

Avocent™ Power Management Distribution Unit (PM PDU)
Release Notes
Firmware Version 2.0.0.27
Sep 09, 2010

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Update Instructions

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This firmware can be installed over any previous release of the Avocent Power Management Distribution Unit (PM PDU). The firmware can be updated through either the appliance built-in web interface or the DSView™ 3 management software, which requires the Avocent PM PDU plug-in.

Please refer to the installer/user guide for detailed instructions on how to update the Avocent PM PDU to this version.

The Avocent PM PDU firmware provides an internal mechanism which preserves existing configuration when upgrading firmware; however, it is strongly recommended that you back-up system configuration before the firmware version is upgraded.

DSView 3 software version 3.7.1 (or greater) is required. PM PDU plug-in version 2.0.0 is recommended.

After Avocent PM PDU firmware has been upgraded to version 2.0.0, it is mandatory to clear the Web browser cache of any system which intends to be connected to the appliance Web interface.

NOTE: The factory default password for **root** is **linux**. The factory default password for **admin** is **avocent**.

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Appliance Firmware Version Information

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Appliance Product	Firmware Type	Version	Filename	Part #
Avocent PM 3000, PM 2000 and PM 1000 PDUs	Opcode	V_2.0.0.27	f10618-014.bin f10618-014.bin.md5	FL0618-014

This firmware supports the horizontal and vertical models of the Avocent PM 1000, 2000 and 3000 PDU families, which includes units with 3, 6, 10, 20 and 24 outlets.

Other files related to this release are:

- Avocent PM SNMP MIB: available from a shell session in the Avocent PM PDU at /usr/local/mibs/Avocent-PM-MIB.asn
- Avocent PM SNMP Trap MIB: available from a shell session in the Avocent PM PDU at /usr/local/mibs/Avocent-PM-TRAP-MIB.asn

NOTE: These files are also available at the Avocent website at www.avocent.com.

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Features/Enhancements

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Please refer to the installer/user guide for details about features supported by the Avocent PM PDU.

The features and enhancements supported by this version of the Avocent PM PDU include:

1. Support for the Avocent PM PDUs with 10 and 20 outlets. Minimum firmware version required for these models is v2.0.0.11
2. Support for alarms and events based on blown fuse detection on Avocent PM PDUs with 10 and 20 outlets.
3. Reorganization of banks report. They now refer to a set of outlets protected by a single fuse or pair of fuses rather than an internal outlet distribution presented in previous versions. Notice that this change causes some models to present more or less banks than in previous versions.
4. Power factor measured with 2 decimal digits to increase its precision.
5. Firmware upgrade via serial port to allow for upgrade of a chained PDU without connecting to the Ethernet. Requires version 2.0.0 in all chained Avocent PM PDUs as well.
6. Major Web User Interface usability enhancements:
 - Overall nodes reorganization and consolidation
 - Dynamic feedback: field names on page are shown in green when value is changed. The save button is disabled until there is a change to be saved.
 - Wizard tab replaces previous 'First Time Configuration' page. The wizard allows administrators to quickly configure the appliance for the first time or reconfigure it any time later.
 - Topology node renamed to Access:
 - Internal authorized outlets come expanded on the table list.
 - Chained PDUs show collapsed and can be expanded/collapsed to display or hide their outlets.
 - A checkbox in front of each element in the Access table allow for operation over multiple PDUs or outlets. Operations for individual PDU or outlet are also available.
 - New appliance viewer action allows connection to appliance from the list.
 - Multi-edit support: The edit button turns to multi-edit behavior when more than one item is selected. Only touched fields shown in green are saved.
 - Power Management node has a more simplified configuration and management navigation.
7. Usability Enhancements for CLI:
 - Overall nodes reorganization and consolidation for easy navigation.
 - Outlet operations accept single, list and range of outlets in the power_management node:
--:- / cli-> cd /power_management/pdus/<PDU id>/outlets/
--:- outlets cli-> cycle 1,4,6-8,10
 - Major command set reorganization and new additions. Some special commands:
 - The ls command displays available sub-nodes (sub-directories) while the show command displays tables or parameters, i.e. content of the node.
 - Hostname – display the hostname of the appliance (new)
 - Whoami – display the user name (new)
 - Re-design of 'wiz' command to be more user-friendly.
 - New list_configuration command lists the configuration in a format that allows pasting the output directly on the appliance session (console, SSH or TELNET) in order to (re)configure the unit.
 - New echo on/off command enables/disables the echo of the input data. These commands should be used when pasting the list_configuration output (not mandatory).
8. Configuration and monitoring of external environment sensors connected to RS485 ports labeled Sensor1 and Sensor2 propagated through the chain of PDUs.

9. SNMP vendor MIB extended to inform environment sensors.
10. Login profile is a new group parameter that allows users to configure specific CLI command when login in to the appliance.
11. The root user now goes straight to SHELL prompt after login. The shell-login-profile group was created to implement this behavior. User can delete the group "shell-login-profile" from the Users/Authorization/Groups to go back to the old behavior (login directly to CLI).
12. Shutdown command brings the system down in a secure way, ready to be turned off. All logged-in users are notified that the system is going down, and login is blocked.
13. Enhancement in restore configuration feature. The new restoreconf command verifies the firmware version of the saved configuration files and it runs configuration upgrade when needed.
14. IPv6 Logo support: the Avocent PM PDU complies with the requirements designated by the IPv6 Logo Program Committee. (Application ID : US-2-C-20090817-000247 at www.IPv6ready.org)
15. Security patches for SSH protocol's use of CBC-mode ciphers, by providing an upgrade to OpenSSH 5.2p1. Reference: CPNI-957037.
16. Upgrade of Openssl to 0.9.8k due to security issue. Reference: CVE-2008-5077

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Bug fixes
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Firmware version 2.0.0.27

- Refresh NAND blocks once a month to prevent cells discharge. Some units were developing uncorrectable bitflips (ECC errors) after running for long periods without re-flash.

Firmware version 2.0.0.23

- 62299: The enterprise OID matches the definition in the trap MIB when reporting events through SNMP traps.
- Fixed memory leak that happened in some operations in the front display.

Firmware version 2.0.0.20

- The execution of a power control operation (e.g. on, off, cycle) returns after a pre-defined timeout, releasing the Web or CLI for additional commands and navigation. The outlets not yet processed will show as 'pending' until the operation over them is executed. The outlets could remain in this state for as long as the time configured in post-on / post-off delays of all outlets listed in the command. Power control operation over outlets with pending state will be rejected.
- 61236: Add lock and unlock actions in Access UI page, which are exposed for regular users. Also available in cli.

Firmware version 2.0.0.18

- 60086: Outlet operations performed by regular users through CLI that involves outlet number or range (e.g. off 3-6) will be properly executed as long as the user has access rights over the outlets.

Firmware version 2.0.0.17

- 58944: SNMP returns 0 (zero) for measurements instead of non existent OID instance when measured value is 0.
- 59045: PM1000 24 outlets single-phase reports correct values for voltage in bank B (instead of N/A).

Firmware version 2.0.0.15

- 58823: Trap MIB fixed to pass validation (level 1).
- 58209: Renewed the certificate of the applet to connect to the appliance CLI from the Web UI.

- **Firmware version 2.0.0.13**

- 52506: The environment sensors information is propagated through the chain of PDUs.
- 51940: Firmware upgrade on the master appliance can be performed while other units are connected in chain without causing a timeout in the upgrade process.
- 53229: Export data logging is supported through CLI:
--:- / cli-> cd power_management/data_logging/
--:- data_logging cli-> export_data_logging 1
- 53272: The outlet state reported by SNMP shows the outlet current state.
- 53362: Thresholds and unit configuration for environment sensors are not available for two-state sensors like dry-contact.
- 53363/53373: The events 'PM Digital Sensor Alarm' and 'PM Sensor Alarm Cleared' now report correct values.
- 55360: Resetting outlet power consumption while the outlet is turned OFF will report consistent values of power consumption average.
- 56951: Invalid measurements when fuse is blown can show wrong values for energy.
- 56972: Cumulative power was limited to 60KWh. Whenever exceeded it was showing negative numbers

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Firmware upgrade for Avocent PM PDU running version **1.2.0** and older

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This special procedure is only required for firmware upgrade of Avocent PM PDU running version 1.2.0 and older.

Please make sure the Avocent PM PDU is connected to the network before starting the upgrade process.

Do not use DSView 3 software to perform the upgrade. Instead, perform the upgrade using the unit web interface but do not reboot when it finishes, even if the result shows success.

Once the upgrade is successfully done, login to the unit as root and run the following steps:

```
[root@MyPM ~]# /sbin/checkBoot /tmp/avolmage > /tmp/uboot.zip
```

Checksum must return OK.

```
[root@MyPM ~]# gunzip -c /tmp/uboot.zip > /tmp/uboot
```

Return no errors

```
[root@MyPM ~]# cat /tmp/uboot > /dev/mtdblock7
```

Return no errors

Do not reboot the appliance if any of the steps above return error. In such case, you can repeat the steps above, or start over the entire upgrade process from web interface by removing the files created:

```
[root@MyPM ~]# rm -f /tmp/avo* /tmp/uboot*
```

Firmware upgrade from version 1.2.0 and older requires a CPU reset (button located in the front panel), that demands physical access to the unit. Please follow these steps to restart the unit after firmware upgrade.

NOTE: Follow these steps only after the firmware is downloaded and installed. Otherwise, the appliance console will not work properly due to a mismatch on the port speed, preventing the unit from working in a chain.

- a. Login to the appliance's console as root user.
- b. Type "shell" in case the cli prompt shows upon login:
--:- units cli-> shell

WARNING: Improper use of shell commands could lead to data loss, the deletion of important system files or other unexpected result. Please double-check your syntax when typing shell commands.

```
[root@PM1024-1234567890 ~]#
```

- c. From shell prompt, execute shutdown command:
[root@PM1024-1234567890 ~]# shutdown -h now

Broadcast message from root (pts/0) (Thu Mar 5 20:33:45 2009):

```
The system is going down for system halt NOW!
[root@PM1024-1234567890 ~]# Power down.
System Halted, OK to turn off power
```

- d. Once the system is halted, use a paper clip to press the CPU reset button located in the front panel in the appliance. Wait a few seconds after reset for visual feedback from the LED display.

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Firmware upgrade restrictions on PDUs in chain

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Although this version (2.0.0) introduces the ability to upgrade firmware through the serial port, the chained Avocent PM PDUs must have the version 2.0.0 too in order to receive and propagate the firmware file and the upgrade instructions to/from chained Avocent PM PDUs.

Upgrade scenarios, assuming Avocent PM PDUs running version 1.3.0 or older.

1. One Avocent PM PDU (PM 1000, PM 2000 or PM 3000 PDU) connected directly to the Ethernet network, with or without multiple Cyclades® PM Intelligent Power Distribution Units (IPDUs) (PM 42, 10, 10i, 20, or 20i IPDUs, and so on) chained to it; this scenario supports firmware upgrade on all the PDUs.
2. One Avocent PM PDU (PM 1000, PM 2000 or PM 3000 PDU) connected directly to the Ethernet, with one or more Avocent PM PDUs chained to it; this scenario only supports firmware upgrade on the PDU that is directly connected to the Ethernet.
3. One ACS 6000 advanced console server or DSR™ KVM over IP switch with one or more Avocent PM PDUs (PM 1000, PM 2000 or PM 3000 PDU) chained to it; this scenario does not support firmware upgrade on the PDUs.

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Recommendations

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- It is strongly recommended that all Avocent PM PDUs in a chain are upgraded to this released version.
- It is strongly recommended that all Cyclades PM IPDUs in a chain are upgraded to version 1.9.2

- In a PDU chain of mixed types, in order to minimize traffic on the chain serial connections, it is more effective to put the appliances with a higher number of outlets at the top of chain. For example, units with 24 or 20 outlets should be placed before units with 10, 6 or 3 outlets.

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Known Issues
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This release contains the following known issues:

- The ACS 6000 advanced console server, the DSR KVM over IP switch, MergePoint Unity™ KVM over IP switch and serial console switch or a PM PDU running older versions will show different banks when connecting to an Avocent PM PDU version 2.0.0.
Due to the reorganization of banks, if the Avocent PM PDU (v2.0.0) has less banks than presented by the unit connecting to its console port, the extra banks will display 0 (zero) for all values in that bank. In case of 3-phase Avocent PM PDUs that show 6 banks, the unit connecting to its console will show the aggregation of 2 banks. Thus, for instance, bank XY shows the aggregation of XY1 and XY2. Make sure to upgrade your appliances to the latest firmware release for full compatibility.
- Avocent PM PDUs v1.3.0 do not have full support for the new PM 1000, PM 2000 and PM 3000 PDU models with 10 and 20 outlets.
- 57435: Outlet status remains ON in case of a blown fuse in the bank that the outlet belongs to. The blown fuse indication shows only in the bank level.
- 57437: The unit is unable to provide values for the bank B and its outlets when a blown fuse happens in bank A of a PM PDU, thereafter showing N/A for the measurements in that bank.
- 50319: For performance reason, only measurement data is reported on the serial chain. For full information on the chained appliance, connect the appliance to a network and access directly its WEB interface.
- 29373: Event log messages related to power show port 1, even when the log refers to the PDU at the head of a chain.
- 55876: Due to internal value conversions, configuring thresholds for temperature environment sensors may result in a slightly different value compared to the configured value
- 55667: During firmware upgrade of any PDU in chain, the serial port (out/aux) will be exclusively allocated to that process, and no PDU in the chain will accept commands. Due to the size of the firmware and the time required to transfer the file through the serial port, chained PDUs will not be shown in for the PDU list as long as the process lasts. There is no indication that the a PDU in the chain is being upgraded or when the process finishes.
- 57369: In some cases, upgrading the firmware of a Cyclades IPDUs will cause the entire chain to momentarily disappear. The chain is automatically rediscovered when the firmware upgrade process is completed.
- 55691/55739/55740/55743: Configuration or operation in long chains may delay up to a few minutes to complete.
- 57093: Changing the configuration of a chained PDU may show a message about a connection lost to the PDU. The communication is automatically resumed after a few seconds.
- Detection of Cyclades PM IPDUs with 2-segment running firmware version 1.9.1 will fail if the unit is daisy chained after a Cyclades PM IPDU running firmware version 1.9.2.