# Using Workbench as a Sedona Tool

For those who have access to Niagara Workbench, this programming tool for Niagara Framework works well as a Sedona Tool when programming devices built on the Sedona Framework. Niagara Workbench is available from Tridium or from a Tridium OEM. It can be called by several different names such as Workplace or ProBuilder but we will use the generic term Workbench to mean Niagara Workbench with Sedona installed. Workbench does not come from the factory with Sedona installed but it can be easily updated for Sedona on Workbench versions 3.7.x or 3.8.x. The discussion that follows assumes a basic understanding of Niagara Workbench by the user. Keep in mind that Niagara Workbench is a complex tool because it was originally developed for Niagara Framework use. There are many features in the program that are not applicable to Sedona Framework so they will not be discussed.

Installing Sedona into Workbench

After starting Workbench, click on **File > Open** and see if you have an option called Open Device. If it is there, Sedona is installed and you can skip this section and go to the section on installing component bundles. If you do not see Open Device you need to install Sedona Framework into Workbench.
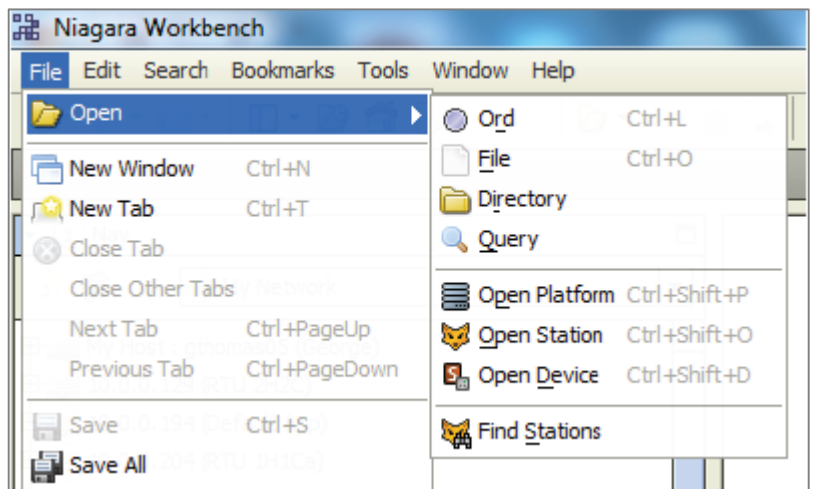
Go to the Contemporary Controls' web site and click on **Support > Product Support Materials > Sedona** and download the Sedona Framework TXS Bundle for either Workbench 3.7 or 3.8 to match the Workbench version you have. The Workbench version is clearly marked on its welcome screen.

Download the bundle and put it on your desktop for convenience but leave it zipped. Go back to Workbench and click **Tools > Sedona Installer** and you will see the following screen. Accept the default settings. Click the file icon to browse for your file. Click *Next*.
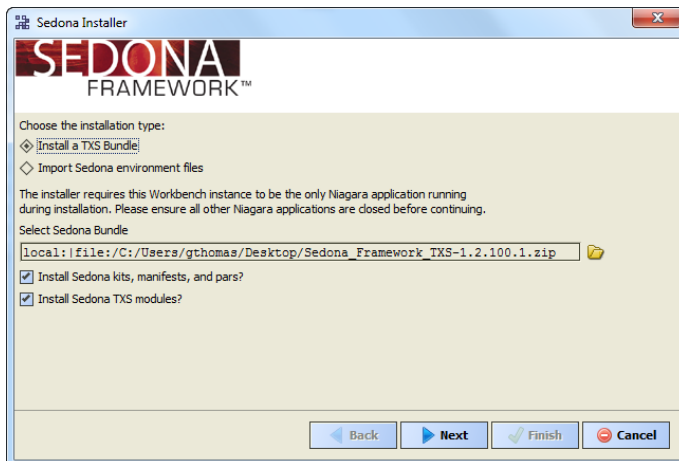
After you click *Next* you might receive a message about Module Downgrade. Just ignore the message by clicking *Yes*. Click *Finish* and Sedona will be installed.
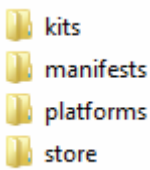
When you install Sedona in Workbench you will gain a sub folder called sedona within the Niagara directory. It can typically be found in the Windows' root directory at **Niagara > Niagara 3.8**. If you click on sedona you will see four folders – *kits, manifests, platforms* and *store*. The first three folders store information about the personality of Sedona devices while the fourth folder is where Sedona applications and Sedona device information is backed up.

When Sedona is installed on the Workbench tool, there is a set of Sedona release 1.2 components that will populate the first three folders. Components are organized in meaningful module groups and deployed as kits. These component kits come from Tridium and are hardware independent in that they will run on any Sedona 1.2 device. For example, *And2* and *Or2* are Boolean logic components which can be found in the *Logic Kit* from Tridium.

However, Contemporary Controls has developed component kits specific to the Sedona platforms it developed and these must also be installed. These kits are designated by vendor, product name and module type such as *CControls_BASC20_IO*.

In addition, Contemporary Controls has developed hardware-independent component kits that would be beneficial to the Sedona community and these should also be installed. These types of kits are identified by vendor and module type such as *CControls_Function*.

Collectively, these kits are provided in a component bundle and labelled with a product identifier and a bundle number. As more components and kits are developed, they are added to the bundle and the revision number of the bundle is incriminated. No components or kits are ever removed so that installing the latest bundle does not cause harm. For the BAScontrol series, the bundle would have a name such as *Component_Bundle_BASC_1.0.19*. The latest bundle can be found on the same web page were the TXS bundles were found. Like the TXS bundles, the Component bundles are zip files that should be left unzipped for installation.

Use the same method for installing the component bundles as was done with the TXS bundles. The Sedona Installer in Workbench will then add those kits, manifests and platforms in the appropriate folders if they do not exist already. Once this is done

Accessing a Sedona Device
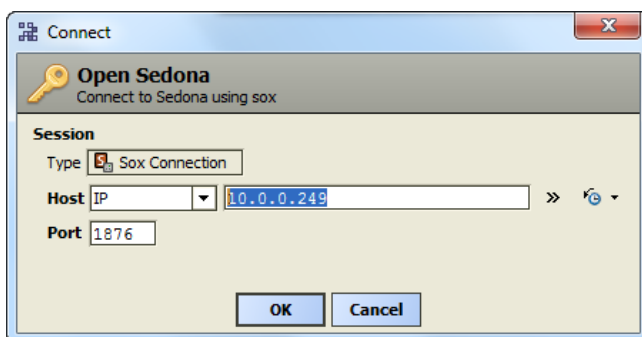
For the Sedona device we will use a controller in the BAScontrol series (BASC). Like other Sedona devices, the BASC is IP-based so we need Workbench to be on the same sub-net as the BASC. In this example we have the BASC addressed at 10.0.0.249. Using a web browser, we can try to access this IP address. If we obtain an Authentication Request from this controller, we are assured we are on the right sub-net. We can enter credentials for this controller to view the main web page or we could just close our web browser and bring up Workbench.

At the Workbench home screen, click **File > Open > Open Device** and while accepting the default settings enter the IP address of the controller and then click OK. If you cannot find Open Device, Sedona is not installed.


Next you will be prompted for credentials. The default credentials are *admin/admin*. You can click on Remember these credentials if you which. Click Ok.

If you are successful, you will see a reference in the main window for Sedona Tools and **App**.
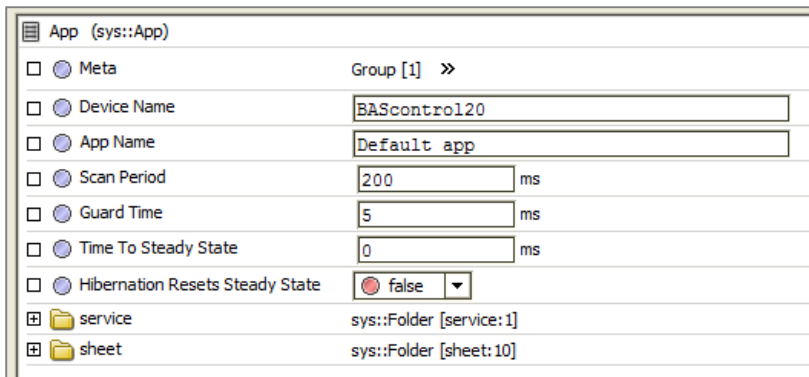

The application property sheet should appear. The default **Device Name** would be the *product name*. This can be changed. The default **App Name** is simply *Default app* and this can be changed as well. The **Scan Period** indicates how often Sedona logic is solved. Although Sedona can execute wire sheets in less than 100 ms, time must be left for the controller to do other background tasks including updating web pages. It is best to leave this setting at 200 ms. Leave the other settings at their default value.
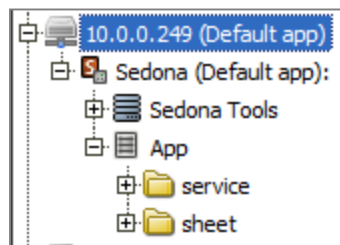

There are two ways to reach the wire sheet. The first is just to click on the sheet folder in the App property sheet. The second is to go to the Navigation pane and expand the navigation tree for the controller being accessed. By clicking on sheet, you should be able to see the main wire sheet although the default wire sheet is blank.
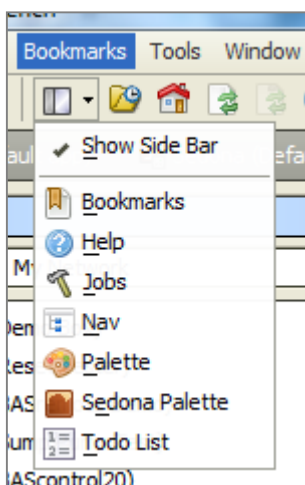

Now that you have opened up the wire sheet you should see the Sedona Palette just below the Navigation pane. If it is not there, go to the Side Bars icon just below the word Bookmarks and click on the drop-down menu. Select Sedona Palette and it will appear.

Accessing the Sedona Palette
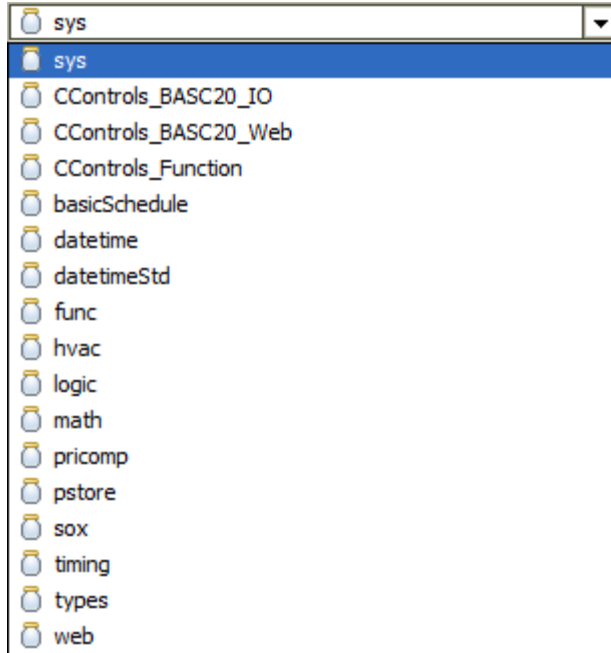
Once the Sedona Palette is viewable you can see all the component kits that reside on the connected Sedona device. Each kit is represented by the jar icon. Click on the drop-down menu to see all the kits. The Tridium 1.2 release kits carry no vendor name while custom kits do such as the Contemporary Controls' IO, Web and Function kits. If they also carry a product designation, these kits are hardware dependent and not portable to another Sedona device.
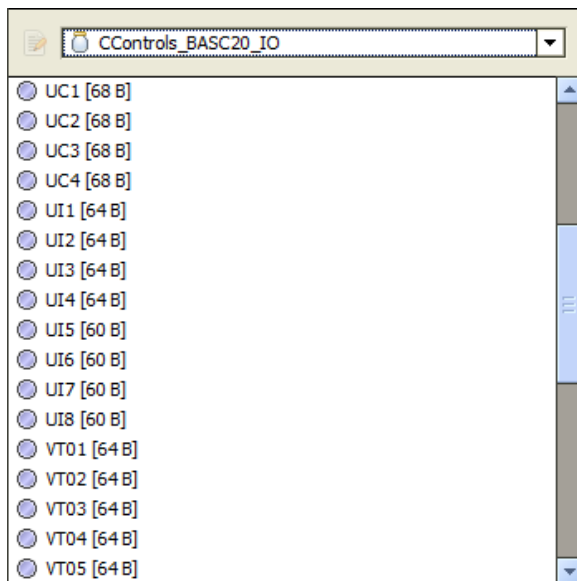
Using the drop-down, select the *CControls_ BASC20_IO kit*. In the case of the BAScontrol20 there are 49 components to choose from – 20 real points, 24 virtual points, a scan timer and 4 retentive universal counters. All are intended for one time use and only those dragged onto the wire sheet will become part of the logic of the controller.

Using the Sedona Tools within Workbench
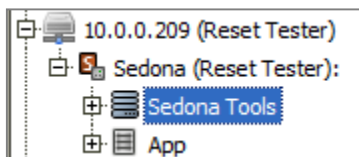
If you go into the navigation pane and expand the IP address of the Sedona device, you can access the three Sedona Tools. The three Sedona tools along with what service they can provide are listed on the right. You will notice that at the header is the name of the Sedona application running on the attached controller. This way you can confirm that the controller is executing the application that is of interest.

Sedona (Reset Tester):

Name	Description
Kit Manager	Manage kits on the Sedona device
Application Manager	Get or Put a Sedona application (sax/sab)
Backup/Restore Tool	Backup or restore a Sedona device

Schema (ccontrols-BASC20-Platform-1.2.28)

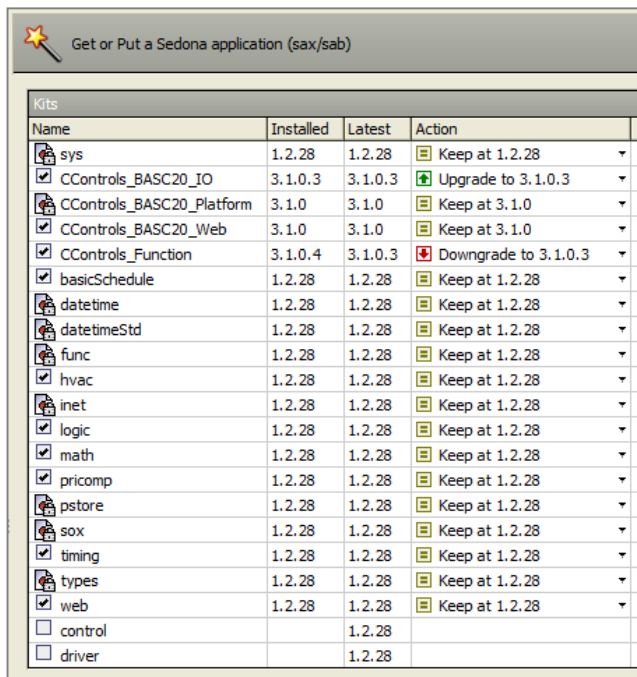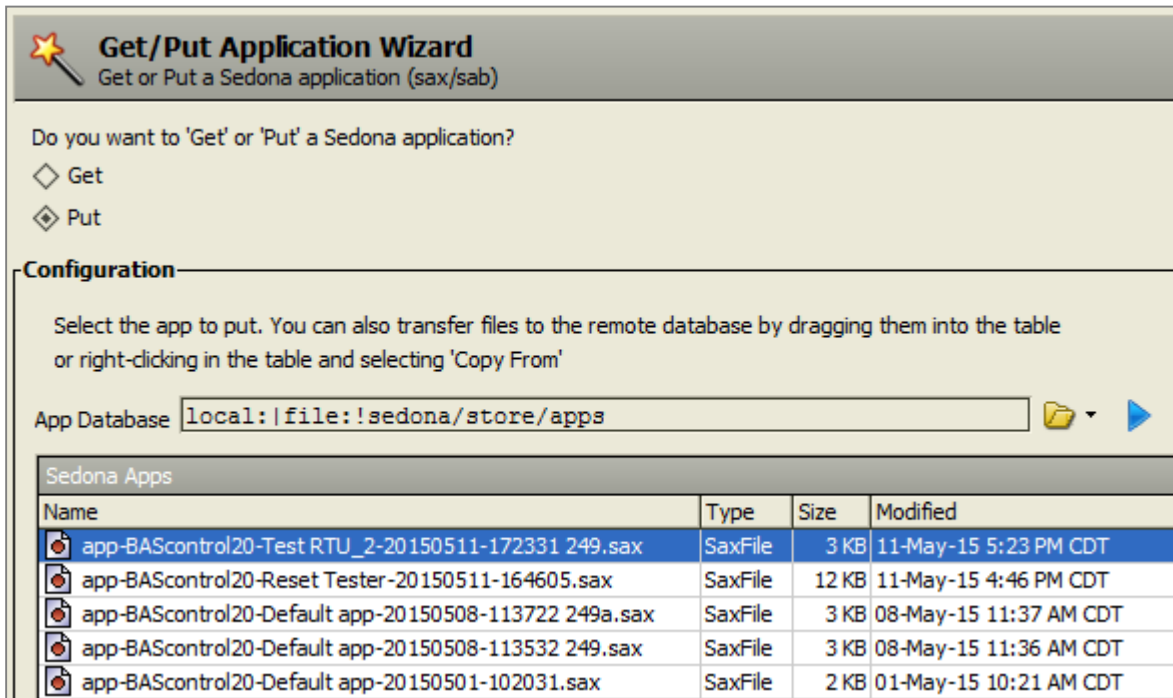| Name	Version	Checksum
sys	1.2.28	d3984c51
CControls_BASC20_IO	1.2.28	71eea5c5
CControls_BASC20_Platform	1.2.28	991d038
CControls_BASC20_Web	1.2.28	6232c744
basicSchedule	1.2.28	7fdca638
datetime	1.2.28	3a280dce
datetimeStd	1.2.28	fc5628d7
func	1.2.28	821b7396
hvac	1.2.28	7264c67c
inet	1.2.28	25648ba7
logic	1.2.28	9fe95ce1
math	1.2.28	c22b255c
pricomp	1.2.28	b5cd6698
pstore	1.2.28	7ea2cb06
sox	1.2.28	397a84dd
timing	1.2.28	aeaac82a
types	1.2.28	10936551
web	1.2.28	462d43e

Directly below the list of tools is a list of kits that are installed on the controller. This information comes from the *Schema* read from the installed *app.sab* file on the controller. Notice that at the top of the list is platform information that comes from the controller. A checksum accompanies each kit. Having a kit does not necessarily mean that components in the kit are being used. It just means that the controller can support all of the components from that kit.

Using the Application Manager

By clicking on Application Manager you can either save or restore the application which includes all the wire sheet information. A *Get* captures the *app.sab* from the controller, converts it to an *app.sax*, and stores it where you want it while offering you a suggested file name and location. If you want, you can append the last quad of the IP address of the controller to the file name if you have several controllers running the same application. This way you can easily locate the controller you just backed up. Accept the default check box for saving the kit checksums, click **Next**, then **Finish** and then **Close** and you will have a copy of your application on your computer that is running Workbench. Saving the app.sab file is quick and easy but it only saves the app.sab and nothing about web page configurations and BACnet information.

Get/Put Application Wizard
Get or Put a Sedona application (sax/sab)

Do you want to 'Get' or 'Put' a Sedona application?
◉ Get
◇ Put

Configuration

Save in: `local:|file:!sedona/store/apps`

App name: `app-BAScontrol20-Reset Tester-20150511-163219.sax`

☑ Save kit checksums in sax file

To restore an app.sab file onto the controller you will need to do a *Put*.

You will be presented with a choice of files. You can click on the Modified column to arrange the files by date to help you search for the one you want. Once you highlight it, click *Next* at the bottom of the screen.

You will be presented with a list of kits along with the ability to make kit changes. The kits installed in the controller will have either a check mark or an icon indicating that it is being used in the application. The installed version is then listed. The column called Latest identifies the version number available in the Component Bundle that was installed in Workbench. If a version difference is noted, then you have the option to *Keep, Upgrade* or *Downgrade*. It is best to ignore these options and just click *Next*.

```
  Finish Wizard
  Review wizard tasks and execute

Review wizards tasks, then click 'Finish' to execute
  ✔ Save app.sab on device    Success
  ✔ Build kits.scode          Success
  ✔ Build app.sab             Success
  ▶ Commit staged files       [███████      34%      ]


   Checking scode compatibility with target platform SVM
   Target platform is: ccontrols-BASC20-3.1.0


Build app.sab
  Building app
    basicSchedule 0x7fdca638
    CControls_BASC20_IO 0x396fa0b0
    CControls_BASC20_Platform 0x0991d038
    CControls_BASC20_Web 0x06669eb0
    CControls_Function 0x0604068a
    datetime 0x3a280dce
    datetimeStd 0xfc5628d7
    func 0x821b7396
    hvac 0x7264c67c
    inet 0x25648ba7
    logic 0x9fe95ce1
    math 0xc22b255c
    pricomp 0xb5cd6698
    pstore 0x7ea2cb06
    sox 0x397a84dd
    sys 0xd3984c51
    timing 0xaeaac82a
    types 0x10936551
    web 0x0462d43e
  Compiling app.sab
  +---------------------------------
  | RAM:      3.2kb (3288 bytes)
  | FLASH:    0.7kb (750 bytes)
  +---------------------------------


Commit staged files
  Writing 2 files:
    1: Put kits.scode.writing
```
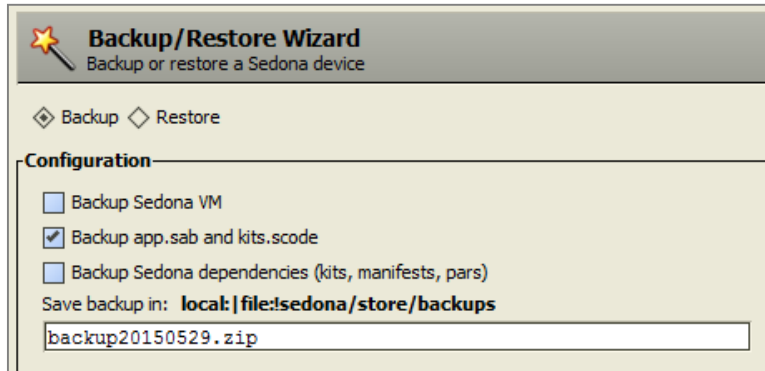
If a kit is not found in Workbench, or a kit is present but with a different checksum, it will be necessary to upgrade you Component Bundle. Contemporary Controls only adds kits to Component Bundles and does not remove old kits. Therefore, it is safe to install the latest bundle. Complete the operation by clicking Next and then Finish. You can observe the progress of the restore operation on the subsequent screen. Once the restore is completed you will be prompted to *Restart* the Device. Go ahead and do that.

You will notice that you will lose connection to the controller. Just wait until the controller is finished restarting and then log into the controller again.
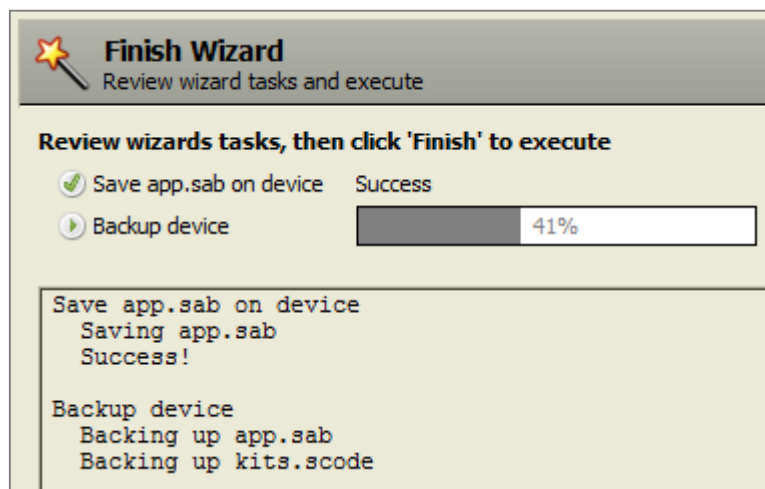
Using the Backup/Restore Tool

The second tool is the Backup/Restore tool which should not be confused with Contemporary Controls' Sedona Backup and Restore Utility. The former only backs up applications while the latter backs up the complete Contemporary Controls' controller project including BACnet configuration and web pages. The main difference between the Backup/Restore tool and the Application Manager tool is that the *kits.scode* file is also saved during the backup process and is put back during the restore process. Backing up the *kits.scode* file takes much more time.

Clicking on the Backup/Restore option gains you a screen asking for selections. Do not ask to have the Sedona VM backed up and it is usually not necessary to backup dependencies. However, you should leave the box checked for backing up the app.sab and the *kits.scode*. Notice that you will be saving everything in one zip file. Change the name or append the controller number if you wish. Also notice that you will not be generating an app.sax like you did when
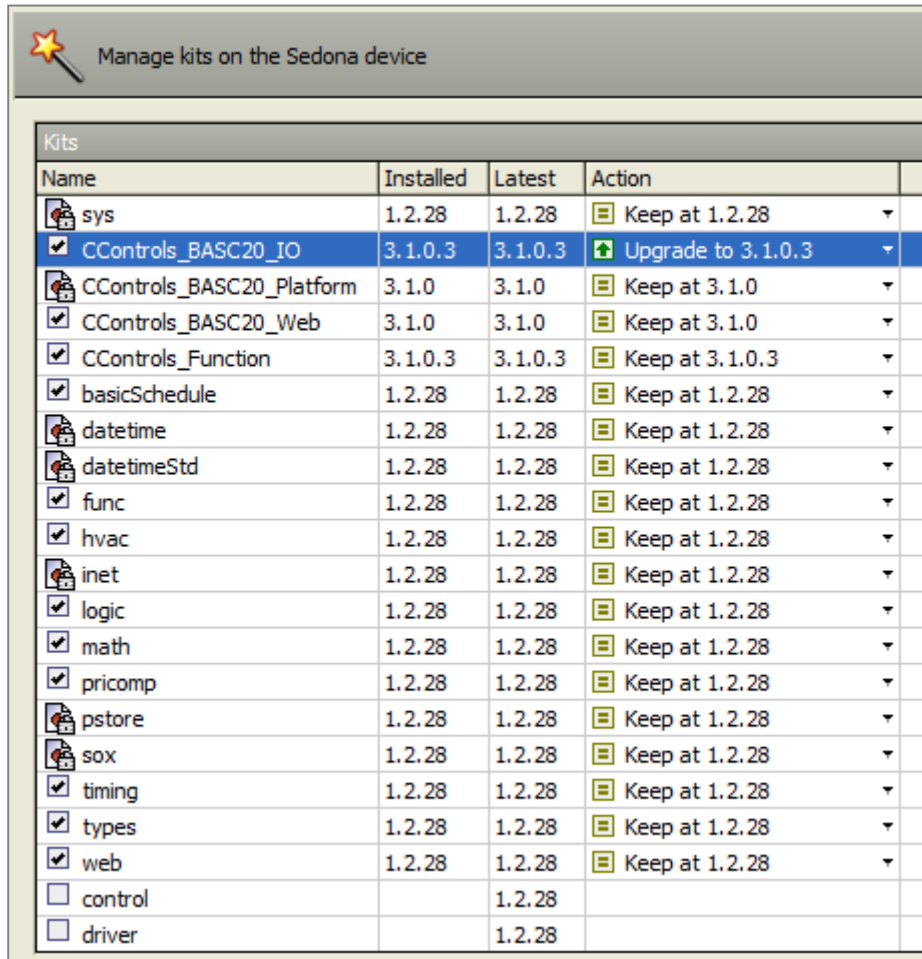
using the Application Manager. Click *Next* and then *Finish* to complete the process. You can observe the backup process with the following screen. Once the process is completed by announcing Finished, click *Close*.

To do a restore, select the Restore option and you will be presented with a choice of files. Select the one you want and click *Next* and *Finish*. It is not necessary to restore dependencies.
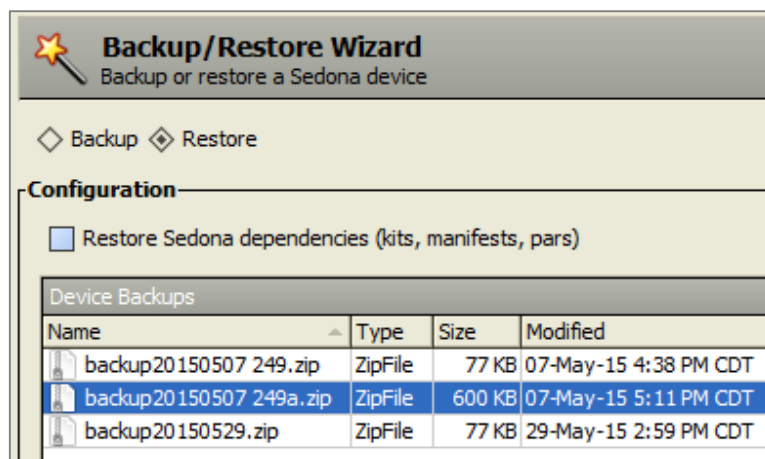
Once the process is complete you will be prompted to *Restart* the device. Do so and then wait until the controller restarts before accessing it again with Workbench.

Using the Kit Manager

Name	Installed	Latest	Action	
sys	1.2.28	1.2.28	Keep at 1.2.28	▾
CControls_BASC20_IO	3.1.0.3	3.1.0.3	Upgrade to 3.1.0.3	▾
CControls_BASC20_Platform	3.1.0	3.1.0	Keep at 3.1.0	▾
CControls_BASC20_Web	3.1.0	3.1.0	Keep at 3.1.0	▾
CControls_Function	3.1.0.3	3.1.0.3	Keep at 3.1.0.3	▾
basicSchedule	1.2.28	1.2.28	Keep at 1.2.28	▾
datetime	1.2.28	1.2.28	Keep at 1.2.28	▾
datetimeStd	1.2.28	1.2.28	Keep at 1.2.28	▾
func	1.2.28	1.2.28	Keep at 1.2.28	▾
hvac	1.2.28	1.2.28	Keep at 1.2.28	▾
inet	1.2.28	1.2.28	Keep at 1.2.28	▾
logic	1.2.28	1.2.28	Keep at 1.2.28	▾
math	1.2.28	1.2.28	Keep at 1.2.28	▾
pricomp	1.2.28	1.2.28	Keep at 1.2.28	▾
pstore	1.2.28	1.2.28	Keep at 1.2.28	▾
sox	1.2.28	1.2.28	Keep at 1.2.28	▾
timing	1.2.28	1.2.28	Keep at 1.2.28	▾
types	1.2.28	1.2.28	Keep at 1.2.28	▾
web	1.2.28	1.2.28	Keep at 1.2.28	▾
control		1.2.28		
driver		1.2.28		

Manage kits on the Sedona device

Kits

The final Sedona tool in Workbench is the Kit Manager. The Kit Manager allows you to generate a proper *kits.scode* file based upon the kits you select. The Kit Manager firsts compares the kits that are installed on the controller with those available on Workbench. If different versions of kits exist, then you are given the option to *Keep, Upgrade* or *Downgrade* that particular kit. Once selections are made, the Kit Manager uses the *app.sax* version of the installed *app.sab* and generates a new *kits.scode* for use in the controller. It is highly recommended to use the Kit Manager only at the direction of Contemporary Controls' technical support. Consider this tool as only necessary for invoking advanced features of Sedona Framework.