input type="text" value="password"/>	

[Save & Apply](#) [Save](#) [Reset](#)

Element	Description
ATP Encryption Key	ATP Encryption Key. 64 hex numbers (0-9, a-f, A-F). Must match corresponding key in SPC Panel FlexC settings.
SPC Account Code	ATP Account Code. Must match corresponding key in SPC Panel FlexC settings.
RCT ID	RCT Id. Must match corresponding id in SPC Panel FlexC settings.
RCT TCP Port	RCT TCP Port. Must match corresponding value in SPC Panel FlexC settings.
SPC Username and Password	<p>Credentials for FlexC communication. User must be defined in the SPC Panel and have a corresponding web password.</p> <p>Valid username: max 16 characters, not including space, double quotes, backslash or tilde characters.</p> <p>Valid password: max 16 characters, not including space, double quotes, backslash or tilde characters.</p> <p>NOTE! Of security reason a saved password is never shown again. Just leave the field blank if you don't want to change the password.</p>

3.5 Bridge API

The Bridge API is the interface between the SPC Bridge and the Control4 system.

To configure the interface, go to **SPC Bridge -> Bridge API** and fill in the form. **(Please note – If you use a subnet other then 192.168.0.0 you need to change the value in Access Control List. See examples below)**

API Server Settings

Port

API Server IP port.
Communication on this port is encrypted.

Access Control List

Access Control List (ACL) allows restrictions to be put on the list of IP addresses which have access to the API server. The ACL is a comma separated list of IP subnets, where each subnet is pre-pended by either a - or a + sign. A plus sign means allow, where a minus sign means deny. If a subnet mask is omitted, such as -1.2.3.4, this means to deny only that single IP address. Subnet masks may vary from 0 to 32, inclusive.

REST/Websockets Credentials

Credentials for accessing the API REST/Websockets services. HTTP GET method is used to QUERY the SPC for information, HTTP PUT method is used for sending COMMANDS to the SPC and Websockets are used for listening on SPC EVENTS.

Username Queries

Password Queries

Username Commands

Password Commands

Username Events

Password Events

[Save & Apply](#) [Save](#) [Reset](#)

Element	Description
API Server Settings	
Port	API Server IP port.
Access Control List	<p>Access Control List (ACL) allows restrictions to be put on the list of IP addresses which have access to the API server. The ACL is a comma separated list of IP subnets, where each subnet is pre-pended by either a - or a + sign. A plus sign means allow, where a minus sign means deny. If a subnet mask is omitted, such as -1.2.3.4, this means to deny only that single IP address. Subnet masks may vary from 0 to 32, inclusive.</p> <p>Example: +192.168.0.0/24 (default) Allow only all IP addresses on subnet 192.168.0.0 mask 255.255.255.0 to connect.</p> <p>Example: +192.168.4.0/24 Allow only all IP addresses on subnet 192.168.4.0 mask 255.255.255.0 to connect.</p>
REST/Websockets Credentials	
Username and Password Queries	Username and password for queries to SPC Bridge. Default username is get_user and password get_pwd .
Username and Password Commands	Username and password for commands (e.g. arm/disarm) to SPC Bridge. Default username is put_user and password put_pwd .
Username and Password Events	Username and password for websockets events from SPC Bridge. Default username is ws_user and password ws_pwd .

NOTE! Of security reasons it is highly recommended that you set own passwords for Queries, Commands and Events access.

3.6 SPC Test Tool

To be sure that the communication between SPC Bridge and SPC Panel is working properly you can use the tests provided in **SPC Bridge->SPC Test Tool**. In the option menu you can choose between query SPC areas, zones or the system log.

SPC Query API

SPC Query API Test

This page can be used to test the Query REST API based on HTTP GET requests.

GET SPC Area Status ▼

Query

/spc/area

JSON Reply

```
{
  "status": "success",
  "data": {
    "area_status": [
      {
        "area_id": "1",
        "area_name": "Area 1",
        "mode": "0",
        "partseta_enable": "1",
        "partsetb_enable": "1",
        "partseta_name": "Partset A",
        "partsetb_name": "Partset B",
        "last_set_time": "1510960112",
        "last_set_time_spc": "23083217112017",
        "last_set_user_id": "3",
        "last_set_user_name": "spcsmartbox",
        "last_unset_time": "1511122435",
        "last_unset_time_spc": "20135519112017",
        "last_unset_user_id": "9999",
        "last_unset_user_name": "Engineer",
        "last_alarm": "1510751010",
        "last_alarm_spc": "13033015112017",
        "internal_bells": "0",
        "external_bells": "0"
      },
      {
        "area_id": "2",
        "area_name": "Area 2"
      }
    ]
  }
}
```

Example Formatted Reply

Area ID	Area Name	Mode	Last Set	Last Unset	Last Alarm
1	Area 1	Unset	2017-11-18 00:08:32 [spcsmartbox]	2017-11-19 21:13:55 [Engineer]	2017-11-15 14:03:30
2	Area 2	Unset	-	2017-11-19 18:38:43 [spcsmartbox]	-

4 Control4

1.1 Driver Installation

#	Partition Name	Partition State	Arm Type	Enabled
1	Area 1	DISARMED_READY	-	True
2	Area 2	DISARMED_READY	-	True
3	Area 3 [Unused]	-	-	False
4	Area 4 [Unused]	-	-	False
5	Area 5 [Unused]	-	-	False
6	Area 6 [Unused]	-	-	False
7	Area 7 [Unused]	-	-	False
8	Area 8 [Unused]	-	-	False
9	Area 9 [Unused]	-	-	False
10	Area 10 [Unused]	-	-	False
11	Area 11 [Unused]	-	-	False
12	Area 12 [Unused]	-	-	False
13	Area 13 [Unused]	-	-	False
14	Area 14 [Unused]	-	-	False
15	Area 15 [Unused]	-	-	False
16	Area 16 [Unused]	-	-	False

Advanced Properties

Log Level	1 - Error
Log Mode	OFF
Version	1.0.001
Max Partitions	16
Max Zones	512
Bridge Communication Status	2021.03.16 10:22:39 - Request: /spc/alert
Bridge IP Address	192.168.0.107
Bridge Port	8088
Bridge Username Queries	get_user
Bridge Password Queries	*****

4.1.1 Basic Installation

NOTE! Be sure that the SPC Bridge is configured and working properly before you install and configure the SPC driver.

Place the SPC driver file, **Vanderbilt_SPC_Panel.c4z**, under your local Control4 Drivers folder. Start the Control4 Composer and:

1. Search and add the Vanderbilt SPC driver to your project (Items->Search)
2. Refresh Composer (F5) and thereafter select the item **SPC Security Panel** in the project tree.
3. Enter SPC Bridge IP address and check the port number (System Design -> SPC Security Panel -> Advanced Properties -> Properties). Click Set.
4. Enter SPC Bridge credentials for Queries, Commands and Events (Only applicable if you have changed the default credentials in SPC Bridge settings) . Click Set.
5. Click **Read from panel** to import the SPC partitions/areas and zones. The button is located in the right upper corner in the view System Design -> SPC Security Panel -> Properties.
6. Check that displayed items in the tab partitions and zones are matching the configuration in the SPC system.
7. Refresh Navigators (Shift + F5)

8. Configure the users according to **User Settings** in section 4.1.2 below.

NOTE! It can take up to 1 minute before the communication with the SPC system is established.

After successful configuration you should add and connect appropriate “virtual” sensors to each alarm zone. The sensors are found in My Drivers section Sensors. For instance you can use Contact Switch, Motion Sensor and Smoke Detector.

NOTE! If you change the configuration of partitions or zones in the SPC system you need to use the **Read from panel** button to import the changes to the Control4 system.

4.1.2 User Settings

Driver Actions	Get SPC Users	▼		
User Settings	5 - User5	▼		
User ID - Name	5 - User5			
User Password	*****		Set	Cancel
User Pin Code	*****		Set	Cancel

Of security reasons it is not allowed to import user pin codes from the SPC Panel. Therefore, you need to manually setup the users that should be granted to use the Control4 security GUI.

Follow these steps to setup the users in Control4 Composer:

1. Select **Get SPC Users** in the option menu **Driver Actions** (System Design -> SPC Security Panel -> Advanced Properties). Click Set.
2. In option menu **User Settings** select the SPC User you would like to configure. Click Set.
3. Enter **User Password**. This must match the **pin code** for the user configured in the SPC system. If the user is supplied with a **web password** then the web password must be entered instead. Click Set to save.
4. Enter **User Pin Code**. This is the pin code the user should use in Control4 GUI. It is not necessary but most convenient to set same pin code as in the SPC system. Click Set to save.
5. Repeat step 2 to 4 for each user you would like to configure.

NOTE! If you change the settings of the users in the SPC system you need to do corresponding changes in the Control4 system.

4.2 Custom Programming

There are several variables and command which can be used in custom programming.

NOTE! Events and variables shown in Composer that are not listed here are not supported by the driver.

NOTE! To be able to use zone input states for programming you first need to connect the zone input to a “virtual” sensor and then use the output state of the sensor instead.

4.2.1 Device Variables

ARM_LAST_USER_ID_X

SPC user id of last user that armed partition X.

ARM_LAST_USER_NAME_X

SPC user name of last user that armed partition X.

DISARM_LAST_USER_ID_X

SPC user id of last user that disarmed partition X

DISARM_LAST_USER_NAME_X

SPC user name of last user that disarmed partition X

4.2.2 Partition Variables

ALARM_STATE

Partition has alarm state, e.g has burglary or fire alarm

Possible values: false, true

ARMED_TYPE

Partition armed type/mode

Possible values: Away, Home A, Home B (empty if disarmed)

AWAY_STATE

True if partition is in Away mode

Possible values: false, true

DISARMED_STATE

True if partition is in Disarmed mode

Possible values: false, true

HOME_STATE

True if partition is in Home A or Home B mode

Possible values: false, true

DISPLAY_TEXT

Last navigator message

Possible values: Message or SPC Event text

IS_ACTIVE

True if partition is enabled

Possible values: false, true

OPEN_ZONE_COUNT

Shows how many zones that are open in partition

Possible values: 0 – Max number of zones (512)

PARTITION_STATE

Partition state/mode

Possible values:

- DISARMED_READY = Disarmed
- ARMED = Away, Home A or Home B
- ALARM = Burglary, Fire alarm or trouble
- EXIT_DELAY = Delayed arming to mode Away
- ENTRY_DELAY = Delayed entry

DELAY_TIME_REMAINING

Remaining exit delay time when arming Away. Value only available during Away arming . Otherwise the value is 0.

Possible values: 0 – max exit delay time

DELAY_TIME_TOTAL

Total exit delay time when arming Away. Value only available during Away arming. Otherwise the value is 0.

Possible values: 0 – max exit delay time

4.2.3 Partition Events

- Alarm
- Alarm Clear
- Disarmed
- Armed
- Partition State Changed
- Arm Status Changed

4.2.4 Partition Commands

Arm

Set arm mode of the SPC partition to Away (Fullset), Home A (Partset A) or Home B (Partset B)

Disarm

Disarm the SPC partition.

Clear All Alerts

Clear all alerts for all partitions on the SPC system.

Silence All Bells

Silence all bells for all partitions on the SPC system.

Inhibit/Deinhibit Zone

Inhibit/Deinhibit Zone commands are not supported for programmatically control. The commands are only supported for manually control from the navigator GUI.

5 Troubleshooting

5.1 Troubleshooting communication between SPC Panel and SPC Bridge

To troubleshoot the communication between the SPC Panel and the SPC Bridge it easiest to use the test tool in the SPC bridge. Please see section 3.6.

NOTE! No events are reported from the SPC Panel to the SPC Bridge/Control4 system if someone is logged in in Full Engineer mode.

5.2 Error logging in Control4 Composer

If you set **Log level** to **1 – error** and **Log mode** to **Log** in the driver settings, you will be able to see a lot of information in the Lua window, that can be used for troubleshooting.

Example:

```
WS wss://192.168.0.107:8088/ws/spc?username=xxxx&password=xxxx disconnected while
running
Wait 60000 ms for the Bridge to be ready before we setup the websocket
communication.
Closing NetBinding          6119          8088
Starting Web Socket... Creating net connection to
wss://192.168.0.107:8088/ws/spc?username=xxxx&password=xxxx
WS wss://192.168.0.107:8088/ws/spc?username=xxxx&password=xxxx connected
```

In Control4 Director Log you can also find some helpful messages, for example when the communication with the SPC Bridge is lost:

```
2020-12-03 10:02:18.969 +0100 ea1-000FFF1D7749 [3577] ERROR: [Room 1-->SPC
Panel(4988)] Vanderbilt SPC: 2020.12.03 10:02:18 - OFFLINE
```

6 Advanced users

6.1 Backup of Configuration Settings

In **System -> Backup / Flash Firmware**, section **Backup / Restore**, you can save a backup copy of your settings on your PC and later use it to restore the settings.

6.2 Upgrading software

In **System -> Backup / Flash Firmware**, section **Flash new firmware image**, you can upgrade the device firmware to a new version. The firmware file should have the name **dragino-spc-bridge--vX.X.X-squashfs-sysupgrade.bin**. For minor upgrades you can keep your current settings by selecting **Keep settings**. For major upgrades it is preferable to not keep the settings, because they can be incompatible with the new firmware.

6.3 SSH Access

The device has as default ssh access enabled. Login using username **root** and same password as in the Web GUI (default **dragino**). The settings for the SSH access can be changed in the **System -> Administration**, section **SSH Access**.

7 License Agreements

7.1 End-User License Agreement for SPC Bridge (EULA)

IMPORTANT PLEASE READ THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT CAREFULLY BEFORE USING THE SPC BRIDGE SOFTWARE OR HARDWARE. SPC Bridge End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and Lundix IT, Sweden, for the SPC Bridge software and hardware product(s) (referred to as the "PRODUCT") which may also include associated software components, media, printed materials, and "online" or electronic documentation. By installing, copying, or otherwise using the PRODUCT, you agree to be bound by the terms of this EULA. This license agreement represents the entire agreement concerning the PRODUCT between you and Lundix IT (referred to as "licenser"), and it supersedes any prior proposal, representation, or understanding between the parties. If you do not agree to the terms of this EULA, do not install or use the PRODUCT. The PRODUCT is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The software is licensed, not sold.

GRANT OF LICENSE.

The PRODUCT is licensed as follows:

- The FlexC communication program is based on Vanderbilt propriety protocol FlexC and therefore **NOT open-source**.
- **All other software in SPC Bridge** is licensed under many different open source licenses.
- **Backup Copies.** You may make copies of the software as may be necessary for backup and archival purposes.

DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS.

- **Maintenance of Copyright Notices.**
You must not remove or alter any copyright notices on any and all copies of the PRODUCT.
- **Prohibition on Reverse Engineering, Decompilation, and Disassembly.**
You may not reverse engineer, decompile, or disassemble the program SPC Flex Gateway.
- **Support Services.**
Lundix IT may provide you with support services related to the PRODUCT ("Support Services"). Any supplemental software code provided to you as part of the Support Services shall be considered part of the PRODUCT and subject to the terms and conditions of this EULA.
- **Compliance with Applicable Laws.**
You must comply with all applicable laws regarding use of the PRODUCT.

COPYRIGHT

All title, including but not limited to copyrights, in and to the PRODUCT and any copies thereof are owned by Lundix IT or its suppliers. All title and intellectual property rights in and to the content which may be accessed through use of the PRODUCT is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This EULA grants you no rights to use such content. All rights not expressly granted are reserved by Lundix IT.

NO WARRANTIES

Lundix IT expressly disclaims any warranty for the PRODUCT. The PRODUCT is provided 'As Is' without any express or implied warranty of any kind, including but not limited to any warranties of merchantability, noninfringement, or fitness of a particular purpose. Lundix IT does not warrant or assume responsibility for the accuracy or completeness of any information, text, graphics, links or other items contained within the PRODUCT. Lundix IT makes no warranties respecting any harm that may be caused by the transmission of a computer virus, worm, time bomb, logic bomb, or other such computer program. Lundix IT further expressly disclaims any warranty or representation to Authorized Users or to any third party.

LIMITATION OF LIABILITY

In no event shall Lundix IT be liable for any damages (including, without limitation, lost profits, business interruption, or lost information) rising out of 'Authorized Users' use of or inability to use the PRODUCT, even if Lundix IT has been advised of the possibility of such damages. In no event will Lundix IT be liable for loss of data or for indirect, special, incidental, consequential (including lost profit), or other damages based in contract, tort or otherwise. Lundix IT shall have no liability with respect to the content of the PRODUCT or any part thereof, including but not limited to errors or omissions contained therein, libel, infringements of rights of publicity, privacy, trademark rights, business interruption, personal injury, loss of privacy, moral rights or the disclosure of confidential information.

7.2 Open Source Software

The SPC Bridge software is based on OpenWrt, a Linux distribution that bundles lots of third party software, under many different licenses. Source code for OpenWrt is available on <http://dev.openwrt.org>.

The most frequently used licenses are:

GNU General Public License (GPL) and GNU Lesser General Public License (LGPL) version 2. These firmware images contain software licensed under the GPLv2. A copy of that license can be found at <http://www.gnu.org/licenses/gpl-2.0.txt>.

Apache License version 2.0. These firmware images contain software licensed under the APLv2. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>. Modified files carry prominent notices stating who made the changes.

MIT License. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

7.3 Open Source Hardware

The SPC Bridge hardware is based on the open source hardware Dragino, <http://www.dragino.com>. The Dragino hardware design is released under the **Creative Commons License**, <https://creativecommons.org/licenses/>. The modular Dragino design enables rapid development cycles for commercial products.

END OF DOCUMENT