SiteMonitor Base 3 Classic Operation Manual, EARLY APPENDIX-ONLY RELEASE

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Publication date 08 June 2020

Abstract

This document contains the current working draft of the Appendixes for the Base 3 Classic Operation Manual. These are being released early, and in rough draft form so that those of our customers familiar with the existing base units can get started using the new Base 3 until the remaining portions of the manual are completed.

Because of the similarity between the Base3 and the RackInjector, customers can also consult the RackInjector firmware operation manual at products.packetflux.com/rackinjector for details on some of the pages in the web interface.

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Appendix A. Important Differences Between the Base 3 and Earlier Base Units

When designing the SiteMonitor Base3 Classic our intent was to produce a product which would be as electrically compatible as possible with the existing SiteMonitor system. This would simplify the physical procedure to upgrade an old system to the Base 3.

At the same time, we wanted to leave a lot of the software legacy of the original SiteMonitor behind. We wanted to take a fresh approach to the software design, taking advantage of the increased processing power in the Base 3. This would mean that we could also overcome the limitations created by certain design choices made years ago.

As a result of the combination of the two design choices above, this means that customers can take a SiteMonitor Base 3 Classic into the field and do a simple swap to upgrade the system. However, it also means that upgrading a site to a SiteMonitor Base 3 will result in a completely different system as far as how users and automated systems interact with the Base 3.

This appendix is designed to document some of the most important changes to ensure that customers who are currently familiar with the earlier SiteMonitor Base Units won't be caught unaware of some of the biggest changes. Some of the less-service-impacting changes are not documented here, but instead, are documented in the rest of the SiteMonitor Base 3 Manual.

Expansion Unit Support

With the upgrade to the Base 3, the Base Unit has become much more familiar with the operation of every different expansion module. This has enabled many of the features you see in the Base 3, including the much easier to use and understand Web Interface, and the more logical SNMP MIB structure. The downside of these changes is that it has become much more critical that the Expansion Module firmware versions and the Base Unit firmware versions are compatible with each other. This has also necessitated new firmware to be written for each expansion module type.

To simplify the process of managing compatible firmware versions, we will no longer be distributing separate firmware for each module type. Instead, the firmware will all be included within the Base 3 firmware, and upgrades will be performed through the Base 3 web interface. After a Base 3 hardware or firmware change, end users should check the Connected Devices tab to determine which modules need to be upgraded to be fully compatible with the firmware version installed in the Base 3. Management of any Expansion Module which does not have compatible firmware will be disabled until such time as a compatible upgrade is applied through the Web Interface.

⚠ Important

In order to get the Base 3 in the hands of our customers as quickly as possible, we elected to support only a few Expansion Modules initially at release, effectively moving up the release date for those users who only need support for the most commonly sold Expansion Modules. We're working as quickly as possible to provide support for almost all of the modules we've ever shipped. There is currently a document available on our website which details the current support for each module type. This document should be reviewed before swapping any Base 3 into an existing system to ensure full compatibility.

If there are unsupported Expansion Units attached to a Base 3 Classic, those unsupported Expansion Modules will no longer be able to be managed until such time as the Base 3 firmware is updated to support that particular expansion module type.

If a module which has been upgraded to be compatible with the Base 3 is subsequently used with an earlier Base Unit, the firmware in that module will need to be downgraded using the appropriate tool before it can be fully managed by the earlier Base Unit.

One final note is that some upgrades may come with additional caveats. For instance, when switching modules to the Base 3 compatible firmware for the first time (or switching back to the pre-Base 3 compatible firmware), all configuration stored in the module itself will be lost. We highly recommend you read the appropriate release notes for each version to determine if any caveats apply to your situation.

Missing Automation Features

There are several automatic features which have not yet been implemented:

- The temperature sensor in the Base II can be used to control a relay on the base unit to be used as a basic thermostat. This functionality is currently missing from the Base 3.

- The ping watchdog in the Base II can be used to cycle power on attached devices in the Base II. In the Base 3, the ping watchdog only resets the base unit.

- The auto-trip-reset feature in the SyncInjector and PowerInjector products have not yet been reimplemented.

All of the above features have not been reimplemented because a much more flexible tool to enable all of the above items is currently in development. More details will become available as this system nears completion.

Switch Input is now a Resistance Input

We have changed the Switch Closure Input to be a Resistance Input. Electrically there is very little difference between these two inputs. What has changed is how it is read in the Web Interface and in SNMP.

In the earlier Base Units, the switch input was visible as a boolean value. That is, it had two values: on or off. In the Base 3 Classic, this now reads as a number. This number corresponds to the resistance in ohms appearing across this input.

This change makes this input much more flexible. For instance, it can be used to read an external temperature sensor, or a resistive tank level sensor, and yes, also a switch closure input.

For the first couple releases of the firmware, customers will need to interpret this raw resistance value themselves. For instance, if the input is used as a Switch Input, then high resistance values will correspond to the switch being open, and low values will correspond to the switch being closed. Management systems will need to be set on a threshold basis, not a "zero or one" basis.

In an upcoming version, we will be adding the ability for customers to select from several pre-defined settings for this input. This will allow the Base Unit to do the conversion internally and provide on/off indications for switch inputs and translated values for devices like temperature sensors. It will also restore the "count events" functionality in the previous Base Units.

SNMP Changes

The Base 3 Classic takes an entirely different approach to SNMP than the earlier Base Units. This section covers the main differences and shortcomings. For a full discussion of the SNMP system in the Base 3, we recommend reviewing the appropriate section(s) in the Base 3 Classic's user manual.

Most SNMP OIDs are different

The Base 3 uses a completely different SNMP OID tree from the earlier Base Units. This means that any SNMP values which are being polled will likely be found under a different OID.

A primary concern in the design of the Base 3 was to ensure that OID's can be consistent across an entire network. The OIDs in the earlier Base Units would change depending on several factors, including what expansion modules were detected by the Base Unit, what order those modules were detected in, and even to some extent what firmware version was in the modules.

The Base 3's OID tree is designed to be more consistent and less dynamic across numerous different configurations. This should simplify the configuration of systems which are querying the Base 3 via SNMP.

SNMP MIB Now Available

The Base 3 now has a full set of SNMP MIBs which describe the data available in the Base 3. These can be downloaded from our website and loaded into most management systems. This simplifies the configuration and use of many SNMP monitoring systems.

Completely New SNMP Stack

Because we were unable to locate a suitable SNMP stack to integrate in our product, we have been forced to completely rewrite the SNMP stack in-house. This means that it will likely behave subtly differently from the SNMP stack in previous versions. In addition, there is a possibility of protocol incompatibility with some commonly used tool.

If you have problems which appear to be protocol incompatibilities with this new SNMP stack, please let us know so we can quickly resolve any issues.

Only SNMPv2c is Supported

Previous versions of the SiteMonitor Base Unit supported both SNMPv1 and SNMPv2c. We have elected to only support SNMPv2c in the Base3. As a result, customers will need to ensure their tools are configured to support SNMPv2c.

We are looking at adding SNMPv3c support in the future.

SNMP Write Not Currently Supported

The SNMP module in the Base 3 does not yet support SNMP writes. Please contact us if you need this feature as it is not currently a high priority on our roadmap due to perceived customer indifference. Most of our customers use SNMP just to read values from the Base 3, and do not use it as a control mechanism.

Some values in the Web Interface are not available in SNMP

Because of the light coupling between the web interface and the SNMP interface, and the structured nature of the new MIB files, some values which are in the Web Interface are not available in SNMP. Please contact us if you find a value you need to monitor which is not available via SNMP. Our goal is to provide SNMP access to all values which are actually useful to monitor.

Determining the SNMP OID via hovering is not available in the web interface

In the earlier Base Units, you could hover over a value in the user interface and determine what the SNMP OID was for that value. This was trivial to implement on the earlier Base Units because the web interface was tightly coupled to the underlying SNMP. Because the Base 3 doesn't have such tight coupling, we would need to re-implement this functionality in a different way.

We currently have this functionality on the list of features to evaluate for a future release. However, at this point it is not likely that this will be reimplemented in the near future. We encourage customers to make use of the SNMP MIB files and SNMP's walk functionality to locate the OIDs you need.

Appendix B. Replacing an earlier Base Unit with a Base 3

This appendix describes the steps necessary to replace an existing, earlier, Base Unit with the Base 3. We recommend each of these steps are followed in order.

Please note that this appendix is not intended to completely explain the procedure, but instead to provide an overview of the procedure. Additional details on some of these steps will be available elsewhere in this document.

In addition, the steps below assume expansion modules are attached to the existing Base Unit. If this is not the case, those steps related to an expansion unit can be skipped.

Review the Base 3 documentation to ensure compatibility with your configuration.

The Base 3 Classic is significantly different in architecture in comparison to the earlier Base Units. Other sections of this document cover those differences. It is important to review those sections of this document related to differences to determine if any affect your application.

Of particular note is that SNMP is drastically different with the Base 3. Dropping a Base 3 in the place of an earlier Base Unit will, at the minimum, require significant changes to the configuration of any SNMP monitoring tool which is monitoring the previous Base Units.

In addition, all modules attached to the existing Base Unit should be compared with the Supported Expansion Module List (available on our website) to ensure that they are fully compatible with the Base 3. Any non-supported modules will not be able to be managed by the Base 3 until support is added to the Base 3.

Fully document all configuration of the existing devices

As part of the upgrade to the Base 3 Classic, all configuration in the expansion modules will be reset to factory defaults. This includes default power on values, sync settings, descriptions on ports, and so on. These values will need to be restored after the upgrade.

It is probably best to print or screen capture all of the data on each of the tabs on the existing unit's interface so you can be sure you have the data.

Pre-Configure the Base 3 Classic

Prior to swapping the old Base Unit for the new Base 3 classic, preconfigure the Base 3 as follows:

- Verify that the Base 3 has the latest firmware, and if not, upgrade to the latest version

- Set up the IP Address, Netmask and Default Gateway to match the existing unit.

- Configure the management password

- Pre-configure any additional items you need for your setup. For example, the SNMP read-only community, or device description.

Note that items specific to an expansion module won't be able to be configured until you have the expansion modules attached and upgraded.

Remove the old Base Unit and Replace with the Base 3

The Base 3 Classic is designed to be electrically compatible with all earlier Base Units. This means that in almost every case, you can simply swap the Base 3 Classic for an in-the-field earlier Base Unit with no rewiring necessary.

To limit the possibility of failure of the electronics, we recommend you do the swap in the following order:

1. If possible, remove power from the Base Unit (leaving expansion modules powered is ok)

2. Remove the green pluggable terminal block from the old Base Unit.

3. Remove the Expansion Bus cable (if any), and the Ethernet Cable.

4. Physically remove the Old Base Unit.

5. Physically install the new base unit.

6. Reconnect the Expansion Bus cable, and the Ethernet Cable.

7. Reconnect the green pluggable terminal block.

8. Reapply power.

At this point, the Base 3 Classic should be powered up and manageable. Expansion modules will need a few additional steps coved below.

Verify All Expansion Modules are detected

In the "Connected Devices" tab in the web interface, all of the connected expansion modules should be shown. If they aren't some of the expansion modules may need to be power cycled separately to get them to be detected. If you struggle with this step, contact custsvc@packetflux.com , as we have additional procedures which have not yet made it into this manual.

Trigger Expansion Upgrade, Assign Slot Numbers, and Reconfigure Each Expansion Module.

On the connected devices tab, each detected expansion module that does not have the correct firmware installed will be shown with a status of "Upgrade Required". Note that after an initial upgrade from an earlier Base Unit it is expected that all of the expansion units will be in this state.

For each of those devices, you will need to manually trigger an upgrade. You do this by clicking on the "upgrade firmware" icon in the top bar of the portion of the web interface relevant to that device.

The upgrade will take 2-3 minutes per expansion module, during which time the function of that individual module will be impacted. The exact impact will depend on the module. For planning, one should expect outages of any device attached to that module, such as power loss on devices attached to PoE or PDU expansion modules.

After the module's upgrade is complete, it should briefly show as not connected, and then come back with a status of 'Available'.

Once the module shows as 'available', click on the 'gear' icon to assign it a unique slot number. This number will determine the order it will appear on other screens and will also affect what SNMP OIDs are assigned to it. This step is also necessary to enable management of the module.

As a final step on each module, visit the tabs applicable to the module and ensure that the configuration is appropriate for this module. This includes restoring the configuration documented earlier. It should be noted here that due to the differences between how the modules are managed in earlier Base Units and the Base 3, some configuration won't exactly translate over. For instance, in the old Base Units, descriptions were short and were oriented toward the various functions (such as "NE Radio Pwr"). In the Base 3 you instead set a single description which describes the device attached ("NorthEast Radio"), and the functions are hard coded into the interface.

We recommend you go through these steps for each module one at a time, as opposed to trying to trigger the upgrade on all of the modules at once.