

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

User's Guide

For systems based on Intel[®] B75 Chipset

August 2012

Revision 1.0



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Revision History

Document Number	Revision Number	Description	Revision Date
	1.0	Adapted from SMB FW Intel® MEBX User Guide for Intel® 7 Series Chipset Family	August 2012

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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 features independent of the installed OS:

- Intel® Small Business Technology (Intel® SBT) for 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/or 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® 7 Series Chipset Family/Intel® PCH platforms with Intel SBT.

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)
EPS	VA Private Store Intel's VA Specific Store in an ME-owned flash area separate from 3PDS. The size is one (1) physical page (4K bytes)
FW	Firmware
G3	Complete Power loss (AC power plug pulled)
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
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



Acronym	Description
TCP	Transmission Control Protocol
UTC	Coordinated Universal Time
VA	Virtual Appliance
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/openportit/vproexpert?view=documents>

In addition, please refer to the Intel[®] vPro[™] Expert Center at the link below for general information about Intel[®] vPro[™] technology:

<http://communities.intel.com/community/openportit/vproexpert>

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2 *Client System Requirements*

The client system referred to in this document is based on the Intel[®] 7 Series Chipset Family/Intel[®] PCH platform, 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 a flash image integrating BIOS, Intel Management Engine and GbE component images
- BIOS set up with Intel ME 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/run 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, the 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 changes made until that point are **LOST** and the changed settings are **NOT** saved.

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: **'Intel® MEBX: <CTRL-P>'**

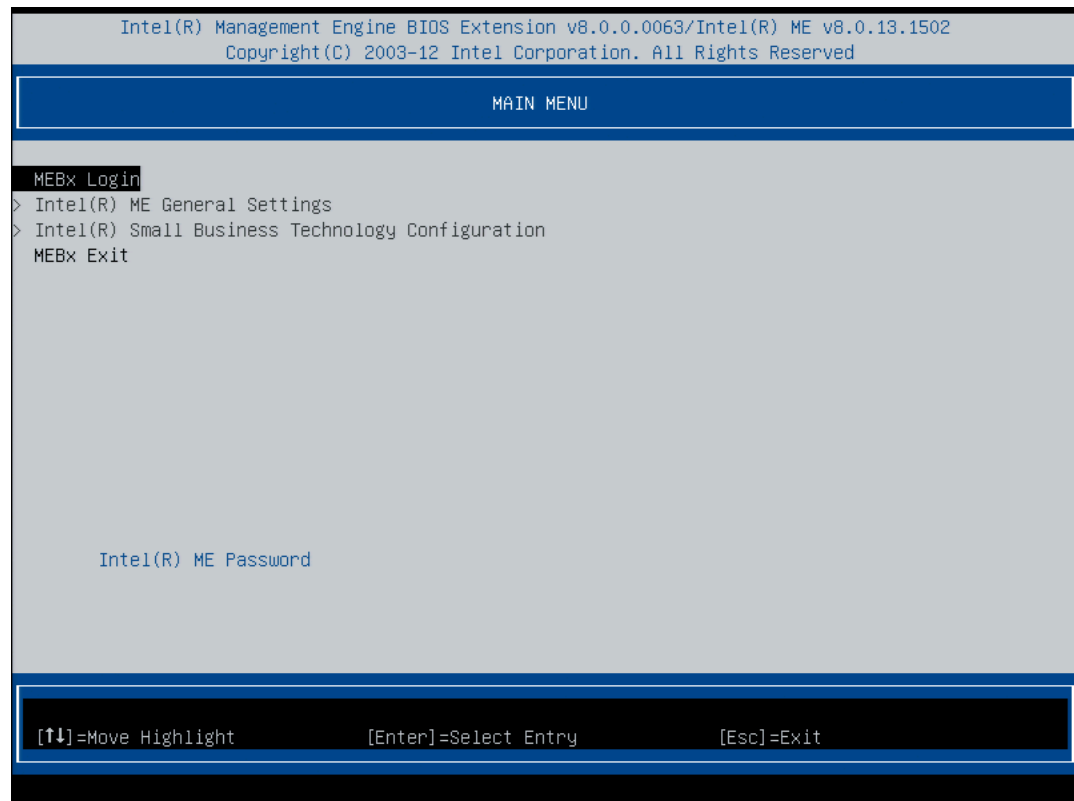
Note: To enter the Intel MEBX, press <Ctrl-P> as soon as possible, since this message is displayed for only a few seconds.

2. Enter the Intel Management Engine password under **'MEBX Password'**. Press Enter. The default password is 'admin'. This default password can 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 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® Small Business Technology 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 Change 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: There are certain limitations creating passwords with non-US layout keyboards. Remote system connectivity may occur if different keyboard layouts are used on the same hardware.

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 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,

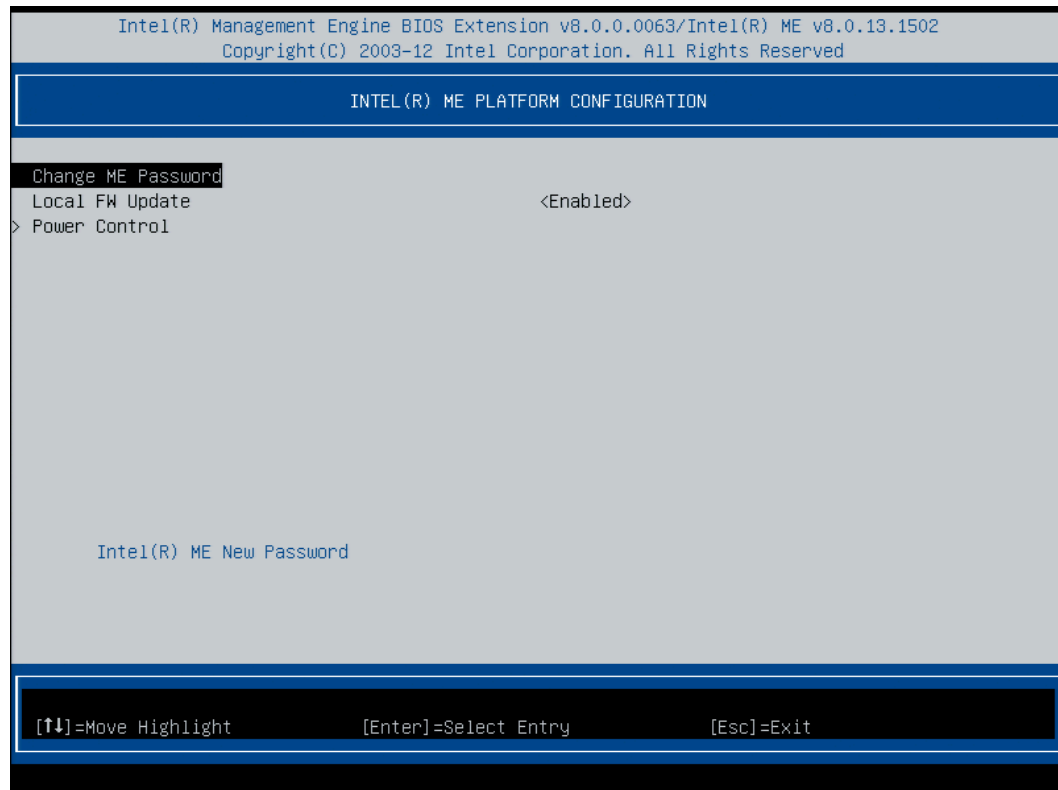
1. Select ‘Intel ME General Settings’.
2. Press Enter.

The following message is displayed: ‘Acquiring General Settings configuration’.



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

Figure 2: Intel® ME Platform Configuration



3.4.1 Change Intel® ME Password

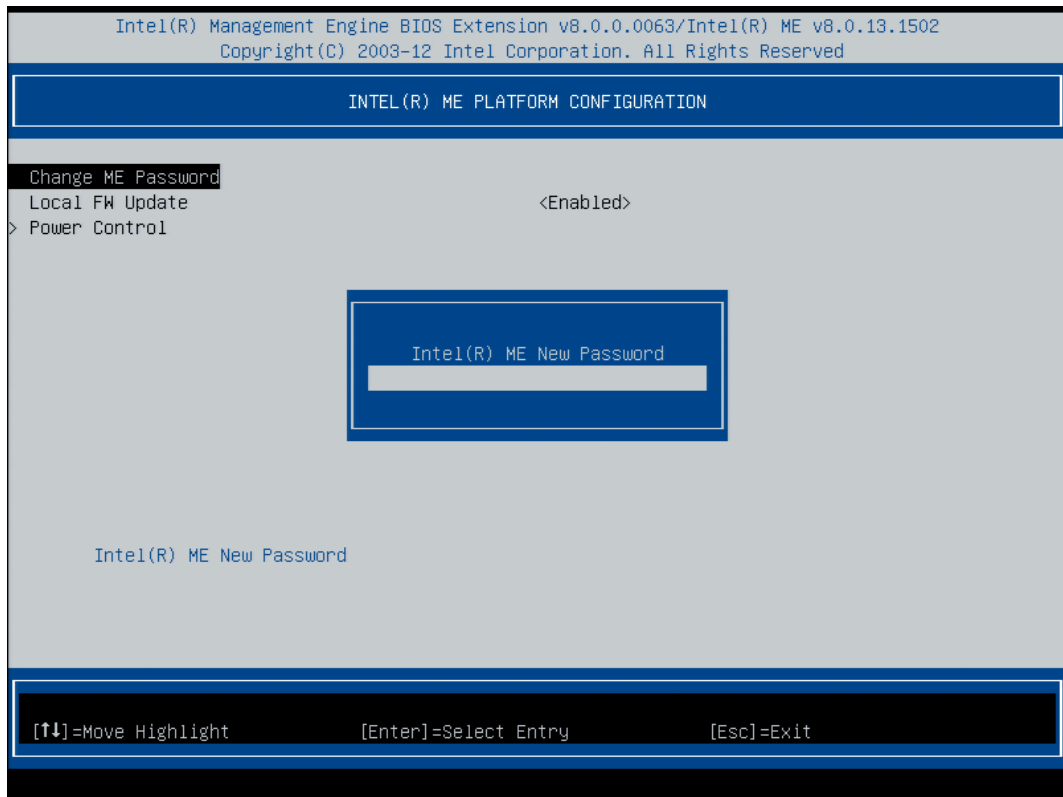
Under the Intel® ME Platform Configuration menu,

1. Select 'Change ME Password'.
2. Press Enter to change password.



The Intel ME New Password prompt is displayed as in Figure 3.

Figure 3: Change Intel® ME Password



1. 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)
2. At the Verify Password prompt, re-enter your new password.

Your password is now changed.

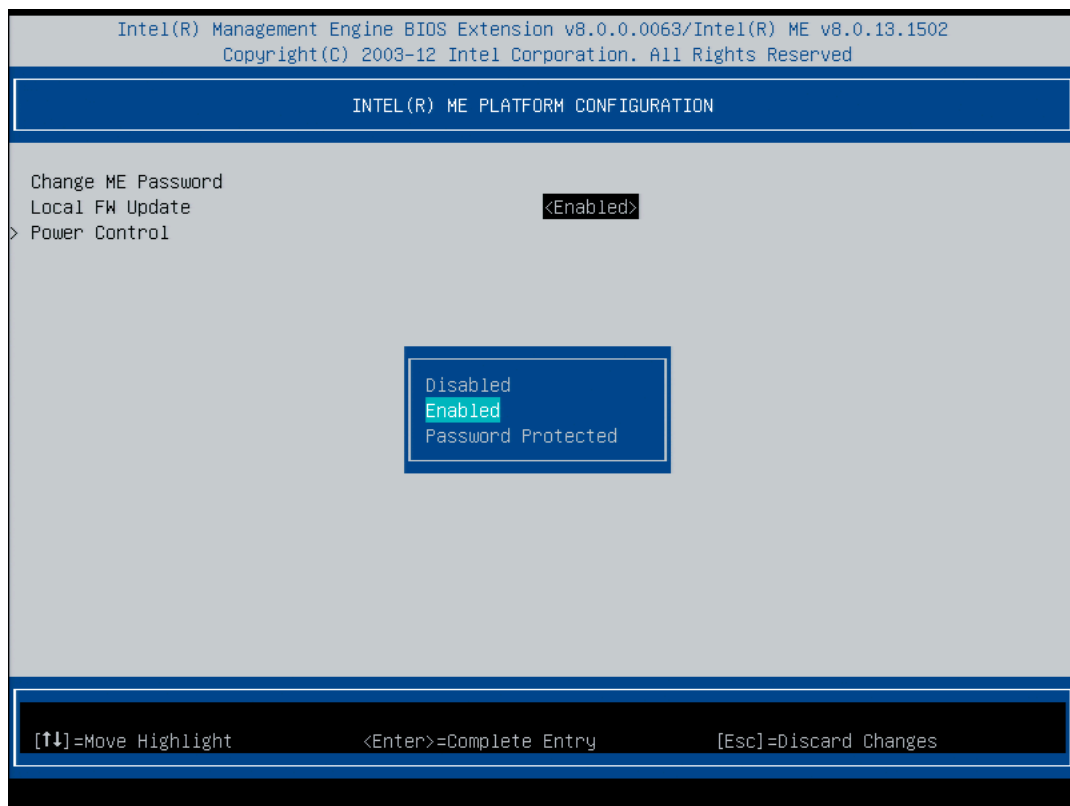
3.4.2 Local FW Update

Under Intel® ME Platform Configuration,

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



Figure 4: Local FW Update Settings

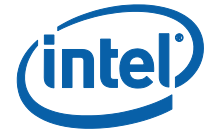


Intel® ME Firmware Local Update provides the capability to allow or prevent firmware local update in the field. When the “Enabled” option is selected, the IT-admin is able to update the Intel® ME firmware locally via the local Intel Management Engine interface or via the local secure interface.

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 MEBx password

Note: When **Hide FW Update Control** setting in FITC is set, MEBx will hide Local FW Update option.



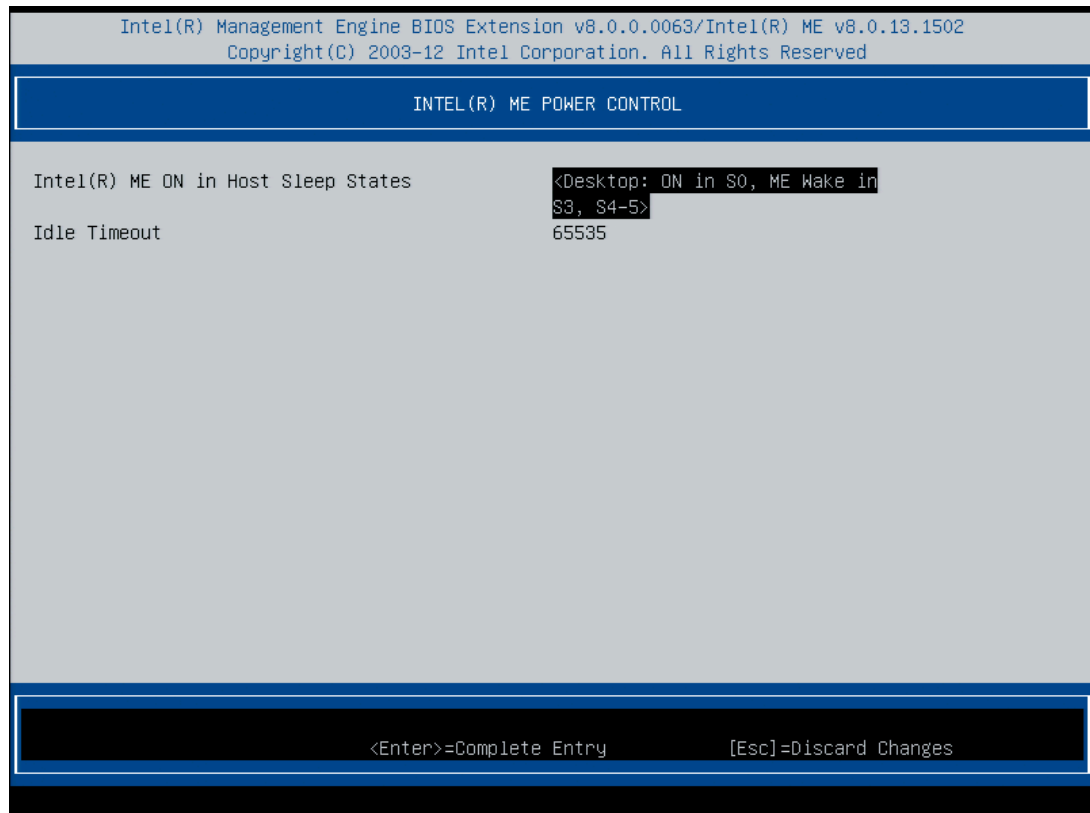
3.4.3 Power Control

Under Intel® ME Platform Configuration,

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

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

Figure 5: Power Control



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



3.4.3.1 Intel® ME ON in Host Sleep States

Under Intel ME Power Control,

1. Select ‘Intel ME ON in Host Sleep States’.
2. Press Enter to select.

The following options can be selected:

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

Table 1: Supported Power Packages

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

*Default setting

The selected power package determines when the Intel ME is turned ON. The default power package can be modified by using FITC or by FPT.

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 time-out 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 transition to an M0 or M3 state and will respond to the next command that is sent. A ping to the Intel® ME will also cause the Intel® ME to go into an M0 or M3 state.

The Intel ME takes a short time to transition from the M-off state to the M0 or M3 state. During this time, Intel® SBT 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.

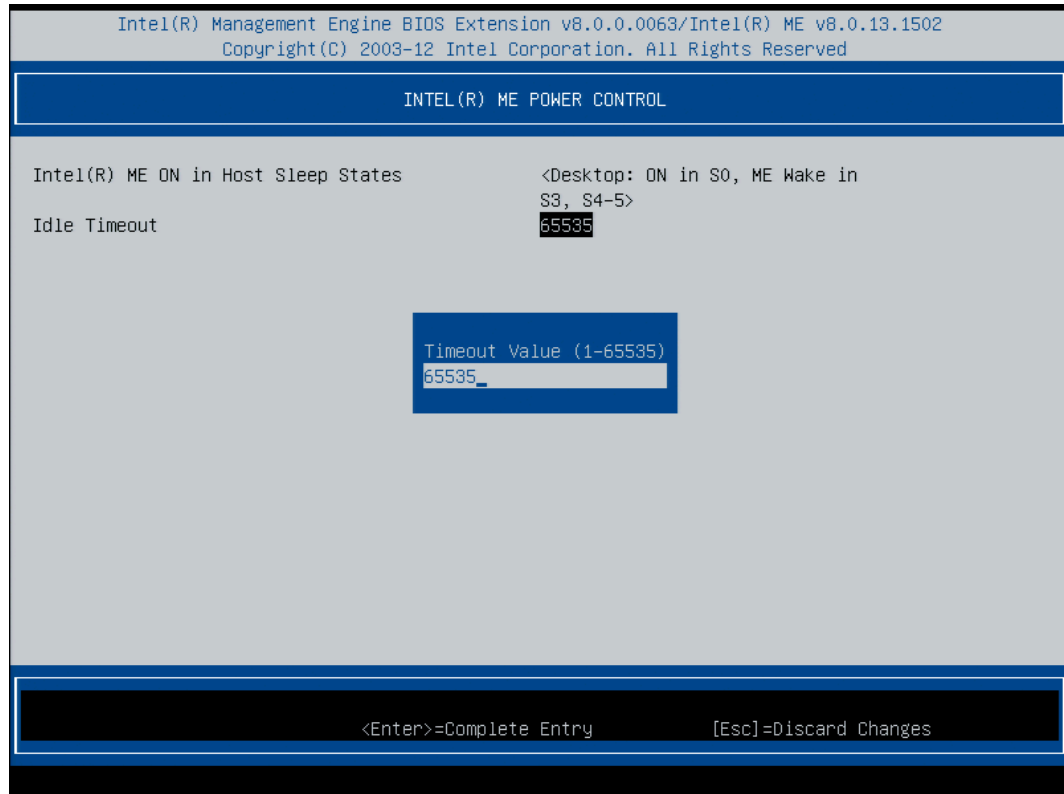


3.4.3.2 Idle Time Out

Under Intel® ME Power Control,

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

Figure 6: Idle Timeout

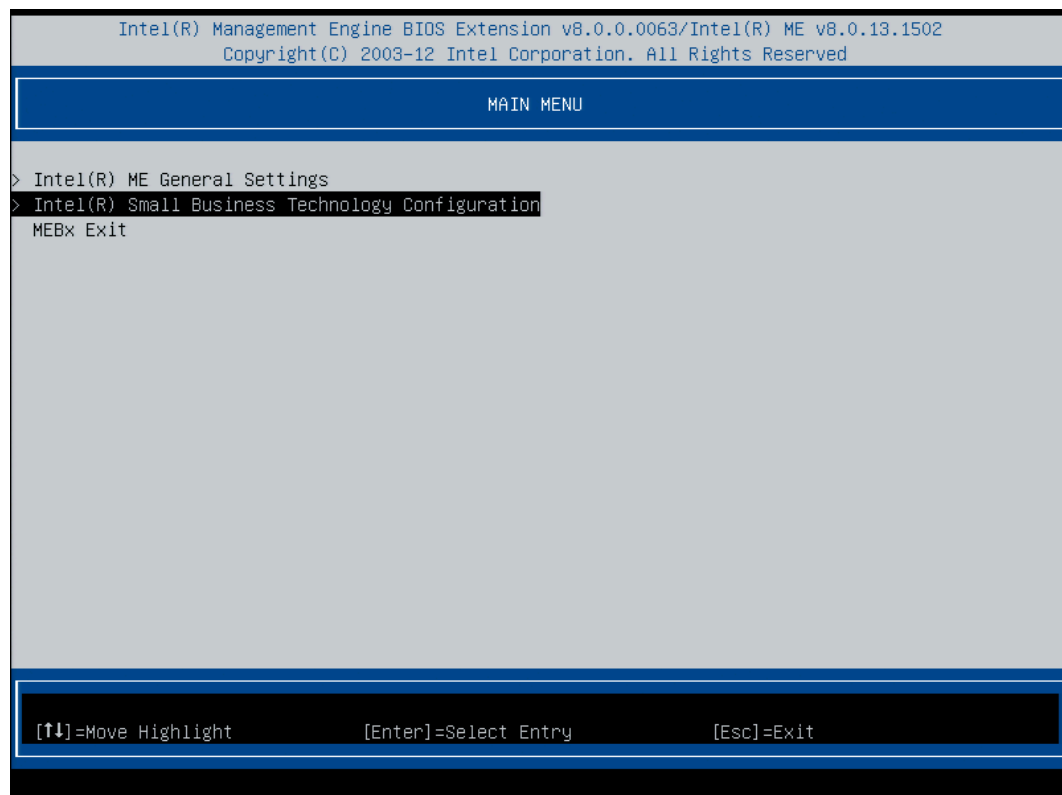


This setting is used to enable the Intel ME Wake on and to define the Intel ME idle timeout in M3 state. The value should be entered in minutes. The value indicates the amount of time that the Intel ME is allowed remain idle in M3 before transitioning to the M-off state. **Note:** If the Intel ME is in M0, it will NOT transition to M-off.

3.5 Intel® Small Business Technology Configuration

The “Intel® Small Business Advantage” has been defined beginning with ME8 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.

Figure 7: Main page of Intel® Small Business Technology

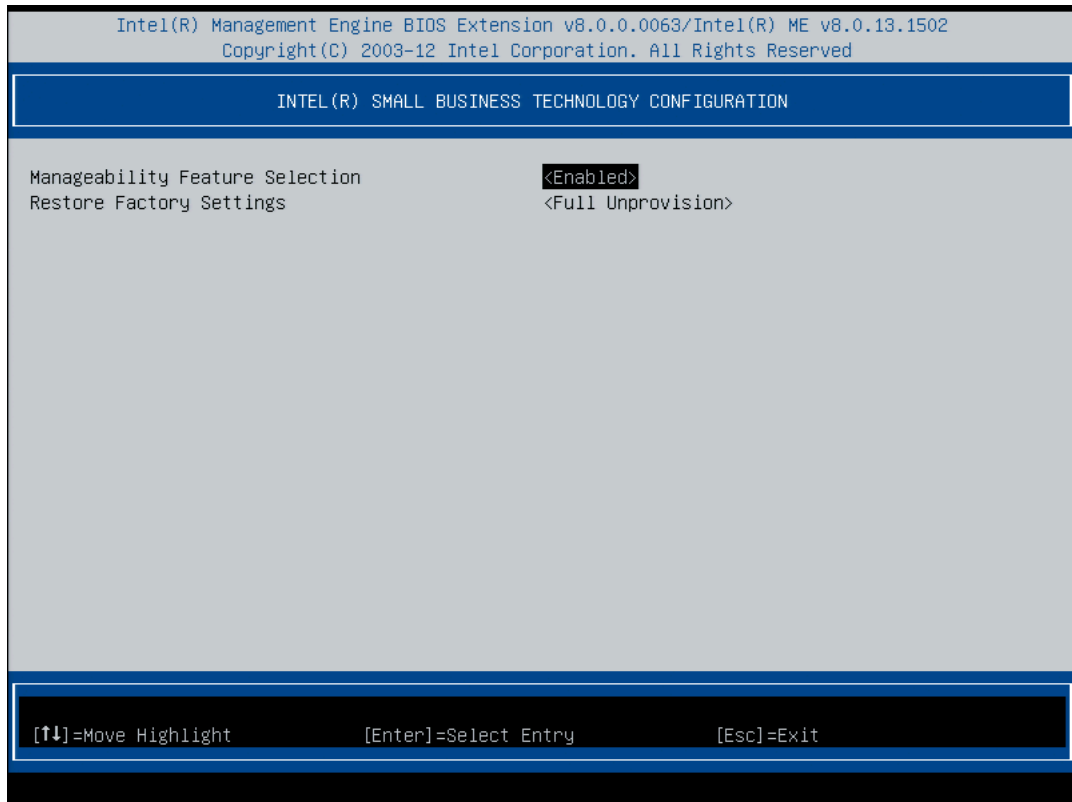


Under the Intel MEBX main menu,

1. Select ‘Intel® Small Business Technology Configuration’.
2. Press Enter.

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 Restore Factory Settings.

**Figure 8: Intel® Small Business Technology Configuration**

3.5.1 Manageability Feature Selection

Under the Intel® Small Business Technology Configuration screen,

1. Select 'Manageability Feature Selection'.
2. Press Enter to select.
3. A message is displayed: [Caution] Disabling reset network settings including network ACLs to factory default. System resets on MEBx exit. Continue: (Y/N). Press Y to change setting or N to cancel.

The following options can be selected:

- **Disabled**
- **Enabled**



3.5.2 Restore Factory Settings

Under the Intel® Small Business Technology Configuration menu,

4. Select 'Restore Factory Settings'.
5. Press Enter to select.

The following options can be selected:

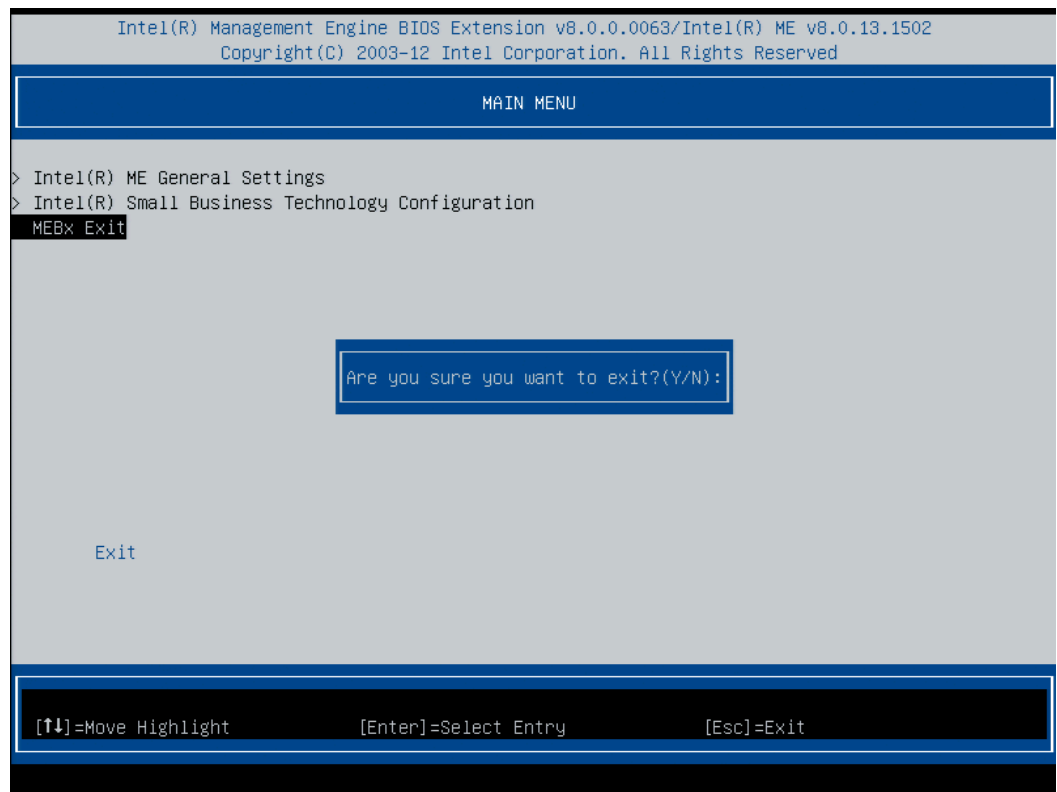
- **Full Unprovision**

3.6 Exit

Under the Main Menu,

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

Figure 9: Exit confirmation



To exit MEBx, select “Y”, else select “N”