

Intel[®] Management Engine BIOS Extension (Intel[®] MEBX) User's Guide

User's Guide

***For systems based on Intel[®] 9 Series/8 Series/C226 Series
Chipset Family based on Broadwell H/U/Y 1-chipProcessor
Line***

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Revision History

Document Number	Revision Number	Description	Revision Date
	0.5	Draft version Since Intel® ME10, Intel® MEBX remove legacy redirection mode. So remove two sections: Legacy Redirection Mode & Changes to Redirection Protocols.	June 2013
	0.6	Update Intel® ME10 screenshot Update Figure 4-1 Configuration Mode Describe more explicit in 3.5.4	September 2013
	1.0	Update Intel® ME10 screenshot	February 2014

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1 Introduction

1.1 Intel® Management Engine (Intel® ME) and Intel® Management Engine BIOS Extension (Intel® MEBX) Overview

The Intel® Management Engine (Intel® ME) is an isolated and protected computing resource. The Intel® ME provides the following IT management feature independent of the installed OS:

- Intel® Active Management Technology (Intel® AMT), allowing improved management of corporate assets.

Intel® ME configuration is included in the BIOS by the Intel® Management Engine BIOS Extension (Intel® MEBX). The Intel® MEBX provides the ability to change and collect the system hardware configuration, passes it to the management firmware and provides the Intel® ME configuration user interface.

1.2 Scope of Document

This document describes how to configure the Intel® MEBX for Intel® 9-Series Chipset Family / Intel PCH platforms with Intel® AMT 10. This document is applicable only for Intel® ME FW 5MB SKU.

Note: The Intel® ME configuration procedures described in this guide are part of the larger Intel® vPro™ technology activation and provisioning process. These configuration procedures can vary significantly (or be performed automatically) and depend on which third-party management console you are using. See the Related Documentation section of this guide (section 1.5) for a list of Intel-authored provisioning guides that are specific to several popular management consoles. These provisioning guides provide the end-to-end process for provisioning your Intel® vPro™ computers with the specified management console, and may or may not include references to the Intel® ME manual configuration procedures in this guide (depending on which provisioning model is used).

1.3 Target Audience

This user guide is primarily intended for Information Technology (IT) administrators and system integrators with experience in implementing complex computer and network installations. It is not intended for general audiences.

Note: Readers should have a basic understanding of networking and computer technology terms, such as TCP/IP, DHCP, IDE, DNS, Subnet Mask, Default Gateway and Domain Name. Explanation of these terms is beyond the scope of this document.



1.4 Acronyms

Acronym	Description
ASF	Alert Standard Format
BIOS	Basic Input Output System
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Server
EIT	Embedded Information Technology (see VA)
FITC	Flash Image Tool, provided by Intel® FW kit
FPT	Flash programming Tool, provided by Intel® FW kit.
FW	Firmware
G3	Complete Power loss from chipset point of view, except RTC well.
GbE	Gigabit Ethernet
GMT	Greenwich Mean Time
HW	Hardware
HBP	Host Based Provisioning
Intel® AMT	Intel® Active Management Technology
Intel® ME	Intel® Management Engine
Intel® MEBX	Intel® Management Engine BIOS Extension
Intel® MEI	Intel® Management Engine Interface
IP	Internet Protocol
LAN	Local Area Network
MSP	Manageability Service Provider
OPK	OEM Pre-Installation Kit
OS	Operating system
PP1	Power Package 1, refer to Power control section
PP2	Power Package 2, refer to Power control section
PRTC	Protected Real Time Clock
RCFG	Remote Configuration
S3	Standby sleep state
S4	Hibernate sleep state
S5	Shutdown sleep state
SPI	Serial Peripheral Interface
SW	Software
TCP	Transmission Control Protocol
UTC	Coordinated Universal Time



Acronym	Description
VLAN	Virtual LAN
WOL	Wake on LAN

1.5 Related Documentation

Refer to the Intel® vPro™ Expert Center's user documentation page, available at the link below, for a collection of documents containing further information on the Intel® vPro™ provisioning process, including specific documents for implementing Intel® vPro™ technology with a number of popular management consoles:

<http://communities.intel.com/community/vproexpert?view=documentsIn>

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2 *Client System Requirements*

The client system referred to in this document is based on 5th Generation Intel® Core™ Processor based on Mobile H/U/Y-Processor Line and is managed by Intel® Management Engine. The following firmware and software requirements are required to be installed and set up before the Intel® Management Engine can be configured and run in the client system:

- SPI flash device programmed with Intel® AMT10 flash image integrating BIOS, Intel® Management Engine and GbE component images
- BIOS set up with Intel® AMT enabled
- To enable all of the Intel® Management Engine features within Microsoft Operating System, device drivers (Intel® MEI, SOL, LMS) must be installed and configured on the client system for features to work correctly in the client system

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3 Intel® ME Manageability Features

The Intel® MEBX menu for digital office SKUs provides platform level configuration options for the IT-administrator to configure the behavior of the Intel® ME platform. The behavior includes platform configuration such as individual feature enable/disable and power configurations.

The following section provides the details on each Intel® MEBX configuration option and the constraints, if any, for a given option.

Note: When you change Intel® ME Platform Configuration settings, some changes are committed to the Intel® ME's non-volatile memory when you exit from Intel® MEBX (the changes are not cached). Therefore, if Intel® MEBX crashes before you exit, the changed settings are **NOT** saved. Please refer to Appendix D for detail of Intel® MEBX options being reflected in firmware.

3.1 Access Intel® MEBX Configuration User Interface

The Intel® MEBX configuration user interface can be accessed on a client system through the following steps:

1. On rebooting the system, after the initial boot screen, the following message will be displayed: **'Press <CTRL-P> to enter Intel® ME Setup'**

Note: To enter the Intel® MEBX, press <Ctrl-P> as soon as possible, since this message is displayed for only a few seconds. Also note that the OEM may replace the control character <Ctrl-P> with another one or don't display it at all.

Note: <Ctrl-P> will be hidden when SOL or KVM session is established. Users are not able to access Intel® MEBX UI in this scenario.

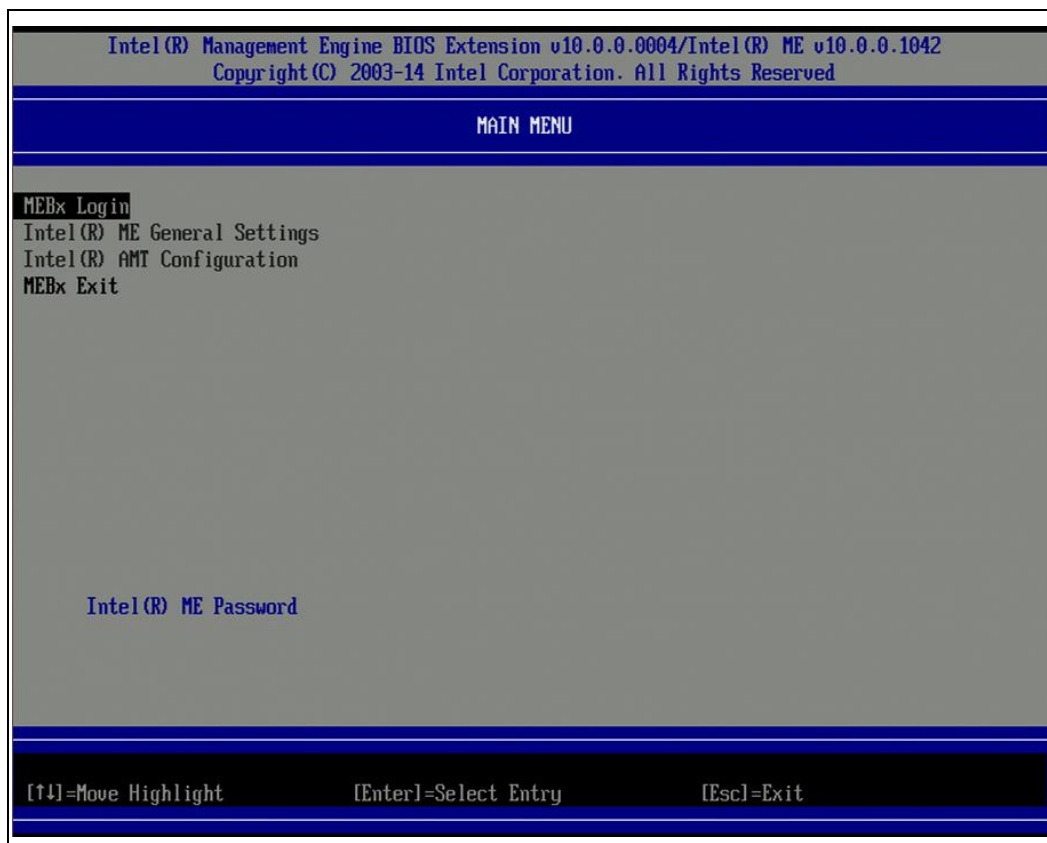
Note: If Intel® AMT has been configured, <CTRL-ALT-F1> will also be displayed along with <CTRL-P>. It is designed for end users to use Fast call for Help feature either inside or outside of corporate network environment when Intel® AMT systems are not discovered by management console.

2. Enter the Intel® Management Engine password under **'MEBX Password'** and press Enter. The default password is 'admin'. This default password must be altered by the user. Please refer to section 3.3 for Intel® ME password details.
3. The Intel® MEBX screen is displayed, as shown in section 3.2.
4. [Esc] means exit current setting page.



3.2 Intel® MEBX Main Menu

Figure 3-1: Intel® MEBX Configuration User Interface Main Menu



The options displayed in the main menu can vary depending on OEM implementation decisions. The main menu selections are:

- MEBX Login
- Intel® ME General Settings
- Intel® AMT Configuration
- MEBX Exit

Note: Intel® MEBX will display only detected options. If one or more of these options does not appear, verify that the system supports the relevant missing feature.

3.3 Intel® ME Password

The default password is “admin” and is configured identically on all newly deployed platforms. When an IT administrator first enters the Intel® MEBX configuration menu with the default password, he or she must change the default password before any feature can be used.



The new Intel® MEBX password must meet the following requirements for strong passwords:

1. **Password Length:** At least 8 characters, and no more than 32.
2. **Password Complexity:** Password must include the following:
 - At least one digit character ('0', '1', ... '9')
 - At least one 7-bit ASCII non alpha-numeric character (e.g. '!', '\$', ';'), but excluding ':', ',', and '"' characters.
 - At least one lower-case letter ('a', 'b'...'z') and at least one upper case letter ('A', 'B'...'Z').

Note: '_' (underscore) and ' ' (whitespace) are valid password characters but do NOT contribute to the password's complexity.

Note: When entering more than 32 characters the software changes the 32nd character on every new character pressed when in the last character position in the Intel® MEBX UI. So whatever the last character typed on the 32nd position, it will replace the existing character in that position.

Note: The password can be reset to the default setting (admin) by shutting down the system, removing AC and DC power and performing a RTC reset.



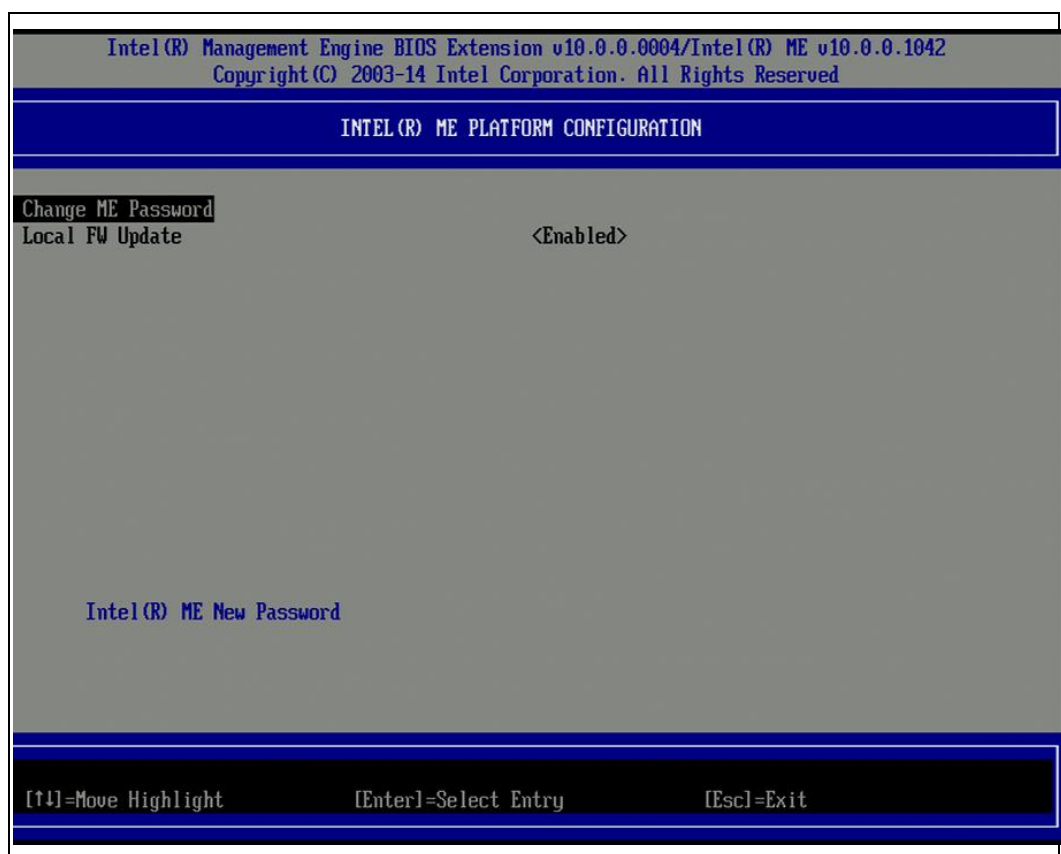
3.4 Intel® ME Platform Configuration Menu

Under the Intel® MEBX main menu:

1. Select 'Intel® ME General Settings'.
2. Press Enter to select.

The Intel® MEBX main menu changes to the Intel® ME Platform Configuration menu. This menu allows the IT administrator to configure the specific functionality of the Intel® ME, such as password etc.

Figure 3-2: Intel® ME Platform Configuration



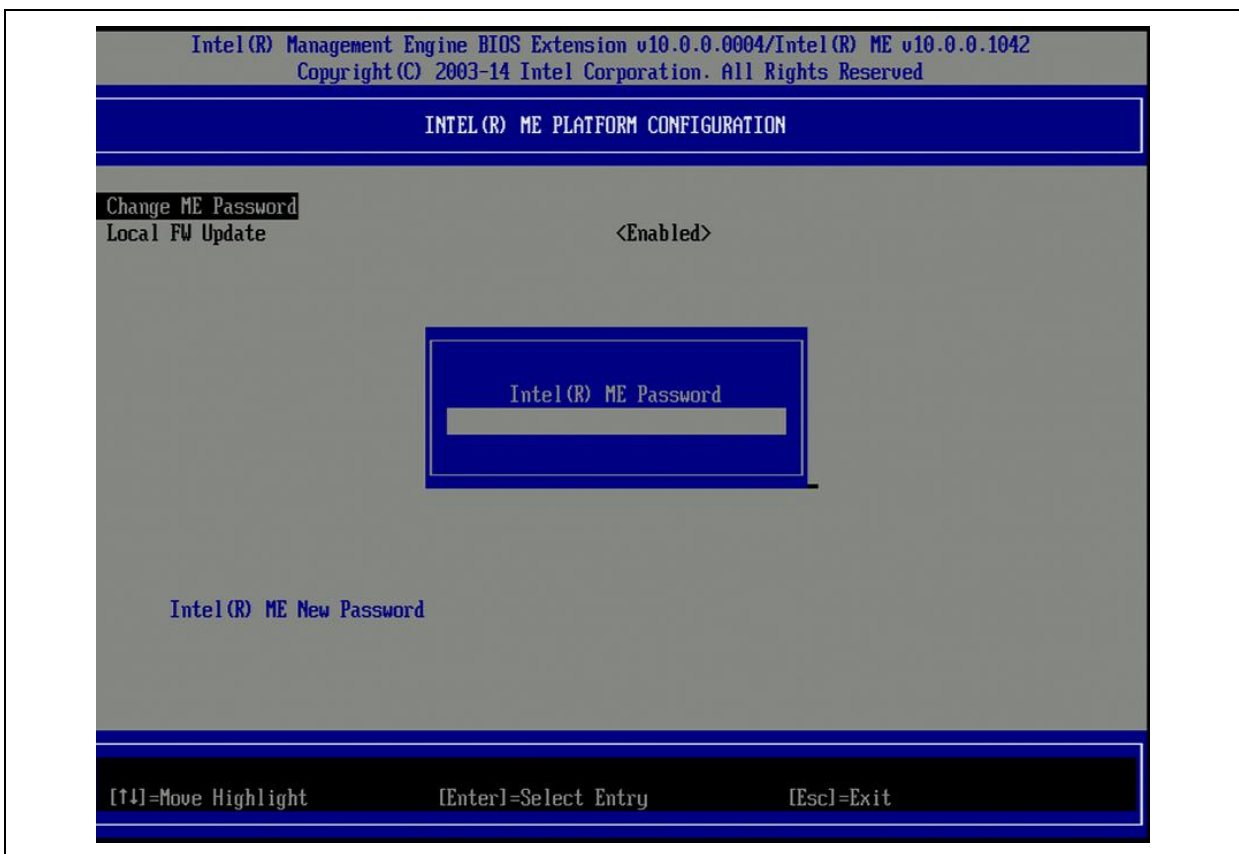


3.4.1 Change Intel® ME Password

Under the Intel® ME Platform Configuration menu:

1. Select 'Change ME Password' and
2. Press Enter to change password.
3. The Intel® ME New Password prompt is displayed as in Figure 3-3.
4. At the Intel® ME Password prompt, enter your old password.
5. At the Intel® ME New Password prompt, enter your new password. (Please be aware of the password policies and restrictions mentioned in section 3.3)
6. At the Verify Password prompt, re-enter your new password. Your password is now changed.

Figure 3-3: Change Intel® ME Password



Note: This password is also the password which Intel® Platform Enablement Test Suit (Intel® PETS) and Intel® Platform Debug Analyze (Intel® PDA) tools require by default.

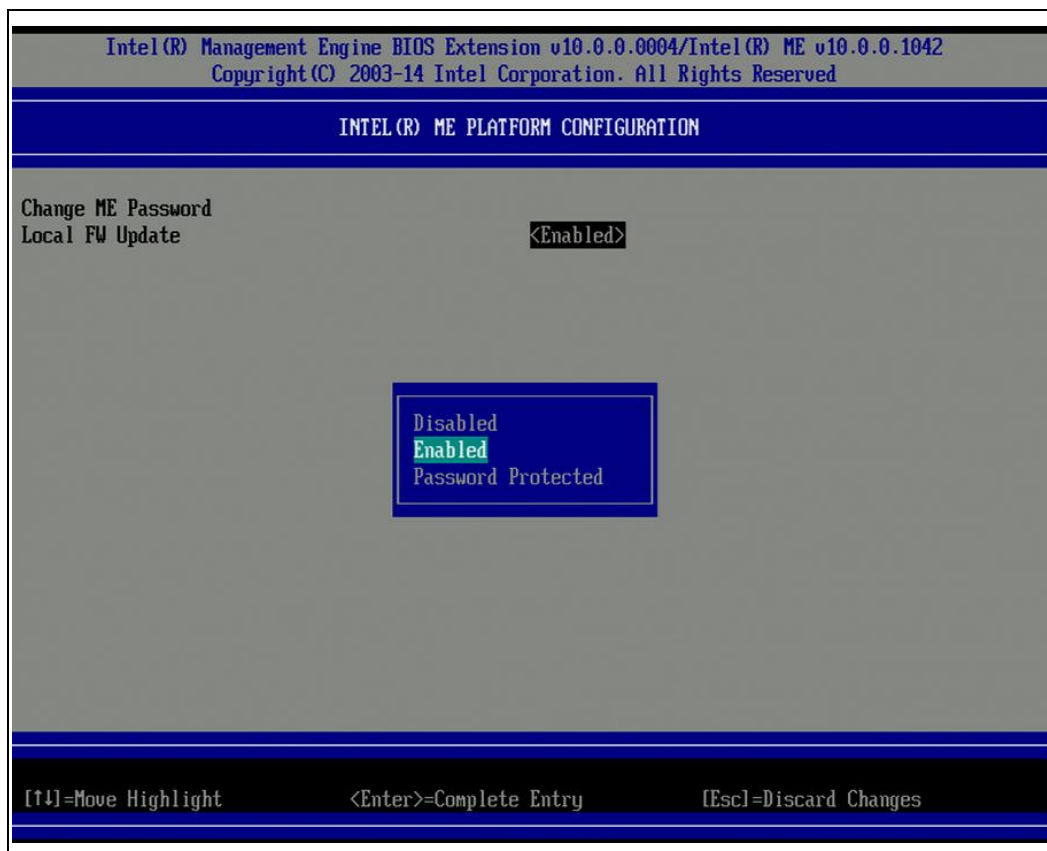


3.4.2 Local FW Update

Under Intel® ME Platform Configuration menu:

1. Select 'Local FW Update'.
2. Press Enter to select.

Figure 3-4: Local FW Update Settings



Intel® ME Firmware Local Update provides the capability to allow or prevent firmware local update in the field. When the “Enabled” option is selected, the administrator is able to update the Intel® ME firmware locally via the local Intel® Management Engine interface.

The following options can be selected:

- **Disabled** – Do NOT allow Local Intel® ME FW Update
- **Enabled** – Allow Local Intel® ME FW Update
- **Password Protected** – Local FW update is protected by Intel® MEBX password

When **Hide FW Update Control** setting in FITC is set, Intel® MEBX will hide Local FW Update option.



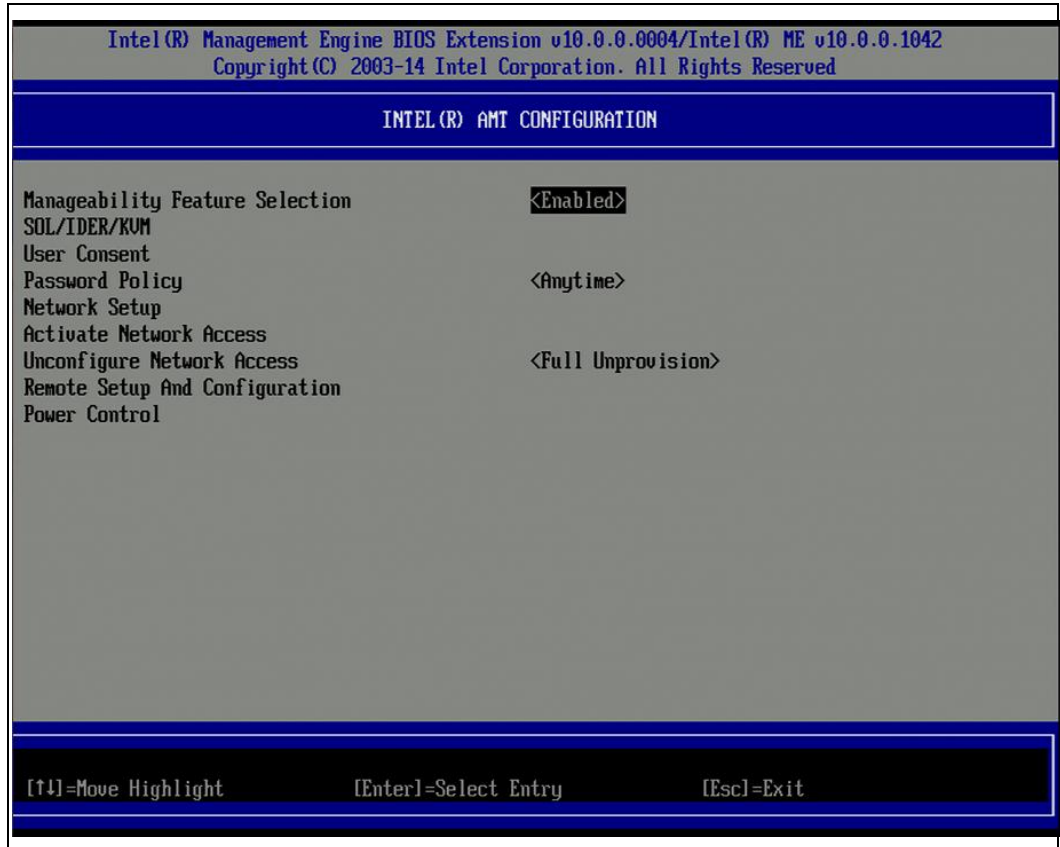
3.5 Intel® AMT Configuration

Under the Main Menu:

1. Select 'Intel® AMT Configuration'.
2. Press Enter to select.

The Main Menu changes to the Intel® AMT Configuration menu.

Figure 3-5: Intel® AMT Configuration



3.5.1 Manageability Feature Selection

Under the Intel® AMT Configuration menu:

1. Select 'Manageability Feature Selection'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

When the Manageability Feature Selection is enabled, the Intel® ME manageability feature menu will be shown. Leaving it disabled means that manageability will not be enabled.



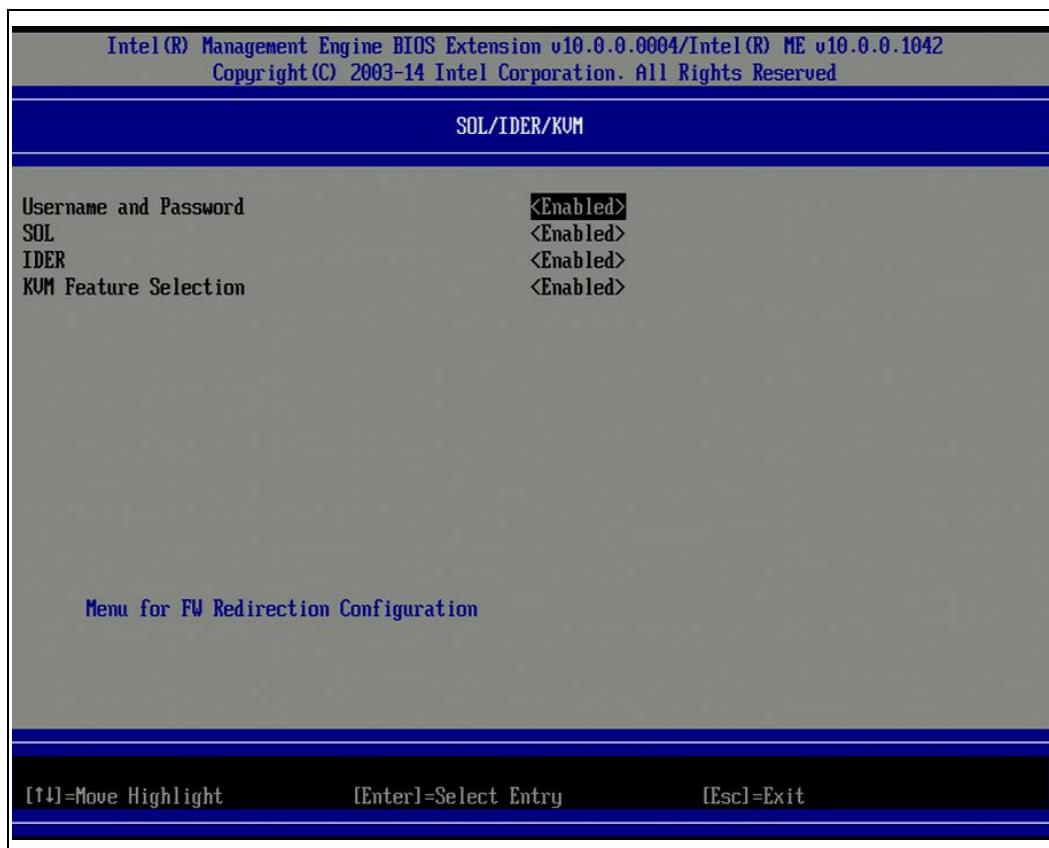
3.5.2 SOL/IDER/KVM

Under the Intel® AMT Configuration menu (**with Intel® AMT enabled**):

1. Select 'SOL/IDER/KVM'.
2. Press Enter to select.

The Intel® AMT Configuration changes to the SOL/IDER/KVM menu.

Figure 3-6: SOL/IDER/KVM



Note: SOL, IDER, and Intel® KVM here are just for enabling CAPABILITY. User still needs to use other tools like Intel® AMT SDK to execute features.

3.5.2.1 Username and Password

Under the SOL/IDER/KVM menu:

1. Select 'Username and Password'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled



This option provides the user authentication for SOL/IDER session. If Kerberos is used, this option should be set to DISABLED. The user authentication is handled through Kerberos. If Kerberos is not used, the IT administrator has the choice to enable or disable user authentication on SOL/IDER session.

3.5.2.2 SOL

Under the SOL/IDER/KVM menu:

1. Select 'SOL'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

SOL allows the console input/output of an Intel® AMT managed client to be redirected to a management server console (if the client system supports SOL). If the system does not support SOL, this value should not be set.

Disabling SOL does not remove this feature but just blocks it from being used.

3.5.2.3 IDER

Under the SOL/IDER/KVM menu:

1. Select 'IDER'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

IDER allows an Intel® AMT mounts a remote disk by a management console. If the client system does not support IDE-R, this value should not be set.

Disabling IDER does not remove this feature but just blocks it from being used.

3.5.2.4 Intel® KVM Feature Selection

Under the SOL/IDER/KVM menu:

1. Select 'Intel® KVM Feature Selection'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

Intel® KVM redirection capability provides IT to remotely control an end-user's platform using a remote keyboard, mouse and see the managed end-user machine's screen output at the remote screen on the IT management console.



Disabling Intel® KVM does not remove this feature but disables it. Intel® KVM will not work in this case.

3.5.3 User Consent

The user consent feature requires the IT-administrator to supply a code, generated by the Intel® AMT platform and displayed to the user. This enhances security when sensitive operations are performed. It also allows the local user to grant permission before certain remote actions take place. The following features may require user consent depending on the User Opt-in setting below:

- IDE-Redirection (IDE-R)
- Intel® KVM
- Remotely setting BIOS boot options
- Changing boot sources for remote boot (e.g. causing a boot from PXE).
- Using Serial Over LAN specifically to redirect BIOS screens and OS Boot text screens

Under the Intel® AMT Configuration menu:

1. Select 'User Consent'.
2. Press Enter to select.

The Intel® AMT Configuration changes to the User Consent menu, see Figure 3-7.



Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042
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USER CONSENT

User Opt-in <KUM>
Opt-in Configurable from Remote IT <Enabled>

Configure When User Consent Should be Required

[↑↓]=Move Highlight [Enter]=Select Entry [Esc]=Exit

Under the User Consent Configuration menu:

- The following options can be selected:

- Note:** When using Host Based Configuration, Client Control Mode will override this setting and behave as if the "ALL" option has been selected. More details regarding Host Based Configuration and Client Control Mode can be found in the "Intel® AMT Release 10.x Start Here" HTML document in the SDK kit



3.5.3.2 Opt-in Configurable from Remote IT

If Intel® AMT was setup locally and is in Client Control mode, this setting is not working. If Intel® AMT was setup in Admin Control mode, this setting allows IT people to change user Opt-in policy remotely.

Under the User Consent menu:

1. Select 'Opt-in Configurable from remote IT'.
2. Press Enter to select.

The following options can be selected:

- **Disabled** – This option disables the remote user's ability to change User OPT-IN Policy. In this case only the local user can control the opt-in policy.
- **Enabled** – Enables remote user's ability to change User OPT-IN Policy. Allows remote user to choose whether or not to request local user consent.

Note: "Privacy/Security Level" in FITC also affects redirection and user consent behavior as below:

- Default – Enable all ports with no user consent required for SOL/IDER/KVM.
- Enhanced – Requires user consent for SOL/IDER/KVM.
- Extreme – Disable SOL/IDER/KVM.

3.5.4 Password Policy

Under the Intel® AMT Configuration menu:

1. Select 'Password Policy'.
2. Press Enter to select.

The following options can be selected:

- **Default Password Only** – The Intel® MEBX password can be changed through the network interface if the default password has not been changed yet.
- **During Setup and Configuration** – The Intel® MEBX password can be changed through the network interface during the setup and configuration process but at no other time. Once the setup and configuration process is complete, the Intel® MEBX password cannot be changed via the network interface.
- **Anytime** – The Intel® MEBX password can be changed through the network interface at any time.

Note: The network interface mentioned above is NOT talking about WebUI.

There are two passwords for the firmware. The Intel® MEBX password is the password that is entered when a user is physically at the system. The network password is the password that is entered when accessing an Intel® ME enabled system through the network. By default they are both the same until any of the passwords is changed. Once changed over the network or the Intel® MEBX user interface, the network password and the MEBX password will always be kept separate®.

This option determines when the user is allowed to change the Intel® MEBX password through the network.



The Intel® MEBX password can always be changed via the Intel® MEBX user interface.

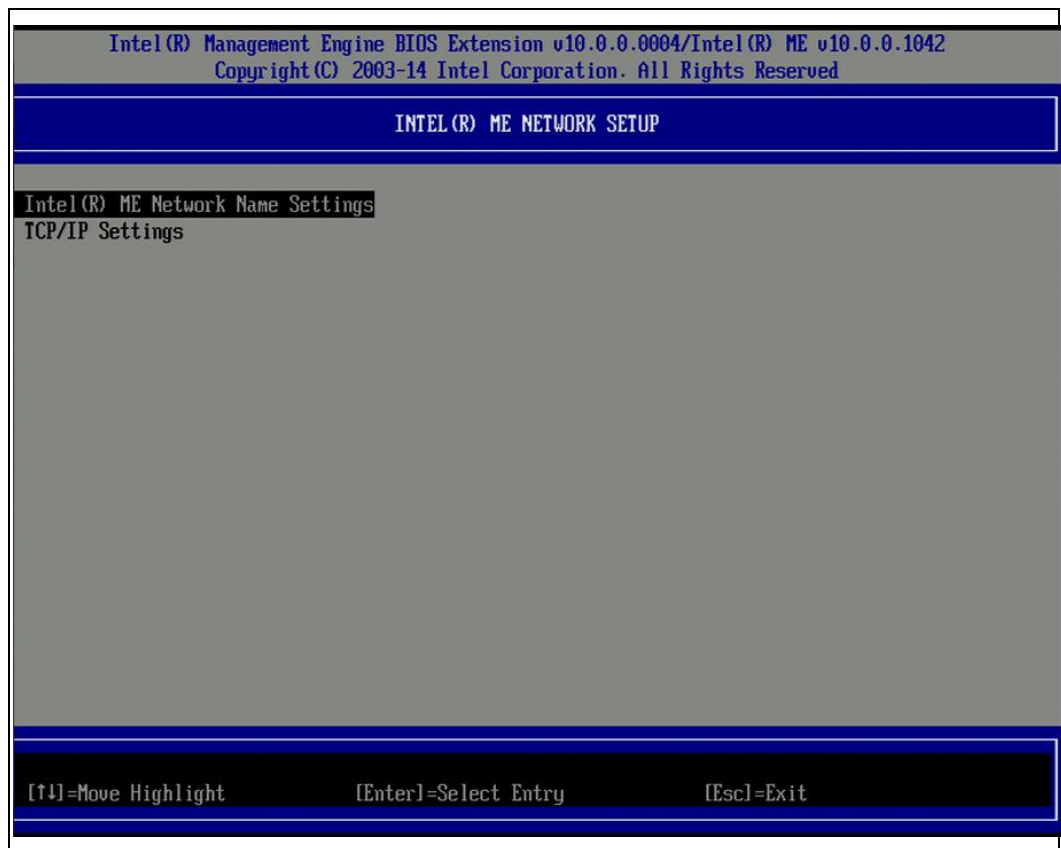
3.5.5 Network Setup

Under the Intel® AMT Configuration menu:

1. Select 'Network Setup'.
2. Press Enter to select.

The Intel® AMT Configuration menu changes to the Intel® ME Network Setup menu.

Figure 3-8: Intel® ME Network Setup

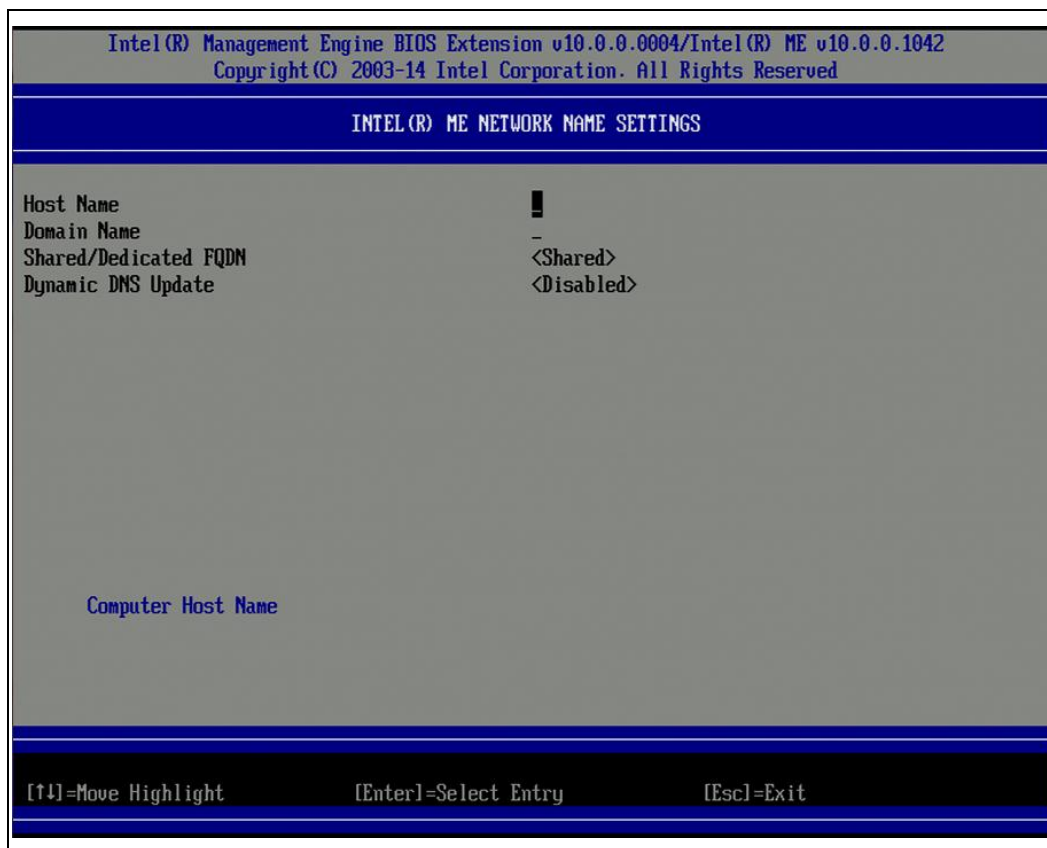


3.5.5.1 Intel® ME Network Name Settings

Under the Intel® ME Network Setup menu:

1. Select 'Intel® ME Network Name Settings'.
2. Press Enter to select.

The Intel® ME Network Setup menu changes to the Intel® ME Network Name Settings menu.

**Figure 3-9: Intel® ME Network Name Settings**

3.5.5.1.1 Host Name

Under the Intel® ME Network Name Settings menu:

1. Select 'Host Name'.
2. Press Enter to edit.

A host name can be assigned to the Intel® AMT machine. This will be the hostname of the Intel® AMT enabled system.

3.5.5.1.2 Domain Name

Under the Intel® ME Network Name Settings menu:

1. Select 'Domain Name'.
2. Press Enter to edit.

A domain name can be assigned to the Intel® AMT machine.

3.5.5.1.3 Shared/Dedicated FQDN

Under the Intel® ME Network Name Settings menu:

1. Select 'Shared/Dedicated FQDN'.
2. Press Enter to select.



The following options can be selected:

- **Dedicated-** The FQDN is dedicated to Intel® ME.
- **Shared-** The FQDN is shared with the Host.

This setting determines whether the Intel® ME Fully Qualified Domain Name (FQDN) (i.e. the "HostName.DomainName") is shared with the host and identical to the operating system machine name or dedicated to the Intel® ME.

3.5.5.1.4 Dynamic DNS Update

Under the Intel® ME Network Name Settings menu:

1. Select 'Dynamic DNS Update'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

If Dynamic DNS Update is enabled then the firmware will actively try to register its IP addresses and FQDN in DNS using the Dynamic DNS Update protocol. If DDNS update is disabled then the firmware acts depending on FQDN setting.

- Under Dedicated FQDN mode: Firmware makes no attempt to update DNS using DHCP option 81 or Dynamic DNS update. DNS server will not be updated.
- Under Shared FQDN mode: Firmware uses DHCP option 81 for DNS registration but does not directly update DNS using the DDNS update protocol.

For selecting "Enabled" for Dynamic DNS Update it is required that the Host Name and Domain Name are set.

3.5.5.1.5 Periodic Update Interval

This option is only available when Dynamic DNS Update is enabled.

**Figure 3-10: Periodic Update Interval**

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042
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INTEL(R) ME NETWORK NAME SETTINGS

Host Name -
Domain Name -
Shared/Dedicated FQDN <Shared>
Dynamic DNS Update <Enabled>
Periodic Update Interval 1440
TTL 900

Value=0 or >=20
1440

<Enter>=Complete Entry [Esc]=Discard Changes

Defines the interval at which the firmware DDNS Update client will send periodic updates. It should be set according to corporate DNS scavenging policy. Units are minutes. A value of 0 disables periodic update. The value set should be equal or greater than 20 minutes. The default value for this property is 24 hours - 1440 minutes.

1. Select 'Periodic Update interval'.
2. Press Enter to edit <in minutes>.

3.5.5.1.6 TTL

This option is only available when Dynamic DNS Update is enabled.



Figure 3-11: TTL Screen

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042
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INTEL(R) ME NETWORK NAME SETTINGS

Host Name -
Domain Name -
Shared/Dedicated FQDN <Shared>
Dynamic DNS Update <Enabled>
Periodic Update Interval 1440
TTL 900

Value in Seconds
900

<Enter>=Complete Entry [Esc]=Discard Changes

TTL (Time-to-live) here is a period of time that determines how long the record should not be scavenged in DNS server when dynamic DNS update is enabled. This setting allows configuring the TTL time in seconds and should be greater than zero. The default value is 15 min.

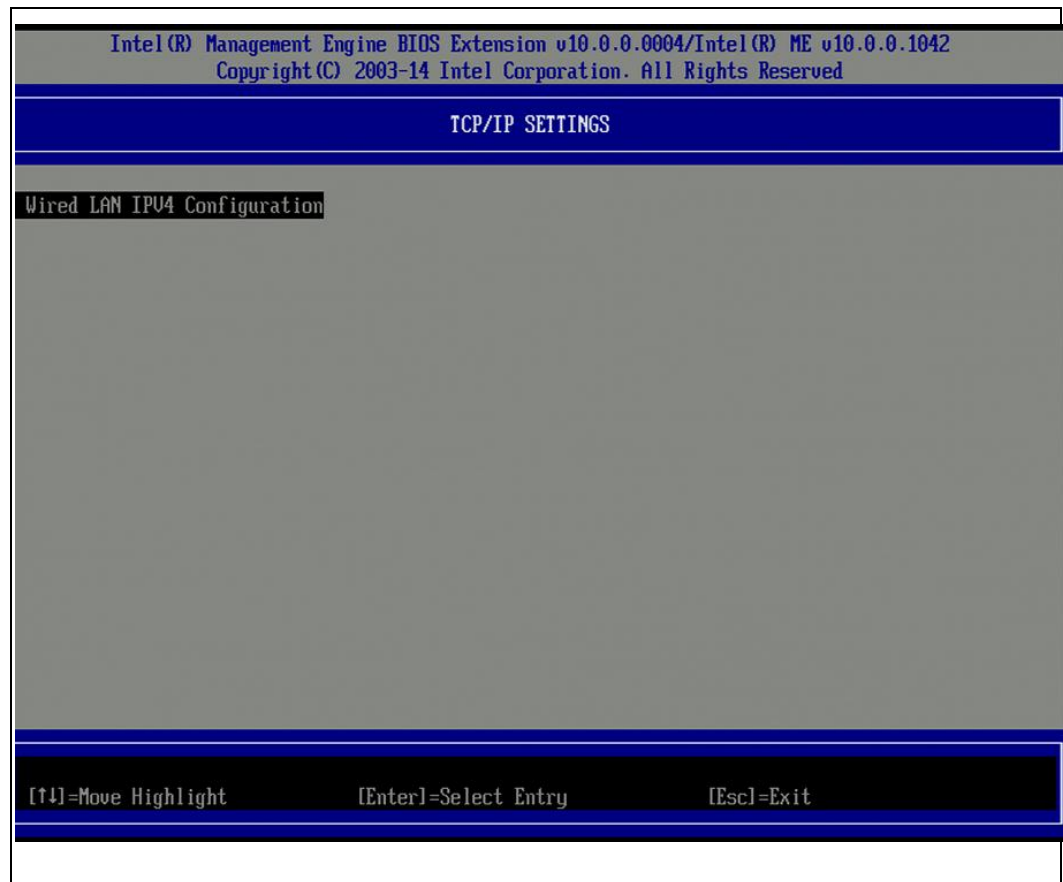
1. Select 'TTL'.
2. Press Enter to edit <in seconds>.

3.5.5.2 TCP/IP Settings

Under the Intel® ME Network Setup menu:

1. Select 'TCP/IP Settings'.
2. Press Enter to select.

The Intel® ME Network Setup menu changes to the TCP/IP Settings menu.

**Figure 3-12: TCP/IP Settings**

3.5.5.2.1 Wired LAN IPV4 Configuration

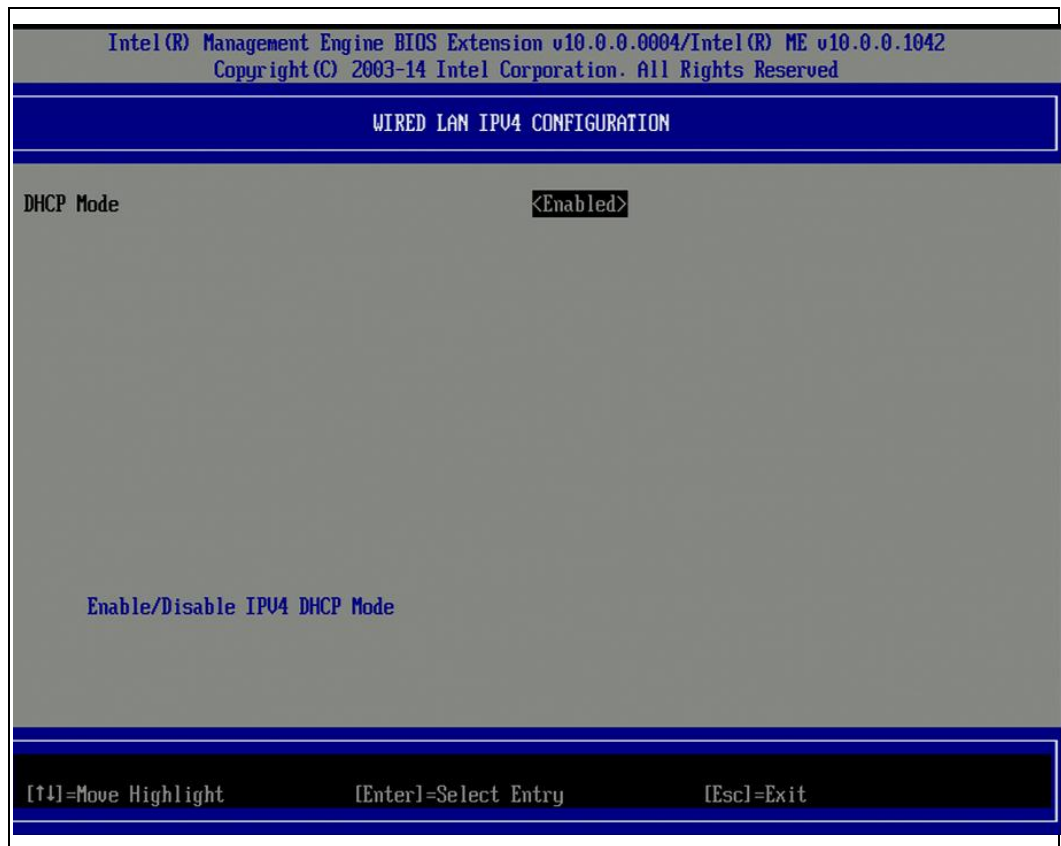
Under the TCP/IP Settings menu:

1. Select 'Wired LAN IPV4 Configuration'.
2. Press Enter to select.

The TCP/IP Settings menu changes to the Wired LAN IPV4 Configuration menu.



Figure 3-13: Wired LAN IPV4 Configuration



3.5.5.2.2 DHCP Mode

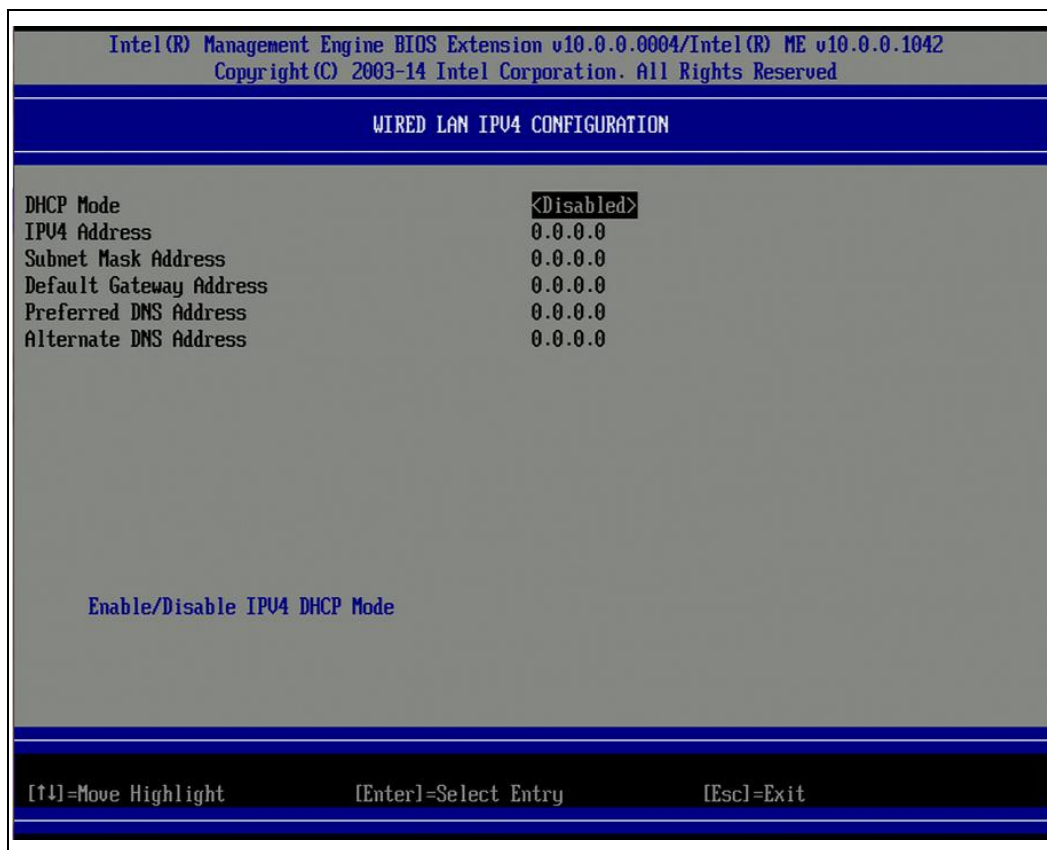
Under the Wired LAN IPV4 Configuration menu:

1. Select 'DHCP Mode'.
2. Press Enter to select.

The following options can be selected:

- **ENABLED** - If DHCP Mode is enabled, TCP/IP settings will be configured by a DHCP server. No additional steps are required.
- **DISABLED** - If DHCP mode is disabled, the following static TCP/IP settings are required for Intel® AMT. If a system is in static mode the system should require a second IP address. This IP address, often called the Intel® ME IP address has to be different than host IP address (unless in shared static IP mode, which is out of Intel® MEBX User Guide scope). Please check following sections 3.5.5.2.3 ~ 3.5.5.2.7.

Static IP and subnet mask are mandatory.

**Figure 3-14: DHCP Mode Disabled**

3.5.5.2.3 IPv4 Address

Under the Wired LAN IPV4 Configuration menu:

1. Select 'IPv4 Address'.
2. Press Enter to edit.

3.5.5.2.4 Subnet Mask Address

Under the Wired LAN IPV4 Configuration menu:

1. Select 'Subnet Mask Address'.
2. Press Enter to edit.

3.5.5.2.5 Default Gateway Address

Under the Wired LAN IPV4 Configuration menu:

1. Select 'Default Gateway Address'.
2. Press Enter to edit.



3.5.5.2.6 Preferred DNS Address

Under the Wired LAN IPV4 Configuration menu:

1. Select 'Preferred DNS Address'.
2. Press Enter to edit.

3.5.5.2.7 Alternate DNS Address

Under the Wired LAN IPV4 Configuration menu:

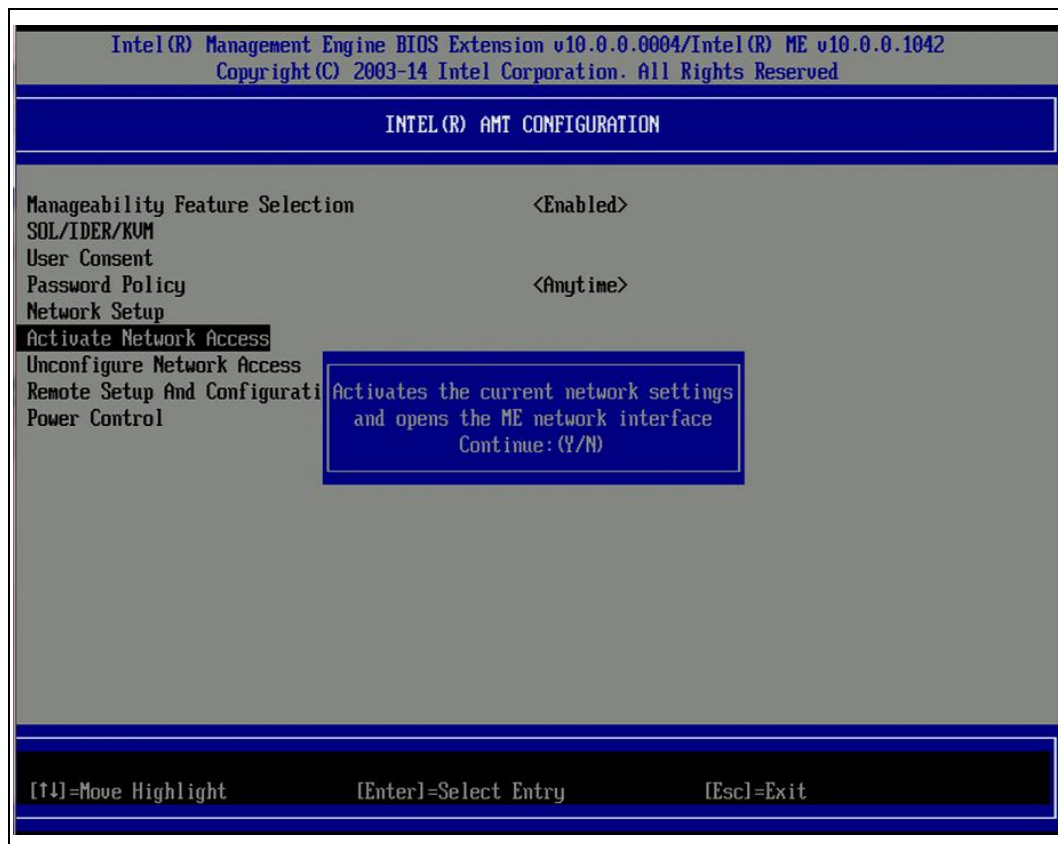
1. Select 'Alternate DNS Address'.
2. Press Enter to edit.

3.5.6 Activate Network Access

Under the Intel® AMT Configuration menu:

1. Select 'Activate Network Access'.
2. Press Enter to select.
3. Press **Y** to activate or press **N** to cancel.

Figure 3-15: Activate Network Access





Activate Network Access causes the Intel® ME to transition to the POST provisioning state if all required settings are configured. Without Activating Network Access, Intel® ME will not be able to connect to the network.

3.5.7 Unconfigure Network Access

Under the Intel® AMT Configuration menu:

1. Select 'Unconfigure Network Access'.
2. Press Enter to select.

The following options can be selected:

- Full Unprovision
- Partial Unprovision -

Table 3-1: Intel® AMT Unprovisioning

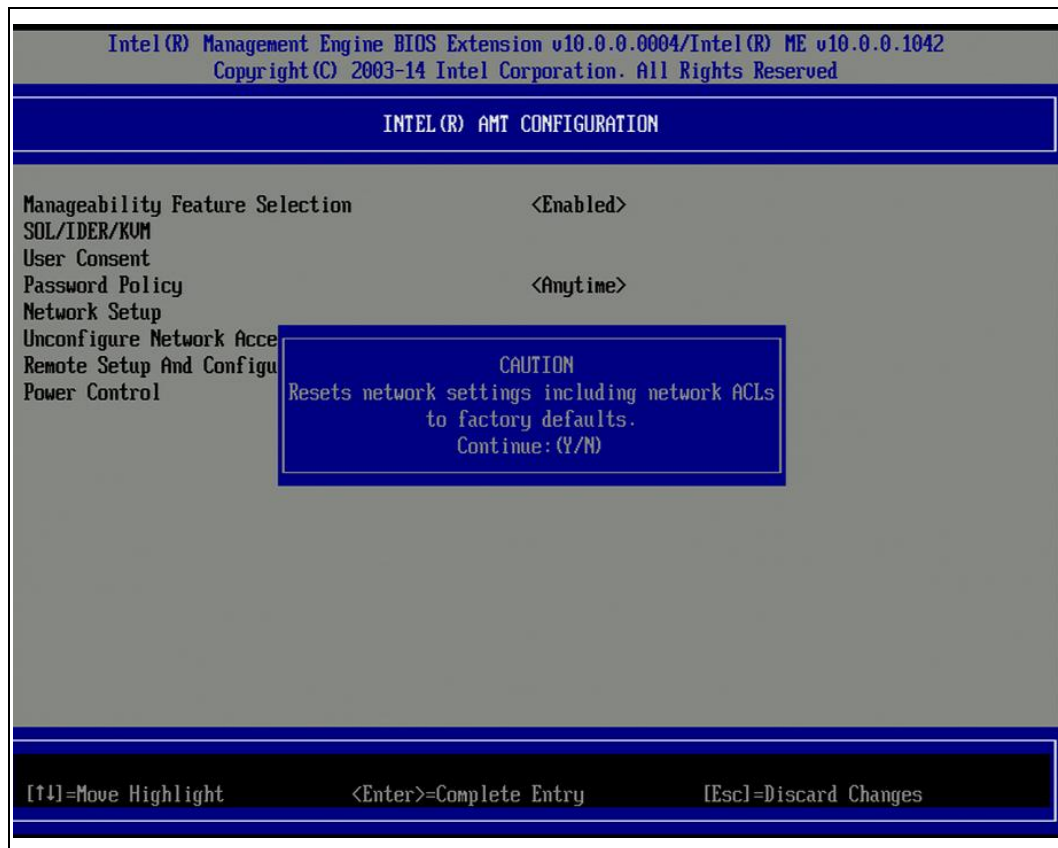
Intel® AMT Full Unprovisioning	<p>The following settings still Kept:</p> <p>Intel® MEBX password</p> <p>BIOS tables</p> <p>Privacy related settings:</p> <p>SOL/IDER/KVM local enable/disable</p> <p>Intel® KVM Opt-in setttable through network enable/disable</p> <p>IDER boot log</p>
Intel® AMT Partial Unprovisioning	<p>Same as Intel® AMT Full Unprovisioning and more following settings Kept:</p> <p>PSK settings (PID/PPS)</p> <p>All Remote Configuration settings (ZTC enable, OTP, customized hashes, configuration server FQDN, provisioning DNS suffix)</p> <p>Network settings - Kept</p>

3. Select Y to unconfigure or N to exit without change.

The following screen appears:



Figure 3-16: Unconfigure Network Access



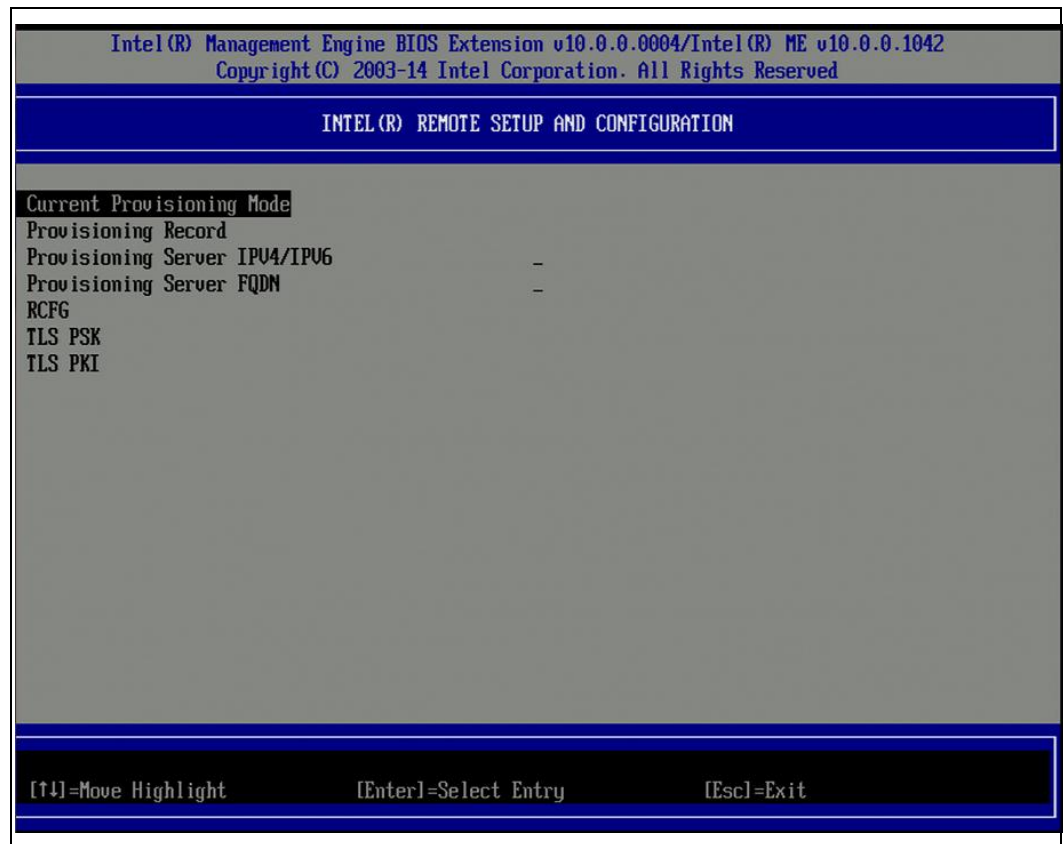
3.5.8 Remote Setup and Configuration

Under Intel® AMT Configuration:

1. Select 'Remote Setup and Configuration'.
2. Press Enter to select.

The Intel® AMT Configuration menu changes to the Intel Remote Setup and Configuration menu.

The following list is displayed when Intel® AMT is in pre-provision mode.

**Figure 3-17: Intel Remote Setup and Configuration**

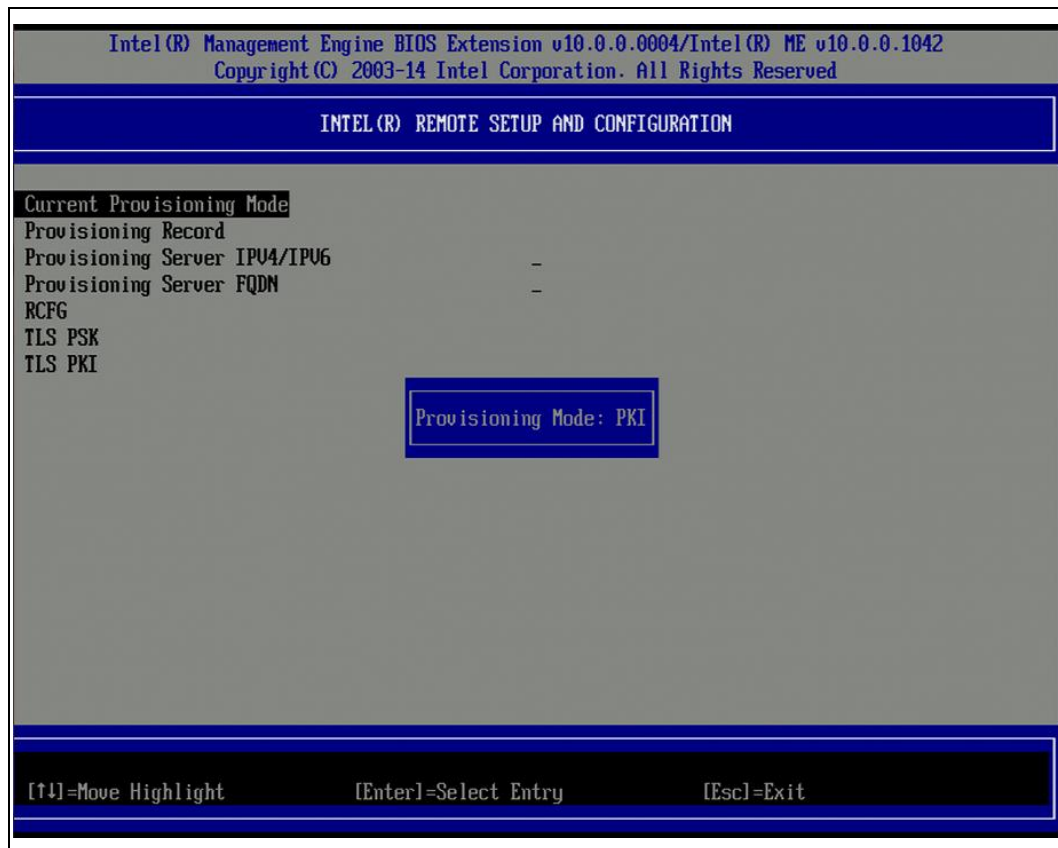
3.5.8.1 Current Provisioning Mode

Under Intel Remote Setup and Configuration menu:

1. Select 'Current Provisioning Mode'.
2. Press Enter to select.



Figure 3-18: Current Provisioning Mode



Current Provisioning Mode – Displays the current provisioning TLS Mode: None, PKI, or PSK.

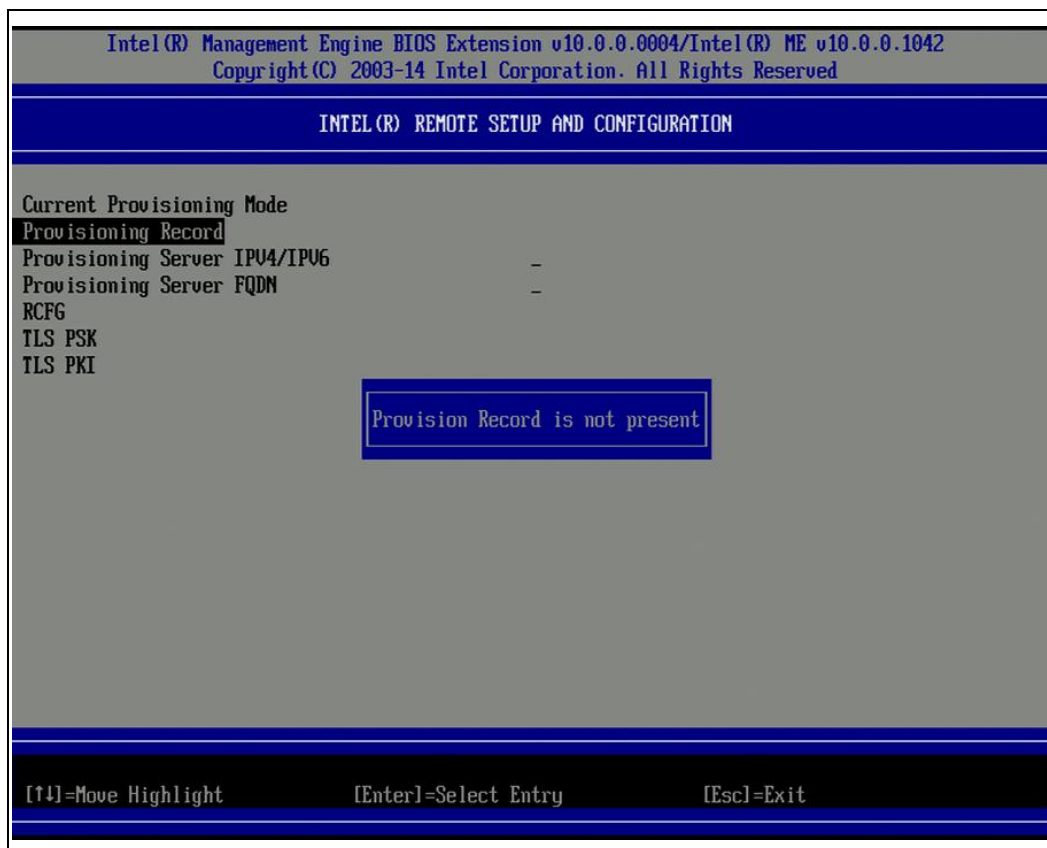
3.5.8.2 Provisioning Record

Under Intel Remote Setup and Configuration menu:

1. Select 'Provisioning Record'.
2. Press Enter to select.



Figure 3-19: Provisioning Record



Provisioning Record – Displays the system’s provision PSK/PKI record data. If the data has not been entered, the Intel® MEBX displays a message stating “Provision Record is not present”.

If the data is entered, the Provision record will display the following:

- TLS provisioning mode – Displays the current configuration mode of the system: None, PSK or PKI.
- Provisioning IP – The IP address of the setup and configuration server.
- Date of Provision – Displays the date and time of the provisioning in the format MM/DD/YYYY at HH:MM.
- DNS – Indicates whether the "PKI DNS Suffix" was configured in Intel® MEBX before remote configuration took place or not. A value of 0 indicates that the DNS Suffix was not configured and the firmware will rely on DHCP option 15 and compare this suffix to the FQDN in the Configuration Server's client certificate. A value of 1 indicates that the DNS Suffix was configured and the firmware matched it against the DNS Suffix in the Configuration Server's client certificate. Host Initiated – Indicates whether the setup and configuration process was initiated by the host: 'No' indicates that the setup and configuration process was NOT host-initiated, 'Yes' indicates the setup and configuration process was host-initiated (PKI only).
- Hash Data – Displays the 40-character certificate hash data (PKI only).



- Hash Algorithm – Describes the hash type (PKI only).
- IsDefault – Displays 'Yes' if the Hash algorithm is the default algorithm selected. Displays 'No' if the hash algorithm is NOT the default algorithm used (PKI only).
- FQDN – FQDN of the provisioning server mentioned in the certificate (PKI only).
- Serial Number – The 32-character string that indicates the Certificate Authority serial numbers.
- Time Validity Pass – Indicates whether the certificate passed the time validity check.

3.5.8.3 Provisioning Server IPV4/IPV6

Under the Intel Remote Setup and Configuration menu:

1. Select 'Provisioning Server IPV4/IPV6'.
2. Press Enter to edit the IP address of the Intel® AMT provisioning server.
3. Edit the port number of the Intel® AMT provisioning server. The default port number is 9971.

3.5.8.4 Provisioning Server FQDN

Under the Intel Remote Setup and Configuration menu:

1. Select 'Provisioning Server FQDN'.
2. Press Enter to edit.

FQDN of the provisioning server mentioned in the certificate (PKI only). This is also the FQDN of the server that Intel® AMT sends hello packets to both PSK and PKI

3.5.8.5 RCFG

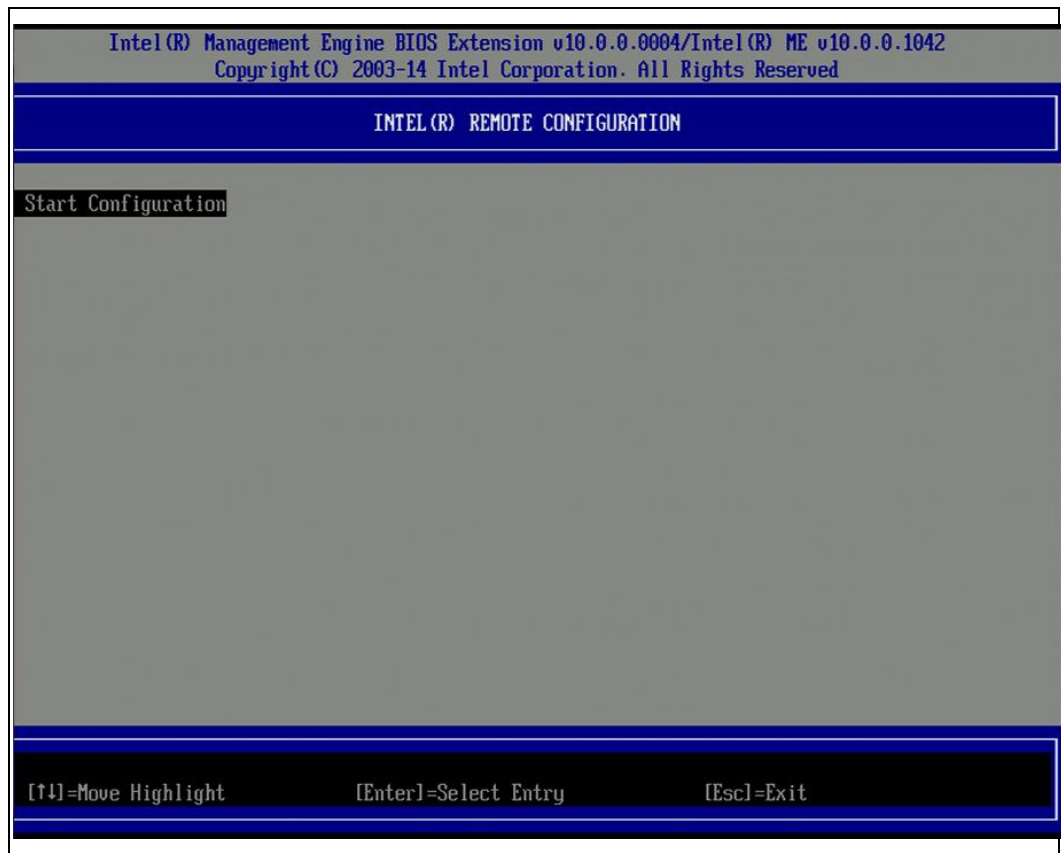
Under Intel Remote Setup and Configuration menu:

1. Select 'RCFG'.
2. Press Enter to select.

The Intel Remote Setup and Configuration menu changes to the Intel Remote Configuration menu.



Figure 3-20: Intel Remote Configuration



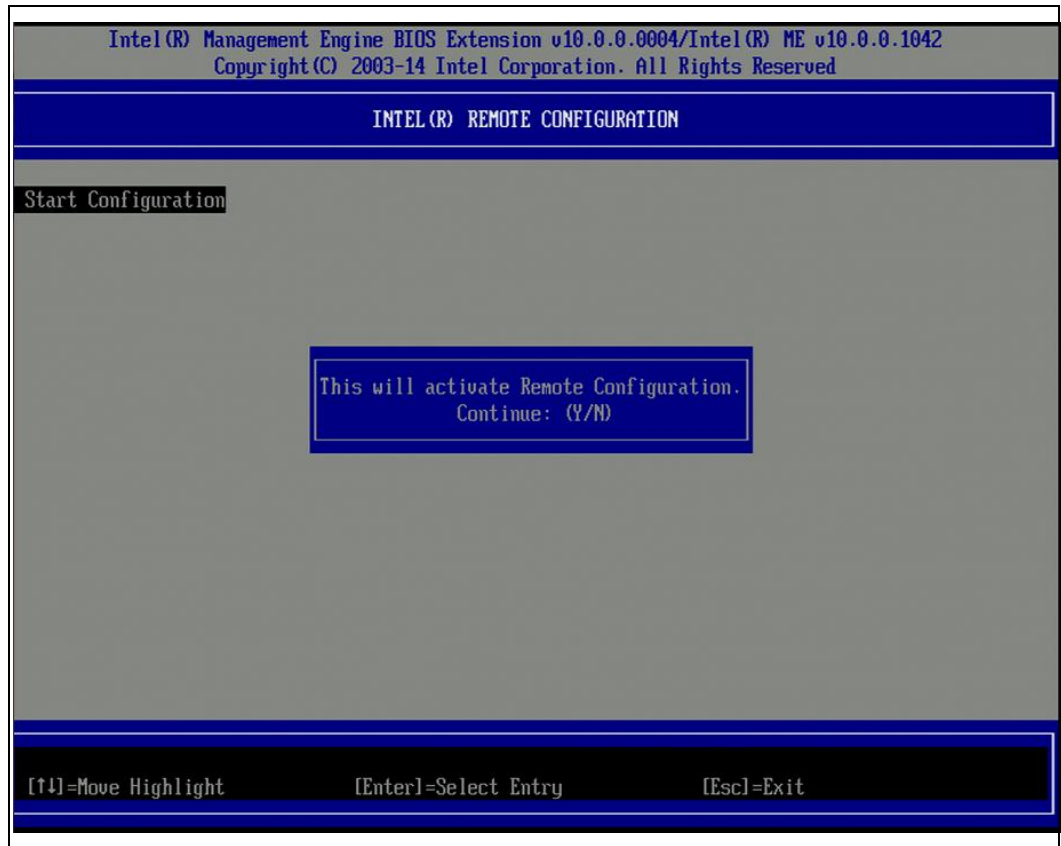
3.5.8.5.1 Start Configuration

Under the Intel Remote Configuration menu:

1. Select 'Start Configuration'.
2. Select **Y** to activate remote configuration or **N** to exit without change.



Figure 3-21: Activate RCFG



If Remote Configuration is not activated, remote configuration cannot occur.

3.5.8.6 TLS PSK

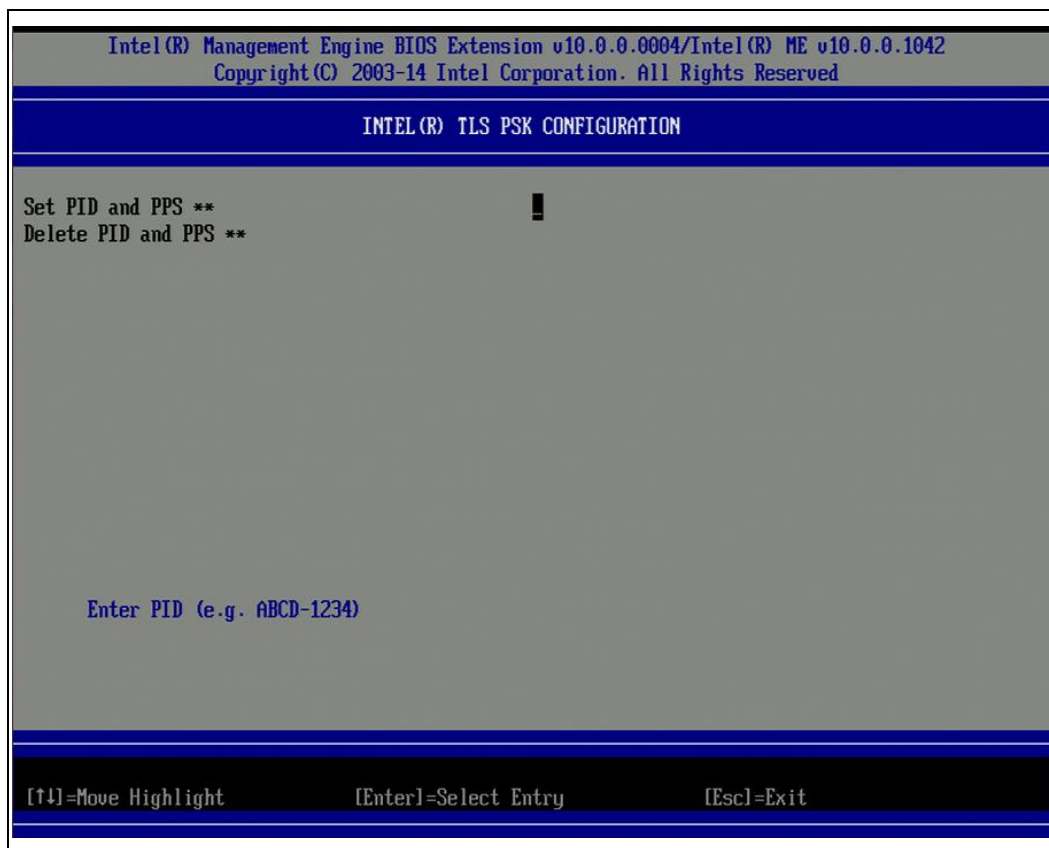
Under Intel Remote Setup and Configuration menu:

1. Select 'TLS PSK'.
2. Press Enter to select.

The Intel Remote Setup and Configuration menu changes to the Intel TLS PSK Configuration menu.



Figure 3-22: Intel TLS PSK Configuration Screen



This submenu contains the settings for TLS PSK configuration settings.

3.5.8.6.1 Set PID and PPS

Under the Intel TLS PSK Configuration menu:

1. Select 'Set PID and PPS'.
2. Press Enter to edit PID.
3. Edit PPS.

Setting the PID/PPS will cause a partial unprovision if the setup and configuration is "In-process". The PID and PPS should be entered in the dash format. (Ex. PID: AAAA-AAAN; PPS: AAAF-AAAF- AAAF-AAAF- AAAF-AAAF- AAAF-AAAF).

Note: A PPS value of '0000-0000-0000-0000-0000-0000-0000-0000' will not change the setup configuration state. If this value is used, the setup and configuration state will remain 'Not-started'. If an invalid entry is attempted, an error message will be displayed.

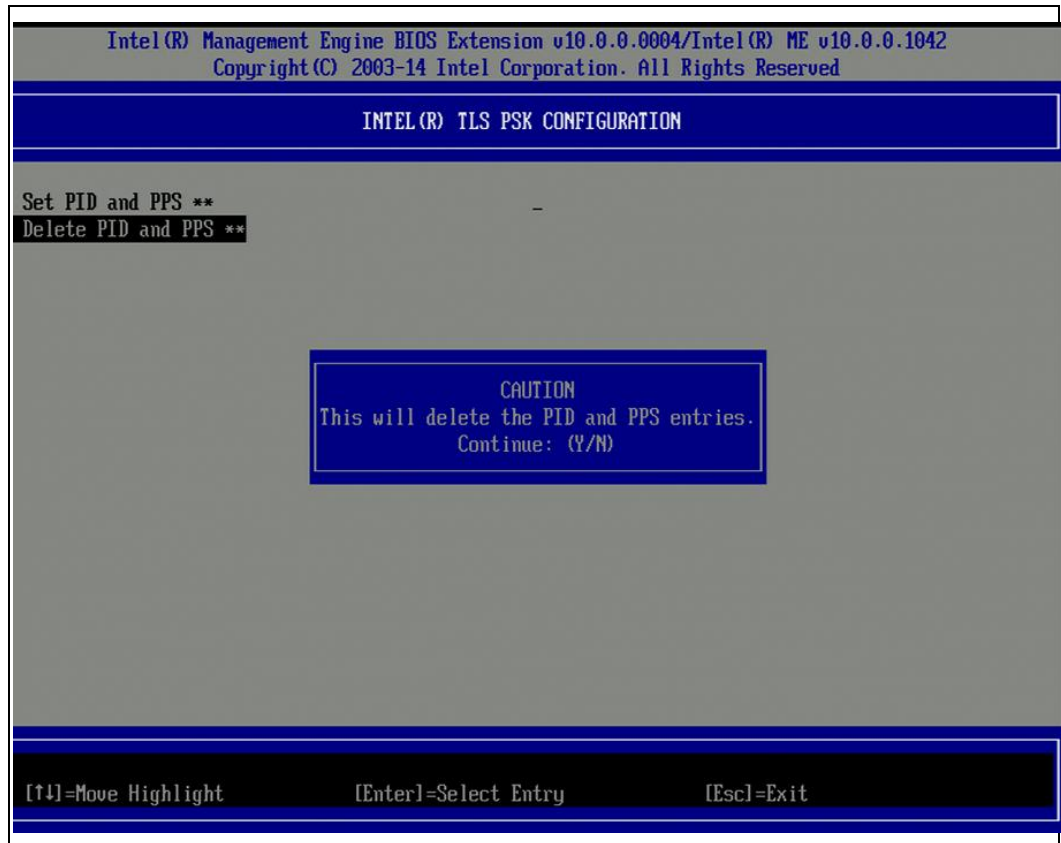


3.5.8.6.2 Delete PID and PPS

Under the Intel TLS PSK Configuration menu:

1. Select 'Delete PID and PPS'.
2. Press Enter to select.
3. Press **Y** to delete or **N** to exit without change.

Figure 3-23: Delete PID and PPS



3.5.8.7 TLS PKI

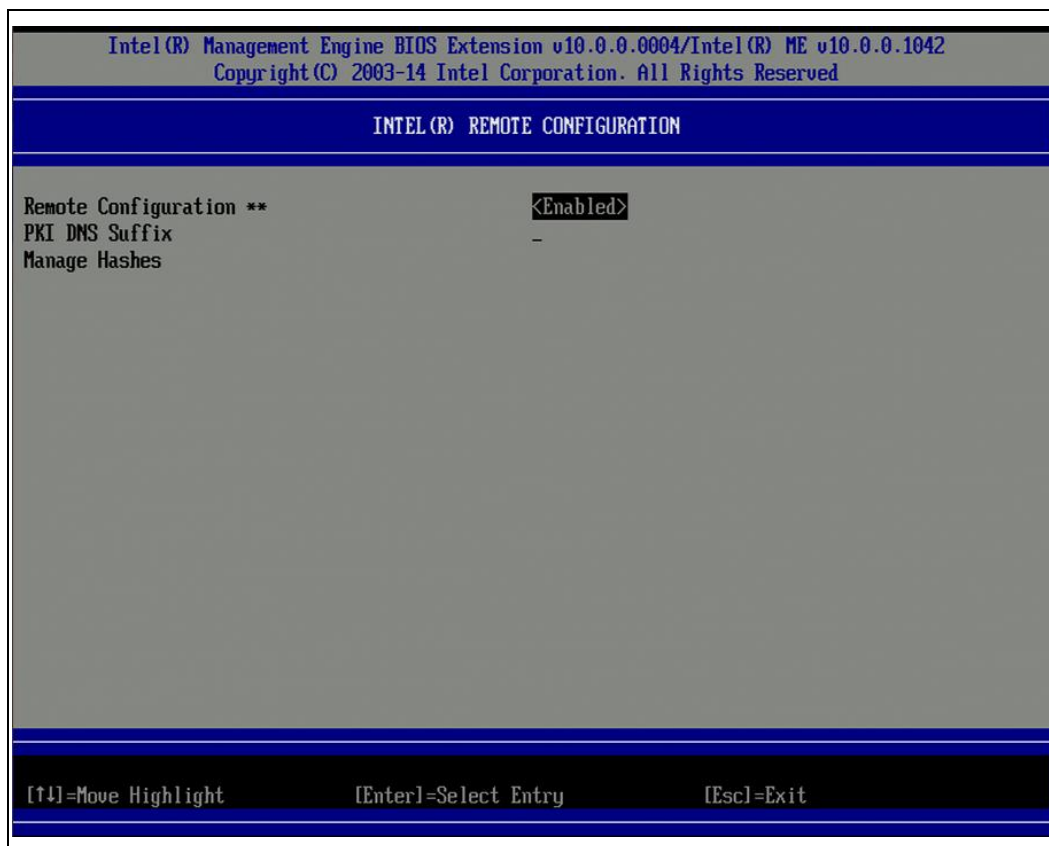
Under Intel Remote Setup and Configuration menu:

1. Select 'TLS PKI'.
2. Press Enter to select.

The Intel Remote Setup and Configuration menu changes to the Intel Remote Configuration menu.



Figure 3-24: Intel Remote Configuration



3.5.8.7.1 Remote Configuration

Under the Intel Remote Configuration menu:

1. Select 'Remote Configuration'.
2. Press Enter to select.

The following options can be selected:

- **Disabled-** remote configuration is disabled. Only 'Remote Configuration' item is visible.
- **Enabled-** remote configuration is enabled, this will show additional fields.

Enabling/Disabling Remote configuration will cause a partial un-provision if the setup and configuration server is "In-process".

3.5.8.7.2 PKI DNS Suffix

Under the Intel Remote Configuration menu:

1. Select 'PKI DNS Suffix'.
2. Press Enter to edit.



3.5.8.7.3 Manage Hashes

Under the Intel Remote Configuration menu:

1. Select 'Manage Hashes '.
2. Press Enter to select.

Figure 3-25: Manage Hashes

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042 Copyright(C) 2003-14 Intel Corporation. All Rights Reserved			
INTEL(R) REMOTE CONFIGURATION			
Hash Name	Active	Default	Algorithm
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
Go Daddy Class 2	Active : [*]	Default : [*]	SHA1
Comodo AAA CA	Active : [*]	Default : [*]	SHA1
Starfield Class 2	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
GTE CyberTrust G1	Active : [*]	Default : [*]	SHA1
Baltimore CyberTr	Active : [*]	Default : [*]	SHA1
Cybertrust Global	Active : [*]	Default : [*]	SHA1
Verizon Global Ro	Active : [*]	Default : [*]	SHA1
Entrust.net CA (2	Active : [*]	Default : [*]	SHA1
Entrust Root CA	Active : [*]	Default : [*]	SHA1
VeriSign Universa	Active : [*]	Default : [*]	SHA1
[Ins]=Add New Hash [Delete]=Delete Hash [=]=Activate Hash [↑↓]=Move Highlight [Enter]=View Hash [Esc]=Exit			

Selecting this option will enumerate the hashes in the system and display the Hash Name and the active and default state.

The Manage Certificate Hash list provides keyboard controls for managing the hashes on the system. The following keys are valid when in the Manage Certificate Hash list:

- **Escape** key – exits from the menu
- **Insert** key – adds a customized certificate hash to the system.
- **Delete** key –deletes the currently selected certificate hash from the system.
- **'+'** key – Changes the active state of the currently selected certificate hash.
- **Enter** key – Displays the details of the currently selected certificate hash.

3.5.8.7.4 Adding a Customized Hash

When the Insert key is pressed in the Manage Certificate Hash list, the following screen is displayed.



Figure 3-26: Adding a New Hash Name

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042
Copyright(C) 2003-14 Intel Corporation. All Rights Reserved

INTEL(R) REMOTE CONFIGURATION

Hash Name	Active	Default	Algorithm
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
Go Daddy Class 2	Active : [*]	Default : [*]	SHA1
Comodo AAA CA	Active : [*]	Default : [*]	SHA1
Starfield Class 2	Active :		
VeriSign Class 3	Active :		
VeriSign Class 3	Active :		
VeriSign Class 3	Active :		
GTE CyberTrust G1	Active :		
Baltimore CyberTr	Active :		
Cybertrust Global	Active : [*]	Default : [*]	SHA1
Verizon Global Ro	Active : [*]	Default : [*]	SHA1
Entrust.net CA (2	Active : [*]	Default : [*]	SHA1
Entrust Root CA	Active : [*]	Default : [*]	SHA1
VeriSign Universa	Active : [*]	Default : [*]	SHA1

Enter Custom Hash Certificate Name

[Ins]=Add New Hash [Delete]=Delete Hash [=]=Activate Hash
[↑↓]=Move Highlight [Enter]=View Hash [Esc]=Exit

To add a customized certificate hash:

Enter the hash name (up to 32 characters). When you press 'Enter', you are prompted to select the algorithm of hash being used for PKI provisioning.

The supported hash algorithms are SHA1 **ONLY**.

After selecting desired Hash Algorithm, you are prompted to enter the certificate hash value.



Figure 3-27: Add Hash - Certificate

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042
Copyright(C) 2003-14 Intel Corporation. All Rights Reserved

INTEL(R) REMOTE CONFIGURATION

Hash Name	Active	Default	Algorithm
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
Go Daddy Class 2	Active : [*]	Default : [*]	SHA1
Comodo AAA CA	Active : [*]	Default : [*]	SHA1
Starfield			
VeriSign			
VeriSign			
VeriSign			
GTE Cyber			
Baltimore			
Cybertrust Global	Active : [*]	Default : [*]	SHA1
Verizon Global Ro	Active : [*]	Default : [*]	SHA1
Entrust.net CA (2	Active : [*]	Default : [*]	SHA1
Entrust Root CA	Active : [*]	Default : [*]	SHA1
VeriSign Universa	Active : [*]	Default : [*]	SHA1

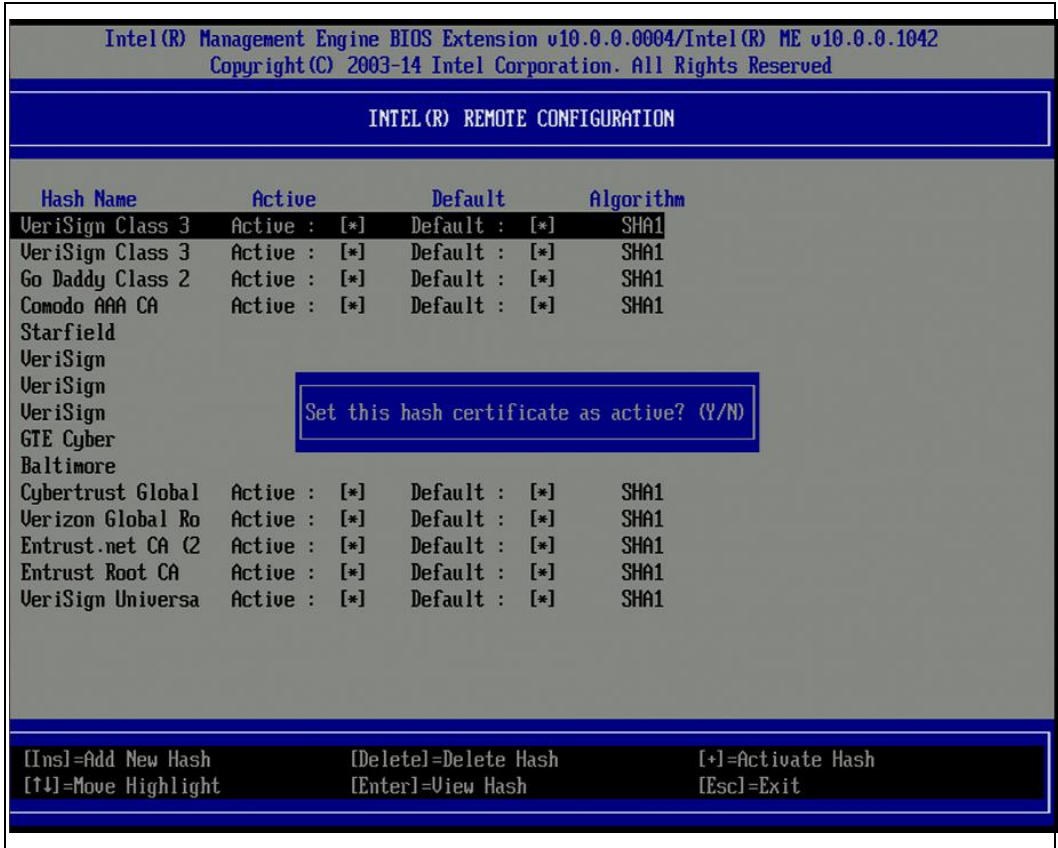
Enter Certificate (e.g. ABCD-1234-ABCD-1234-ABCD-1234-ABCD-1234)

[Ins]=Add New Hash [Delete]=Delete Hash [*]=Activate Hash
[↑↓]=Move Highlight [Enter]=View Hash [Esc]=Exit

The Certificate hash value is a hexadecimal number (for SHA-1 it is 20 bytes). If the value is not entered in the correct format, the message "Invalid Hash Certificate Entered - Try Again" is displayed. When you press 'Enter', you are prompted to set the active state of the hash.



Figure 3-28: Add Hash - Active



Your response sets the active state of the customized hash as follows:

- Yes – The customized hash will be marked as active.
- No (Default) – The customized hash will added but will not be active

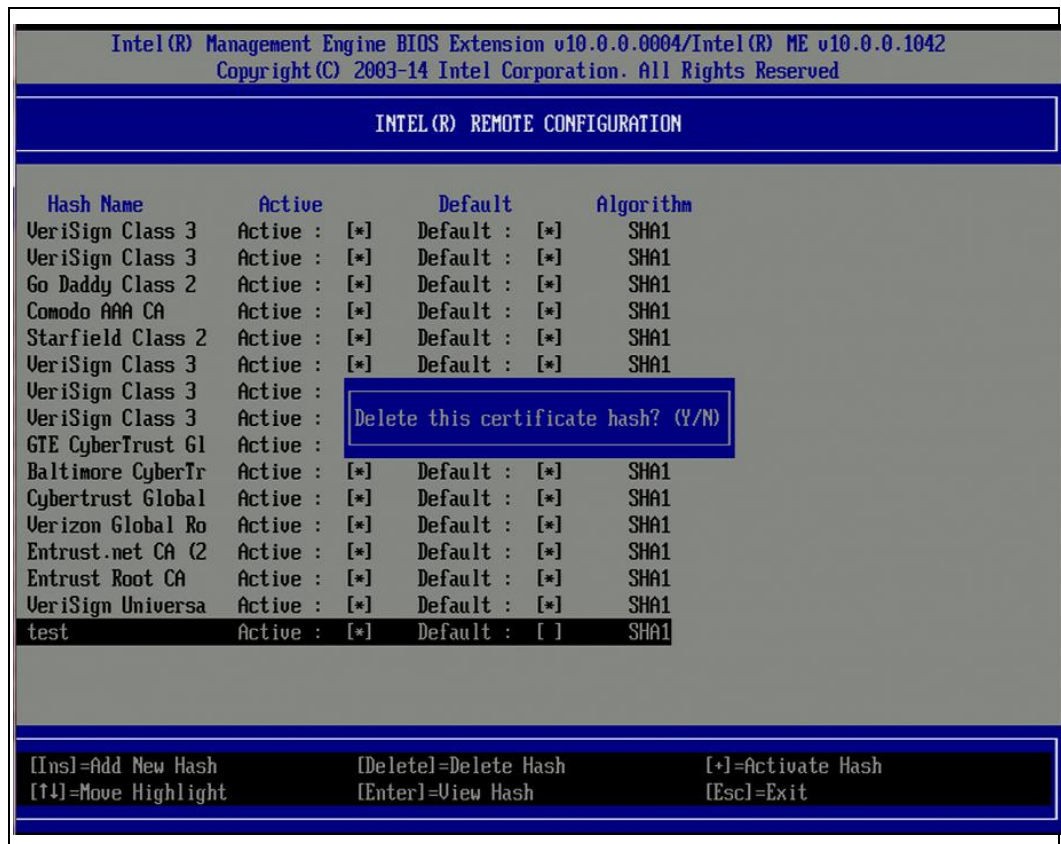
3.5.8.7.5 Deleting a Hash

A certificate hash cannot be deleted if it is set to Default.

When the Delete key is pressed in the Manage Certificate Hash list, the following screen is displayed.



Figure 3-29: Deleting a Hash



This option allows deleting of the selected certificate hash.

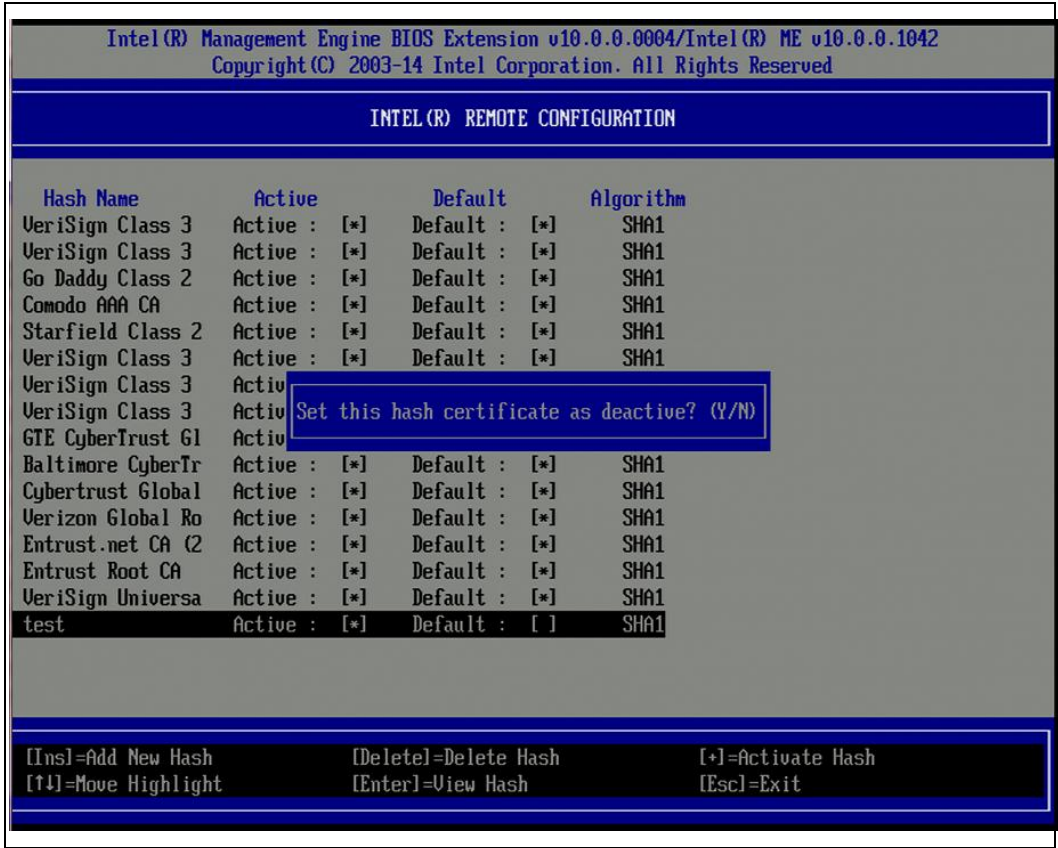
- Yes – Intel® MEBX sends the firmware a message to delete the selected hash.
- No – Intel® MEBX does not delete the selected hash, and returns to Manage Certificate Hash list.

3.5.8.7.6 Changing the Active State

When the '+' key is pressed in the Manage Certificate Hashes list, the following screen is displayed.



Figure 3-30: Change Active State of Hash



Answering **Y** toggles the active state of the currently selected certificate hash. Setting a hash as active indicates that the hash is available for use during PKI provisioning.

3.5.8.7.7 Viewing a Certificate Hash

When the Enter key is pressed in the Manage Certificate Hash list, the following screen is displayed.



Figure 3-31: View Hash details

Intel(R) Management Engine BIOS Extension v10.0.0.0004/Intel(R) ME v10.0.0.1042 Copyright(C) 2003-14 Intel Corporation. All Rights Reserved			
INTEL(R) REMOTE CONFIGURATION			
Hash Name	Active	Default	Algorithm
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
VeriSign Class 3	Active : [*]	Default : [*]	SHA1
Go Daddy Class 2	Active : [*]	Default : [*]	SHA1
Comodo AAA CA	Active : [*]	Default : [*]	SHA1
Starfield Class 2			
VeriSign Class 3			
VeriSign Class 3			
VeriSign Class 3			
VeriSign Class 3			
GTE CyberTrust G1			
Baltimore CyberTr			
Cybertrust Global	Active : [*]	Default : [*]	SHA1
Verizon Global Ro	Active : [*]	Default : [*]	SHA1
Entrust.net CA (2	Active : [*]	Default : [*]	SHA1
Entrust Root CA	Active : [*]	Default : [*]	SHA1
VeriSign Universa	Active : [*]	Default : [*]	SHA1
test	Active : [*]	Default : []	SHA1

Hash Name : test
Hash Data : ABCD-1234-ABCD-1234-ABCD-1234-ABCD-1234-ABCD-1234
Default : []
Active : [*]

[Ins]=Add New Hash	[Delete]=Delete Hash	[+]=Activate Hash
[↑↓]=Move Highlight	[Enter]=View Hash	[Esc]=Exit

The details of the selected certificate hash are displayed and include the following:

- hash name
- certificate hash data
- active and default states

3.5.9 Power Control

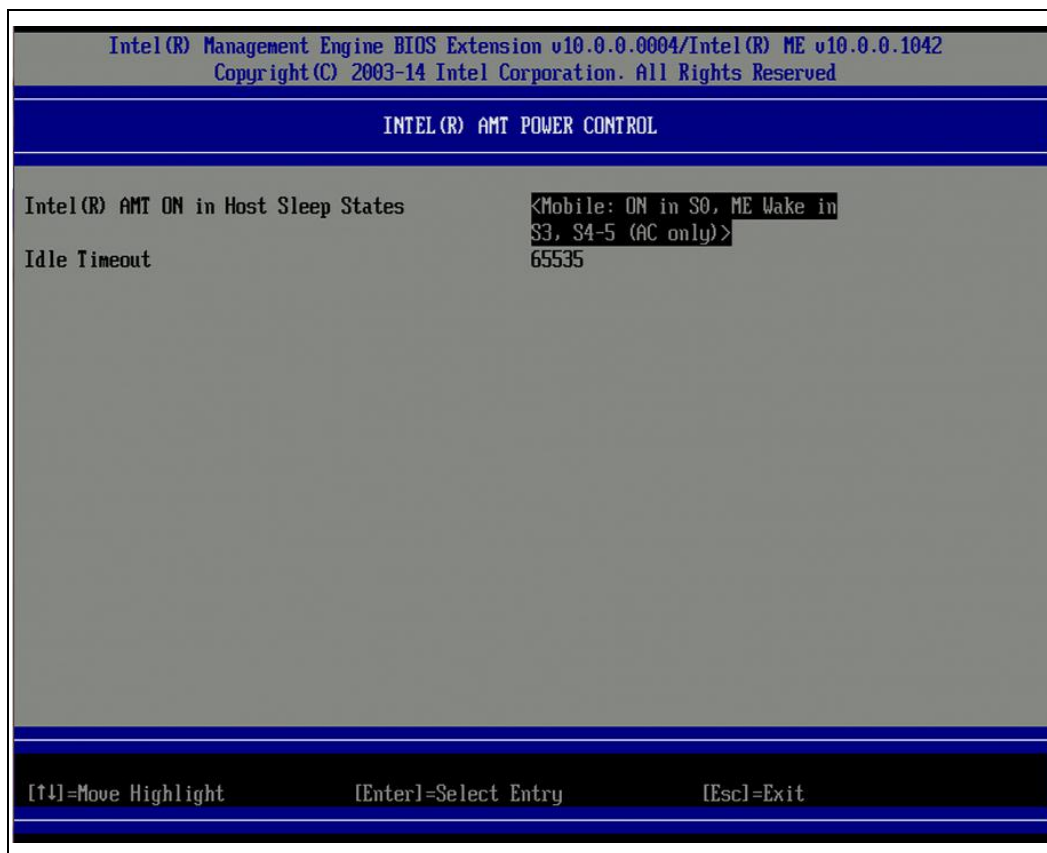
Under Intel® ME Platform Configuration menu:

1. Select 'Power Control'.
2. Press Enter to select.

The Intel® ME Platform Configuration menu changes to the Intel® AMT Power Control menu.



Figure 3-32: Power Control



To comply with ENERGY STAR* and EUP LOT6 requirements, the Intel® ME can be turned off in various power states. The Intel® AMT Power Control menu configures the Intel® ME platform power related policies.

Since Intel® ME 9.0, Power Control has moved to Intel® AMT configuration, the way Intel® MEBX presenting value of Power Package and Idle timeout also changed. These settings are effective only after Intel® AMT provisioning. In other words, users don't need to care about these settings if Intel® AMT remains un-provisioned.

Under Intel® AMT Power Control menu:

1. Select 'Intel® AMT ON in Host Sleep States'.
2. Press Enter to select.

The following options can be selected:

- **Mobile: On in S0** – Power Package 1
- **Mobile: On in So, ME Wake in S3, S4-5** –Power Package 2

**Table 3-2: Supported Power Packages**

Power Package	1	2
S0	ON	ON
S3	OFF	ON /ME WOL
S4/S5	OFF	ON/ ME WOL

The selected power package determines when the Intel® ME is turned ON.

Note: Since Intel® ME9.x, the default power package cannot be modified by using FITC or by FPT anymore.

The end user administrator can choose which power package to use depending on the systems usage.

The table above illustrates the details of the power packages.

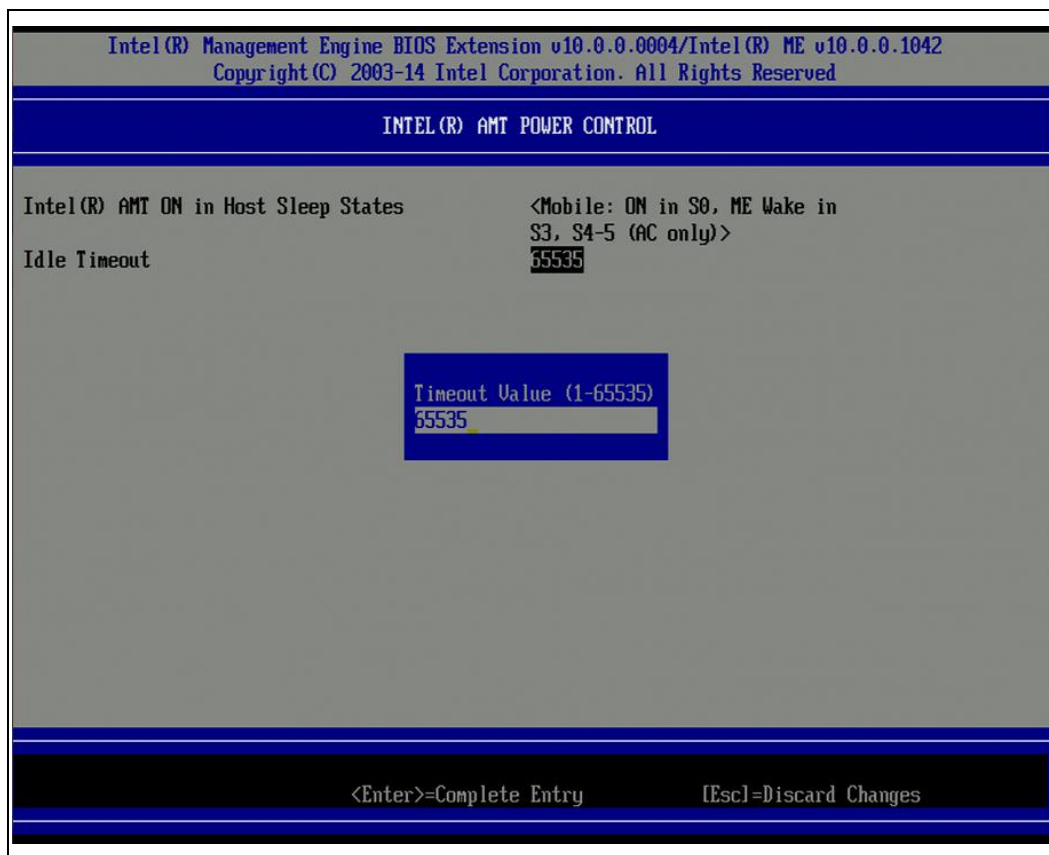
With Intel® ME WOL, after the idle timeout timer expires, the Intel® ME remains in the M-off state until a command is sent to the ME. After this command has been sent, the Intel® ME will transit to M3 state and will respond to the next command that is sent. A ping to the Intel® ME will cause the Intel® ME to go into M3 state.

Since Intel® ME 9.0, a ping to the Intel® ME will transit from M-off to M3 state without resetting the idle timer. As a result, the Intel® ME will re-enter M-off state in less than 20 seconds. The Intel® ME takes a short time to transit from the M-off state to the M0 or M3 state. During this time, Intel® AMT will not respond to any Intel® ME commands. When the Intel® ME has reached the M0 or M3 state, the system will respond to Intel® ME commands.

3.5.9.1 Idle Time Out

Under Intel® ME Power Control menu:

1. Select 'Idle Timeout'.
2. Press Enter to type timeout value <in minutes>.

**Figure 3-33: Idle Timeout**

This setting is used to enable the Intel® ME wake on and to define the Intel® ME idle timeout in M3 state. The value should be entered in minutes. The value indicates the amount of time that the Intel® ME is allowed remain idle in M3 state before transitioning to the M-off state.

Note: If the platform is in DC only state, Intel® ME will not transit to M3 state.

Note: If the platform is in S0 state, Intel® ME will not transit to M-off state.

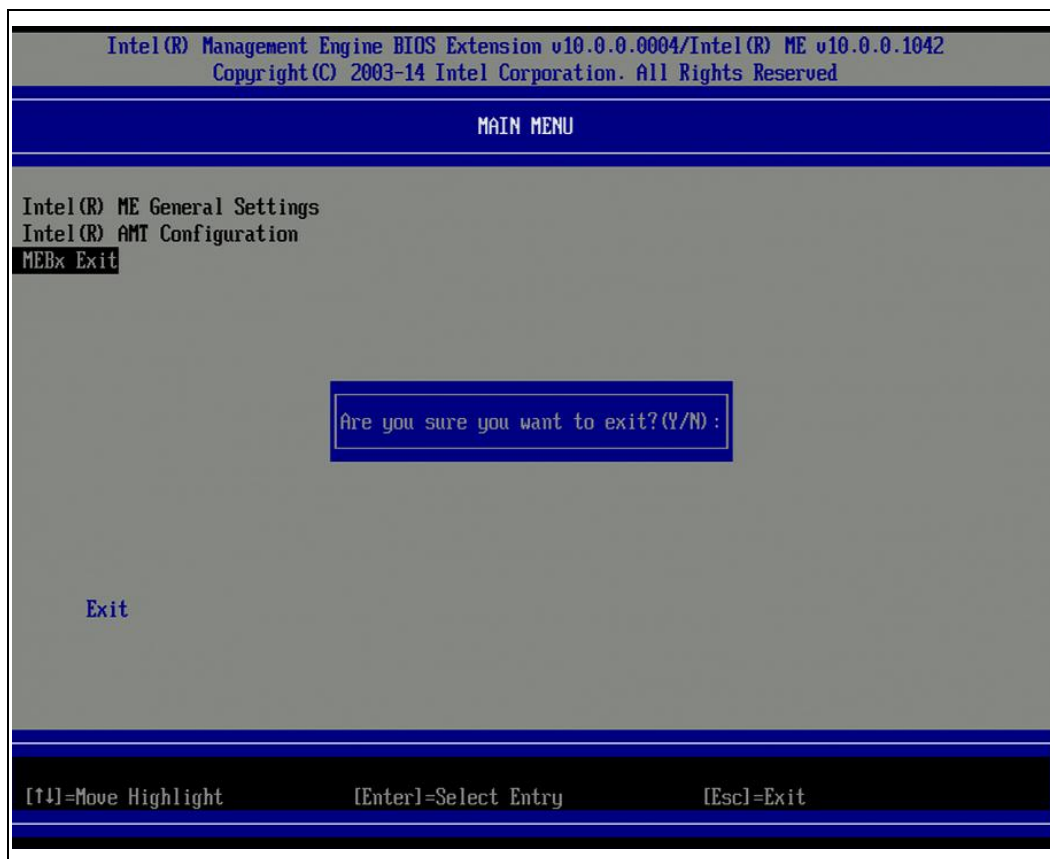
3.6 Exit

Under the Main Menu:

1. Select 'Exit'.
2. Press Enter to exit.



Figure 3-34: Exit Confirmation



To exit Intel® MEBX, select **Y**, else select **N**.

3.7 Intel® Standard Manageability Configuration

For platforms supporting Intel® Standard Manageability, instead of Intel® AMT Configuration, the option of Intel® Standard Manageability Configuration will be displayed in Intel® MEBX setup menu. The menu under Intel® Standard Manageability Configuration is the same as that displayed in Intel® AMT Configuration.

Intel® KVM feature is not supported by Intel® Standard Manageability. The Intel® KVM-related options are removed in the menus of SOL/IDER/KVM and "User Consent".

3.8 Intel® Small Business Technology Configuration

The Intel® Small Business Advantage has been defined beginning with Intel® ME 8.0 platforms. Its features and capabilities shall be contained in the 5MB FW Image and its software. The Intel® Small Business Advantage disables out-of-band network access and provides key in-band features targeted for small business usages.

Under the Intel® MEBX main menu:

1. Select 'Intel® Small Business Technology Configuration'.



2. Press Enter to select.

The following message is displayed: "Acquiring Small Business Technology Configuration..."

The Intel® MEBX main menu changes to the Intel® Small Business Technology Configuration page. This page allows the IT administrator to configure the specific functionality of the Intel® Small Business Technology, such as Manageability Feature Selection and un-provisioning.

3.8.1 Manageability Feature Selection

Under the Intel® Small Business Technology Configuration screen:

1. Select 'Manageability Feature Selection'.
2. Press Enter to select.

The following options can be selected:

- Disabled
- Enabled

If user wants to disable manageability, a message will display: "Disabling reset network settings including network ACLs to factory default. System resets on Intel® MEBX exit. Continue: (Y/N)". That means current Intel® AMT network setting will be cleared to factory defaults. Press Y to change setting or N to cancel.

3.8.2 Restore Factory Settings

Under the Intel® Small Business Technology Configuration menu:

1. Select 'Restore Factory Settings'.
2. Press Enter to select.

The following options can be selected:

- Full Unprovision

When installing Intel® Small Business Advantage Software onto an Intel® vPro™ capable system, the Intel® MEBX menu will not display the Intel® Small Business Technology menu.

Intel® MEBX sends Get Platform Type message to Intel® ME, then changes the menu title as Intel® AMT, Intel® Standard Manageability, or Intel® Small Business Technology, according to response of platform brand type.

3.9 Intel® MEBX CPU Replacement Flow

The Intel® ME FW is responsible for identifying CPU replacement, whenever CPU Type changes between Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible), Intel® Core™ processor (Not Intel® vPro™ technology eligible), Pentium® processor and Celeron® processor. Intel® MEBX is responsible for inquiring Intel® ME FW whether End User approval is required for given processor change. Only when indicated by Intel® ME FW that End User approval is needed, Intel® MEBX will show a message to End User demanding CPU Replacement approval.



The scenarios that result in Intel® MEBX displaying CPU Replacement related message to End User are:

1. When CPU Type was Downgraded, e.g. from Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible) to Pentium® processor or from Intel® Core™ processor (Non-Intel® vPro™ technology eligible) to Celeron® processor.

In this scenario Intel® ME FW will request End User Approval since Intel® ME FW feature set strongly relies on plugged in CPU TYPE. The message is displayed to guard End User before unintentional CPU downgrades which would automatically result in losing Intel® ME FW feature set, for example un-configuration of AMT Feature Set. Instead, End User has option of either accepting CPU change or rejecting it before Intel® ME FW triggers System Features reconfiguration. If End User decides to reject the CPU change, it is required to shut down the platform and replace original CPU. If no End User interaction is provided then after 10 seconds wait time, Intel® MEBX will follow up assuming End User accepted CPU change.

When the following exceptions are captured, Intel® ME FW will not request CPU Replacement confirmation from End User (and the CPU Replacement message will not be shown):

- a. When system is in Manufacturing Mode, Intel® ME FW doesn't expect any messaging from user –in other words it's assumed to be informed CPU change.
 - b. First boot after flashing in ME Region – Intel® ME FW doesn't expect any CPU replacement related flows that require user assistance.
 - c. Clearing CMOS will cause Intel® ME un-configuration. Any CPU change after clearing CMOS will not be considered as upgraded or downgraded from user perspective.
2. When CPU Type was upgraded and new system features are enabled Intel® ME FW doesn't expect any CPU replacement related flows that require user assistance. The examples of such an upgrade are:
 - a. Celeron® processor changed to Pentium® processor
 - b. Celeron® processor changed to Intel® Core™ processor (Non-Intel® vPro™ technology eligible)
 - c. Celeron® processor changed to Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible)
 - d. Pentium® processor changed to Intel® Core™ processor (Non-Intel® vPro™ technology eligible)
 - e. Pentium® processor changed to Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible)
 - f. Intel® Core™ processor (Non-Intel® vPro™ technology eligible) changed to Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible)

Figure 3-35 represents the message that will be exposed to End User whenever CPU Replacement took place downgrading CPU capabilities. **This message will not be shown if replaced CPU has the same capabilities as the old one** (e.g. changing Pentium® processor to another Pentium® processor). **The message will be shown for 10 seconds and if End User did NEITHER pressed "y" or "Y" key NOR shut down the platform Intel® MEBX will proceed with assumption that End User approved CPU change.**

The valid changes that will result in the following message are:



1. Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible) changed to Intel® Core™ processor (Non-Intel® vPro™ technology eligible)
2. Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible) changed to Pentium® processor
3. Intel® Core™ vPro™ processor (Intel® vPro™ technology eligible) changed to Celeron® processor
4. Intel® Core™ processor (Non-Intel® vPro™ technology eligible) changed to Pentium® processor
5. Intel® Core™ processor (Non-Intel® vPro™ technology eligible) changed to Celeron® processor
6. Pentium® processor changed to Celeron® processor.

The following actions are expected to be done by End User when the message from Figure 3-35 is shown:

1. Press "y" or "Y" if End User approves CPU change that was performed on purpose. Platform global reset** will follow in which Intel® ME will populate new feature set to whole ME infrastructure (kernel and all applications) based on modified CPU type.
2. Press "n" or any other key if End User disapproves CPU replacement change and CPU was replaced unintentionally. The system will halt permanently displaying the message. End User is expected to shut down the platform and replace original CPU.
3. If no action is performed by End User for 10 seconds Intel® MEBX will follow up assuming End User accepted CPU change. Platform global reset** will follow in which Intel® ME will populate new feature set to whole Intel® ME infrastructure (kernel and all applications) based on modified CPU type.

** Two resets may be observed. The 2nd reset will occur if some Intel® AMT features (SOL/IDER/KVM) get disabled when a Intel® vPro™ technology eligible CPU is replaced with a non-Intel® vPro™ technology eligible CPU and this information has synced with BIOS. Please refer to Appendix C for different causes to global reset.



Figure 3-35: Intel® MEBX CPU Replacement Popup Message



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4 Appendix A: Changes to Configuration Modes

In Intel® AMT 5.0 and under, there were two operational modes – SMB and Enterprise. In Intel® AMT 6.0 and above, their functionality has been integrated to provide the same functionality previously available in Enterprise mode. The new configuration options are “Manual Setup and Configuration” available for SMB customers and “Automatic Setup and Configuration.”

Figure 4-1: Configuration Modes

Setting	Intel® AMT 6.0 and above Default
TLS mode	Disabled, can be enabled at a later time
Web UI	Enabled
IDER/SOL/KVM** Redirection network interface enabled	Enabled, can be disabled at a later time
Legacy Redirection Mode (Controls FW listening for incoming redirection connections)	Disabled

** Intel® KVM technology was first introduced in Intel® AMT6.

Manual configuration can be performed using the following six steps:

1. Burn the firmware.
2. Enter the Intel® MEBX and change the password.
3. Enter Intel® ME General Settings menu.
4. Select Activate Network Access.
5. Choose **Y** in the confirmation message.
6. Exit the Intel® MEBX.

Note: You must have a DHCP server in your environment.



5 Appendix B: Global Reset from Intel® MEBX

Several Intel® MEBX configuration options require a global reset after they have been edited by the user. The reset is flagged while in the Intel® MEBX UI and passed back to BIOS to perform the reset request. The Intel® MEBX UI has to keep track of which configuration options require a global reset after exiting Intel® MEBX. Multiple techniques are used to ensure the global reset flow is entered correctly. The Intel® MEBX uses 2 flags for its logic related to signaling global resets: Reboot and Exit. The 'Reboot' flag indicates that the current option will require a reboot after exiting Intel® MEBX. The 'Exit' flag is used to force the user out of the Intel® MEBX UI.

Reboot – Intel® MEBX must set this flag when an option that requires a global reset has been edited from its original state. A list of global reset options is itemized in the table below.

Exit – Intel® MEBX must completely exit the UI immediately after editing the option.

Table 5-1: Intel® MEBX UI Global Reset Options

Option	Reboot	Exit
Max Logins exceeded	Y	Y
CPU String Emulation	Y	N
Manageability Feature Selection (EN->DIS)	Y	N
Manageability Feature Selection (DIS->EN)	N	N
SOL IDER Username/Password	N	Y
KVM State	Y	N
SOL state	Y	N
IDER state	Y	N

Other Intel® MEBX global reset scenarios include:

1. CPU replacement
2. Intel® ME Unconfiguration without Intel® MEBX password through system BIOS setting (BPF)
3. Intel® ME Unconfiguration by clearing CMOS

These global resets happen when BIOS execute Intel® MEBX binary during post. In these cases Intel® MEBX will pass the global reset flag to BIOS to perform global reset without going through Intel® MEBX User Interface.



6 *Appendix C: PID-PPS Checksum*

The PID and PPS are made up of ASCII codes of some combination of characters – capital alphabet characters (A–Z), and numbers (0–9).

- The PID is an eight character entry of the form: XXXX-XXXC (where "C" is the CRC (Cyclic Redundancy Check) of the preceding characters) and is sent in the open.
- The PPS is a thirty-two character quantity of the form:
- XXXC-XXXC-XXXC-XXXC-XXXC-XXXC-XXXC-XXXC (where "C" is the CRC of the preceding characters) and is a secret shared between the Intel® AMT device and the Setup and Configuration Server.

When the PID and PPS are entered via the Intel® MEBX sub menu/USB key, the firmware checks for checksum characters embedded in the values. The last character of the PID is expected to be a checksum of the previous seven characters, and the fourth character in each group of four characters in the PPS is expected to be a checksum of the previous three characters. This check is made to reduce the possibility of operator error when entering these values.

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7 Appendix D: Intel® MEBX Options Being Reflected in the Firmware

Below is the list of Intel® MEBX options which will be reflected in FW when saved.

Note: Those settings are located in data region of the FW and, when saved, FW will look at the saved settings and run the corresponding execution when necessary.

Figure 7-1: Intel® MEBX Options

Option	Reflected in the firmware
Intel® MEBX Login	Instantly
Change ME Password	Instantly
Local FW Update	Upon Exiting Intel® MEBX
Intel ME ON in Host Sleep States	Upon Exiting Intel® MEBX
Idle Timeout	Upon Exiting Intel® MEBX
Manageability Feature Selection (EN->DIS)	Instantly
Password Policy	Upon Exiting Intel® MEBX
Activate Network Access	Instantly
Unconfigure Network Access	Instantly
Username and Password	Instantly
SOL	Instantly
IDER	Instantly
Intel® KVM Feature Selection	Instantly
User Opt-in	Upon Exiting Intel® MEBX
Opt-in Configurable from Remote IT	Upon Exiting Intel® MEBX
Host Name	Upon Exiting Intel® MEBX
Domain Name	Upon Exiting Intel® MEBX
Shared/Dedicated FQDN	Upon Exiting Intel® MEBX
Dynamic DNS Update	Upon Exiting Intel® MEBX
Periodic Update Interval	Upon Exiting Intel® MEBX
TTL	Upon Exiting Intel® MEBX
DHCP Mode	Upon Exiting Intel® MEBX
IPV4 Address	Upon Exiting Intel® MEBX



Option	Reflected in the firmware
Subnet Mask Address	Upon Exiting Intel® MEBX
Default Gateway Address	Upon Exiting Intel® MEBX
Preferred DNS Address	Upon Exiting Intel® MEBX
Alternate DNS Address	Upon Exiting Intel® MEBX
Current Provisioning Mode	Upon Exiting Intel® MEBX
Provisioning Record	None
Provisioning Server IPV4/IPV6	Upon Exiting Intel® MEBX
Provisioning Server IPV4/IPV6	Upon Exiting Intel® MEBX
Provisioning Server FQDN	Upon Exiting Intel® MEBX
Start Configuration	Instantly
Halt Configuration	Instantly
Set PID and PPS **	Instantly
Delete PID and PPS **	Instantly
Remote Configuration **	Instantly
Manage Hashes	Instantly
PKI DNS Suffix	Upon Exiting Intel® MEBX

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