How to Self-Provision over WLAN with Intel® vPro™ Technology

June 2013

Omer Livne, Intel IT

IT@Intel

Legal Notices

This presentation is for informational purposes only. INTEL MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY.

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

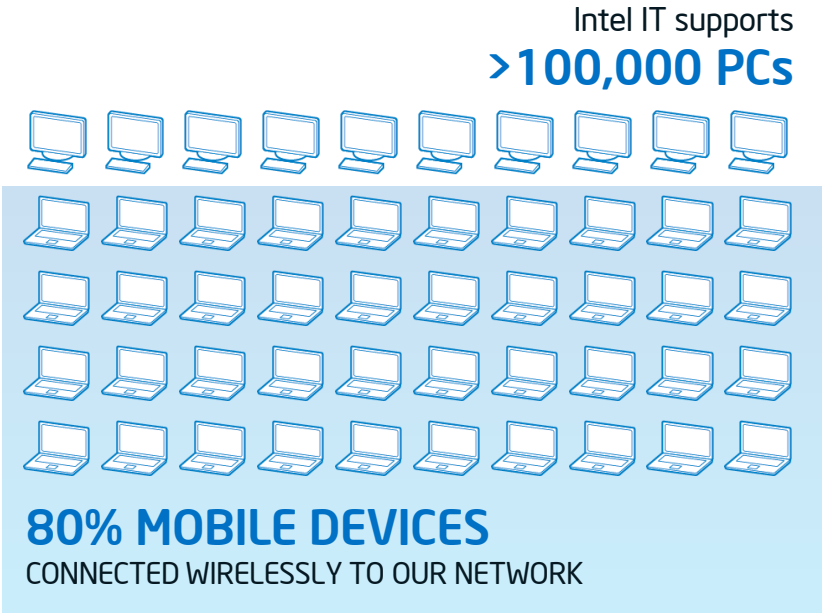
* Other names and brands may be claimed as the property of others.

Introduction

Intel IT supports a worldwide computing environment that includes more than 100,000 PCs across 63 countries. More than 80 percent of the devices are mobile PCs that connect wirelessly to our network.

Managing and securing these environments is a key IT priority.

Intel IT has deployed Intel® vPro™ technology across our enterprise in order to help maintain, manage, and protect these PCs.



Background

To activate the Intel® Active Management Technology (Intel® AMT) feature of Intel® vPro™ Technology, we provision the PCs using Intel® Setup and Configuration Software (Intel® SCS).

Provisioning is required to be able to take advantage of the capabilities within Intel AMT. When employees are issued a new or replacement PC, the PC is provisioned by technicians in our IT service centers.

Typically provisioning is handled automatically in the course of installing and configuring the OS build.

On occasion, a PC may need to have the provisioning reinstalled after delivery to the employee.

Employees that participate in our Bring Your Own (BYO) PC program might also bring in a PC that is un-provisioned.

Self-Provisioning Challenge

The Challenge

We needed an **easy way** for technicians to provision Ultrabooks™ devices that do not have wired Ethernet ports.

We wanted to **create a simple and efficient way** for employees to be able to self-provision their PCs, without having to take the PC to an IT Service Center.

Intel IT created a tool that allows our technicians and employees to self-provision systems over the WLAN.

Employees can now use this tool to self-provision their PC, regardless of whether it's a corporate-issued PC or a Bring-Your-Own PC.

Why This Is Important

Once the user's PC is provisioned, our IT Service Center staff **can help manage and troubleshoot** issues on the PC.

This allows them to **provide the same level of service** regardless of whether it is a WLAN-only corporate-owned device or an employee's Bring-Your-Own (BYO) PC.

As employees bring in more WLAN-only BYO devices, such as Ultrabook™ devices and Windows*-based tablets with Intel® Architecture, **we expect to see more employees utilizing this tool** and subsequently requiring less support from our IT Service Center.

Host-Based Configuration on Demand

How It Works

Host-Based Configuration on Demand (HBCoD) is a tool that utilizes the host-based configuration ability in Intel® Setup and Configuration Software, which is provided by the Intel® Active Management Technology Configuration Utility (ACU).

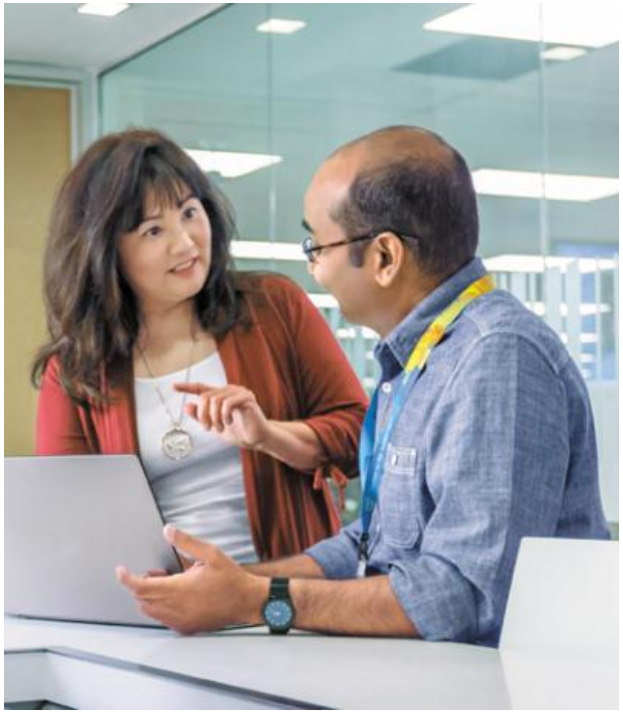
The tool is available through our **intranet software library** and is available to all employees.

When run, the tool copies the necessary files to the employee's PC and executes a batch file that performs several functions before running **ACUConfig.exe** to provision the client.

The Technical Details

HBCoD self-provisioning process consists of four major steps:

1. HBCoD **copies the necessary files** to the local hard drive into c:\temp
2. HBCoD **launches a batch file** with the necessary instructions
3. The batch file **sets the value for variables** used in the commands
4. The commands use the variables to perform **two configurations of the system** with logging and error checking



Step 1:
Copy the necessary file to the local hard drive

In our case, we have chosen to copy the necessary files to c:\temp, but any location will work. The files that need to be copied are:

- ACU.dll
- ACUConfig.exe
- ConfigureNowHBC.bat
- Initial HBC.xml

This can be done using a batch file called HBCoD.BAT, which is written as such:

```
: HBCOD stands for Host-Based Configuration on Demand
: This batch file copies the SCS configurator files to the local machine into the
: C:\temp\ACU_Configurator folder
: And triggers configuration by running ConfigureNow.bat that contains the configuration
commands
@echo off
xcopy %~dp0\.. "c:\temp\ACU_Configurator" /e /i /h /d /y
c:
cd \temp\ACU_Configurator
Start ConfigureNowHBC.bat
```

Step 2:
Launch a batch file with the necessary instructions

The last line of the HBCoD.BAT file

Start ConfigureNowHBC.bat

executes another batch file named ConfigureNowHBC.BAT.

This batch file is used to perform steps 3 and 4.

Steps 3 and 4: Set Variable values and execute commands with logging and error checking

At a high-level, this batch file performs the following functions:

1. Checks for and creates (if necessary) C:\Intel\AMTlogs directory
2. Sets the MyServer variable to the FQDN of the appropriate provisioning server
3. Sets the MyProfile variable to the Remote Configuration Service (RCS) profile to be used by the provisioning server
4. Sets the MyConfigFile variable to the XML file that contains the provisioning profile, Initial HBC.xml
5. Performs an initial configuration over the WLAN using a temporary profile to enable wireless Intel® Active Management Technology using the ConfigAMT switch for ACUConfig.exe
6. Performs a final RCS configuration that properly configures the client using the ConfigViaRCSOnly switch for ACUConfig.exe
7. Performs error checking

Steps 3 and 4: Set Variable values and execute commands with logging and error checking

The primary functions are 5 and 6.

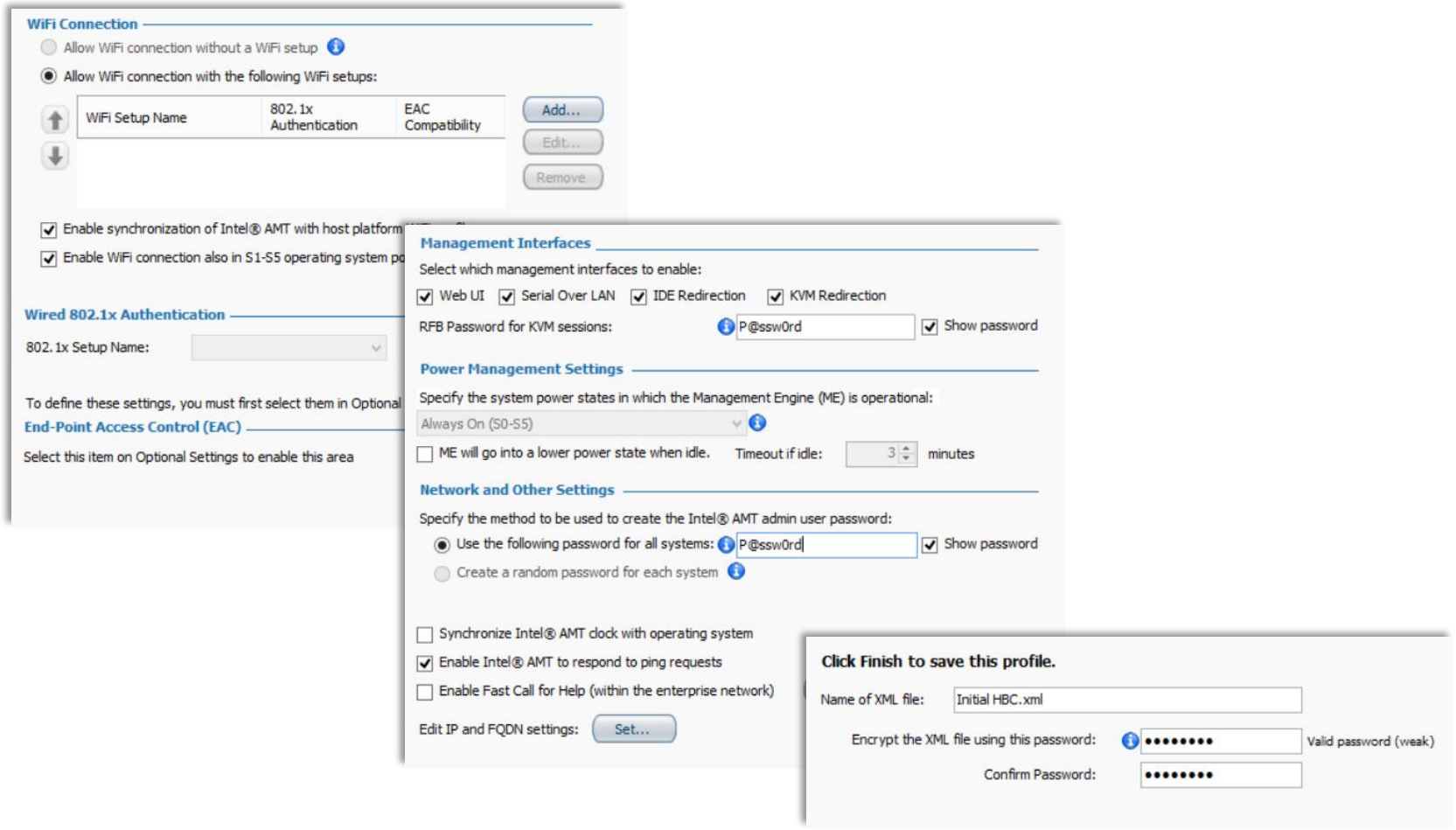
5. Performs an initial configuration over the WLAN using a temporary profile to enable wireless Intel® Active Management Technology using the ConfigAMT switch for **ACUConfig.exe**
6. Performs a final RCS configuration that properly configures the client using the ConfigViaRCSOnly switch for **ACUConfig.exe**

Note that in function 5, the client is provisioned with an initial configuration using a digest password and another password used to encrypt the XML file, both of which are in this case, P@sswOrd.

Use the **ACUWizard.exe** to create the **Initial HBC.XML** file and refer to the Intel® Setup and Configuration Software Deployment Guide for more information.

HBC.XML Configuration

Below is an example of how the initial HBC.XML file is configured:



Remote Configuration Service Server Configuration

In function 6 (below) the system is configured again from the RCS server during which the digest password is either removed or replaced, depending on the configuration of the provisioning profile "MyProfile" on the RCS provisioning server "MyServer".

6. Performs a final RCS configuration that properly configures the client using the ConfigViaRCSOnly switch for ACUConfig.exe

If detailed logging and error checking are not required, the batch file can be simplified considerably by editing the file to perform only functions 5 and 6 without the use of variables.

Contents of ConfigureNowHBC.bat:

```
cd..
Color FC
echo ************************************************************
echo This action takes about 2-5 minutes.
echo It may take longer depending on bandwidth
echo and distance from the configuration server.
echo !!!Very important: You have to be connected via Wireless LAN!!!
echo If you haven't already done so,
echo DISCONNECT LAN and CONNECT to WLAN now
echo and wait until you get an IP address
echo ************************************************************

PAUSE
Color f

If exist %SystemDrive%\Intel\AMT\logs goto Cont
         MD %SystemDrive %\Intel\AMT\logs

:Cont
SET APPNAME=AMTHBCOD
SET MyServer="[FQDN of your provisioning server]"
SET MyProfile="[name of desired RCS profile]"
SET MyConfigFile="Initial HBC.xml"

:DecryptionPassword in command below matches the password used in SCS to encrypt the XML file
Call ACUConfig.exe /verbose /output console /output file %SystemDrive %\Intel\AMT\logs\HBOCLog.txt
ConfigAMT %MyConfigFile% /DecryptionPassword P@ssw0rd
IF NOT ERRORLEVEL 0 GOTO ERROR
Call ACUConfig.exe /verbose /output console /output file %SystemDrive %\Intel\AMT\logs\RCSLog.txt
ConfigViaRCSOnly %MyServer% %MyProfile%

SET INSTALLATIONERRORLEVEL=%ERRORLEVEL%
ECHO %DATE%:%TIME% - %APPNAME% ConfigViaRCSOnly returned: [%INSTALLATIONERRORLEVEL%]
```

The sample text for the ConfigureNowHBC.bat file is located here.

Contents of ConfigureNowHBC.bat:

```
:----------------------------
IF "%ERRORLEVEL%" == "0" Goto ENDGood
IF "%ERRORLEVEL%" == "32" Goto ENDGood
IF "%ERRORLEVEL%" == "101" Goto ENDGood
IF "%ERRORLEVEL%" == "108" Goto ENDGood

:ERROR
Color FC
echo ************************************
echo Please check the error message above.
echo ************************************
GOTO EndErr

:EndErr
Color FC
SET INSTALLATIONERRORLEVEL=%ERRORLEVEL%
ECHO %DATE%:%TIME% - %APPNAME% installation returned: [%INSTALLATIONERRORLEVEL%]
echo This program will now exit
PAUSE
EXIT /b 1

:ENDGood

Color A
echo ************************************
echo Congrats! You are now AMT configured
echo ************************************
echo
echo ************************************
echo This program will now exit
echo ************************************

PAUSE
EXIT 0
```

The sample text for the ConfigureNowHBC.bat file is located here.

Learn More

Intel® Setup and Configuration Software (Intel® SCS)

Intel® Setup and Configuration Software (Intel® SCS) allows you to discover, set up and configure, and maintain a secure connection to every managed device on your network. Using Intel SCS is an easy process for unlocking the features and the value of systems with Intel® processors with Intel® vPro™ technology. Download the free software or view the training wizard online.

Intel® vPro™ Technology: Proven Value in Four Use Cases

To increase our ability to maintain, manage, and protect PCs while decreasing management costs, in 2011 Intel IT completed deployment of Intel® vPro™ technology across the entire enterprise. We have evaluated the business value of four use cases based on Intel vPro technology that have been deployed at Intel.

- An enterprise-scale solution for remote management of self-encrypting drives
- Remote passphrase reset
- Keyboard-Video-Mouse (KVM) remote control
- ISO mounts

In each case, we found that Intel vPro technology reduces management costs and decreases downtime, resulting in greater employee productivity.

Learn More

Managing Intel® Solid-State Drives Using Intel® vPro™ Technology

Intel IT has conducted a successful pilot project of our hardware-based whole-disk encryption (WDE) solution to replace our current software-based WDE solution on systems with self-encrypting drives. Compared to software-based WDE, our new hardware-based WDE solution improves user experience, increases encryption compliance, and reduces support issues. This new solution is based on two Intel® technologies: self-encrypting Intel® Solid-State Drives and Intel® Active Management Technology, part of Intel® vPro™ technology.

Configuration Tips for Managing Mobile PCs with Intel® vPro™ Technology

To improve our ability to use certain remote management features of Intel® Active Management Technology (Intel® AMT) a component of Intel® vPro™ technology, Intel IT worked with Intel's software development team to develop ways to enhance Intel® Setup and Configuration Software (Intel® SCS), a tool used with Intel AMT. By combining the updated version that resulted, Intel SCS 7, with our existing client management console, we created a highly available, agile configuration and maintenance environment for our mobile systems. This solution improves our ability to configure and maintain mobile PCs on demand with Intel AMT and keep them configured throughout their on-the-go life cycles for our customers.

IT Annual Performance Report
2012 Initiatives and 2013 Priorities

Discover Intel IT's strategies and initiatives that are accelerating Intel's growth and delivering business value.

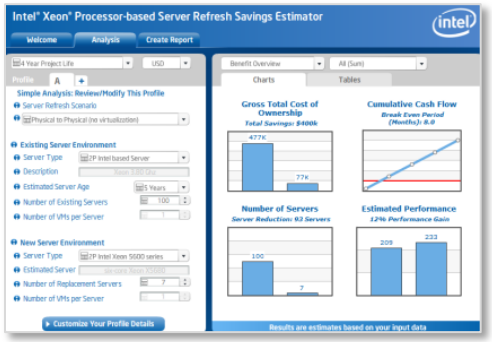
www.intel.com/go/ITAnnualReport

IT@Intel

Sharing Intel IT Best Practices with the World

IT Papers

IT-to-IT Community



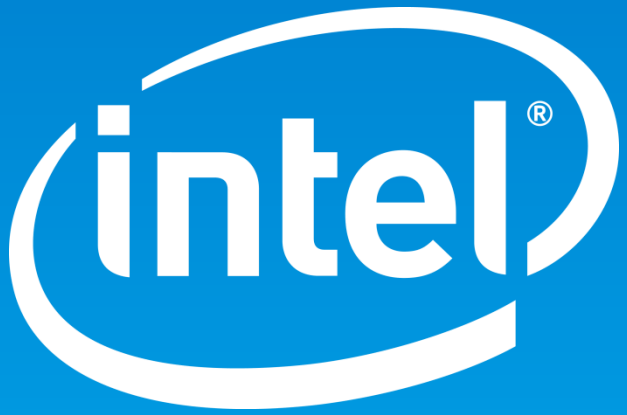
Assessment Tools

CIO and IT Perspective

Learn more about Intel IT's initiatives at www.intel.com/IT

Thank You

IT@Intel


intel