

Intel® Automated Power Switch Software (Intel® APS Software)

Installation and User Guide

October 2019

Revision 3.31.5 for Intel® APS SW 3.x

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1 Introduction

This chapter provides a brief description of the Intel® Automated Power Switch Software application (Intel® APS Software) and describes how to install it.

This chapter contains the following sections:

- About Intel® Automated Power Switch Software
- Intel® APS Software Versions
- Requirements
- Installing Intel® APS Software
- USB Driver Installation (for Intel® APS 3.x Only)

Note: For the Intel® APS hardware connection and setup instructions, please download the OEM Customization Guide from CCL [575307](#).

1.1 About Intel® Automated Power Switch Software

The Intel® APS Software uses the Intel® Automated Power Switch (Intel® APS) to perform a wide range of automated power state tests on desktop and mobile platforms. Intel® APS is designed to switch various types of power sources and to act as a jumper switch mechanism that can toggle the state of any jumper on the platform under test.

The Intel® APS Software enables you to do the following:

- Send power commands to the Intel® APS and check that the commands have the desired effect on the system under test. You can do this in either GUI mode or CLI mode.
- View in real time the status of specific states of the platform under test.
- Burn flash files on the flash chips using Intel® APS's SPI cable, verify the burnt data to a given file, and save the data on the flash chips in binary files.

Note: See *Intel® APS Connection Guide* for more information about Intel® APS connections.

1.2 Intel® APS Software Versions

Intel® APS Software 3.x can be used with either Intel® APS 2.x or Intel® APS 3.x.

You must specify the Intel® APS version in the Intel® APS Software's Settings tab.

1.3 Requirements

This section describes the requirements for installing Intel® APS Software:

- Operating system: Windows* 7 32 bit or 64 bit, or Windows* 8 32 bit or 64 bit or Windows* 10 32 bit or 64 bit.

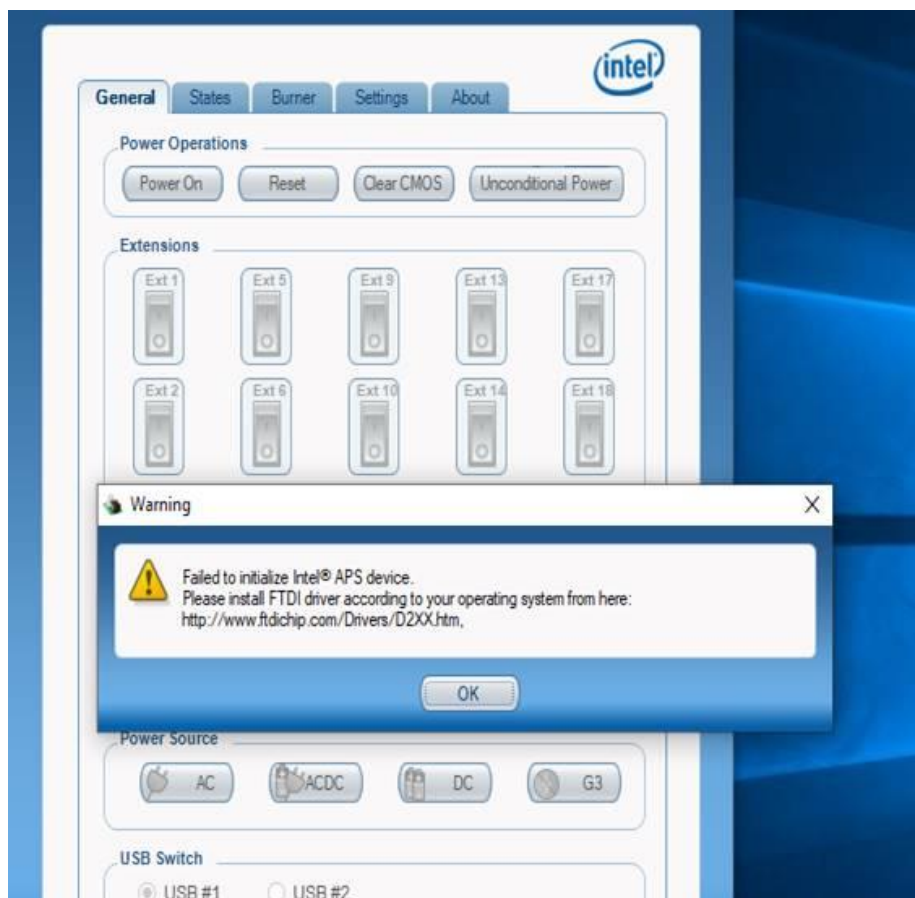


- .NET Framework version 4 or later installed (can be download from <http://www.microsoft.com/downloads/>).
- Install FTDI driver from <http://www.ftdichip.com/Drivers/D2xx.htm>

1.4 Installing Intel® APS Software

Pre-requisite for Clean OS environments:

Install the FTDI driver (see section 1.3) to avoid the following pop-up warning message:



To install Intel® APS Software:

1. Extract the contents of the *Intel® APS Software.zip* file into a folder on the computer on which you are installing Intel® APS Software. The following two subfolders are created:
 - Win64 - for a 64 bit system
 - Win32 - for a 32 bit system
2. Select the appropriate subfolder for the target system and double-click **Intel® APS Software x64.msi** for a 64-bit system or **Intel® APS Software x86.msi** for a 32-bit system. The installation wizard opens.



3. Click **Next**. The License Agreement window opens.
4. In the License Agreement window, click **I agree** and then click **Next**. The Select Installation Shortcuts window opens.
5. Specify your shortcut preferences and click **Next**.
6. In the window that opens, choose the installation folder or accept the default location and click **Next**. The Confirm Installation window opens.
7. Click **Close** to complete the installation.

1.5 USB Driver Installation (for Intel® APS 3.x Only)

The latest FTDI drivers can be installed from the website below as they are not longer automaticcaly installed with Intel® APS SW:

- <http://www.ftdichip.com/Drivers/D2xx.htm>

Note: For Intel® APS SW versions 3.25.0 or higher, APS 3 devices are not recognized in the following setup forms:

1. Intel® APS SW is installed on Windows* 7 or Windows* Server 2008.
2. APS 3 device is connected to USB 3.0 port.

Nevertheless, the three steps below are workarounds for this issue:

1. Connect the APS3 to USB2 port.
2. Disable the xHCI by performing the following steps:
 - a. Enter the BIOS of the Windows* 7 or Windows* Server 2008 controller (usually "F2" on startup)
 - b. Configure the xHCI settings to "Disable"
 - c. Save & Exit
 - d. Enter OS
 - e. Open APS-SW (no uninstallation is required)
3. Upgrade the OS to Win 8, Win 8.1, or to Win Server 2012.



2 *Configuring Intel® APS Software*

This chapter describes how to configure Intel® APS Software. It contains the following sections:

- Configuration
- The Settings Tab

2.1 Configuration

After installing Intel® APS Software, you must launch Intel® APS Software and configure it to work with the Intel® APS device and the platform under test.

To configure Intel® APS Software:

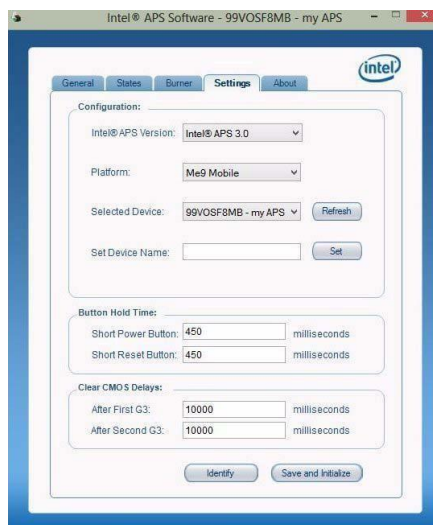
1. Select the Settings tab in the Intel® APS Software window.
2. Select the relevant APS device version in Intel® APS Version dropdown box. The options displayed on the General and Settings tabs change when you change the Intel® APS version.
3. Set the values of the other options in the Configuration section of the Settings tab.
4. Set the values of the options in the Button Hold Time section of the Settings tab.
5. Click the Save and Initialize to save the changes you made in the Settings tab.

Note: Clicking **Save and Initialize** saves all the changes you made in all the sections in the **Settings** tab: the **Configuration**, the **Button Hold Time**, and the **Clear CMOS Delays** sections.



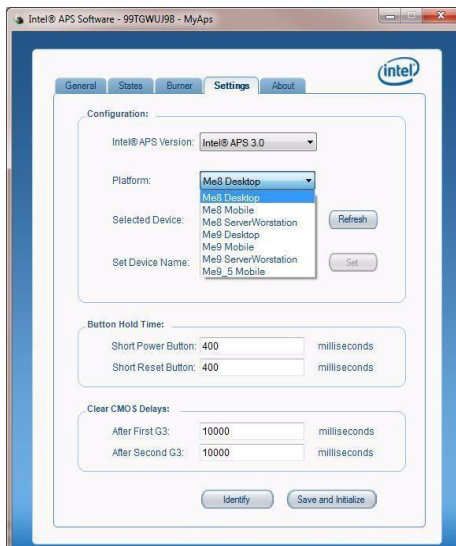
2.2 The Settings Tab

2.2.1 Setting Options for all APS Versions



From the **Settings** tab, you can select/configure the following options:

- **Intel® APS Version:** Specifies whether the version of Intel® APS managed by Intel® APS Software is Intel® APS 2.x or Intel® APS 3.x. The contents of the Settings tab and the General tab are different for each version. The default value is **Intel® APS 3.x**.
- **Platform:** A drop down menu that enables the user to select the platform version (e.g. ME8/ME9/ME9.5/ME10...) and platform type (e.g. Desktop/ Mobile/ Server/ Workstation). The default value is **Me9 Mobile**.





- **Button Hold Time**
- **Short Power Button:** Specifies how many milliseconds the system causes the power button on the Intel® APS to be pressed. The default value is 500 ms.

Note: Note: the power On/Off button is clicked in the **General** tab.

This setting is overridden when the **pwr** command is run via the CLI with a time argument (for example, **APS_Software pwr 800**).

Note: Note: Running a CLI command with a time argument only overrides this setting once. It does not change the value specified for this setting in the **Settings** tab.

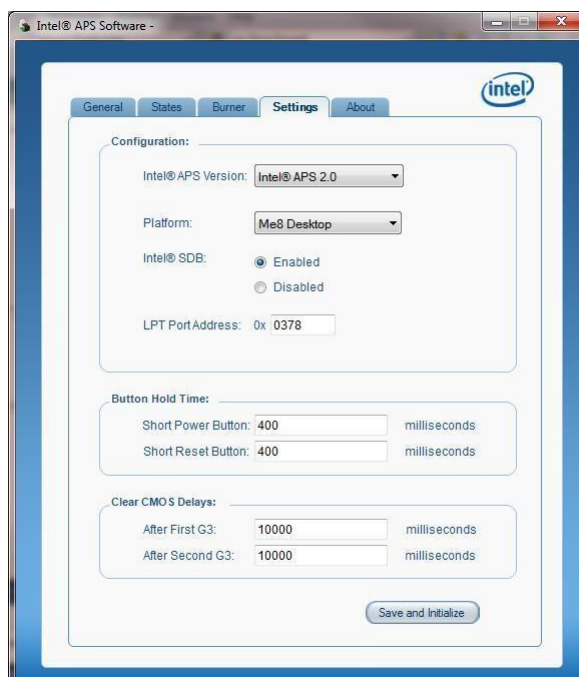
- **Short Reset Button:** Specifies how many milliseconds the system causes the Reset button on the Intel® APS to be pressed when **Reset** is clicked in the **General** tab. The default value is 500 ms.

This setting is overridden when the **rst** command is run via the CLI with a time argument (for example, **APS_Software rst 800**).

Note: Note: Running a CLI command with a time argument only overrides this setting once. It does not change the value specified for this setting in the **Settings** tab.

2.2.2 Additional Settings: APS2

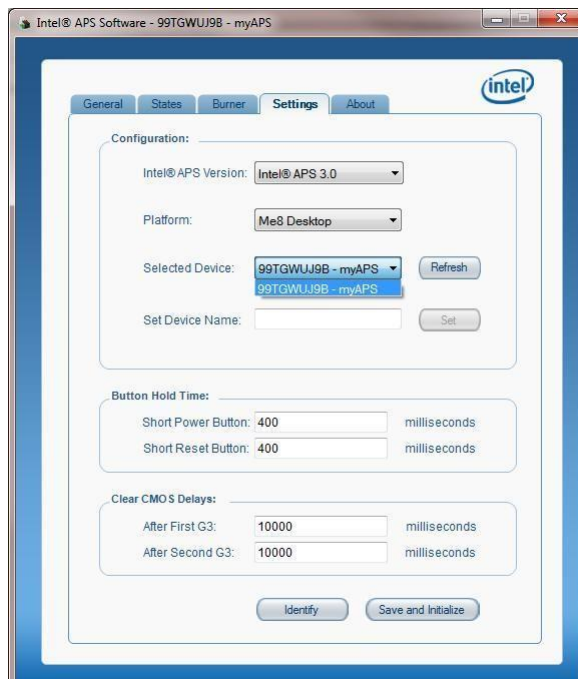
The settings in this section are relevant to the APS2 device only. Upon selecting APS version 2 as the **Intel® APS Version**, you receive the following Settings dialog with options unique to APS2.



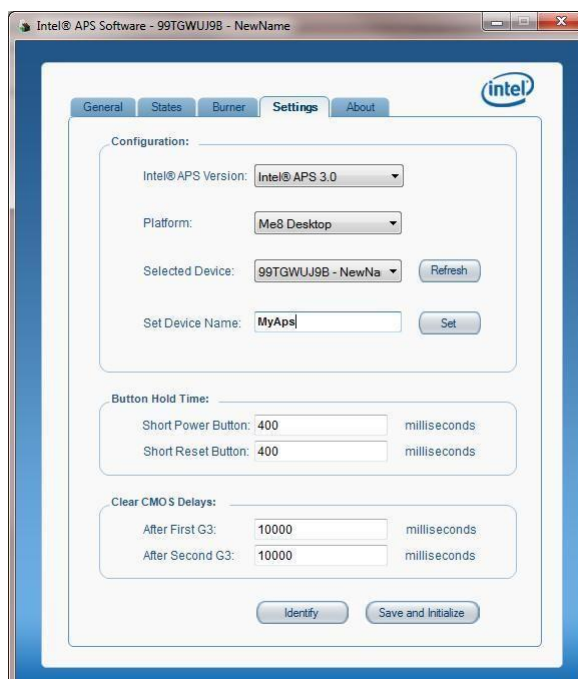
- **Intel® SDB (Signal Detection Board):** Specifies whether the Intel® APS Signal Detection Board is enabled or disabled; relevant for APS2 only. The default value is **Enabled**.
- **LPT Port Address:** Specifies the parallel port connecting the management computer to the Intel® APS; relevant for APS2 only. The default value is port **0x378**.

2.2.3 Additional Settings: APS3

- **Selected Device:** Detects all connected APS3 devices and enables you to specify the desired device.



- **Set Device Name:** Enables you to assign a user-defined name to the selected device





3 *Using Intel® APS Software in GUI Mode*

This chapter describes how to use Intel® APS Software in GUI mode. It contains the following sections:

- The Intel® APS Software Window
- Status Bar
- General Tab
- States Tab
- Burner Tab
- Settings Tab
- About Tab

3.1 The Intel® APS Software Window

The Intel® APS Software window has five tabs:

- **General:** Controls the following:
 - The power transactions of the platform under test connected to the Intel® APS device.
 - The USB switch (Intel® APS3 device only).
- **States:** Displays information about power states of the platform under test (view only).
- **Burner:** Controls burning, verifying, and dumping of flash files.
- **Settings:** Configures Intel® APS Software.
- **About:** Displays information about the current version of Intel® APS Software.



3.2 Status Bar

The following status information is always displayed in the **Status Bar** at the bottom of the Intel® APS Software window:

- **System State** - The state of the platform under test (G3, S5, S4, S3, S0).
- **Post Code** - The post code of the BIOS (shown by 4 LEDs).
- **ME State** - The state of the Intel® Manageability Engine (On, Off).
- **S0Ix State** - The S0Ix state. Only available when running on a BayTrail platform with Android.
- **Deep Sx** - The Deep Sx status of the Manageability Engine (On, Off).

This information also appears in the States tab.



3.3 General Tab

There are two versions of the General tab, one for Intel APS 2.x and another for Intel APS 3.x (default). The Intel APS 3.x version of the General tab appears by default when running Intel® APS Software. To switch to the Intel APS 2.x version, set the **Intel APS Version** in the Settings tab to **Intel APS 2.0**.



The **General** tab is divided into the following sections:

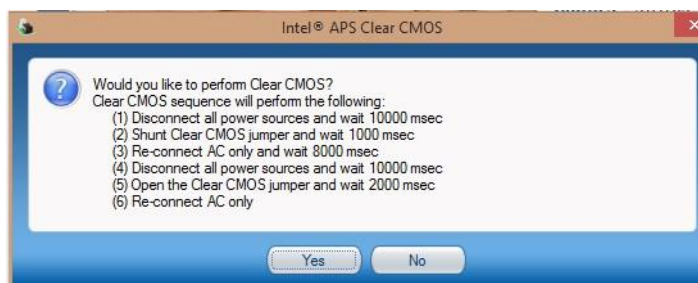
- **Power Operations:** Controls the power transactions of the platform under test with the following 4 buttons:
 - **Power On/Power Off:** Turns the power to the platform under test on and off by causing the power button on the Intel® APS to be pressed for the number of milliseconds specified by the **Short Power Button** setting in the **Settings** tab.

There are two versions of this button:

- **Power On:** Appears when the platform is off. Clicking this button powers up the platform.
- **Power Off:** Appears when the platform is on. Clicking this button powers down the platform.
- **Reset:** Restarts the platform under test by causing the reset button on the Intel® APS to be pressed for the number of milliseconds specified by the Short Reset Button setting in the Settings tab.



- **Clear CMOS:** Performs a clear CMOS operation. The clear CMOS message appears, explaining the CMOS operation and prompting you to proceed.



- **Unconditional Power:** Powers down the platform under test by causing the power button on the Intel® APS to be pressed for 7 seconds.

Advanced Feature: The delay of the Unconditional Power button can be configured, by setting the **UnconditionalPowerHoldTime** section in the xml file: `<Installation folder>\Configuration\APSSettingsFile.xml` to the desired value (the value is in milliseconds).

Note: This change only becomes activate after you close and reopen the Intel® APS Software GUI.

- **Extensions:** There are 19 extension buttons (some are not enabled and are reserved for future use). Each enabled extension button can be connected to a pin on the platform under test and can set that pin to On (1) or clear it to Off (0). The number of enabled extension buttons is determined by the **Intel® APS Version:**
 - Intel® APS 2.x - 3 enabled extension buttons
 - Intel® APS 3.x - 11 enabled extension buttons

Note: The following table lists the signal name and location for each Intel® APS Pin extension in the platform:

Table 0-6. Pin Location for Dual-in-Line Connector

Signal Name	Pin	Header	Pin	Signal Name
+V3.3A	1		2	PM_SLP_S3_N
+V3.3A_DS3	3		4	PM_SLP_S5_N
PM_SLP_S4_N	5		6	PM_SLP_A_N
+V3.3A_DSW	7		8	GND
RTC_RST_N	9		10	GND for RTC_RST_N
PM_PWRBTN_N	11		12	GND for PM_PWRBTN_N
PM_SYSRST_N	13		14	GND for PM_SYSRST_N
PM_SLP_S0_N	15		16	NC
NC	17		18	NC



- **Power Source:** Connects or disconnects the platform under test from its power source with the following buttons:
 - **AC:** Connects only the AC power supply to the platform under test.
 - **ACDC:** Connects the AC and DC power supplies to the platform under test.
 - **DC:** Connects only the DC power supply to the platform under test.
 - **G3:** Disconnects all power sources from the platform under test.

Note: If you want to transition from AC -> ACDC -> DC, or DC -> ACDC -> AC, make sure the platform under test stays in ACDC for at least 7 seconds. If you do not do this, the platform may shut down (enter the G3 power state).

Note: In desktop platforms, the DC/ACDC options are not available.

- **USB Switch** (Intel® APS 3.x only)

Works as a USB splitter. Intel® APS 3.x has the following USB ports:

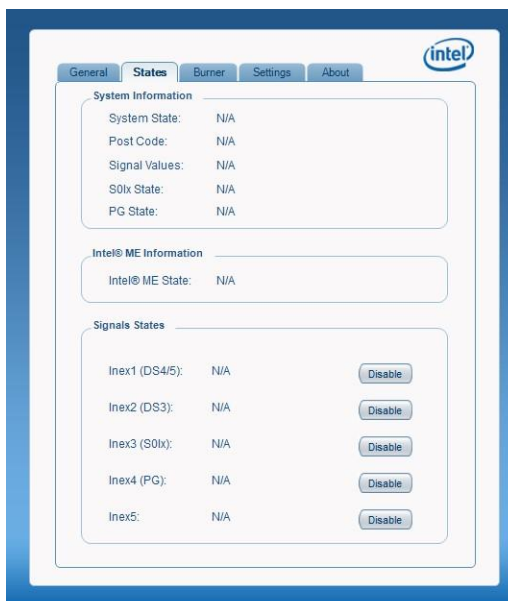
- **Two USB out ports** (USB OUT1 and USB OUT2): Can connect two different machines to Intel® APS 3.x.
- **One USB in port:** For connecting a memory stick to Intel® APS 3.x.

A platform can be plugged into each of the two USB out ports on the Intel® APS3 device. The USB switch lets you select which of these two platforms is also connected to the memory stick or any other USB device that is plugged into the USB in port on the Intel® APS.

Note: The USB HW connector has Data lines and Power lines. The Intel® APS3 device switches only the data lines - the power lines are enabled for both USBs, regardless of which one is selected.



3.4 States Tab



Intel® APS Software polls the platform under test every two seconds and displays the information it receives in the **States** tab. When the platform under test is booted or rebooted, Intel® APS Software polls the platform under test every half a second for two minutes, after which it returns to its normal polling rate of once every two seconds.

This polling enables the **States** tab display the following status information about the platform under test:

- **System Information:** System Information about the platform under test:
- **System State:** The platform under test can be in one of the following system states:
 - **G3:** The power cable is disconnected and the platform is off.
 - **S5:** The power cable is connected but the platform is off.
 - **S4:** Hibernate.
 - **S3:** Standby or sleep.
 - **S0:** Platform is on.
- **Post Code:** Post code of the BIOS (shown by 4 LEDs).
- **Signal Values:** The signal values string. Every signal is on (1), off (0), or unknown (x).
- **S0Ix State:** Only available when running on Bay Trail or Cherry Trail platforms with Android.
- **PG State:** The PG state of the platform - available in ME11 platforms.



- **Intel® ME Information:** The state of the Intel Manageability Engine.
- **Signals States:** The additional signals in Intel® APS. These signals are configured as INEX15.
- **INEX1 \ Deep S4\5:** The deep sleep S4\5 status of the Manageability Engine (On, Off, Disabled).
- **INEX2 \ Deep S3:** The deep sleep S3 status of the Manageability Engine (On, Off, Disabled).
- **INEX3 \ SOIx:** The S0I3 status (On, Off, Disabled).
- **INEX4 \ PG:** The Power Gating status of the Manageability Engine (On, Off, Disabled).
- **INEX5:** User configured. This can be connected to any pin in the platform under test to show the status of that pin (On, Off, Disabled).

3.4.1 Enabling/Disabling a Signal State

The Enable/Disable button next to each **INEX** enables/disables polling of the pin to which the INEX is connected in the platform under test. Only enable an INEX if it is actually connected to a pin. If INEXs are not connected to pins, disable them.

To disable an INEX:

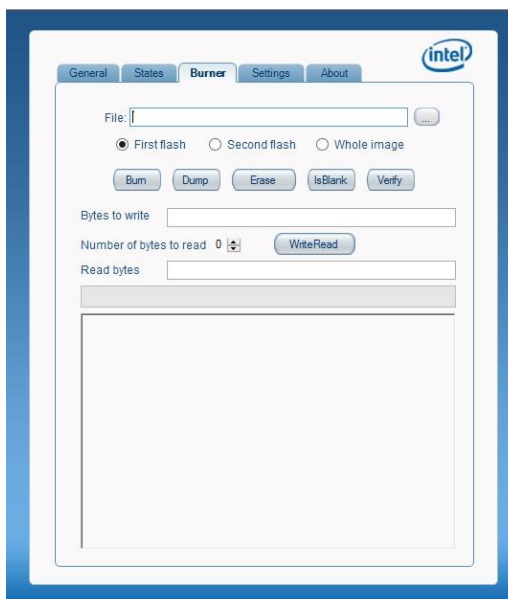
- Click the **Disable** button next to the INEX. The following occurs when the INEX is disabled:
- The pin to which the INEX is connected is not polled.
- The status of the INEX is changed to Disabled and is grayed out.
- An Enable button is displayed next to the INEX, replacing the Disable button.

To enable an INEX:


- Click the **Enable** button next to the INEX. The following occurs when an INEX is enabled:
- The pin to which the INEX is connected is polled.
- The status of the INEX is changed to either On or Off.
- A Disable button is displayed next to the INEX, replacing the Enable button.



3.5 Burner Tab



The **Burner** tab enables you to perform burning operations. For each operation, select one of the following flash chips on which to execute the operation: **First flash**, **Second flash**, or **Whole image** (both flash chips).

If the operation requires a binary file, write the file path in **File**, or press the  button and browse to the file. The required file is uploaded to the software.

- **First Flash:** If there is one flash on the platform, the binary image is split into 2 files. The system burns the full image file to the first flash chip.
- **Second Flash:** If the binary image is split into 2 files, the system burns the full image file to the second flash chip.
- **Whole image:** If there are two flash chips and full image is in one file, the system burns half of the image on the first chip and the other half on the second chip.

You can select any of the following burning operations:

- **Burn:** Burn a binary file on one or two flash chips using the SPI cable connected to the Intel® APS.
- **Dump:** Dump the data on the chip(s) to the given binary files.
- **Verify:** Verify that the data burned on the flash chip(s) is the same as the data in the given binary file.
- **Erase:** Erase the data burned on the flash chip(s).

Note: The Erase operation writes 0xff to the chip(s).


- **IsBlank Checking:** Checks if the flash chip is empty (filled with 0xff).



Note: There are many flash chip types with different sizes and behaviors. Intel® APS Software supports burning a flash according the known type of the platform.

- **Engineering Mode:** You can use Intel® APS to write and read bytes using SPI protocol.
- **Write operation:** For write operations, enter the bytes you want to write in **Bytes to write** in hex format and click **WriteRead**. **Note: Number of bytes to read** must be set to **0**.
- **Read operation:** For read operations, type the number of bytes you want to read, in **Number of bytes to read** and click **WriteRead**. The read bytes appear in **Read bytes**. **Note: Bytes to write** must be empty.
- **Write-read operation:** For write-read operations, enter the bytes you want to write in **Bytes to write** in hex format, type the number of bytes you want to read in **Number of bytes to read** and click **WriteRead**. The read bytes appear in **Read bytes**.

Example for burning flash chip:

1. Click  next to the File text field, and browse and select the binary file you want to burn on the flash chip.
2. Select the relevant configuration for burning the binary file (First flash, Second flash or Whole image).
3. Click Batch. The flash is burnt on the selected chip(s) and verified.

Note: If the binary file is too large or too small for the flash chip, an error message appears in the large text box of the **Burner** tab.

3.6 Settings Tab

There are two versions of the Settings tab, one displays options for Intel® APS 2.x and the other displays options for Intel® APS 3.x.

For detailed instructions on how to use the Settings tab to configure Intel® APS Software for both the Intel APS 2.x and the Intel APS 3.x, refer to ["Configuring the Intel® Automated Power Switch Software"](#).

3.7 About Tab

The **About** tab contains the version and the copyright information for Intel® APS Software.



4 Using the Command Line Interface

This chapter describes how to run Intel® APS Software in CLI mode from a command prompt and how to use CLI mode to automate tests. It includes the following sections:

- Running Intel® APS Software in CLI Mode.
- Window View.
- Writing CLI scripts for automating tests.

Note: The CLI cannot configure itself. For example, it cannot configure the LPT port for Intel® APS 2.x users or the button hold times. CLI configurations are derived from the GUI configuration, therefore, if you want to use the CLI, you must first configure Intel® APS Software in GUI mode.

You can use the CLI interface to run the **APS_Software** command with many different arguments, as described below.

4.1 Running Intel® APS Software in CLI Mode

To run Intel® APS Software in CLI mode:

- From the command prompt, change to the installation folder and enter **APS_Software** with one of the arguments listed in the following tables.

Note: The command strings are not case sensitive; you can use uppercase and lowercase characters.

Configuration and Initialization Options:

Argument	Meaning
/?	Displays the usage options for the command.
init <a> <i>	<p>Initializes Intel(R) APS devices.</p> <p><u>Arguments:</u></p> <p>For <u>APS2</u> device: add 'APS2' in <a> argument, and do not add any more arguments.</p> <p>For <u>APS3</u> device: add 'APS3' in <a> argument, and add its specific Device ID in <i> argument, or add nothing to initialize the default device. For <u>APSG</u> device: add 'APSG' in <a> argument, and add the IP address of the device in the <i> argument.</p> <p>Note: This command is used to initialize the configuration, and it should be used in the beginning of any script.</p>
p	Prints the current device configuration.



Power Options:

Argument	Meaning
AC	Connects only an AC power source to the platform under test.
ACDC	Connects AC and DC power sources to the platform under test.
DC	Connects only a DC power source to the platform under test.
G3	Disconnects all power sources (G3) from the platform under test.
Cmos	Clears CMOS.
PWR [t]	Presses and hold power button for [t] milliseconds. [t] argument needs to be between 50 and 360000 milliseconds. If [t] argument isn't given- wait according to Pwr setting in Settings tab.
RST [t]	Presses and hold reset button for [t] milliseconds. [t] argument needs to be between 50 and 360000 milliseconds. If [t] argument isn't given- wait according to Pwr setting in Settings tab
UPWR	Presses and hold power button for Unconditional Power Down.
Connect <c>	Connects the pin in the platform under test that is connected to one of these connector out cables: Pwr, Rst, Cmos, EX1, EX2, EX3, EX4, EX5, EX6, EX7, EX8, EX9, EX10, and EX11. Number of EX- Depends on APS version
Disconnect <c>	Disconnects the pin in the platform under test that is connected to one of the following connector out cables: Pwr, Rst, Cmos, EX1, EX2, EX3, EX4, EX5, EX6, EX7, EX8, EX9, EX10, and EX11. Number of EX- Depends on APS version

States Sampling Options:

Argument	Meaning
S	Gets platform signals (System-State/Power-Source/ME-State/PGState).
INEX	Gets Input Extended signals.
PostCode	Gets platform Post Code.

**General Options:**

Argument	Meaning
Delay <t>	Delays <t> seconds. This is mainly used for building scripts

Options Available in APS3 Only:

Argument	Meaning
GetDev	Print to the console a list of all the devices connected to the Intel® APS.
InitDev <d>	Initializes APS3 device <d> by name. Note: This command also updates the configuration file and the device <d> will be active for the next command.
Ver	Returns the Intel(R) APS firmware version.
Identify	Identify the current device.
GetActiveUSB	Returns the name of the active USB switch.
SetActiveUSB <USB>	Sets 'USB' to be the active USB switch. The available parameters are USB1 or USB2.

4.2 Window View

The following figure illustrates how to run Intel® APS Software from the command line with arguments:



```
C:\Windows\System32\cmd.exe
Intel(R) APS Software version 3.24.10.0
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Usage:
APS_Software <command> <command arguments>
Examples are at the end.

The commands are:
init <a> <i>    Initializes Intel(R) APS devices.
                Arguments:
                For APS2 device, add 'APS2' in <a> argument, and do not add
                any more arguments.
                For APS3 device, add 'APS3' in <a> argument, and add its
                specific DeviceId in <i> argument, or add nothing to init
                the default device.
                For APSg device, add 'APSG' in <a> argument, and add the IP
                address of the device in the <i> argument.
                Note: This command is used to initialize the device, and
                should be used in the beginning of any script.
initDev <d>    Initializes APS3 device <d> by name.
                This command is supported only with APS3.
                Note: This command also updates the config file and
                the device <d> will be active for the next command.
getDev         Print to console all the connected devices.
                This command is supported only with APS3.
acdc           Connects AC and DC power sources.
ac            Connects AC only.
dc            Connects DC only.
g3            Disconnects all power sources (G3).
pwr [tl]      Presses and hold power button for [tl] milliseconds.
                [tl] argument needs to be between 50 and 360000 milliseconds.
                (Note that [tl] is optional argument).
rst [tl]      Presses and hold reset button for [tl] milliseconds.
                [tl] argument needs to be between 50 and 360000 milliseconds.
                (Note that [tl] is optional argument).
upwr          Presses and hold power button for Unconditional Power Down.
cmos          Clears CMOS.
connect <c>    Connects connector <c> out cable.
disconnect <c> Disconnects connector <c> out cable.
s             Gets platform signals (System-State/Power-Source/ME-State/PG-St
ate).
inex          Gets Input Extended signals.
postcode      Gets platform Post Code.
                This command is supported only with APS3.
delay <t>     Delays <t> seconds.
p             Prints current device configuration.
ver           Gets Intel(R) APS FW version.
                This command is supported only with APS3.
identify      Identify the current device.
                This command is supported only with APS3.
upgrade <f>   Upgrades Intel(R) APS code with the <f> file.
                This command is supported only with APS3.
getActiveUSB  Gets the Active USB switch.
                This command is supported only with APS3.
setActiveUSB <usb> Sets 'USB' to be the Active USB switch.
                Note: available parameters are USB1 or USB2
                This command is supported only with APS3.

Examples:

To get all devices that connected:
APS_Software getDev
The output will be:
16:09:48: Connected Devices:
          99VB0AIYB

To initialize APS2 device
APS_Software init APS2

To initialize APS3 device 99VB0AIYB:
APS_Software initDev 99VB0AIYB
Or:
APS_Software init APS3 99VB0AIYB

To initialize APSg device which IP is 192.168.0.60:
APS_Software init APSg 192.168.0.60
```




```

To press power button:
APS_Software pwr
The output will be:
16:10:08: PWR with holdtime = 500 (ms)

To delay 10 seconds:
APS_Software delay 10
The output will be:
16:11:54: Delay for 10 seconds

Additional information:
*) Available Connectors for connect and disconnect commands are: Pwr, Rst, Cmos,
Ex1, Ex2, Ex3, Ex4, Ex5, Ex6, Ex7, Ex8, Ex9, Ex10, Ex11, Ex12, Ex13, Ex14, Ex15,
Ex16, Ex17, Ex18, Ex19.

C:\Program Files\Intel\Intel(R) Automated Power Switch Software>

```

Note: If you want to transition from AC -> ACDC -> DC, or DC -> ACDC -> AC, make sure the system under test stays in ACDC for at least 7 seconds. If you do not do this, the system may shut down (enter the G3 power state).

4.3 Writing CLI Scripts for Automating Tests

This section contains examples of how to create batch files to automate tests for the Intel® APS using Intel® APS Software.

Straight to S5 to S0 Loop

This script performs an unconditional power-down (Straight to S5) followed by a power-up, and then loops back to repeat the operations:

```

APS_Software    INIT
APS3

:BEGIN

APS_Software UPWR

APS_Software    Delay
10 APS_Software PWR

APS_Software    Delay
10

GOTO BEGIN

```

ACDC to DC Only to ACDC Loop

This script connects the platform to both AC and DC power sources, and then loops back to repeat the operations:

```

APS_Software    INIT
APS3

:BEGIN

APS_Software ACDC

```



```
APS_Software    Delay
10 APS_Software DC

APS_Software    Delay
10

GOTO BEGIN
```

Warm Reset Loop

This script performs a warm reset, waits 4 seconds, and then loops back to repeat the operation:

```
APS_Software    INIT
APS3

:BEGIN

APS_Software RST

APS_Software Delay 4

GOTO BEGIN
```