

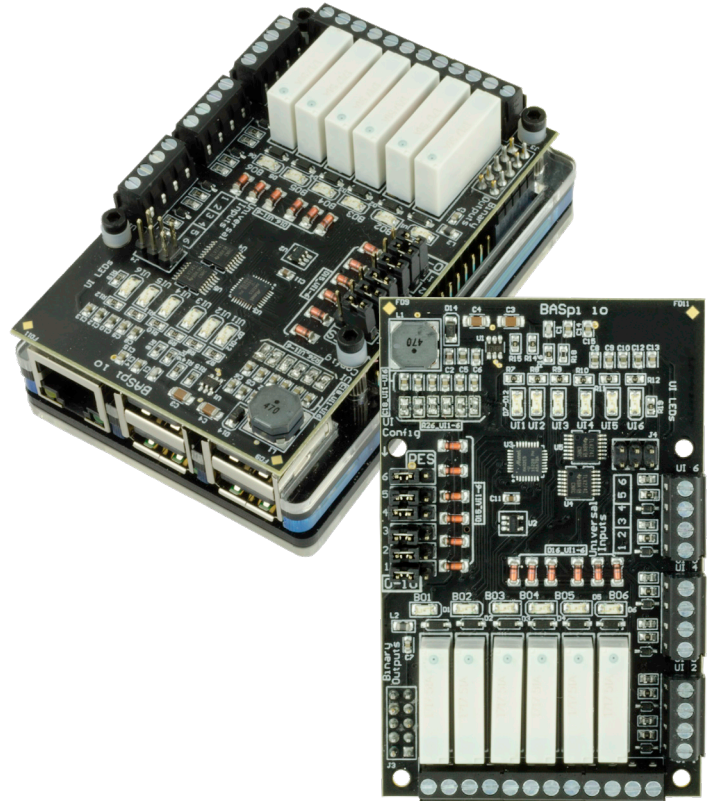


## BASpi Quick Start Guide

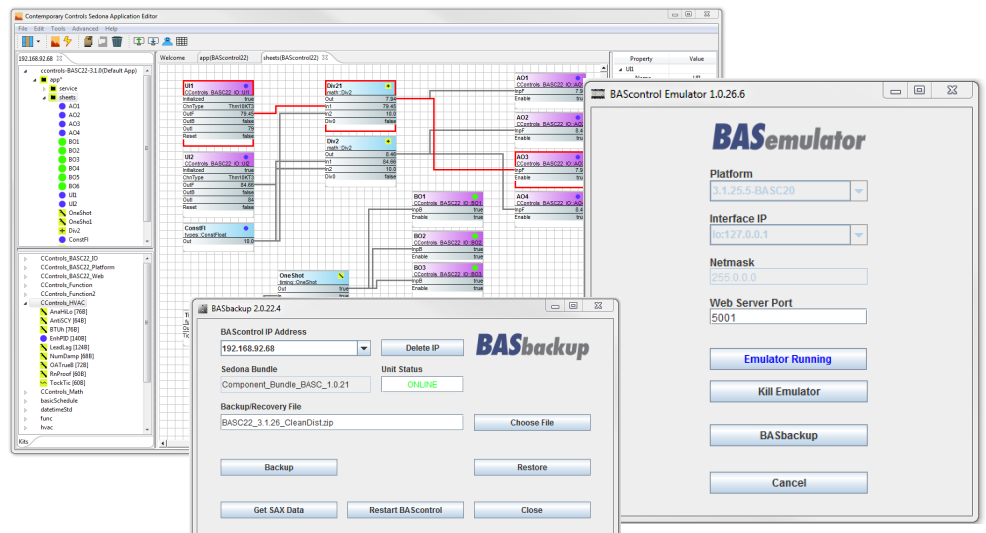
*Thank you for choosing the Sedona-powered and BACnet networked BASpi I/O board from Contemporary Controls.*

*You are ready to control without restrictions!*

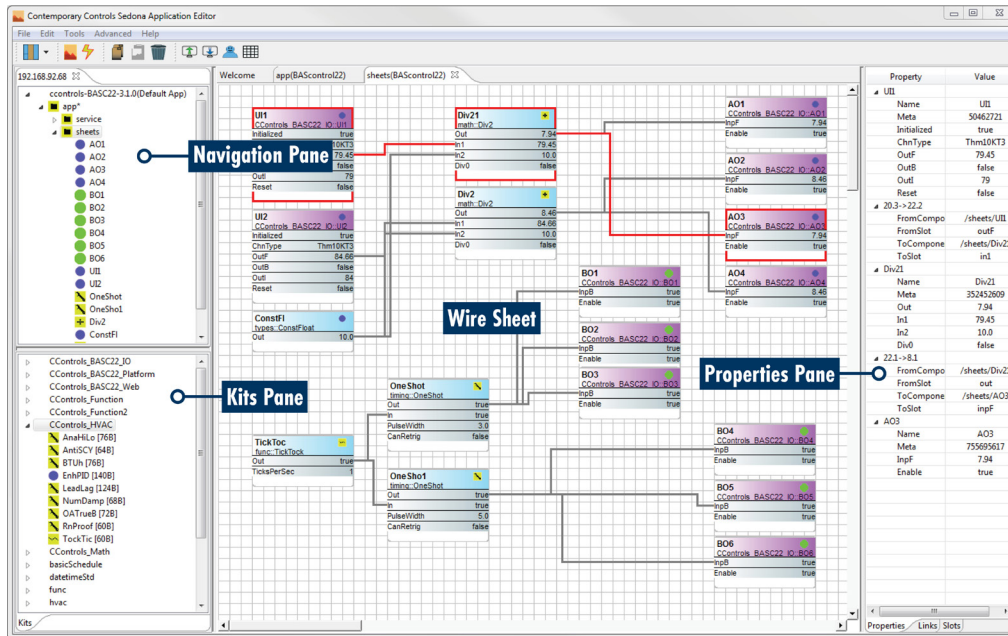
The BASpi I/O board is a 12 point expansion board for Raspberry Pi 3. With the BASpi image, or standalone firmware installed, your Raspberry Pi3 now becomes a Sedona controller with 6 configurable inputs and 6 relay outputs. BACnet/IP Server can interact with BACnet clients and supervisory controllers and a resident Web Server is used for monitoring and configuration over Ethernet or Wi-Fi connections. BASpi is compatible with Raspberry Pi3 boards and requires a Raspbian installation on the Raspberry Pi host as well as additional firmware files provided by Contemporary Controls. BASpi firmware files provide BACnet server functionality, serve up configuration web pages, and run the Sedona Virtual Machine for control applications. The BAScontrol Toolset is offered as free software support.



**#1.** Download and install the free BAScontrol Toolset from [www.baspi.io](http://www.baspi.io) or from the Contemporary Controls website: <https://www.ccontrols.com/diy/> to your Windows PC or laptop. This will install the Sedona Application Editor, BASbackup, and BASemulator, and the necessary Sedona component bundle on your PC.



## Sedona Application Editor layout:

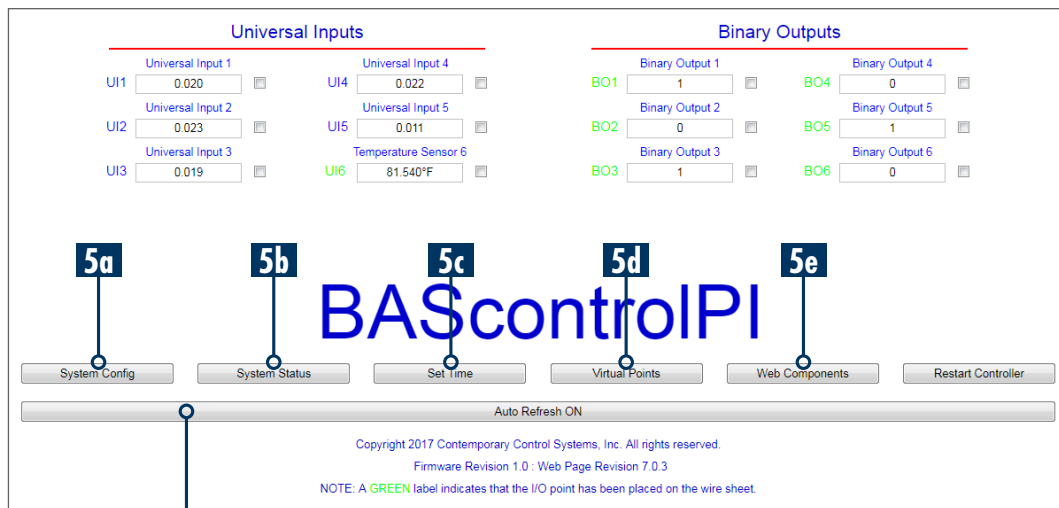


#2. When software setup has finished, plug in the micro USB 5VDC power adapter to the Raspberry Pi. Plug in an Ethernet cable for initial setup (Wi-Fi can be configured later). The unit will take about 20 seconds to boot.

#3. The BASpi can be reached over Ethernet at its default IP address of **192.168.92.68** with a subnet mask of **255.255.255.0**  
 The default web page and Sedona login credentials are:  
 username: **admin**  
 password: **admin**

*NOTE: In order for your PC to access this IP address, you have to make sure its LAN card settings are configured for the correct subnet of 192.168.92.x with subnet mask of 255.255.255.0. If you need exact details on how to set up your Ethernet adapter for the required subnet setting, please refer to the BASpi Software Installation Guide*

#4. Type in the default IP address of 192.168.92.68 into a standard web browser and the BASpi web page will be displayed:



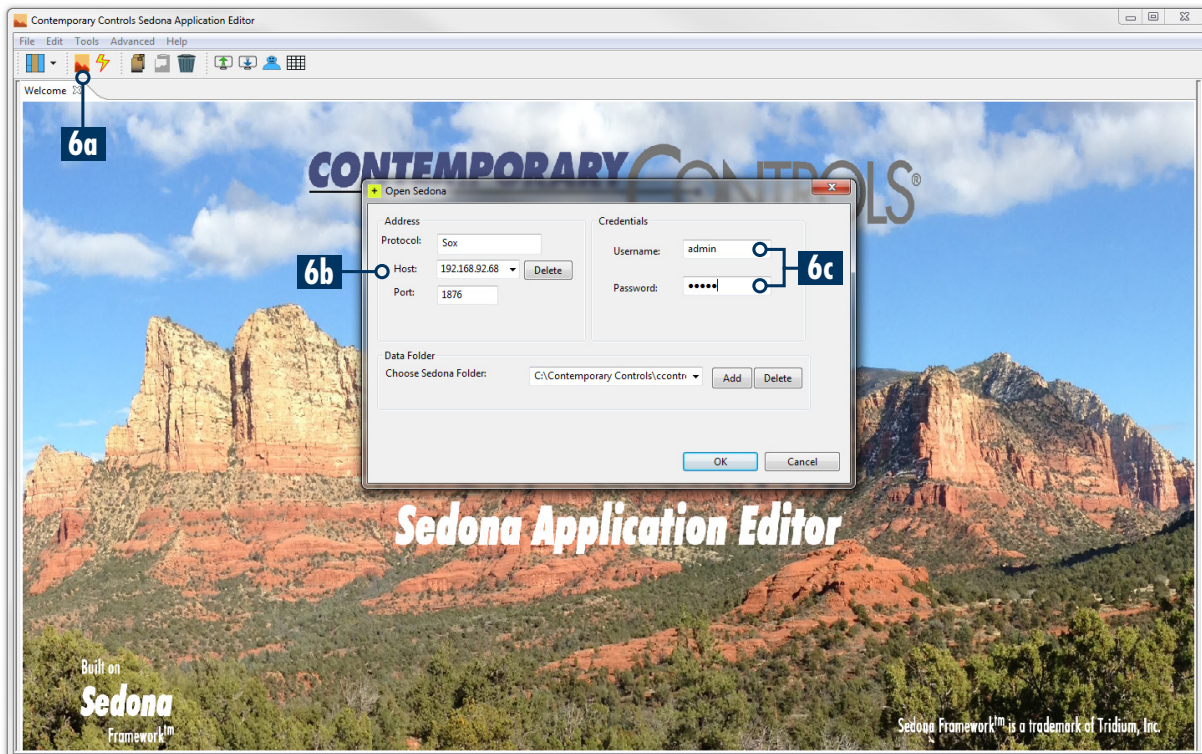
**You may enable Auto Refresh on the web page by clicking the Auto Refresh button to ON state.**

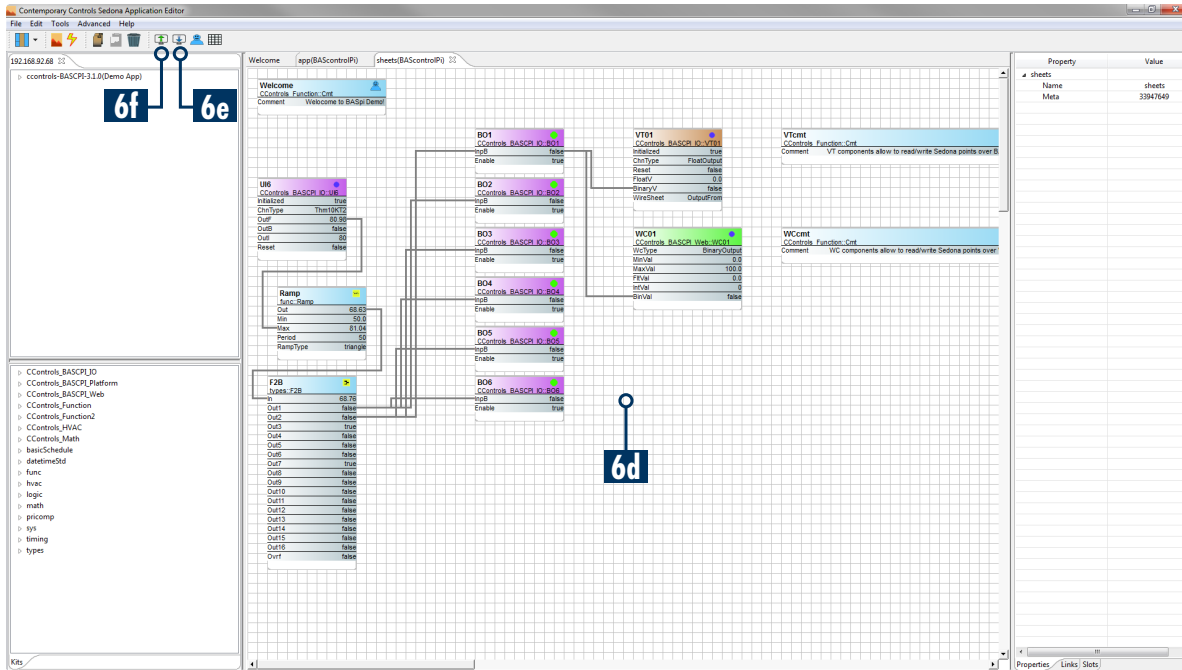
#5. Web page is used to configure channel and device settings:

- 5a. The BASpi device settings can be configured with the “System Config” button.
- 5b. The system status of the BASpi can be viewed with “System Status” button.
- 5c. To set local date and time manually or using an NTP server click “Set Time” button (because the Raspberry Pi has no RTC you may want to use NTP)
- 5d. To monitor, force, or configure Virtual Points, click the “Virtual Points” button.
- 5e. To monitor, force, or configure Web Components, click the “Web Components” button.

#6. In order to write or view Sedona control applications, you will use Sedona Application Editor (SAE).

- 6a. Launch SAE program and then click the “Open Connection” button
- 6b. Type the BASpi’s IP address in the “Host” field. Default address is 192.168.92.68, if you changed it enter the new address.
- 6c. Fill in the default credentials for Username = **admin** and Password = **admin** and click “OK” to connect.
- 6d. Open the “Sheets” folder and you can start writing your wiresheet logic.
- 6e. To store Sedona apps to you PC, use the “Save to PC” button at the top toolbar.
- 6f. To load Sedona apps from you PC, use the “Load from PC” button at the top toolbar.





Virtual Points allow you to read/write Sedona logic data from a BACnet client. These points are served up over BACnet. You may use a tool such as the free BDT (BACnet Discovery Application Tool) from Contemporary Controls to discover, read and write points on the BASpi. BDT is available for free here: <https://www.ccontrols.com/sd/bdt.htm>. The BASpi can also interact with any BACnet compliant supervisory controller/station. The Virtual points web page is accessible from the main page by clicking the “Virtual Points” button.

6g. To view the status of Virtual Points locally, you may observe the Virtual Points web page and click the Auto Refresh button to the “ON” state. This will update the status of the points in real time. The second method of reading/writing Virtual Points is over BACnet using a BACnet client tool (free BDT) or supervisory controller.

### Virtual Points

VT01 <input type="text" value="1"/> <input type="checkbox"/> VT02 <input type="text" value="0.000"/> <input type="checkbox"/> VT03 <input type="text" value="0.000"/> <input type="checkbox"/> VT04 <input type="text" value="0.000"/> <input type="checkbox"/> VT05 <input type="text" value="0.000"/> <input type="checkbox"/> VT06 <input type="text" value="0.000"/> <input type="checkbox"/> VT07 <input type="text" value="0.000"/> <input type="checkbox"/> VT08 <input type="text" value="0.000"/> <input type="checkbox"/>	VT09 <input type="text" value="0.000"/> <input type="checkbox"/> VT10 <input type="text" value="0.000"/> <input type="checkbox"/> VT11 <input type="text" value="0.000"/> <input type="checkbox"/> VT12 <input type="text" value="0.000"/> <input type="checkbox"/> VT13 <input type="text" value="0.000"/> <input type="checkbox"/> VT14 <input type="text" value="0.000"/> <input type="checkbox"/> VT15 <input type="text" value="0.000"/> <input type="checkbox"/> VT16 <input type="text" value="0.000"/> <input type="checkbox"/>	VT17 <input type="text" value="0.000"/> <input type="checkbox"/> VT18 <input type="text" value="0.000"/> <input type="checkbox"/> VT19 <input type="text" value="0.000"/> <input type="checkbox"/> VT20 <input type="text" value="0.000"/> <input type="checkbox"/> VT21 <input type="text" value="0.000"/> <input type="checkbox"/> VT22 <input type="text" value="0.000"/> <input type="checkbox"/> VT23 <input type="text" value="0.000"/> <input type="checkbox"/> VT24 <input type="text" value="0.000"/> <input type="checkbox"/>
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6g  Auto Refresh ON

**NOTES:**

1. A **GREEN** label means that the virtual point has been placed on the wire sheet. The label hover text indicates if the point is configured as “Read from Wire Sheet” or “Write to Wire Sheet”
2. Values for virtual points VT01-VT12 are kept in persistent memory and will remain unchanged through resets and power cycles.

Web Components allow you to read/write Sedona logic data from the BASpi web page. These points are served up to the BASpi's web page.

The Web Components web page is accessible from the main page by clicking the “Web Components” button.

6h. To view the status of Web Components, you may observe the Web Components web page and click the Auto Refresh button to the “ON” state. This will update the status of the points in real time. This concept is very similar to a simple web page dashboard for monitoring and control of points on the BASpi's wiresheet.

**Web Components**

	Description	Value	Wire Sheet	Min	Max
WC01	Default Web Component 1	1.000000	Output		
WC02	Default Web Component 2	0.000000	Input	0.000000	100.000000
WC03	Default Web Component 3	0.000000	Input	0.000000	100.000000
WC04	Default Web Component 4	0.000000	Input	0.000000	100.000000
WC05	Default Web Component 5	0.000000	Input	0.000000	100.000000
WC06	Default Web Component 6	0.000000	Input	0.000000	100.000000
WC07	Default Web Component 7	0.000000	Input	0.000000	100.000000
WC08	Default Web Component 8	0.000000	Input	0.000000	100.000000

6h  Auto Refresh ON NOTE: A GREEN label indicates that the component has been placed on the wire sheet.

## #7. BASemulator Operation

BASemulator allows you to emulate the entire BASpi platform on your PC. This can be useful in many different ways. The emulator can be used to pre-configure the device and write its Sedona wiresheet program prior to deploying it or when there is no access to the real BASpi. It can be used for practice and development of wiresheet applications.

7a. To start software emulation of the BASpi platform, launch the BASemulator and choose BASpi as platform from the drop-down selection. By default, the emulator is set to run on localhost 127.0.0.1:5001. It is not required, but if you want, you could specify the Interface IP and Web Server Port to run the emulator on.

7b. To launch the software emulation, click the “Start Emulator” button which will start the emulated Sedona Virtual Machine, BACnet Server, and Web Server on your PC. c. The “Start Emulator” button will change state

**BASemulator**

7a Platform: BASpi

Interface IP: lo:127.0.0.1

Netmask: 255.0.0.0

Web Server Port: 5001

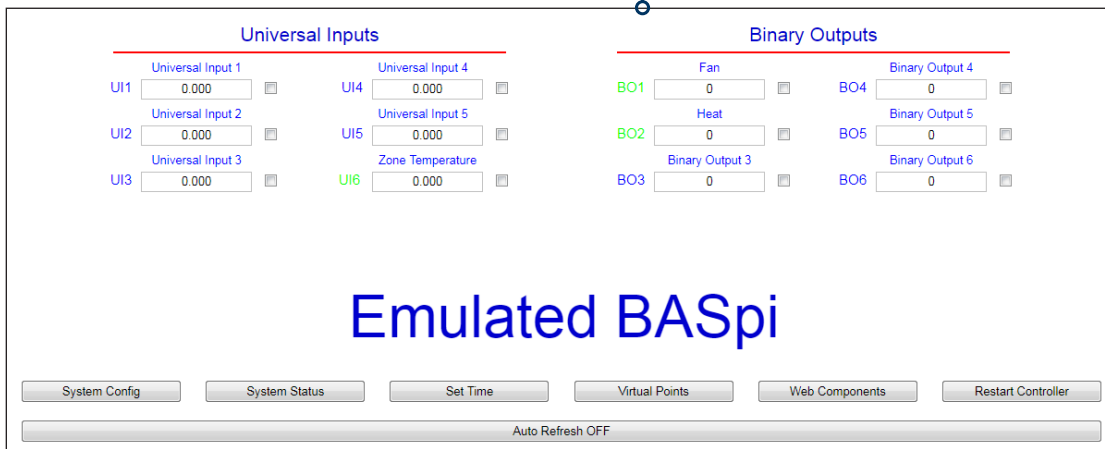
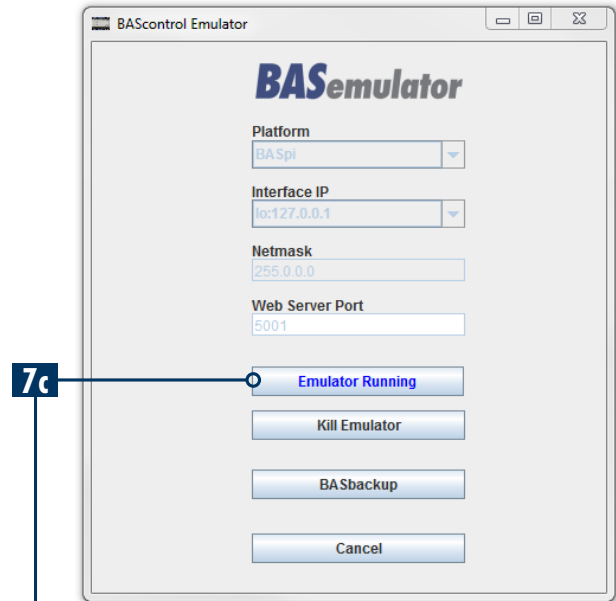
7b Start Emulator

Kill Emulator

BASbackup

Cancel

7c. The “Start Emulator” button will change state to “Emulator Running” to indicate the emulator is launched. In addition, an “Emulated BASpi” web page will be open in your default web browser. This page can be used to configure the device settings and channels. The emulator always runs on the specified “Interface IP”, “Netmask”, and “Web Server Port” parameters in the BASemulator GUI. This means that the “System Configuration” settings on the Emulated BASpi web page are only used for setting the configuration of the real BASpi device which these settings will be uploaded to later (using BASbackup - project backup and restore utility).



## #8. BASbackup Operation

BASbackup is a project backup and restore utility which allows you to save your projects to a single zip file. A project consists of both the Sedona wiresheet control application running in the platform SVM, and all web page configuration including Channel Configuration, System Configuration, Time, Virtual Points, and Web Components configuration. Backups of the platform should be made frequently, especially once a satisfactory device setup and control application (wiresheet) has been accomplished. Both emulated or real devices can be backed up using BASbackup and the device’s IP address. These backups can be restored onto both real or emulated platforms of the same type (ex. BASpi). Backup files can be created for safekeeping of the project, for cloning devices, or transferring emulated platform projects on to real

BASpi device. One of the advantages of having an emulator is that all logic and configuration can be accomplished, backed up to a file and then restored to the real platform when convenient.

Once you have configured your device (emulated or real) and completed the Sedona wiresheet application, you are ready to back it up to a file. You can launch the the BASbackup utility either from the Desktop shortcut or from the “BASbackup” button in the emulator. If you want to create a backup from the emulator, the BASemulator must be running in order to be backed up. If you are backing up from a real device, the device must be online. BASbackup has a Unit Status which will indicate device state once the unit’s IP address is entered. Emulated devices run on localhost address

of 127.0.0.1 and port 5001 by default, unless you specified a different address when you launched the emulator.

8a. To create a backup file of your real or emulated device, first choose its IP address. The default BASpi IP address of 192.168.92.68 as well as the default IP address of Emulated BASpi of 127.0.0.1:5001 are stored in the list for your convenience. If you have already assigned a different IP address for your device, type it in the IP address field. A list of the 10 most recently used addresses is maintained in the IP address field.

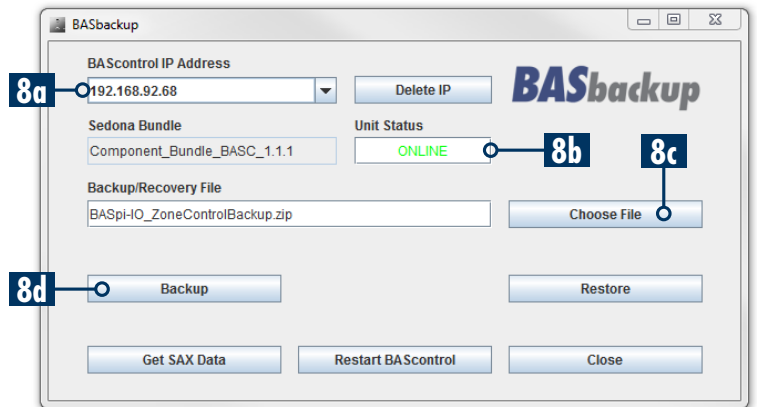
8b. The unit status will change to “ONLINE” if your device is accessible on the network.

8c. To create the backup file, either type the desired name into the “Backup/recovery File” field with care to keep the .zip file extension, or click “Choose File” button, type the file name there, and click “Open”.

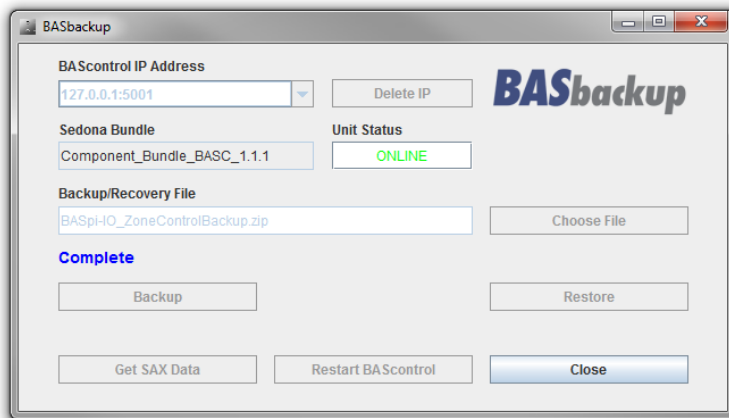
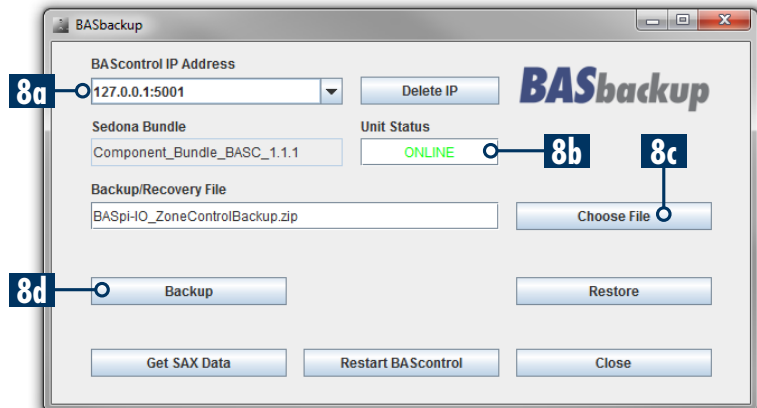
8d. You are ready to backup. Click the “Backup” button, authenticate with username and password (admin/admin), and the process will begin. Once finished the progress line will read “Complete” and your file will be stored in the default location of \Contemporary Controls\ backups unless you specified a different location. This backup file contains all device configuration in addition to the device’s Sedona wiresheet application.

8e. The restore process allows you to restore a backup file to a real or emulated platform of the same type (ex. BASpi). The concept is similar, first choose the target device which you will be restoring to by typing its IP address or choosing from the list if already used. The device status will change to “ONLINE” if the device is accessible on the network.

Real BASpi backup example:



Emulated BASpi backup example:

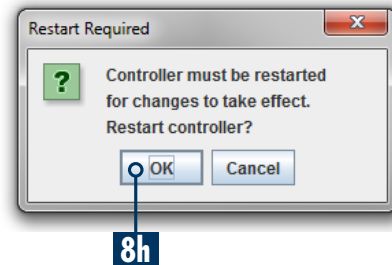
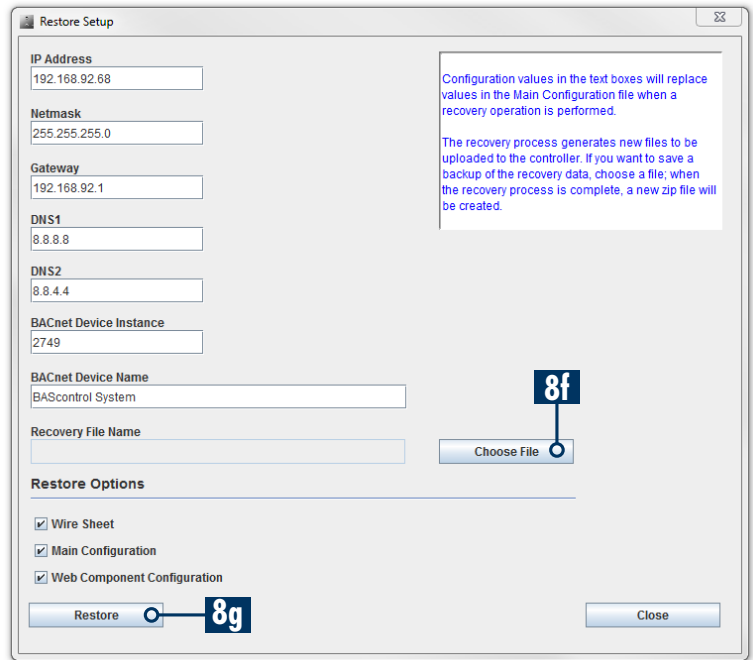


8f. Choose the backup file you wish to restore by clicking “Choose File” button. Select your desired backup file and click “Open”

8g. Now you are ready to restore. Click the “Restore” button and the *Restore Setup* window will be presented. This gives you a chance to make any changes to the device settings if needed. Look these settings over one last time because these will be the settings your device will use after the required reboot. Once you are sure these are the settings you want, click “Restore”, authenticate with username and password (admin/admin) and the process will begin.

8h. When the process has completed, you will be prompted to restart the device. Changes will take effect after the reboot.

*NOTE: Backup and restore operations can be done between real or emulated devices as long as they are of the same platform type (ex. BASpi).*



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