Agilent E6630A Wireless Connectvity Test Set

Security Features and Document of Volatility

Agilent Technologies

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Manual Part Number

E6630-90005

Print Date

August, 2013

Printed in USA

Agilent Technologies Inc.
1400 Fountaingrove Parkway
Santa Rosa, CA 95403

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Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, see the following URLs:

http://www.agilent.com/find/E6630A

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Information on preventing instrument damage can be found at:

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Is your product software up-to-date?

Periodically, Agilent releases software updates to fix known defects and incorporate product enhancements. To check for software updates for your product, go to the Agilent Technical Support website at:

http://www.agilent.com/find/ext_software

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2 Contacting Agilent Sales and Service Offices

Assistance with test and measurement needs, and information to help you find a local Agilent office, is available via the internet at, http://www.agilent.com/find/assist. If you do not have internet access, please contact your designated Agilent representative.

NOTE In any correspondence or telephone conversation, refer to the instrument by its model number and full serial number. With this information, the Agilent representative can determine whether your unit is still within its warranty period.

3 Products Covered by this Document

Product Name	Model Numbers
EXT Wireless Connectivity Test Set	E6630A

This document describes instrument memory types and security features. It provides a statement regarding the volatility of all memory types, and specifies the steps required to declassify an instrument through memory clearing, sanitization, or removal.

For additional information, go to:

http://www.agilent.com/find/security

IMPORTANT Be sure that all information stored by the user in the instrument that needs to be saved is properly backed up before attempting to clear any of the instrument memory. Agilent Technologies cannot be held responsible for any lost files or data resulting from the clearing of memory.

Be sure to read this document entirely before proceeding with any file deletion or memory clearing.

4 Security Terms and Definitions

Term	Definition
Clearing	As defined in Section 8-301a of DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)", clearing is the process of eradicating the data on media before reusing the media so that the data can no longer be retrieved using the standard interfaces on the instrument. Clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.
Instrument Declassification	A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment, such as is the case when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both. Agilent declassification procedures are designed to meet the requirements specified in DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)", Chapter 8.
Sanitization	As defined in Section 8-301b of DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)", sanitization is the process of removing or eradicating stored data so that the data cannot be recovered using any known technology. Instrument sanitization is typically required when an instrument is moved from a secure to a non-secure environment, such as when it is returned to the factory for calibration. Agilent memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are specified in the "Clearing and Sanitization Matrix" in Appendix O of the ODAA Process Guide for C&A of Classified Systems under NISPOM.
Secure Erase	Secure Erase is a term that is used to refer to either the clearing or sanitization features of Agilent instruments.

5 Instrument Memory & Document of Volatility

This chapter summarizes all memory types in the instrument.

The descriptions are divided between:

1. Memory in the Controller,
2. Memory in the Vector Signal Generator.
3. Memory in the Vector Signal Analyzer.

Memory in the Controller

This section contains information on the memory components used in the controller.

The table provides details of the size of each memory component, its type, how it is used, its location, volatility, and the sanitization procedure.

NOTE The instrument contains no user-accessible non-volatile memory, except for the SSD listed as the second item in the table below. For this reason, as indicated in the tables below, no sanitization procedure is required for any memory component except the SSD..

Table 5-1 Summary of controller instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents/Remarks	Location in Controller	Sanitization Procedure
Main memory (RAM) 4GB or 8GB Std.	Yes	No	Windows Operating System memory. Data input from user, operating system.	Motherboard	Cycle power. This is volatile memory.
Media Storage 160 GB Solid State Drive	Yes	Yes	Windows Operating System boot device and user files including saved programs, data, settings, images, license files, etc. Data (Operating System) is factory installed; other data is user-saved.	Motherboard	Remove the drive; see instructions below.
Flash memory for BIOS (non-volatile memory)	No	Yes	Contains default BIOS settings for use when booting the controller. Programmed at factory or during BIOS upgrade. Settings may be toggled by user. Contains no user data.	Motherboard	None
DDR2-533 memory	No	No	Video RAM	Motherboard	Cycle power. This is volatile memory.

Memory in the Vector Signal Generator

This section contains information on the memory components available in your instrument.

The table provides details of the size of each memory component, its type, how it is used, its location, volatility, and the sanitization procedure.

NOTE The instrument contains no user-accessible non-volatile memory, except for the SSD described in Table 5-1. For this reason, as indicated in the tables below, no sanitization procedure is required for any memory component except the Disk Drive.

Table 5-2 Summary of VSG instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
1. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9300A PXIe Frequency Reference.	None; this is not user accessible.
2. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9300A PXIe Frequency Reference.	None; this is not user accessible.
3. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9300A PXIe Frequency Reference.	All values can be reset using Soft Front Panel.
4. FPGA	Yes	Yes	Reference Output selections, External Reference and Frequency selections, Time Shift and Self Test results	M9300A PXIe Frequency Reference.	Cycle power.
5. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9300A PXIe Frequency Reference.	All values can be reset using IVI driver.

Table 5-2 Summary of VSG instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
6. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9301A PXIe Synthesizer.	None; this is not user accessible.
7. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9301A PXIe Synthesizer.	None; this is not user accessible.
8. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9301A PXIe Synthesizer.	All values can be reset using Soft Front Panel.
9. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9301A PXIe Synthesizer.	Cycle power.
10. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9301A PXIe Synthesizer.	All values can be reset using IVI driver.
11. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9310A PXIe Source Output	None; this is not user accessible.
12. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9310A PXIe Source Output	None; this is not user accessible.
13. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9310A PXIe Source Output	All values can be reset using Soft Front Panel.

Table 5-2 Summary of VSG instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
14. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9310A PXIe Source Output	Cycle power.
15. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9310A PXIe Source Output	All values can be reset using IVI driver.
16. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9311A PXIe Digital Vector Modulator.	None; this is not user accessible.
17. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9311A PXIe Digital Vector Modulator.	None; this is not user accessible.
18. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9311A PXIe Digital Vector Modulator.	All values can be reset using Soft Front Panel.
19. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9311A PXIe Digital Vector Modulator.	Cycle power.
20. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9311A PXIe Digital Vector Modulator.	All values can be reset using IVI driver.

Memory in the Vector Signal Analyzer

is section contains information on the memory components available in your instrument.

The table provides details of the size of each memory component, its type, how it is used, its location, volatility, and the sanitization procedure.

NOTE The instrument contains no user-accessible non-volatile memory, except for the SSD described in Table 5-1. For this reason, as indicated in the tables below, no sanitization procedure is required for any memory component except the Disk Drive.

Table 5-3 Summary of VSA instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
1. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9300A PXIe Frequency Reference.	None; this is not user accessible.
2. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9300A PXIe Frequency Reference.	None; this is not user accessible.
3. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9300A PXIe Frequency Reference.	All values can be reset using Soft Front Panel.
4. FPGA	Yes	Yes	Reference Output selections, External Reference and Frequency selections, Time Shift and Self Test results	M9300A PXIe Frequency Reference.	Cycle power.
5. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9300A PXIe Frequency Reference.	All values can be reset using IVI driver.

Table 5-3 Summary of VSA instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
6. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9214A PXIe IF Digitizer.	None; this is not user accessible.
7. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9214A PXIe IF Digitizer.	None; this is not user accessible.
8. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9214A PXIe IF Digitizer.	All values can be reset using Soft Front Panel.
9. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9214A PXIe IF Digitizer.	Cycle power.
10. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9214A PXIe IF Digitizer.	All values can be reset using IVI driver.
11. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9350A PXIe Down-converter	None; this is not user accessible.
12. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9350A PXIe Down-converter	None; this is not user accessible.
13. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9350A PXIe Down-converter	All values can be reset using Soft Front Panel.

Table 5-3 Summary of VSA instrument memory

Memory Component, Type and Size	User Modifiable (Y/N)?	Volatile (Y/N)?	Purpose/Contents	Location in Instrument and Remarks	Sanitization Procedure
14. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9350A PXIe Down-converter	Cycle power.
15. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9350A PXIe Down-converter	All values can be reset using IVI driver.
16. Flash Memory 128 Mbit	No	No	Stores Module Model Number, Serial Number, Manufacturing Number, PCB Part and Version Numbers, Cal Verify Date, Max Module Temperature, and Calibration Data.	M9301A PXIe Synthesizer	None; this is not user accessible.
17. Flash Memory 128 Mbit	No	No	Device firmware. Images can be changed using the Agilent Soft Front Panel firmware update utility.	M9301A PXIe Synthesizer	None; this is not user accessible.
18. Flash Memory 128 Mbit	Yes	No	Stores Calibration Preferences: Due Date, Subject to Periodic Cal, Module Cal Warnings, Cal Due Reminder, Module Cal Reminder and Passphrase	M9301A PXIe Synthesizer	All values can be reset using Soft Front Panel.
19. FPGA	Yes	Yes	Frequency Start/Stop/Step, Power, Waveform, and Impairments.	M9301A PXIe Synthesizer	Cycle power.
20. Flash Memory 128 Mbit	Yes	Yes	Stores User Customizable Asset Number and System Identification	M9301A PXIe Synthesizer	All values can be reset using IVI driver.

6 Memory Clearing, Sanitization and/or Removal Procedures

This section explains how to clear, sanitize, and remove memory from your instrument, for all types of non-volatile memory that can be written to during normal instrument operation.

Instrument Sanitization Procedures

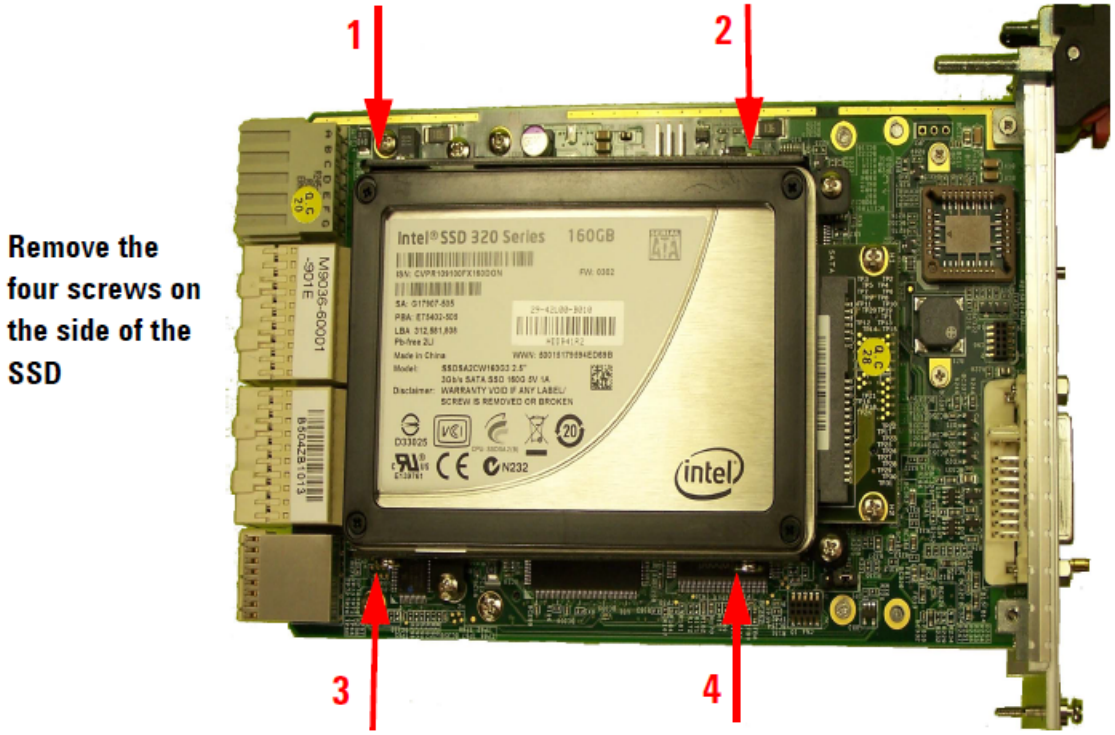
SSD Data Destruction

Several commercially available software programs exist to completely destroy all data on a data storage device such as the SSD. DoD 5220.22-M is a software based data sanitization method for total data destruction. The DoD 5220.22-M sanitization method was originally defined by the U.S. National Industrial Security Program (NISP) in the National Industrial Security Program Operating Manual (NISPOM). The process involves overwriting existing information on the SSD (or other data storage device). Typically, this means writing a 0 (zero) to every addressable location on the device, verifying the write, writing a 1 (one) to every addressable location and verifying the write, and then writing a random character (in some cases writing a 97) to every addressable location and verifying the write. Using a DoD 5220.22-M sanitization (or a variant) prevents all software and hardware based data recovery methods from obtaining information from the SSD.The instrument's disk drive is divided at the factory into three visible partitions, labeled C:, D: and E:, plus a fourth hidden partition.

SSD Removal

Because it is virtually impossible to completely and selectively erase all user data on a hard drive without also destroying the operating system, the best method for maintaining security when the controller must be removed from a secure area is to remove or replace the hard drive.

Figure 6-1 Removing the SSD



1. Turn the PXIe chassis power off.
2. Remove the controller from the PXIe chassis.

3. Position the controller, top side up on the workbench. Remove the four SSD mounting screws.
4. Gently push the drive toward the back of the module to disengage the drive from the connector. Carefully lift out the hard drive
5. Remove the frame from the SSD, so that it can be placed on the replacement drive (if necessary for spacing).

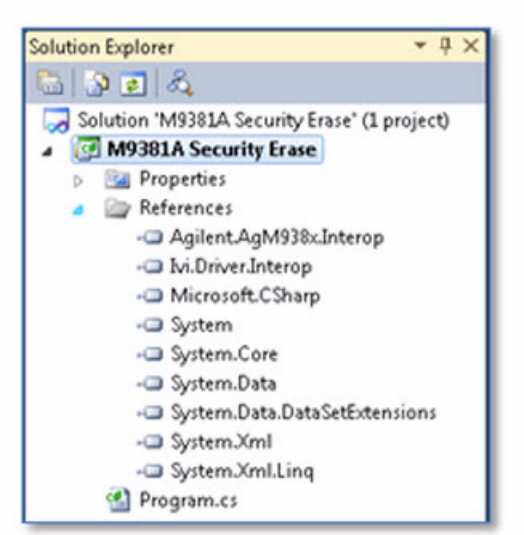
Application License Key Storage

License keys for measurement applications are stored on the Solid State Drive; if you need to replace the SSD, contact Agilent Customer Support for help with restoring these licenses.

M9381A Memory Clear Code

Below is the IVI code to clear the memory from the M9381A PXIe Vector Signal Generator and its modular components (M9300A Reference, M9301A Synthesizer, M9310A Source Output, and M9311A Modulator). The procedures in this code sample clear the Asset Number, System ID, and Cal passphrase from the flash memory.

All you need to do is copy and paste the code into a console application and include the correct driver references – see inset picture below..




```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using Ivi.Driver.Interop;
using Agilent.AgM938x.Interop;

namespace M9381A_Security_Erase
{

   class Program
   {

      static void Main(string[] args)
      {

      //running this program will clear the flash memory of the M9381A
        Vector Signal Generator

     //The flash memory cleared is the Asset Number, System ID, and the
        passphrase protecting the calibration preferences

      //ONLY run this program if you are sure you want to clear this
        information
```

```
//initialize the driver
IAgM938x m9381a = new AgM938x();
string resource = ""; //enter in the VISA resource between the
  quotes for the instrument getting cleared
string options = "QueryInstrStatus=true, Simulate=false,
  DriverSetup=Trace=false";
bool idquery = true;
bool reset = true;
m9381a.Initialize(resource, idquery, reset, options);
Console.WriteLine("Driver Initialized.\n Press enter to
 continue\n");
Console.ReadLine();


//test to write to modules. It is commented out because it does
 not need to be run to clear the memory
//m9381aWrite(m9381a.Modules.get_Item("M9300A"));
//m9381aWrite(m9381a.Modules.get_Item("M9301A"));
//m9381aWrite(m9381a.Modules.get_Item("M9310A"));
//m9381aWrite(m9381a.Modules.get_Item("M9311A"));


//Read back asset numbers and system ID from each module
string refAsset =
  m9381a.Modules.get_Item("M9300A").Nonvolatile.AssetNumber;
string refID =
  m9381a.Modules.get_Item("M9300A").Nonvolatile.
  SystemIdentification;
string synthAsset =
  m9381a.Modules.get_Item("M9301A").Nonvolatile.
  AssetNumber;
string synthID = m9381a.Modules.get_Item("M9301A").Nonvolatile.
  SystemIdentification;
string outputAsset =
  m9381a.Modules.get_Item("M9310A").Nonvolatile.
  AssetNumber;
string outputID = m9381a.Modules.get_Item("M9310A").Nonvolatile.
  SystemIdentification;
string dvmAsset =
  m9381a.Modules.get_Item("M9311A").Nonvolatile.AssetNumber;
string dvmID = m9381a.Modules.get_Item("M9311A").Nonvolatile.
  SystemIdentification;
Console.WriteLine("Reference Asset is:" + refAsset + "\n");
Console.WriteLine("Reference System ID is:" + refID + "\n");
Console.WriteLine("Synthesizer Asset is:" + synthAsset + "\n");
Console.WriteLine("Synthesizer System ID is:" + synthID + "\n");
Console.WriteLine("Source Output Asset is:"
  + outputAsset + "\n");
Console.WriteLine("Source Output ID is:" + outputID + "\n");
```

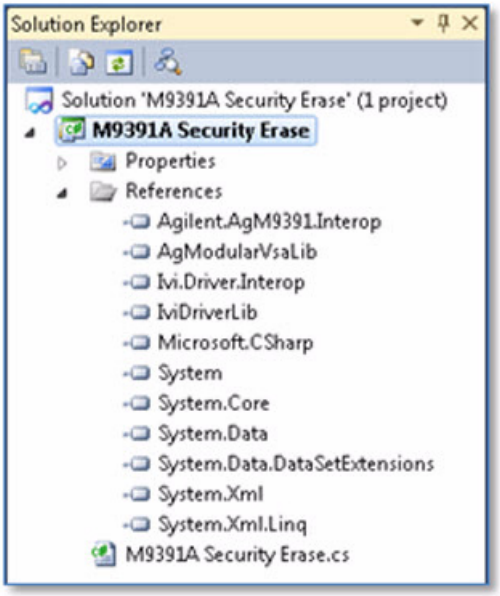
```
Console.WriteLine("DVM Asset is:" + dvmAsset + "\n");
Console.WriteLine("DVM System ID is:" + dvmID + "\n\n");


//begin clear
Console.WriteLine("Press Enter to Clear asset number
  and system ID");
Console.ReadLine();


//clear asset number and system ID and Calibration Preferences
  passphrase
m9381aClear(m9381a.Modules.get_Item("M9300A"));
m9381aClear(m9381a.Modules.get_Item("M9301A"));
m9381aClear(m9381a.Modules.get_Item("M9310A"));
m9381aClear(m9381a.Modules.get_Item("M9311A"));


//read back module asset numbers and ID to verify memory clear
Console.WriteLine("press enter to verify clear");
Console.ReadLine();
refAsset = m9381a.Modules.get_Item("M9300A").Nonvolatile.
  AssetNumber;
refID = m9381a.Modules.get_Item("M9300A").Nonvolatile.
  SystemIdentification;
synthAsset = m9381a.Modules.get_Item("M9301A").Nonvolatile.
  AssetNumber;
synthID = m9381a.Modules.get_Item("M9301A").Nonvolatile.
  SystemIdentification;
outputAsset = m9381a.Modules.get_Item("M9310A").Nonvolatile.
  AssetNumber;
outputID = m9381a.Modules.get_Item("M9310A").Nonvolatile.
  SystemIdentification;
dvmAsset = m9381a.Modules.get_Item("M9311A").Nonvolatile.
  AssetNumber;
dvmID = m9381a.Modules.get_Item("M9311A").Nonvolatile.
  SystemIdentification;
Console.WriteLine("Reference Asset No is:" + refAsset + "\n");
Console.WriteLine("Reference System ID is:" + refID + "\n");
Console.WriteLine("Synthesizer Asset No is:" +
  synthAsset + "\n");
Console.WriteLine("Synthesizer System ID is:" + synthID + "\n");
Console.WriteLine("Source Output Asset No is:" +
  outputAsset + "\n");
Console.WriteLine("Source Output System ID is:"
  + outputID + "\n");
Console.WriteLine("DVM Asset is:" + dvmAsset + "\n");
Console.WriteLine("DVM System ID is:" + dvmID + "\n\n");
```

```
      Console.WriteLine("\n Memory clear complete, press
        enter to exit program");
      Console.ReadLine();


      //close the driver session
      m9381a.Close();
   }

   //test method to write to the modules. It is commented out because
   //it does not need to be run to clear the memory
   //static void m9381aWrite(IAgM938xModule module)
   //{
   // module.Nonvolatile.Clear();
   // module.Nonvolatile.SystemIdentification = "system ID";
   // module.Nonvolatile.AssetNumber = "123456789";
   // string oldPassphrase = module.Nonvolatile.Passphrase;
   // module.Nonvolatile.Write(oldPassphrase);
   //}

   //method to clear the Passphrase and Asset Number/System ID
   //of each module
   static void m9381aClear(IAgM938xModule module)
   {
      module.Nonvolatile.Clear();
      module.Nonvolatile.Clear();
      module.Nonvolatile.SystemIdentification = "";
      module.Nonvolatile.AssetNumber = "";
      string newPassphrase = "";
      string oldPassphrase = module.Nonvolatile.Passphrase;
      module.Nonvolatile.Passphrase = newPassphrase;
      module.Nonvolatile.Write(oldPassphrase);
   }
  }
}
```

M9391A Memory Clear Code

Below is the IVI code to clear the memory from the M9391A PXIe Vector Signal Analyzer and its modular components (M9300A Reference, M9301A Synthesizer, M9350A Downconverter, and M9214A Digitizer). The procedures in this code sample clear the Asset Number, System ID, and Cal passphrase from the flash memory.

All you need to do is copy and paste the code into a console application and include the correct driver references – see inset picture below..




```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using Ivi.Driver.Interop;
using Agilent.AgM9391.Interop;

namespace M9391A_Security_Erase
{

   class Program
   {

      static void Main(string[] args)
      {

      //running this program will clear the flash memory of the M9391A
       Vector Signal Analyzer multi-module instrument

      //The flash memory cleared is the Asset Number, System ID, and the
       passphrase protecting the calibration preferences

      //ONLY run this program if you are sure you want to clear this
       information
```

```
//initialize the driver
IAgM9391 m9391a = new AgM9391();
string resource = ""; //enter in the VISA resource between the
  quotes for the instrument getting cleared
string options = "QueryInstrStatus=true, Simulate=false,
  DriverSetup=Trace=false";
bool idquery = true;
bool reset = true;
m9391a.Initialize(resource, idquery, reset, options);
Console.WriteLine("Driver Initialized.\n Press enter to
  continue\n");
Console.ReadLine();


//test to write to modules. It is commented out because it does
 not need to be run to clear the memory
//m9391aWrite(m9391a.Modules.get_Item("M9300A"));
//m9391aWrite(m9391a.Modules.get_Item("M9301A"));
//m9391aWrite(m9391a.Modules.get_Item("M9350A"));
//m9391aWrite(m9391a.Modules.get_Item("M9214A"));


//Read back asset numbers and system ID from each module
string refAsset =
   m9391a.Modules.get_Item("M9300A").Nonvolatile.AssetNumber;
string refID =
  m9391a.Modules.get_Item("M9300A").Nonvolatile.
  SystemIdentification;
string synthAsset =
   m9391a.Modules.get_Item("M9301A").Nonvolatile.AssetNumber;
string synthID = m9391a.Modules.get_Item("M9301A").Nonvolatile.
  SystemIdentification;
string DCAsset =
  m9391a.Modules.get_Item("M9350A").Nonvolatile.
  AssetNumber;
string DCID = m9391a.Modules.get_Item("M9350A").Nonvolatile.
  SystemIdentification;
string digAsset =
  m9391a.Modules.get_Item("M9214A").Nonvolatile.AssetNumber;
string digID = m9391a.Modules.get_Item("M9214A").Nonvolatile.
  SystemIdentification;
Console.WriteLine("Reference Asset is:" + refAsset + "\n");
Console.WriteLine("Reference System ID is:" + refID + "\n");
Console.WriteLine("Synthesizer Asset is:" + synthAsset + "\n");
Console.WriteLine("Synthesizer System ID is:" + synthID + "\n");
Console.WriteLine("DownConverter Asset is:" + DCAsset + "\n");
Console.WriteLine("DownConverter System ID is:" + DCID + "\n");
Console.WriteLine("Digitizer Asset is:" + digAsset + "\n");
Console.WriteLine("Digitzer System ID is:" + digID + "\n\n");
```

```
        //begin clear
        Console.WriteLine("Press Enter to Clear asset number
          and system ID");
        Console.ReadLine();


        //clear asset number and system ID and Calibration Preferences
          passphrase
        m9391aClear(m9391a.Modules.get_Item("M9300A"));
        m9391aClear(m9391a.Modules.get_Item("M9301A"));
        m9391aClear(m9391a.Modules.get_Item("M9350A"));
        m9391aClear(m9391a.Modules.get_Item("M9214A"));


        //read back module asset numbers and ID to verify memory clear
        Console.WriteLine("press enter to verify clear");
        Console.ReadLine();
        refAsset = m9391a.Modules.get_Item("M9300A").Nonvolatile.
          AssetNumber;
        refID =  m9391a.Modules.get_Item("M9300A").Nonvolatile.
          SystemIdentification;
        synthAsset = m9391a.Modules.get_Item("M9301A").Nonvolatile.
          AssetNumber;
        synthID = m9391a.Modules.get_Item("M9301A").Nonvolatile.
          SystemIdentification;
        DCAsset = m9391a.Modules.get_Item("M9350A").Nonvolatile.
          AssetNumber;
        DCID = m9391a.Modules.get_Item("M9350A").Nonvolatile.
          SystemIdentification;
        digAsset = m9391a.Modules.get_Item("M9214A").Nonvolatile.
          AssetNumber;
        digID = m9391a.Modules.get_Item("M9214A").Nonvolatile.
          SystemIdentification;
        Console.WriteLine("Reference Asset No is:" + refAsset + "\n");
        Console.WriteLine("Reference System ID is:" + refID + "\n");
        Console.WriteLine("Synthesizer Asset No is:" +
          synthAsset + "\n");
        Console.WriteLine("Synthesizer System ID is:" + synthID + "\n");
       Console.WriteLine("DownConverter Asset No is:" + DCAsset + "\n");
        Console.WriteLine("DownConverter System ID is:" + DCID + "\");
        Console.WriteLine("Digitizer Asset is:" + digAsset + "\n");
        Console.WriteLine("Digitizer System ID is:" + digID + "\n\n");
        Console.WriteLine("\n Memory clear complete, press
          enter to exit program");
        Console.ReadLine();


        //close the driver session
        m9391a.Close();
    }
```

```
    //test method to write to the modules. It is commented out because
    //it does not need to be run to clear the memory
    //static void m9391aWrite(IAgM9391Module module)
    //{
    // module.Nonvolatile.Clear();
    // module.Nonvolatile.SystemIdentification = "system ID";
    // module.Nonvolatile.AssetNumber = "123456789";
    // string oldPassphrase = module.Nonvolatile.Passphrase;
    // module.Nonvolatile.Write(oldPassphrase);
    //}

    //method to clear the Passphrase and Asset Number/System ID
    //of each module
    static void m9391aClear(IAgM9391Module module)
    {
       module.Nonvolatile.Clear();
       module.Nonvolatile.Clear();
       module.Nonvolatile.SystemIdentification = "";
       module.Nonvolatile.AssetNumber = "";
       string newPassphrase = "";
       string oldPassphrase = module.Nonvolatile.Passphrase;
       module.Nonvolatile.Passphrase = newPassphrase;
       module.Nonvolatile.Write(oldPassphrase);
    }
  }
}
```

Archiving and Restoring Factory Calibration Data Files

This section describes how to archive ("back up") the instrument's factory calibration data to an external USB memory device, or restore the calibration data from an external memory device.

Tools Required

To perform backup or restore operations, you need:

- a mouse with a USB interface
- a portable memory device with a USB interface
- an alphanumeric keyboard with a USB interface

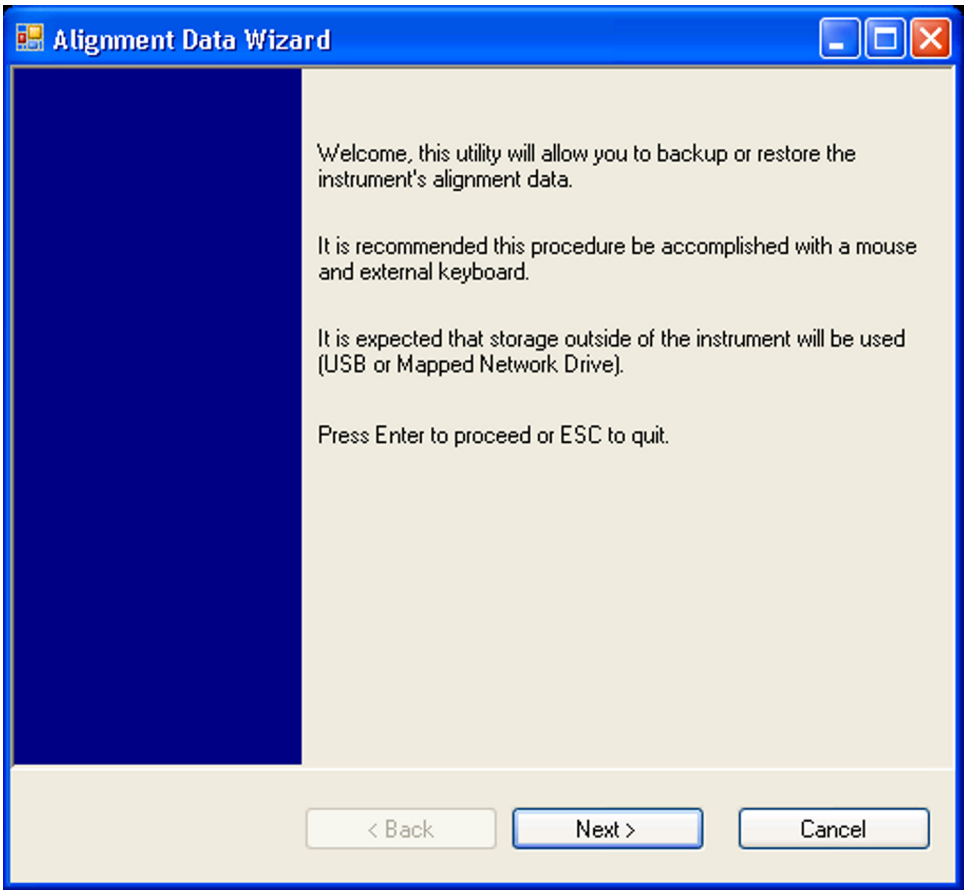
Data Backup or Restore using Alignment Data Wizard

The Alignment Data Wizard is launched directly from the instrument application software interface. You do **not** need to exit the application software before proceeding.

Follow the steps below to start the wizard:

1. Plug the mouse's USB cable into one of the instrument's USB ports.
2. Plug the USB memory device into another of the instrument's USB ports.
3. Plug the USB keyboard into another of the instrument's USB ports.
4. Press **System** > **Alignments** > **Backup or Restore Align Data...**
5. The Alignment Data Wizard dialog appears, as shown in Figure 6-2 below:

Figure 6-2 Alignment Data Wizard Dialog



6. Follow the wizard's on-screen instructions to back up the calibration data to the external USB memory device, **or** restore the data from the device.

7 User and Remote Interface Security Measures

This chapter discusses options that are available to you to control and configure remote access to the instrument, including:

- SCPI/GPIB Control of Interfaces
- Operating System Security Features
- USB Interfaces. This topic includes information about how to set the instrument's USB ports to read-only.

IMPORTANT Users are responsible for providing security for the I/O ports for remote access, by controlling physical access to the I/O ports. The I/O ports must be controlled because they provide access to most user settings, user states, and the display memory.

SCPI/GPIB Control of Interfaces

The GPIB command `LLO` (local lockout) can be sent by the controller to disable operation of the instrument's front-panel keys and softkey menus.

However, sending the `LLO` command does **not** disable access to the instrument via its USB ports. For details of how to restrict the operation of the USB ports, see "Configuring USB for Read-only" on page 40 below.

Operating System Security Features

The instrument's Windows operating system includes a variety of features that you can invoke or modify to enhance system security. These include the following:

- The ability to create custom user accounts, and assign different security levels to each account by adding it to an existing group. The group types predefined by Windows are: Administrator, Power User, User, Backup Operator, and Guest, but you can also define new group types.
- To provide additional protection for instruments that have a network (or internet) connection, the standard Windows Firewall is enabled by default.

- You can install standard third-party antivirus and spyware detection software designed for use with Windows XP or Windows 7, as appropriate for your test set's operting system. If your instrument uses a network (or internet) connection, this may be advisable.

CAUTION Running any third-party program while making measurements may adversely affect the instrument's performance.

Details of all these features are provided in the "Windows Security" section of the Agilent EXT Wireless Communications Test Set: Getting Started Guide.

Determining the Test Set's Operating System

You can easily determine your instrument's operating system version as follows:

1. Using the instrument front-panel, press **System > Control Panel...**
2. The Windows Control Panel appears. From the menu at the top of the Control Panel window, select **Help > About Windows**.
3. The `About Windows` message box appears, displaying the installed version of Windows.

USB Interfaces

The instrument's Microsoft Windows operating system can be configured to improve the security of the USB interfaces. This section includes the following topics:

- "Disabling or Enabling Autorun/Autoplay" on page 36
- "Configuring USB for Read-only" on page 40

Disabling or Enabling Autorun/Autoplay

Autorun, and the associated **Autoplay**, are Windows features that assist users in selecting appropriate actions when new media and devices are detected. The Autorun feature is disabled in the instrument by default, for improved security, unless the Administrator account is running. (In Administrator mode, Autorun is enabled, to aid with program installation.)

The procedure for disabling and enabling AutoPlay depends on your instrument's operating system (either Windows 7 or Windows XP). To determine the operating system version of your instrument, see "Determining the Test Set's Operating System" on page 36.

Windows 7

If your instrument has the Windows 7 operating system, you can disable or enable AutoPlay via the Control Panel. Open the Control Panel and select **Hardware and Sound > AutoPlay**, then uncheck or check the "Use AutoPlay for all media and devices" checkbox.

If you want to understand details of how this AutoPlay setting affects the Windows Registry, see the "Windows XP" on page 37.

Windows XP

You can change the Autorun configuration by editing the value of one of two Windows Registry keys. The Windows Registry is a database that stores critical configuration information for the instrument's operating system.

CAUTION Exercise extreme caution whenever you edit the Windows Registry. Entering an incorrect Registry value, or accidentally deleting Registry keys, may have serious consequences that can prevent the system from starting, or require that you reinstall Windows. The instructions in "Disable & Enable Procedure" on page 38 below assume that you are familiar with the use of the Windows Registry Editor to modify Registry settings.

Registry Key Definitions

Autorun can be configured per-machine or per-user.

NOTE If the per-machine Registry key is present, its settings override those of the per-user Registry key.

The Registry key that controls the **per-machine** Autorun settings is:

`HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\NoDriveTypeAutoRun`

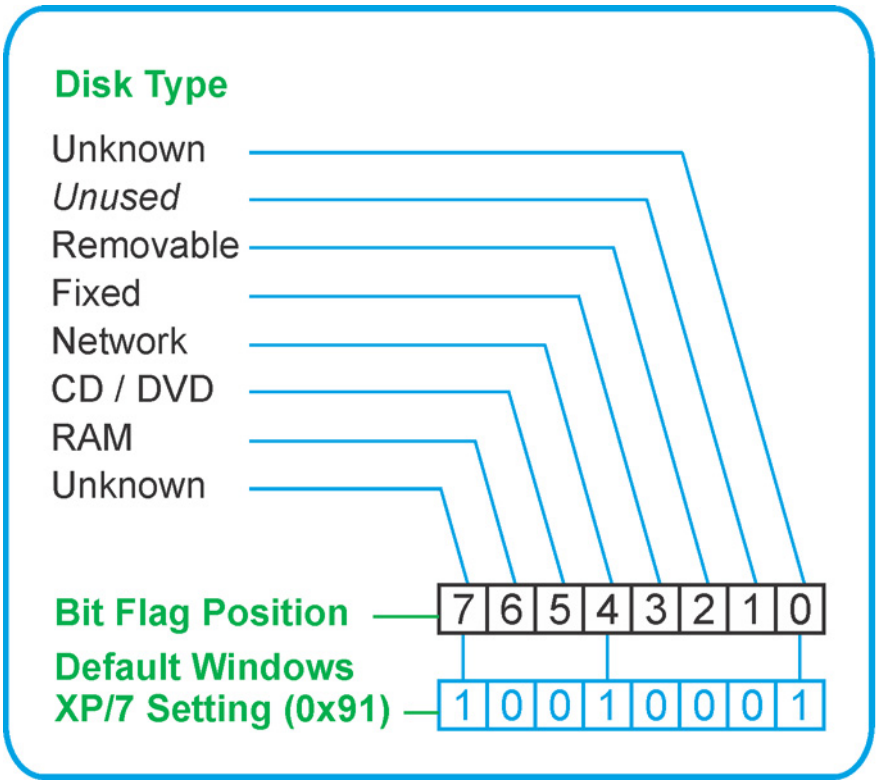
The Registry key that controls the **per-user** Autorun settings is:

`HKEY_CURRENT_USER\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\Explorer\NoDriveTypeAutoRun`

In the following discussions, we use the industry-standard abbreviation `HKLM` for the root key `HKEY_LOCAL_MACHINE`, and the industry-standard abbreviation `HKCU` for the root key `HKEY_CURRENT_USER`.

The DWORD value of either of these entries represents a set of single-bit flags. Each flag specifies the Autorun setting for a specific drive type, as shown in Figure 7-1. Setting a bit flag to 1 disables Autorun for that drive type.

Figure 7-1 Autorun Flag Definitions for NoDriveTypeAutoRun Registry entry



As shown in Figure 7-1 above, the default Windows XP (post-SP2) and Windows 7 value for this entry is `0x91` (under the entry `HKCU\...\NoDriveTypeAutoRun`). This setting disables Autorun for `Unknown` and `Network` drives, but enables Autorun for `Removable`, `Fixed`, `CD/DVD` or `RAM` drives.

You can disable Autorun for all drive types by changing the value to `0xFF`, as described in the following section.

Disable & Enable Procedure

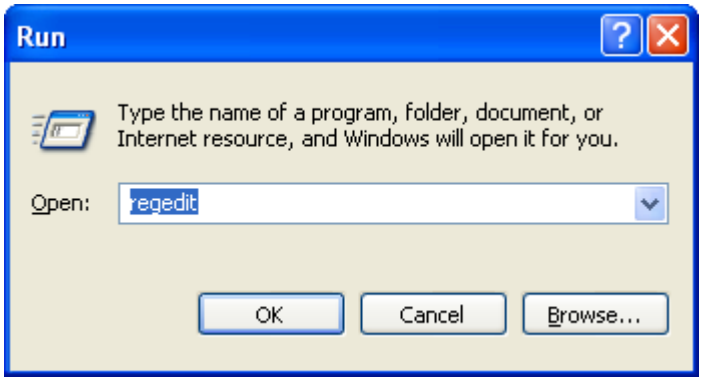
In view of the interaction between the per-machine and per-user Registry settings, as described above, it is recommended that, if both keys exist in your instrument's Registry, you should alter the settings of **both** Registry keys to the same value at the same time.

Use the following procedure to disable Autorun for all drive types, or to revert all Autorun settings to their Windows XP or Windows 7 default values. (Note that if your test set has a Windows 7 operating system, there is a simpler way to do this via the Control Panel; see "Windows 7" on page 36.)

1. Open the Windows Registry editor, using one of the following methods (depending on your test set's operating system):

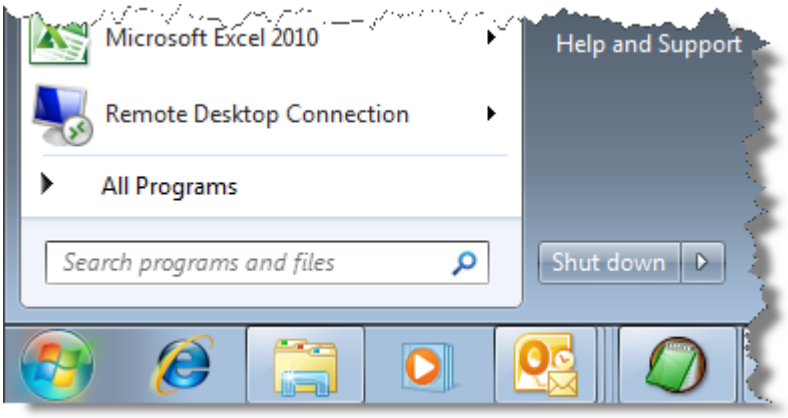
   a. For Windows XP, select **Run...** from the Windows Start menu. Then, type `regedit` into the Windows Run dialog box, as shown in Figure 7-2 below, and click **OK**.

Figure 7-2 Windows XP Run Dialog



b. For Windows 7, click the Windows **Start** button at the bottom left of the screen. Type `regedit` into the **Search programs and files** box, as shown in Figure 7-3 below, then press **Enter**.

Figure 7-3 Windows 7 Search Box



2. The Registry Editor window appears. Using the tree view control on the left of the window, navigate to the per-machine (`HKLM`) key: `HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer`.
3. To **disable** Autorun for all drive types, set the value of entry `NoDriveTypeAutoRun` to `0xFF`.

   To **revert** Autorun settings to the Windows default values, set `the value of entry NoDriveTypeAutoRun` to `0x91`.
4. Again using the tree view control on the left of the Registry Editor window, navigate to the per-user (`HKCU`) key: `HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\Explorer`.
5. To **disable** Autorun for all drive types, set `the value of entry NoDriveTypeAutoRun` to `0xFF`.

   To **revert** Autorun settings to the Windows default values, set the value of entry `NoDriveTypeAutoRun` to `0x91`.
6. From the Registry Editor menu, select **File** > **Exit** to save the settings and exit the editor.
7. Shut down and restart the instrument, to enable the new settings to take effect.

Microsoft AutoRun Patch

NOTE The information in ths section applies only to Windows XP. If your test set has a Windows 7 operating system, you do not require this patch.

There is a defect in Windows XP that compromises the ability to disable Autorun. This defect has been fixed by a patch from Microsoft, as described in the Microsoft Knowledge Base Article ID: 967715.

This patch is included in the test set as shipped from the factory.

After the patch has been applied, there will be a Registry entry at:

`HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\HonorAutorunSetting` with a default value of 1.

More Information

The following Wikipedia articles provide more information about AutoRun and AutoPlay:

http://en.wikipedia.org/wiki/AutoRun

http://en.wikipedia.org/wiki/AutoPlay

Configuring USB for Read-only

A convenient mechanism is provided to set the instrument's USB interfaces to read-only, thus preventing transfer of files from the instrument onto USB devices.

You can change this setting only when you are logged on as the Administrator. For details of how to log on to the instrument as the Administrator, see the Agilent EXT Wireless Communications Test Set: Getting Started Guide. To change the setting, do the following:

1. If you are **not** currently logged on to the instrument as the Administrator, you must log off.

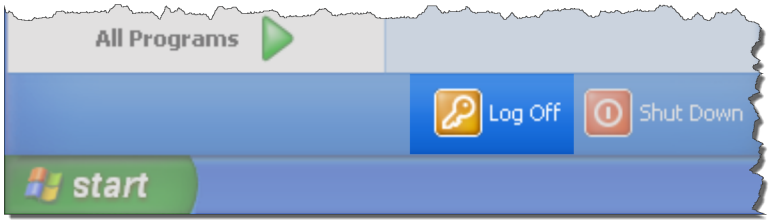
   If you are currently logged on to the instrument as the Administrator, and the Agilent XSA application is already running, go to Step 4.

   The log-off procedure executes more quickly if you first exit the Agilent XSA application, but you can also log off without exiting the application.

2. To log off, use one of the following procedures, depending on your instrument's operating system:

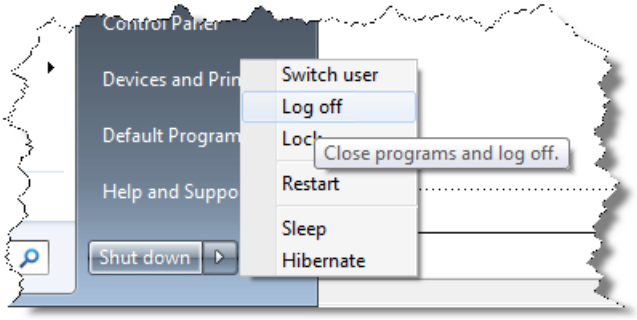
   a. For Windows XP, select **Log Off** from the Windows XP Start menu (as highlighted in Figure 7-4 below), then click **Log Off** in the Log Off Windows dialog that appears.

   Figure 7-4 Log Off Button in XP Windows Start Menu



b. For Windows 7, click the Windows **Start** button, then select **Shut down > Log off** from the Windows Start menu, as shown in Figure 7-5 below.

Figure 7-5 Windows 7 Log off Control



3. After you have logged on to the instrument as the Administrator, restart the Agilent XSA application.
4. When the XSA application has fully initialized (that is, when the main results view and softkey menu are visible), press the **System** front-panel key.
5. From the System softkey menu, select: **More** > **Security** > **USB**.
6. Select the option **Read Only**.
7. To activate the configuration change, either log out and then back in under your usual user name (which by default is "instrument"), or cycle the instrument power.

8 Procedure for Declassifying a Faulty Instrument

Even if the instrument is not able to power on, it may be declassified by removing the disk drive from the instrument, using the appropriate procedure as described in "SSD Removal" on page 22.

A: References

1. **DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)"**

   United States Department of Defense. Revised February 28, 2006.

   May be downloaded in Acrobat (PDF) format from:

   http://www.dss.mil/isp/fac_clear/download_nispom.html

2. **ODAA Process Guide for C&A of Classified Systems under NISPOM**

   Defense Security Service.

   DSS-cleared industries may request a copy of this document via email, by following the instructions at:

   http://www.dss.mil/isp/odaa/request.html

3. **Agilent EXT Wireless Communications Test Set: Getting Started Guide**

   Agilent Technologies Inc. 2013. Part Number: E6607-90047 (subject to revision).

   A printed copy of this document is supplied with each instrument.

   It is also available in Acrobat (PDF) form:

   - on the instrument's disk drive at the following location:

     C:\Program Files\Agilent\SignalAnalysis\Infrastructure\Help\bookfiles\getstart.pdf

   - via download from:

     http://www.agilent.com/find/ext

4. **Microsoft Knowledge Base Article ID: 967715**

   "How to disable the Autorun functionality in Windows": may be viewed at:

   http://support.microsoft.com/kb/967715

   Note that a second article, at: http://support.microsoft.com/kb/953252, "How to correct 'disable Autorun registry key' enforcement in Windows", redirects to article ID 967715.