



hardware independent imaging solution

HIIS Version 6.5 User Guide

INTRODUCTION	3
REQUIREMENTS	3
INSTALLATION	3
GETTING STARTED OVERVIEW	7
IDENTIFY	8
SETTINGS	8
DEVICE FILTERING	9
TARGET OS	10
DEVICE MODE	10
ADVANCED HARDWARE INVENTORY (AHI)	10
COLLECT	11
EXPORT	12
SPECIFYING AN IMAGE	12
CREATING A NEW IMAGE	13
SPECIFYING A SYSPREP ANSWER FILE	13
BOOT ENVIRONMENTS	14
MAINTAIN	15
SCHEDULED IMAGE MAINTENANCE	15

TROUBLESHOOTING **16**

SUPPORT **17**

Introduction

Enterprise IT environments have struggled with the enormous task of routinely updating the many separate images required to support all of their distinct PC models. The inefficiencies of this manual process equate into many labor-intensive hours.

Hardware Independent Imaging Solution (HIIS) steps above the hurdle by providing an easy and manageable methodology for image consolidation . The core product functionality leverages the existing Deployment Solution framework (no complex architecture to implement). The intuitive HIIS console allows administrators to quickly build support for a single image, while populating Altiris Deployment Solution with a familiar Job to use for imaging.

Requirements

- Microsoft Windows Server 2003
- .Net Framework 1.1
- Microsoft SQL Server 2000 or higher
- Altiris Deployment Solution 6.5 or 6.8
- Deployment Solution eXpress share installed on same computer as Deployment Server

Installation

Hardware Independent Imaging Solution is intended to be installed in a server environment, on the same server as an operational Deployment Solution installation. HIIS does not currently support remote consoles, but may be administered through a local console, terminal services or remote control applications configured on the deployment server.

After verifying that the above requirements are met, run the HIIS installation MSI called "HIIS_Setup.MSI".

The installer will attempt to detect the path to the eXpress share of the current Deployment Solution installation and add a HIIS directory. Verify that the path to the eXpress share is correct before preceding with the installation and use this for the installation directory for HIIS.

NOTE: Certain HIIS components are required to exist in the eXpress share so that clients have access to them during deployment, so the detected installation path is not configurable.

Accept the license agreement. The next interface will include prompting for details related to the eXpress database and administrator credentials for the server which you are installing HIIS. When providing an account, be sure to enter it in domain\username format.

Setting in Progress...

Enter Information about Deployment Database

HIIS
Hardware Independent Imaging Solution

Server and Database details
Enter details of Database Server where Express and HIIS database are installed

Enter SQL Server name: SRV001

Database Name: eXpress

Connect to SQL server using

Use Windows NT authentication

Use SQL Server authentication

Enter User name and Password for SQL Server
Enter user name and password with Administrator rights for SQL database. This is used to update or create database.

User Name: sa

Password: [masked]

Account information
The following account entered by you must exist to run services and task

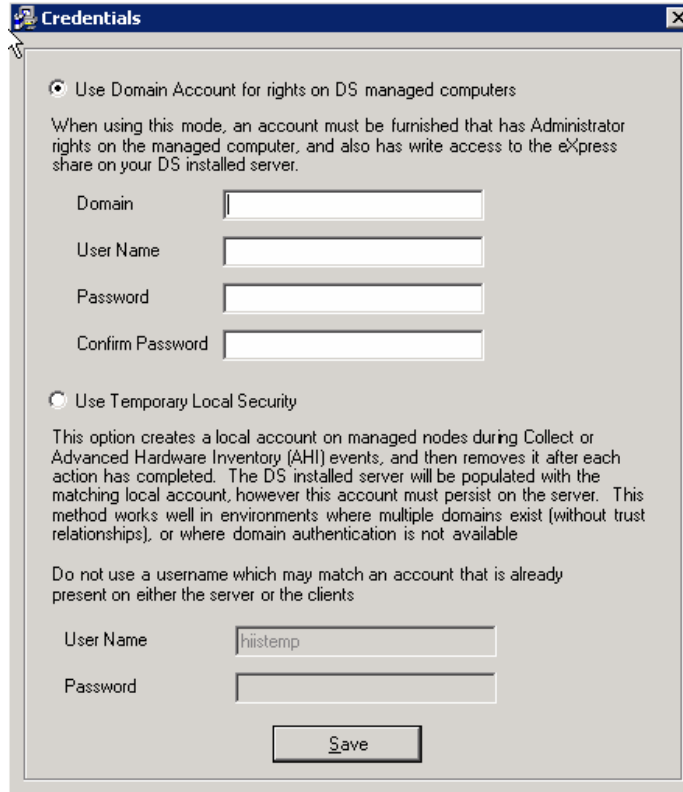
User name: eawise\administrator Password: [masked]

Ok

The next interface allows specification of what security context to run HIIS related executables on managed computers. Activities effected by this setting include both driver collection and hardware inventory actions. This setting can be changed at a later time in Settings>Credentials.

If the environment supports utilization of a single domain account which provides administrator rights to managed computers, the **“Use Domain Account for rights on DS managed computers”** option is the best choice.

If the computing environment does not include domain management or contains multiple domains without trust relationships between them, the **“Use Temporary Local Security”** option is recommended. This option creates a local User account on the server and adds it to the Administrators Group. Also, all HIIS related Tasks which require administrator rights on the managed computer will first create a local User, add it to the Administrators Group, and then remove the account after the activity has completed. By default, this account is named “hiistemp” but can be renamed. The name of this account **MUST** be unique to the environment—errors will occur if a pre-existing account with the same name exists on the server or any managed computer.

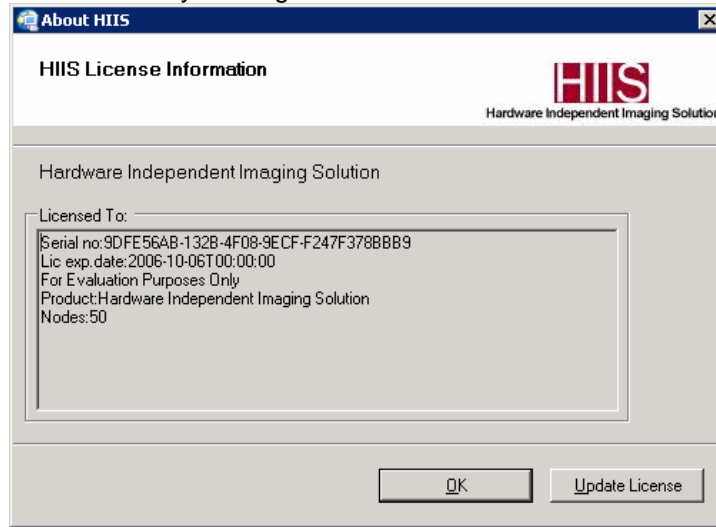


After this HIIS installation completes, navigate to the Start menu > All Programs > Altiris > HIIS > HIIS License Utility. The dialog shown below will appear. Browse to your HIIS license file and click "Next" to complete the installation of your license.

NOTE: HIIS will not function without a properly installed license file. A common symptom of a missing license file is that the Identify tab interface will not load computers or shows "0 or 0" computers as a return value when a refresh is attempted.



License status can be checked by clicking on the “About” menu in the HIIS Console.



NOTE: Once the license key is applied, it is necessary to close and re-open the HIIS console to fully activate the license.

Getting Started Overview

Building hardware independent support for imaging using HIIIS can be summarized into the following steps:

- 1) **Identify**—Analyzes the computers managed by Deployment Solution by grouping computers in to *Compatibility Classes*, or groupings of computers based on shared commonality in the imaging process. (see page 3 for more details)
- 2) **Collect**—Utilizes Deployment Solution architecture to run specialized collection routines which build a support library for each *Compatibility Class* recognized. (see page 4 for more details)
- 3) **Export**—Populates the Deployment Solution with a Job to image the computers in your environment using the process that has been built by HIIIS. (see page 5 for more details)

Identify

Analyzing the diverse hardware within your organization is the first phase in building a process to support the imaging of it. The functionality present within the Identify tab in the HIIIS console uses an advanced algorithm to group computers based on the commonality that is important to imaging. These calculations examine several characteristics including manufacturer, model and hardware devices that are present. The process identifies and graphically illustrates these groupings, called **Compatibility Classes**, within the HIIIS interface. Each class can be expanded to list all of the computers which are members of the class.



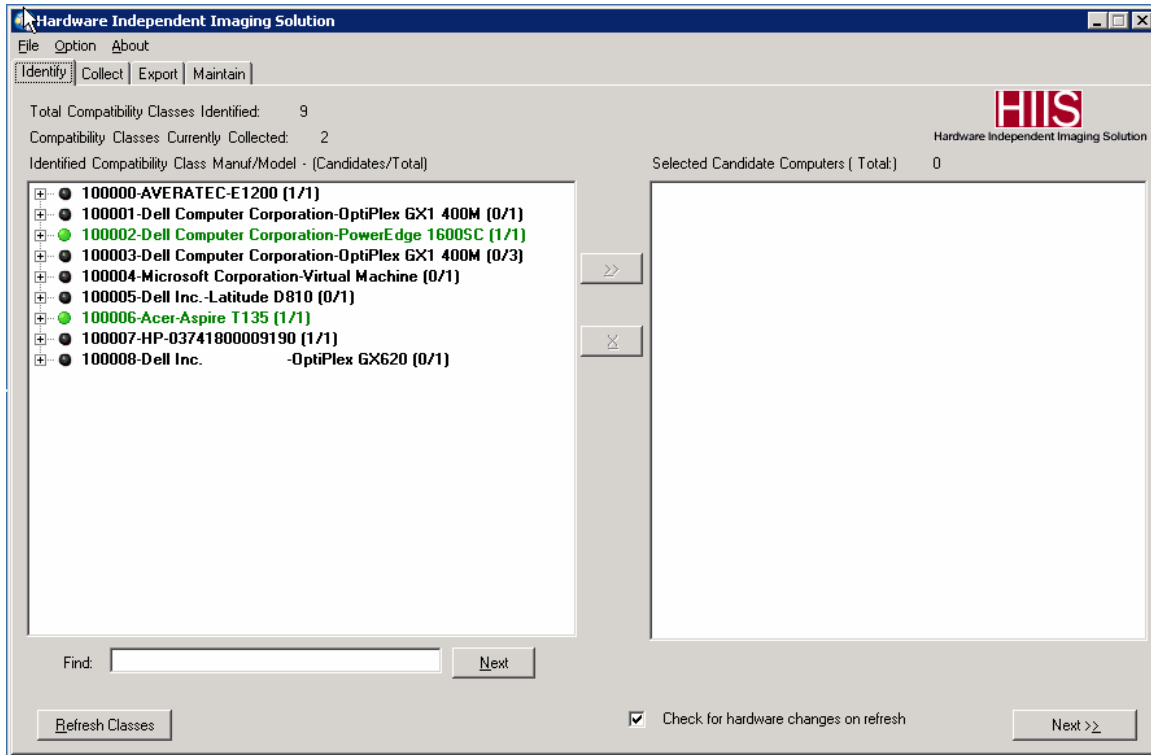
The “Refresh Classes” button forces HIIIS to re-analyze computer grouping. For large Deployment Solution databases, this process may take longer than 5-10 minutes each time it is refreshed. Refreshing is necessary if new computers are introduced to your Deployment Solution management environment.

The HIIIS Identify interface allows the administrator to elect only one (1) representative from each Compatibility Class. This selection process is at the administrator's discretion, since knowledge of the environment is helpful in selecting class representatives. Each representative is used in later steps to harvest and build a library of support files necessary to image every computer belonging to the same class.

To select a representative, highlight the computer and click the arrow button to move the computer to the right-hand list box. The X button allows computers to be removed from the select list. Only one computer per Compatibility Class can be selected as a representative at a time. Adding a computer to the list when a computer from the same Compatibility Class already exists, results in a dialog asking if replacement of the existing computer from the same class is desired.



You may notice that some computers within the left-hand Compatibility Class list are not able to be selected as representatives. In order to be a candidate, a computer's OS must match the Target OS (as set in the Options>Settings menu dialog), and must also currently have an active connection state with the Deployment Server. A dynamically detected list of Target OS's appear in the referenced dialogue ONLY AFTER an initial class refresh has been completed.



Settings

The HIIS Identify analysis is configurable in the Settings menu option interface. The Device Mode, Device Filtering options, and Target OS settings can be specified here.

Device Filtering

Since the Identify functionality of HIIS utilizes hardware device data about Deployment Solution managed nodes to make grouping decisions, it may be desirable to adjust which device types are considered. The device filter options within the HIIS Settings interface allows selection of specific device types in your environment that should be ignored from the Compatibility Class calculation. Devices types are separated into Common and Uncommon devices based on the most popular categories which are desirable to be reinstalled during the imaging process. By default, all Uncommon device types are filtered.



Adding additional device filters will likely decrease the number of Compatibility Classes that have been identify. However, removing filters can increase the number classes and the amount of collecting necessary to support the environment. Based on the kinds of devices you wish to support in your imaging process, adding or removing device filters may be necessary.

Target OS

The Target OS setting defines the Windows platform that will be used in the imaging process created by HIIIS. This setting should match the Windows platform within the image you are intending to use. The Target OS list is populated by platform variations actually found within your current Deployment Solution database. The Target OS setting is used to determine which computers are candidates for addition to the representative list; only computers matching the Target OS criteria are allowed.

Device Mode

Device Mode options include: Device Name (Default) OR DeviceID

Device Name Mode—Uses device naming as a method to identify unique devices. This is the default setting, as it does not require an additional inventory (Advanced Hardware Inventory-AHI)

DeviceID Mode—Uses actual deviceIDs to identify devices when calculating class membership. This method is more accurate, however it requires that Advanced Hardware Inventory (AHI) be ran on all computers in the Deployment Solution environment. (see AHI below).

Advanced Hardware Inventory (AHI)

When using DeviceID Mode, it is required that deviceID data be known for all computers to be analyzed into class groupings. Advanced Hardware Inventory (AHI) must be ran on each computer in order to collect this data. During the installation process of HIIIS, a special AHI Job was placed in the HIIIS Temp Job Folder in the Deployment Solution Console interface. Running this small, silent inventory can be accomplished by simply assigning this job to all computers within your organization. The results of this inventory are placed into HIIIS database tables and are used when the Device Mode is set to DeviceID in the HIIIS Settings interface.



While in DeviceID Mode, only computers which have completed AHI are considered for grouping or are supported by the imaging process.

Collect

After analyzing hardware diversity and populating the list with one computer to represent each identified Compatibility Class, the next step is to use those computers to build a library of files necessary to image those computers and other computers like them (belonging to the same class). The HIIS Collect tab provides an intuitive interface and allows the administrator or imaging technician to quickly and easily harvest these files.

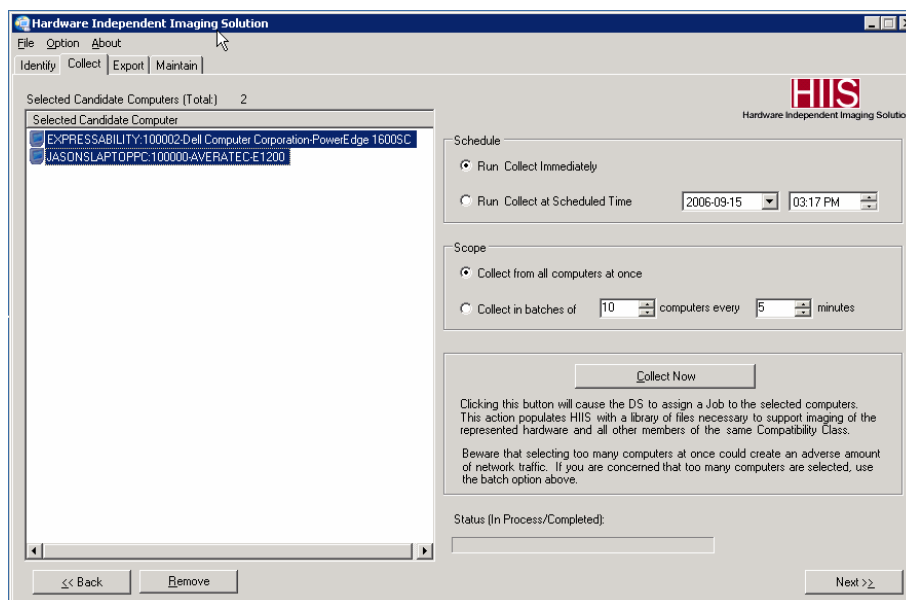


When running the collect action on a Deployment Solution managed computer, the user impact will be very minimal, if at all. The collect action runs silently (without dialogs or interface), however the end-user may notice some drive activity. The process averages 30-60 seconds to complete on a selected computer, depending upon the number of hardware devices and network traffic at the time of the collect action.

The computers that were selected in the Identify tab are listed in the Collect tab in the left-hand box. To initiate a collect, highlight each computer that you wish to collect from, and select either the “Run Immediately” radio button, or define a schedule for the collect and then click the “Collect Now” button. When doing this, HIIS will create and assign Jobs as necessary. These Jobs can be seen in the “HIIS Temp” Job folder in the Deployment Solution Console.

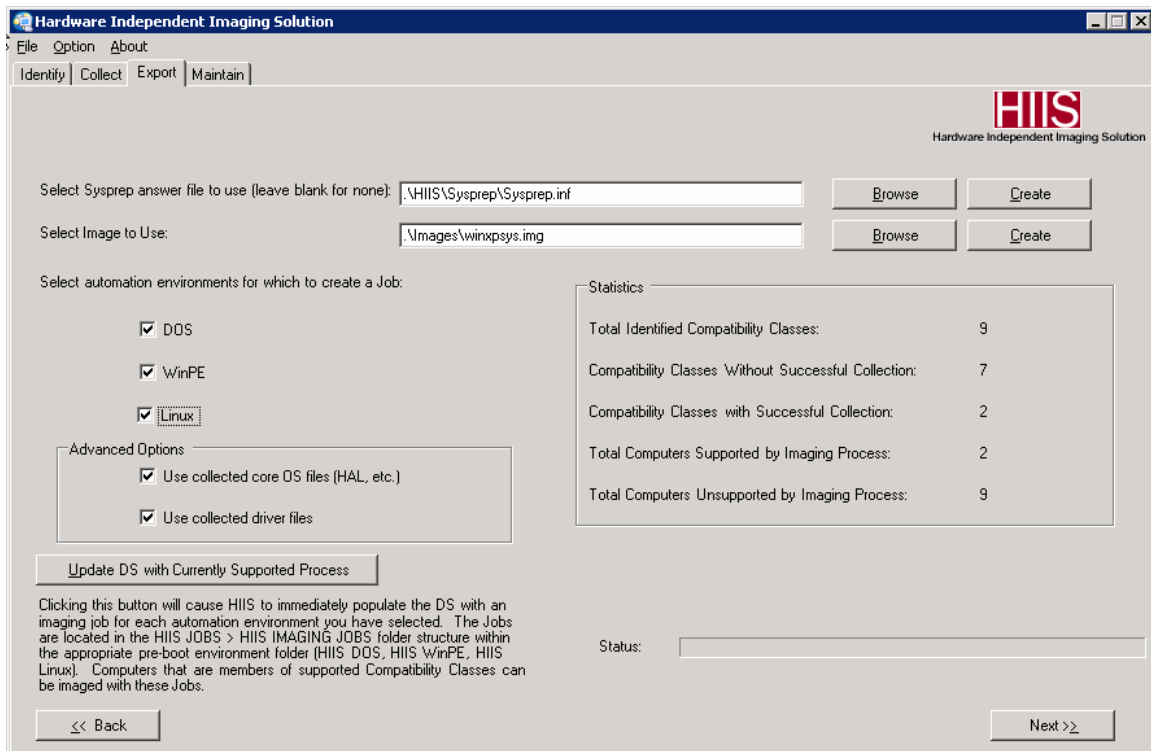
As the collect action finishes on each computer, the icon next to the computer changes to indicate either success or failure. If failure occurs, either troubleshoot the problem or select a different computer to represent the class, and re-collect.

The Libraries that are created for each Compatibility Class are located in the eXpress share at .\HIIS\Collect\Library\CC#, where CC# is the Compatibility Class number.



Export

The final step in the essential tasks necessary to support imaging for multiple hardware platforms is to populate Deployment Solution with the Job (or Jobs) necessary for imaging. The Export tab in the HIIIS console allows selection of the image file that you wish to use for the process, along with the Microsoft Sysprep answer file (sysprep.inf). If you do not have a previously created sysprep.inf, the Create button next to the path specification field for Sysprep allows you to create one. Since the pre-boot environment that you use determines the architecture of the Job that HIIIS creates, it is necessary to specify which environment(s) that you wish to support.



Specifying an Image

Use the Browse button to select a previously created image to use within your new hardware independent imaging process. This image should match the Windows Platform that is specified in HIIIS Settings>Target OS dialog. The image should also be prepared using Microsoft Sysprep to prevent non-unique SIDs on the network, and to assist with the device enumeration process.

The image that you specify should exist within the eXpress share, unless the image exists in a location which a managed computer (being imaged) can access from the pre-boot environment. If the image is not in the eXpress share, special configuration of the pre-boot environment is necessary to allow drive mapping to the alternate location.

Creating a New Image

When the “Create” button is clicked next to the image selector area, the Prepare and Image a Computer interface is presented. This HIIIS feature allows an imaging administrator to easily Sysprep a computer and then upload a new image to be used for hardware independent imaging. Creating an image in this way is not required in order to use HIIIS, as any XP image in Altiris image format that has been properly prepared using Microsoft Sysprep can be used. Prepare and Image a Computer provides options to clean the Altiris Agent GUID so that duplicate Notification Server Resource GUIDs can be avoided, even though the agent is included in the image. Selecting a computer from the left-hand box identifies it as the computer you wish to image. You should prepare this computer with Service Pack and patching levels as appropriate, and install any software you wish to be included in the image prior to imaging it from the Prepare and Image a Computer interface in HIIIS. After selecting the image name, the computer to be imaged, and the pre-imaging options, clicking the “Run Now” button will cause a DS Job to be created and assigned to the computer in question. The Job assignment may be either immediate or scheduled depending upon the options you have selected. The HIIIS Prepare and Image a Computer functionality requires that you have installed the Microsoft Sysprep Component from the Deployment Solution installation routine. If you did not install it during the initial DS installation, you may re-run the package and add-on just this component.

Specifying a Sysprep Answer File

Since the Sysprep answer file is an important element in the imaging process, the HIIIS Export tab allows you to select a sysprep.inf file, or to easily create a new one if necessary. The resulting Job (or Jobs) will replace the sysprep.inf file in the image (if one is already there) with the one that is designated here, after the imaging is completed on the managed computer.

To select a pre-existing file, click the Browse button and locate the file. To create a new sysprep.inf file, click the Create button next to the sysprep file path field.

Sysprep Answer File

Tip: Change DS Tokens to values as appropriate for your organization.

Computer Name:
 The %COMPNAME% token will be replaced with the computer's name as in the DS database.

Time Zone:

Full Name:

Organization Name:

Product Key:
 (It is suggested that you change the Product Key. Especially if you have Microsoft Volume Licensing)

Join a Workgroup:
 Select option and enter details for Sysprep to join computers to a domain. If using this feature, be sure that the account used has permission to join computers to a domain. Since this accounts will be sent in clear text, it is recommended that this account be restricted to ONLY have this functionality.

Join a Domain

Username:

Password:

Domain:
 (Example: mydomain OR mydomain.com)

To save to the default .\HIIS\Sysprep\Sysprep.inf file, use the Save button. To save to a new Sysprep.inf file, click Save As.

Boot Environments

During the imaging process, managed computers must boot into an alternate OS presence, often called a “pre-boot environment”. HIIS supports three platform types for this environment: WinPE, Linux, and DOS. Each Deployment Solution imaging Job created by HIIS must be specific to one of these environments. The HIIS Export tab allows selection of the environments for which to build a Job. For each selected platform, a separate Job is created and placed into the corresponding Job Folder in the Deployment Solution Console. When imaging, use the appropriate Job type based upon the pre-boot environment known to the systems being imaged.

Maintain

Maintenance can be the most labor intensive portion of a hardware independent image deployment initiative. The HIIIS administrator can turn on a maintenance cycle that will cause the solution to run a scheduled task that runs an automated class refresh cycle at the time indicated. This will allow newly managed DS clients to be absorbed into the HIIIS maintenance program. Systems matching an existing compatibility class will be associated with an existing or found a new compatibility class if it represents a new hardware platform that doesn't match an existing compatibility class. In this case, it will automatically have its drivers harvested – if it matches the target OS specified in the Options>Settings dialogue.

Scheduled Image Maintenance

Maintenance is enabled by checking the “Turn on automated Imaging Maintenance” checkbox. Maintenance interval can be set for day and time intervals for the server upon which HIIIS is installed.

Troubleshooting

Symptom	Cause	Resolution
HIIS Installer reports .NET framework error; HIIS installer MSI fails to launch	<ul style="list-style-type: none"> Missing prerequisites Insufficient Security Permissions 	<ul style="list-style-type: none"> Configure missing prerequisites (see Requirements section this document) HIIS should be installed while logged into an account with full Administrator permissions
HIIS console fails to launch and renders license error.	<ul style="list-style-type: none"> The HIIS License has expired. 	<ul style="list-style-type: none"> Use the HIIS License Utility (START>Programs>Altiris>Hiis) to apply a valid license file. Altrinsic Solutions licensing assistance can be reached by sending an email to: licensing@altrinsicsolutions.com
Identify tab Refresh Classes returns no results	<ul style="list-style-type: none"> Missing or expired license key Console has not been closed and re-opened after applying license key HIIS Option>Settings Device Mode is set to "Device Id" but AHI inventory has not been performed or has not yet remitted results. AHI job failing 	<ul style="list-style-type: none"> Use the HIIS License Utility (START>Programs>Altiris>Hiis) to apply a valid license file. Altrinsic Solutions licensing assistance can be reached by sending an email to: licensing@altrinsicsolutions.com Apply the AHI job in the HIIS Temp folder of the DS console to systems and verify complete job execution before refreshing classes. Verify online status of the AHI target systems and verify correct configuration of security settings
No candidate references computers appear online in some compatibility classes	<ul style="list-style-type: none"> No Members of the class in question are both online and running the Target OS as specified in the Options>Settings dialog and thus do not qualify as candidate computers for driver collection. 	<ul style="list-style-type: none"> Verify online status of systems running Target OS that are in the compatibility class. Verify OS match to Target OS setting of systems that are online Refresh Classes <u>After using the TOGGLE LOCKED STATUS feature to lock the system</u> desired to be upgraded to the target OS, perform an OS upgrade, desired driver installation and Refresh classes.
Driver collection job stalls on select clients	<ul style="list-style-type: none"> System targeted for collection has gone offline Client firewall/AV interference with collect.exe 	<ul style="list-style-type: none"> Verify online status of system Remediate local AV / Firewall configuration such that it does not interfere with Collect.EXE function.
Driver collection job fails on select clients	<ul style="list-style-type: none"> System targeted for collection has gone offline Client firewall/AV interference with collect.exe Collection job security account context is failing on client 	<ul style="list-style-type: none"> Verify online status of system Remediate local AV / Firewall configuration such that it does not interfere with Collect.EXE function. Verify Job configuration of the collection job titled with the target system name. These jobs are in the HIIS Temp folder of the DS Console
Select driver packs fail to load during deployment and require user intervention	<ul style="list-style-type: none"> HIIS collected driver packs are provided to Windows Plug and Play. Some drivers may not have been installed in a manner compatible with MS Windows PnP specifications. 	<ul style="list-style-type: none"> Download a replacement driver installer from the Device OEM and place the installer executable in the \\<DS Server>\eXpress\HIIS\Collect\Library\<compatibility class>\DRV folder and add the command line for silent installation of the driver to the cmdlnes.txt file located in the same context as the DRV folder. Delete the failing numbered driver pack out of the DRV folder. Alternately, the contents of the folder within the DRV folder can be replaced with a valid, Windows PnP compliant driver. Non-failing driver versions can also be upgraded in this manner.

Support

Support for HIIS can be accessed by emailing support@altrinsicsolutions.com . Gratis email support is available at this address, but is provided on an availability basis. Gratis email support may incur a 72 hr or more delay in live response.

Organizations wishing to access phone fee based support may purchase support incident packages from your HIIS reseller. For more information contact info@altrinsicsolutions.com .