App Note: TCIS - vPro AMT Functionality
App Number: 039
Related TSI Products: OPS-TCIS-PS

Intel VPro Active Management Technology (AMT)

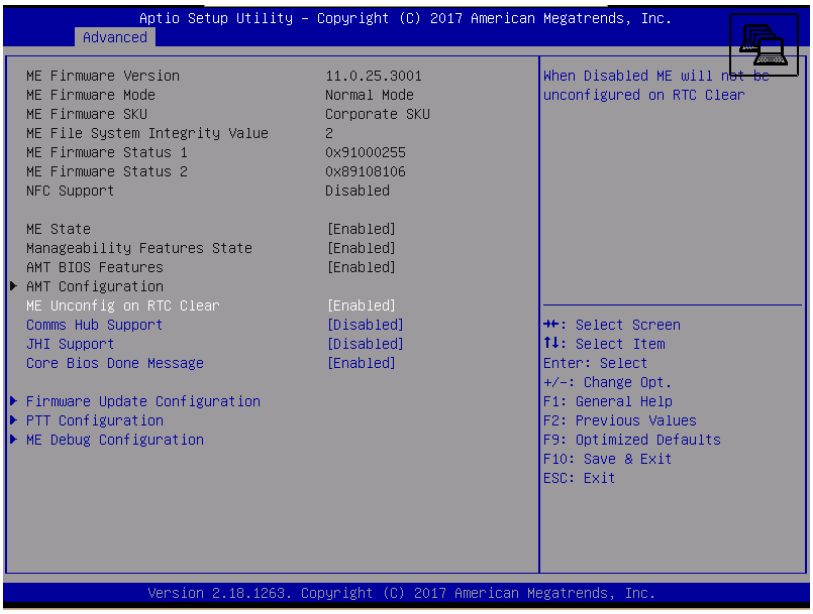
1. Overview:
   Intel Active Management Technology is a feature of Intel Core processors with Intel vPro technology. Intel AMT uses integrated platform capabilities and popular third-party management and security applications, to allow IT or managed service providers to better discover, repair, and help protect their networked computing assets.

   Intel Active Management Technology (AMT) is part of the Intel vPro technology offering. Platforms equipped with Intel AMT can be managed remotely, even if the operating system is unavailable or the system is turned off. Intel AMT-enabled systems have special out of band network access through the Intel Wired network connection allowing remote platform management applications secure access as long as the platform is connected to line power and to a network. Intel AMT operates independently of the platform processor and operating system.

   Independent software vendors (ISVs) can build applications that take advantage of Intel AMT features using the Intel AMT SDK which includes the Intel AMT High Level API. The SDK also contains the Intel vPro Platform Solution Manager, which is a management console that was built from the Intel AMT APIs.

   Intel AMT uses a number of elements in the Intel vPro platform architecture, most notably the Intel Management Engine, part of the firmware supplied by the system manufacturer with the BIOS. The firmware uses a small portion of system RAM, which is why slot 0 must be populated and powered on for the firmware to run. It also has its own Flash storage that holds the configuration settings among other information.

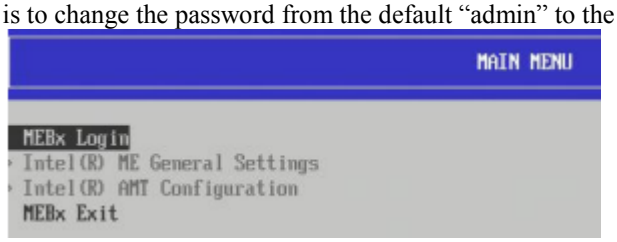
2. BIOS Support
   Within the BIOS the user can see which version of the Management Engine (ME) is installed. Our current version is 11.0.25.3001. By default the ME is enabled but not provisioned. If the system is not provisioned, ME can be disabled in the BIOS.



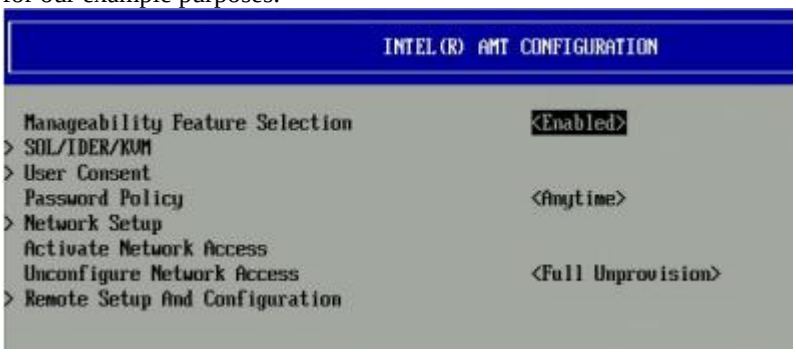
3. VPro Configuration
   a. Factory Default
      By default the AMT functionality is delivered "Unprovisioned". In this state the system is inaccessible via AMT.

   b. Provisioning
      The process of provisioning the system is covered in detail in the "Intel Management Engine Bios Extension (MEBX) user guide". The minimum required steps are to set the administrative password and enable the network interface.

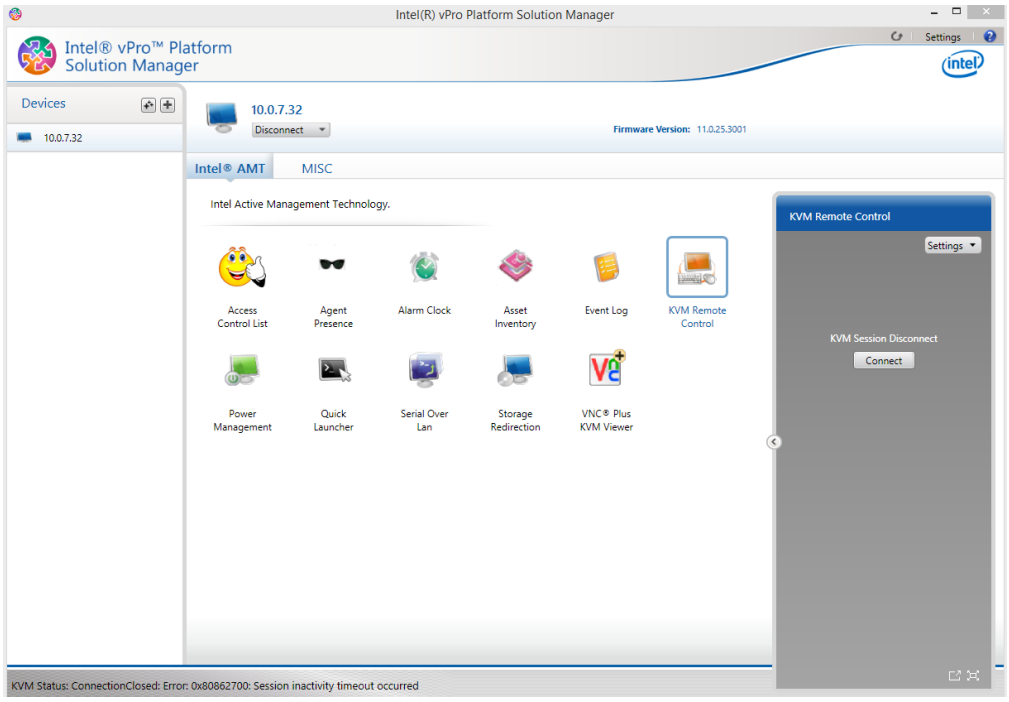
      To bring up the MEBX menu the user presses "Control + P" during the power on sequence. The first step is to change the password from the default "admin" to the password to be actually used for access.



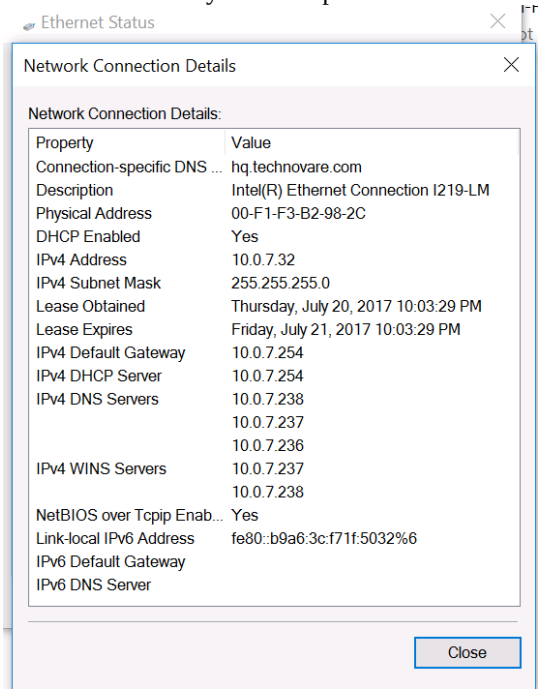
      Once a new password is entered the network access can be enabled under the AMT Configuration menu. There are several additional settings that an administrator may want to set up but the defaults are sufficient for our example purposes.



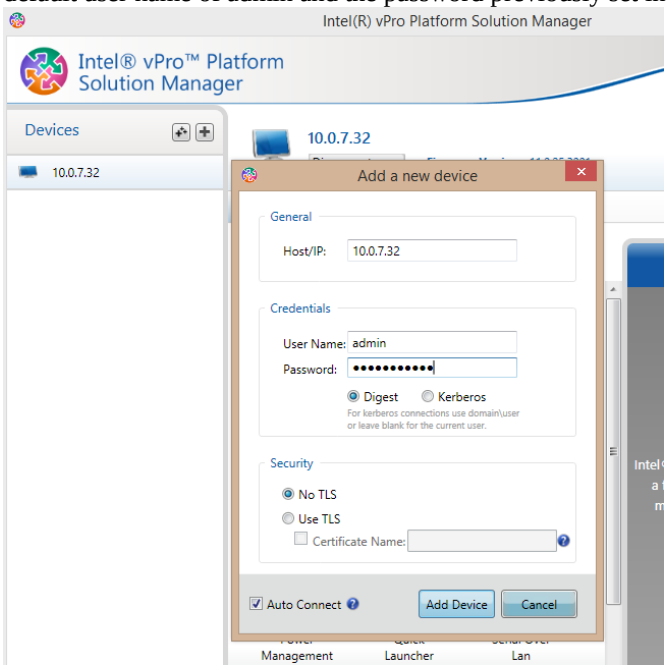
4. Remote Management Example
   To test or demonstrate AMT Intel provides the "vPro Platform Solution Manager" software. With this free software an administrator can remotely manage a vPro-AMT enabled device.



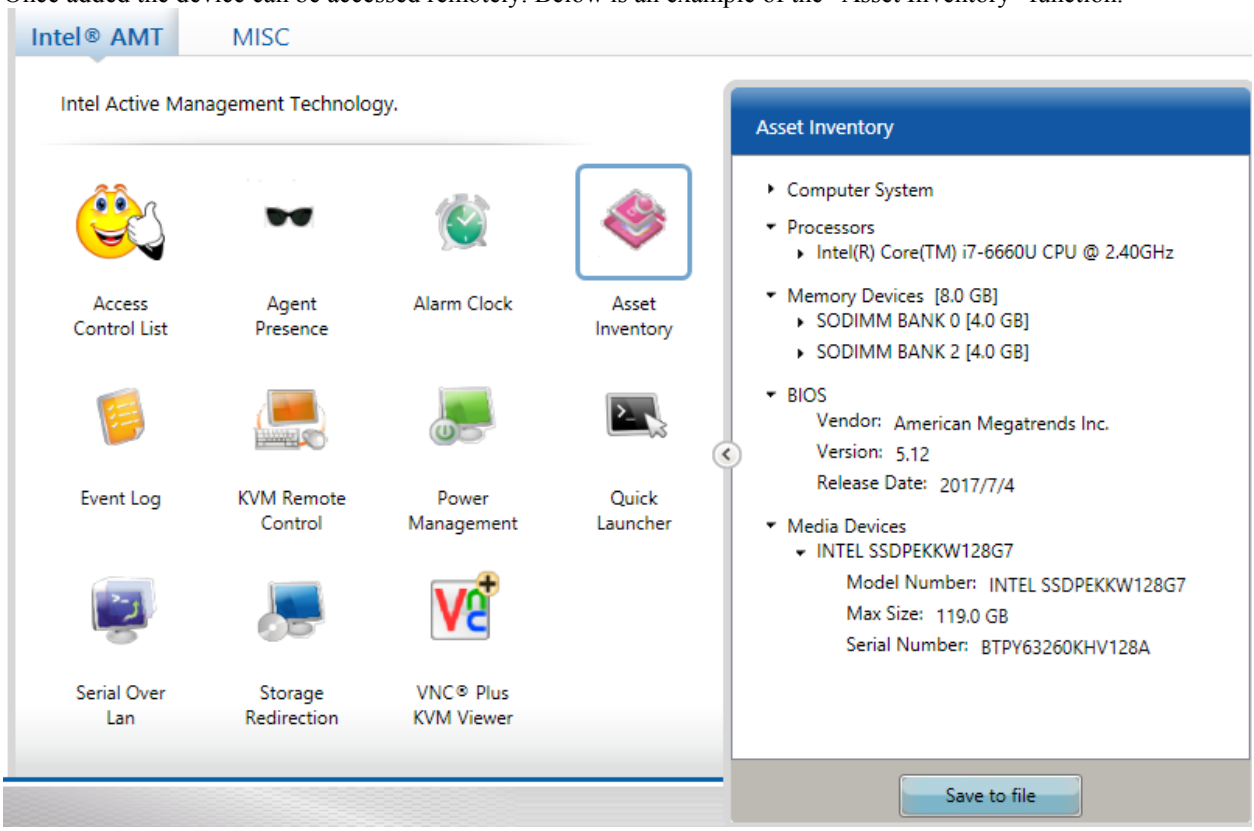
The first step, once the management software is installed, is to determine the IP address of the system to be controlled. One way to accomplish that is to examine the network connection status of the interface in use.



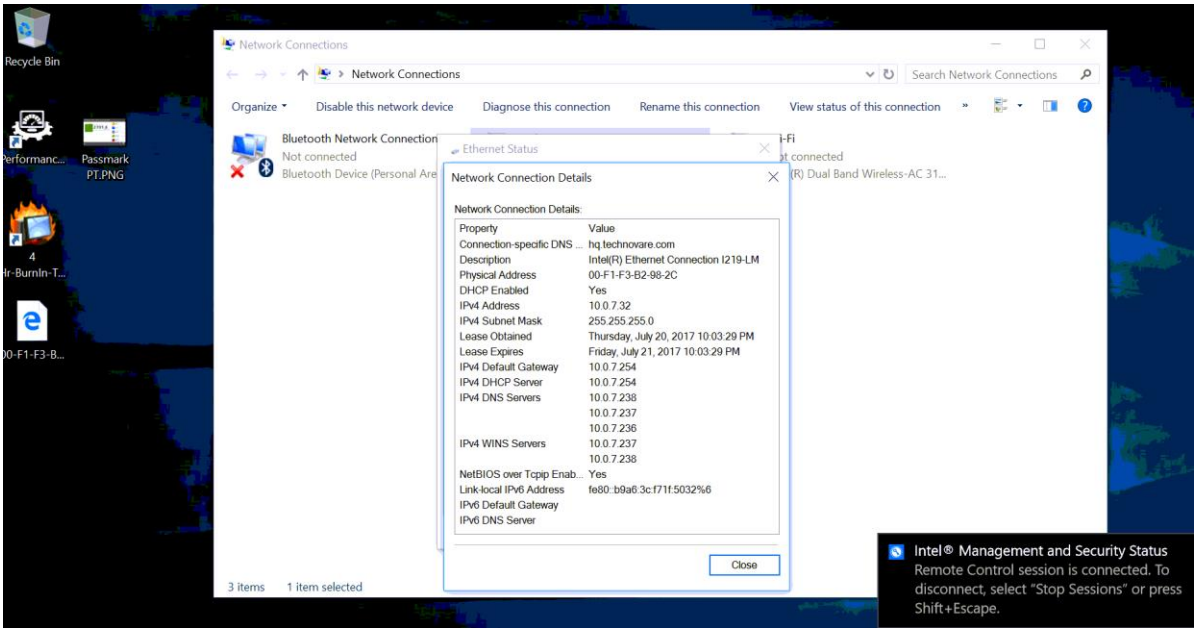
The system can then be added to the list of devices to be managed in the Platform Solution Manager using the default user name of admin and the password previously set in the MEBX configuration step.

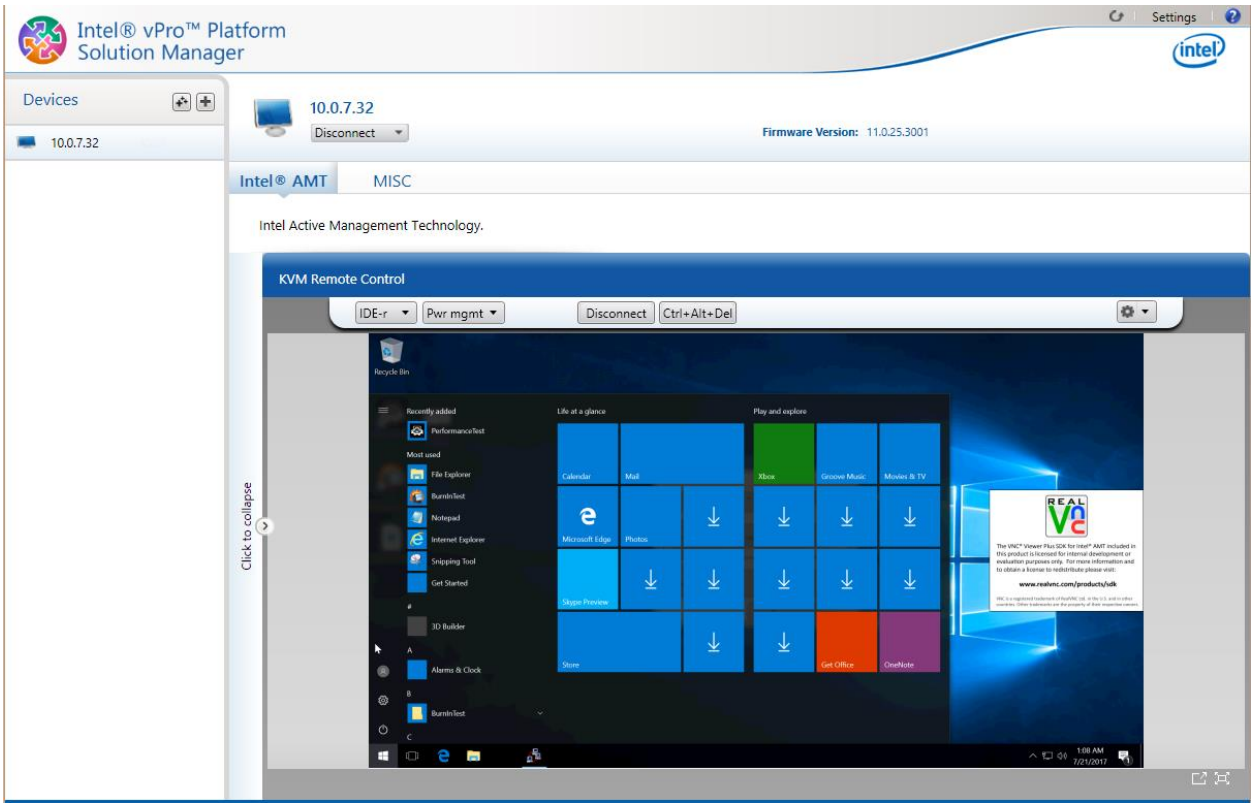


Once added the device can be accessed remotely. Below is an example of the "Asset Inventory" function.

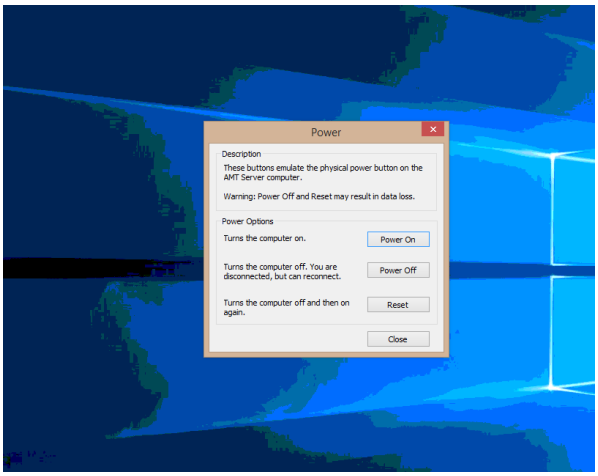


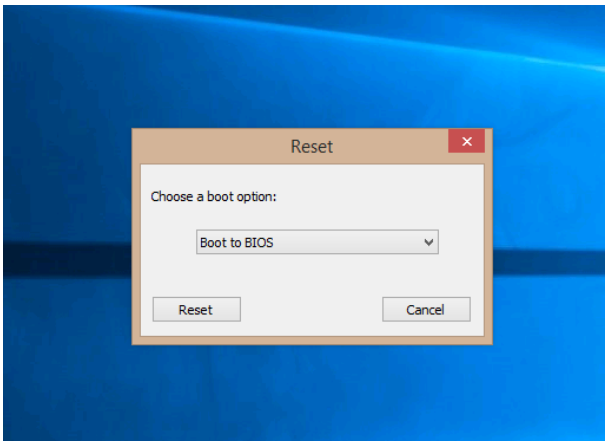
Remote control functionality is provided by the “VNC Plus” KVM viewer application that is installed along with the Platform Solution Manager. The freely downloaded version has a 60 day evaluation period.



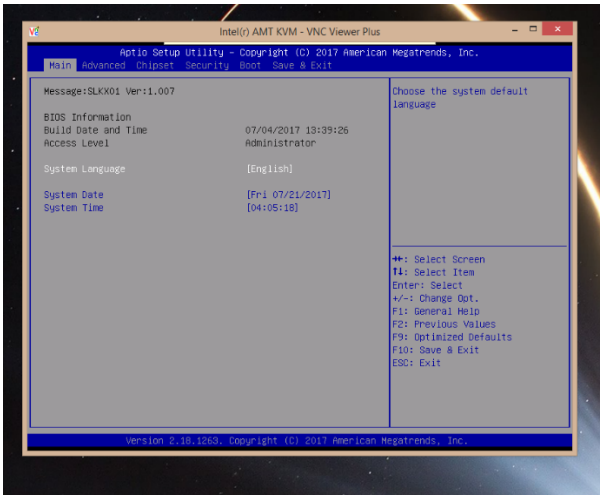


Power management and boot options are available directly from the Platform Solution Manager even if the system is powered off. This example shows resetting the system and booting into the BIOS.



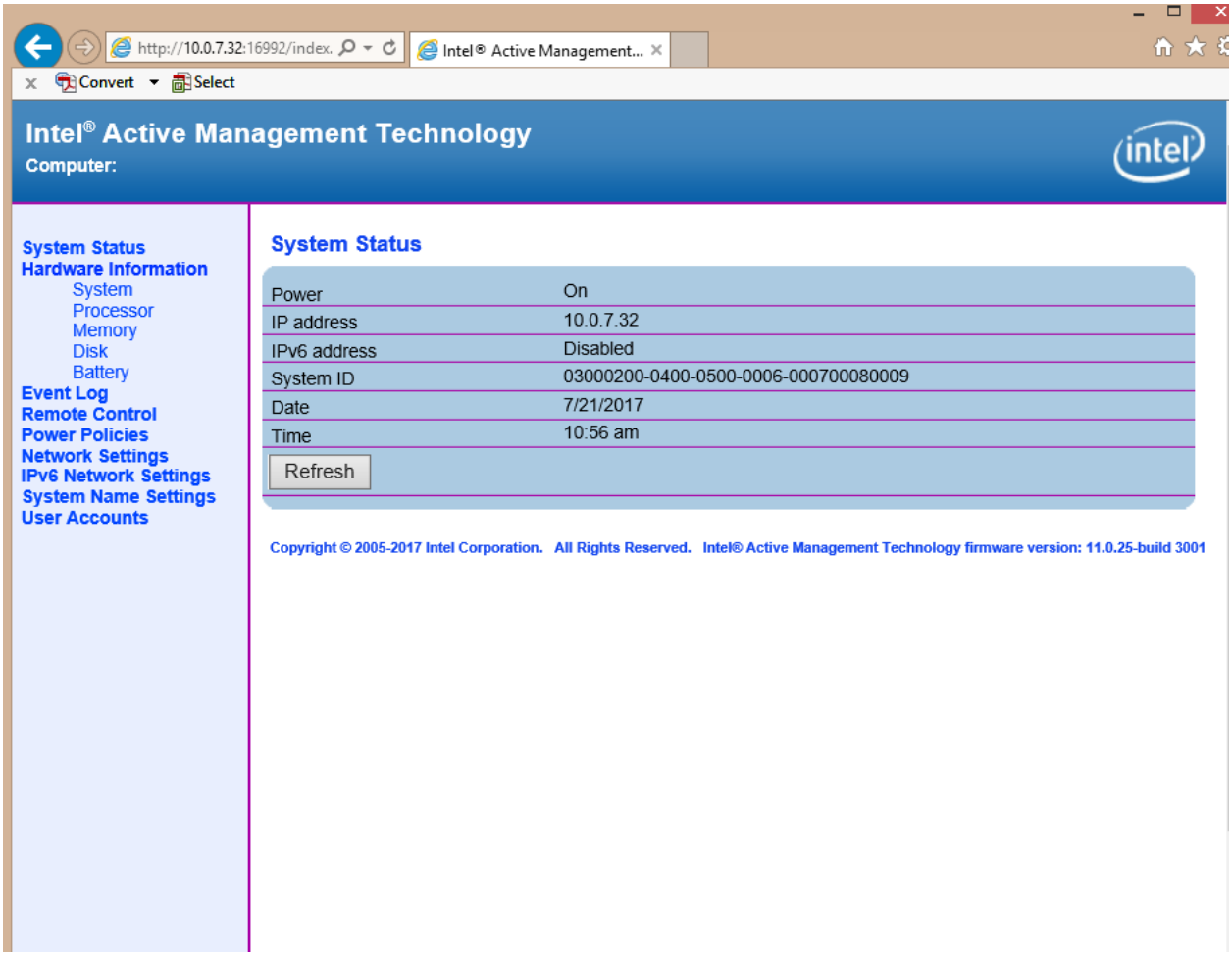


A system being controlled remotely can even be booted remotely controlled through the BIOS configuration.



5. Web Accessibility
   Systems configured for AMT are also accessible using a standard web browser. Some AMT configuration is available in this interface. Access the Web UI by entering the IP address and one of the following port numbers into the address bar of the web browser:

   16992 – Use if TLS is NOT defined (use http)
   16993 – Use if TLS is defined (use https)



6. References
    a. Getting Started with Intel® Active Management Technology (AMT)
    b. Introducing the Intel® vPro™ Platform Solution Manager
    c. vPro Platform Solution Manager
    d. Intel MEBX users guide
    e. Intel AMT Implementation and Reference Guide
    f. Intel AMT 10 Start Here Guide

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