Agilent E2976A System Validation Package

User Interface Reference

Agilent Technologies

Important Notice

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The Agilent E2976A SVP Window

The Agilent E2976A SVP window is the user interface for setting up and running system tests. It is always visible while the application is running. The Agilent E2976A SVP window consists of a menu bar, a toolbar, a navigator with shortcut menus, a dialog frame and a status bar.
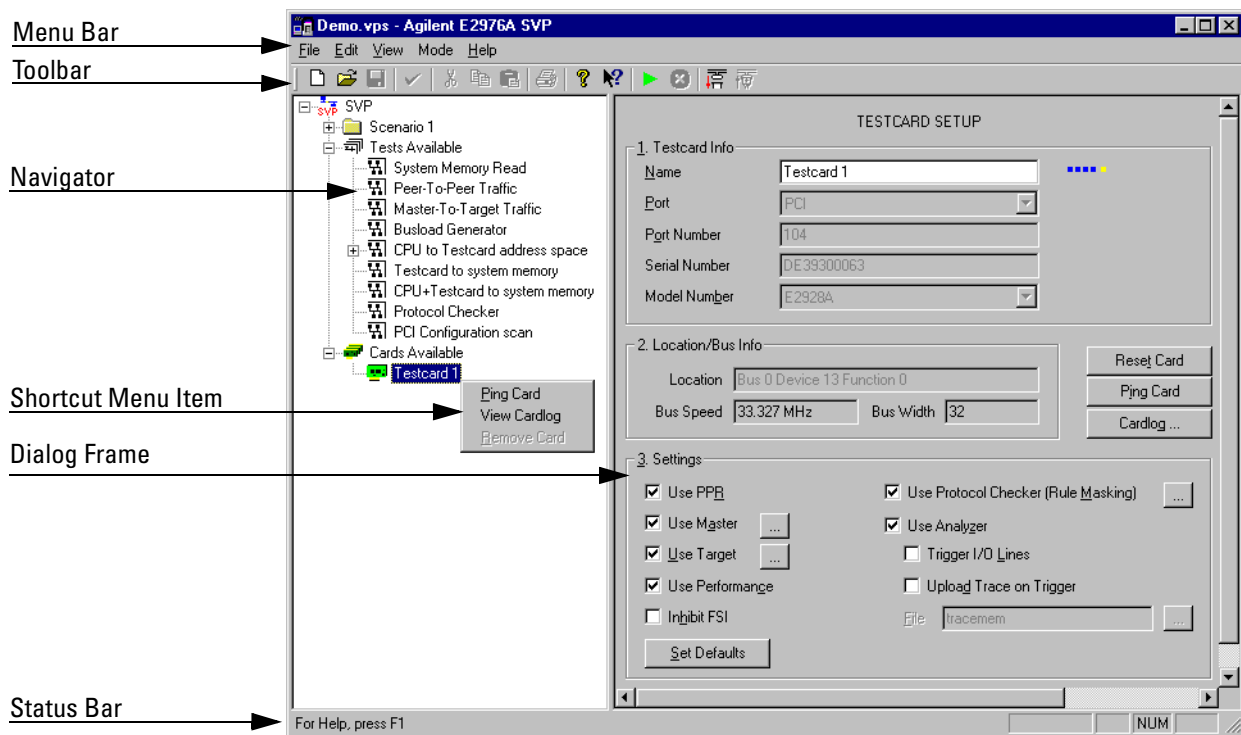
Menu Bar	The different menus in the menu bar give you access to most of the SVP functions. The functions unique to SVP are explained in *"Menus" on page 7*.
Toolbar	The toolbar gives you quick access to the most commonly used functions. These are explained in *"Menus" on page 7*.

Navigator The navigator helps you find through your defined test structure and open the corresponding dialog windows. All dialog windows are explained in *"Windows" on page 17*.

In addition, shortcut menus give you quick access to the features that are valid for the selected item. The items in the shortcut menus are explained in *"Menus" on page 7*.

Dialog Frame The dialog frame shows the selected dialog windows that are explained in *"Windows" on page 17*.

Status Bar The status bar gives information about the current operation mode and shows how to get online help.

Menus

This section describes the features that are unique to the SVP application. All features are accessible within the menus in the menu bar or within the shortcut menus in the navigator.

File Menu

The *File* menu items can be used to run file handling actions, and to run and stop tests and entire SVP objects.

Features Unique to SVP   The *File* menu contains standard desktop features and features unique to the SVP application, such as:

- *Open*

  To load a previously saved session, click this item. The session file (VPS file) can then be selected from the *Open File* dialog box.

- *Run*

  To run the current scenario or the entire SVP object, click this item. Note that before you click the *Run* item, ensure that you are in online mode, and that at least one scenario has been configured.

  For quick access, click the *Run* icon ▶ in the toolbar or use the shortcut menus.

  While the test is running, the test report is generated. The test report gives information about the test results. For further information on the test report, refer to *"SVP Reporting Dialog Box" on page 12*.

- *Stop*

  To stop the running scenario or SVP object, click this item. For quick access, click the *Stop* icon in the toolbar or use the shortcut menus.

NOTE   You cannot continue a stopped test.

- *Print …*

  To print the static report, click this item. The static report contains information about the test configuration. For further information on the static report, refer to *"SVP Reporting Dialog Box" on page 12*.

Edit Menu

The *Edit* menu can be used to apply changes and to configure the test architecture.

- *Apply*

  To apply changes in test configuration settings, use this item. For quick access, click the *Apply* icon in the toolbar.

  In both cases you will be asked via a dialog box if the changes should be applied.

Select …   You can use the *Select* commands to select available tests for scenarios and available cards for tests. These commands are also available within the shortcut menus. Clicking on these commands opens the *"Select from Available Items Dialog Box" on page 10*.

- *Select Test(s)*

  To select an available test for the current scenario, use this item.

- *Select Card(s)*

  To select an available card for the current test, use this item.

Insert …   You can use the *Insert* commands to insert new scenarios, new tests and new cards in the navigator. These commands are also available within the shortcut menus.

- *Insert New Scenario*

  To insert a new scenario in the current SVP object, use this item.

- *Insert New Test*

  To insert a new test in the *Tests Available* item, use this item.

- *Insert New Card*

  To insert a new card in the *Cards Available* item, use this item. This feature is only available in offline mode. In online mode, cards are inserted automatically.

Remove …   You can use the *Remove* commands to remove current scenarios, available tests and available cards from the navigator.

- *Remove Scenario*

  To remove the selected scenario, use this item. The last scenario in the navigator cannot be removed.

  For quick access, use the shortcut menu of the *Scenario* item in the navigator.

- *Remove Test*

  To remove a test from the *Tests Available* container, click this item. For quick access, use the shortcut menu of the *test* item in the navigator.

- *Remove Card*

  To remove a card from the *Cards Available* container, click this item. In online mode, cards connected to the system under test cannot be removed. For quick access, use the shortcut menu of the *testcard* item in the navigator.

Select from Available Items Dialog Box

This dialog box is opened when you click one of the Select commands. It shows all available tests or cards and the ones already selected.

Select From Available Cards   The dialog box for selecting testcards is shown in the figure below. The dialog box for selecting tests looks similar but contains no *Selection* group.
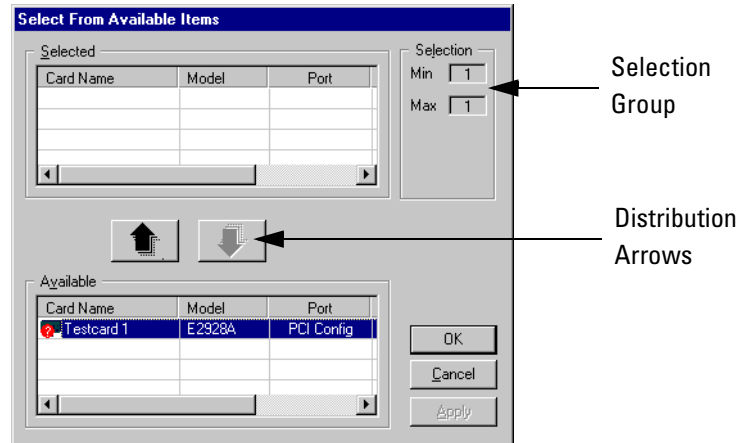
Selection Group   *Min* and *Max* show the minimum and maximum number of testcards that can be used for the respective test.

Distribution Arrows   You can move particular components from one container to the other by using the distribution arrows or by double-clicking the respective component.

Multiple components can be moved by using the Ctrl and Shift keys.

View Menu

The *View* menu items can be used to switch the *Toolbar* or *Status Bar* on or off, to view reports and to set program options.

Features Unique to SVP The *View* menu contains standard features and features unique to the SVP application, such as:

- *Static Report …*

  To view the static report, use this item. Clicking this item opens the *"SVP Reporting Dialog Box" on page 12*.

- *Test Report …*

  To view the test report, use this item. The test report contains the status and the results of testing. As soon as the testing takes place (after clicking the *Run* item), the information is added to the report in defined time intervals. Clicking this item opens the *"SVP Reporting Dialog Box" on page 12*.

- *Cardlog*

  To get information about the connection established to the testcard currently selected, use this item. Clicking this item opens the *"SVP Reporting Dialog Box" on page 12*.

- *Options …*

  To switch the auto-save option on or off, or to modify the time span format, click this item. That opens the *"SVP Options Dialog Box" on page 13*.

SVP Reporting Dialog Box

The SVP Reporting dialog box shows the static report, the test report or the cardlog.

SVP Reporting View Menu   You can switch between the different reports by checking the respective items in the SVP Reporting *View* menu.

You can make the SVP Reporting dialog box always visible on top of the screen by checking the *Always on Top* item.

Static Report   The static report is generated after the setup has been finished and before any actual testing takes place.

This report gives information about:

- Software

  Version, build number or DLL versions.

- System configuration

  Operating system, number of processors, number of busses.

NOTE   You can add items unknown to the SVP application in the static report (for example, system name, system state).

- Testcard configuration

  Number of cards, types of cards, firmware version(s), possibly serial numbers to uniquely identify cards.

- Test setup and the number of scheduled tests

Test Report   The test report gives information about:

- Date and time

- Testcard status

- System status

- Test data

  Addresses, block sizes, estimated testing times.

- Progress information

  Elapsed time, tests finished or tests to go.

- Performance and metrics

View Cardlog   The cardlog report informs about the connection established to the testcard. If errors occur on the testcard, the respective function that noticed the error will be listed here.

SVP Options Dialog Box

You can modify general options and define the directories where all files used in the test session can be stored.

General Options   You can get access to the general options by clicking the *Options* tab.

- *Auto-save Objects*

  If selected, all changes in test configuration settings immediately are valid. If not selected, you can apply changes by

  – clicking into the navigator, or

  – clicking the *Apply* icon ✔ in the toolbar, or

  – by opening the Edit menu in the menu bar and selecting *Apply*.

  In all this cases you will be asked via a dialog box if the changes should be applied.

- *Time Span Format*

  The time span format is used to set all time definitions of your current session.

Directories   You can get access to the directories by clicking the *Directories* tab.
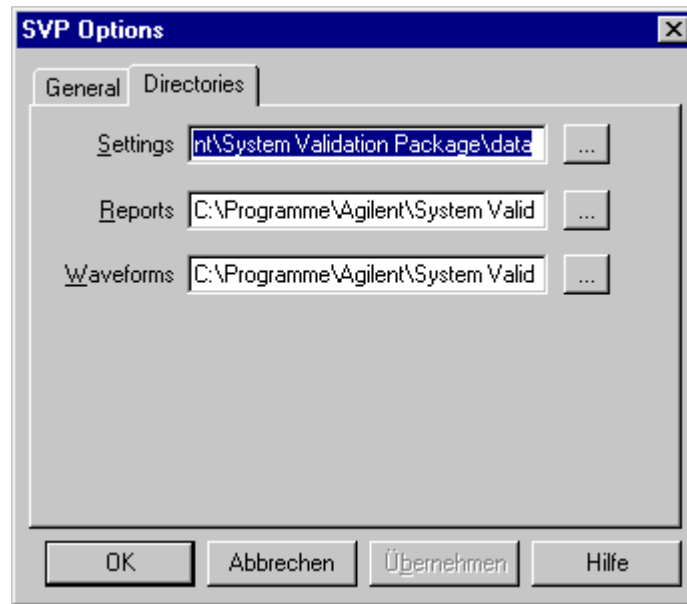
You can select the directories where card settings (VPS files), reports
(RPT files) and generated waveforms (WFM files) can be stored. Clicking
the details button next to the selected data path allows you to browse.

Mode Menu

The *Mode* menu can be used to switch between online and offline mode.

- *Go Online*

  To switch on the connection to the system under test, click this item.
  The online mode allows you to run the testing and to generate a test
  report. For detailed information on the test report, refer to *"SVP
  Reporting Dialog Box" on page 12*. For quick access to the online
  mode, click the icon in the toolbar.

- *Go Offline*

  To switch off the connection to the system under test, click this item.
  The offline mode allows you to configure the testing without using any
  testcard. For quick access to the offline mode, click the icon in
  the toolbar.

Help Menu

The *Help* menu items can be used to get information about the entire SVP application or about specific problems.

A *Guided Tour* helps you to familiarize with the commonly used features of the SVP application. Clicking this item leads you through all steps of setting up an entire SVP object.

Windows

This section describes all windows used to set up a test session.

SVP Object Window

The SVP Object window is displayed by clicking the SVP item in the navigator. This window contains edit fields to identify the entire test object and shows the configured scenarios, the available tests and the available testcards. You can get further information by double-clicking on the respective objects.

In addition, the SVP object window allows you to view the test report and modify settings that affects the static report, card identification and test behavior on error.

- *View Log …*

  Opens a text edit window that shows the test report. For further information on the test report, refer to *"SVP Reporting Dialog Box" on page 12*.

- *Settings …*

  Opens the SVP Test Settings Dialog Box to set an action (stop or continue) on error, to define the card identification and to select the extent of the static report.

SVP Test Settings Dialog Box

The SVP Test Settings dialog box contains the drop-down list boxes for selecting general test settings and check boxes to define the contents of the static report. In this dialog box, you can find the following elements:

- *ID Cards By*

  The settings for each testcard are assigned to a configured testcard name. These settings contain the following information to identify the corresponding physical testcard: the type of connection, the serial number, the bus location and the model number. All this information will be stored in the settings file.

  If you use the settings file from a previously configured test for another system under test, the software assigns the previously configured testcard names to the physically available testcards.

  ID Cards By determines the criterion used to identify the matching testcard for each testcard name. For example, if you select Serial Number, SVP will look for the testcards whose serial numbers match the ones stored in the settings file.

ID Cards By	Testcards are assigned according to the
Connection	external connection (for example, COM 1, COM 2, …)
Serial Number	serial number
Location (Bus/Slot)	location in the bus configuration
Model Number	model numbers

  Testcards that are connected to more than one port (for example, PCI and RS-232) are always searched in the order of their fastest connection.

- *On Error*

  In this drop-down list, you can define whether the tests stop or continue after an error. Errors can be protocol violations, data compare errors, or master abort conditions.

Reports   You can show specific information in the static report by selecting the following check boxes:

- *Software Information*

  SW version, build number, DLL versions

- *System Information*

  Operating system, number of processes, number of busses

- *Scenario*

  Number of scenarios, tests implemented in the scenarios

- *Test*

  Number of tests, test configuration

- *Testcard*

  Testcard configuration

Tests Available Window

The Tests Available window is displayed when clicking the *Tests Available* item in the navigator.

This window shows function, start time, duration and the used testcards of all defined tests of the current session.

To modify properties or to get detailed information about an available test, double-click on the particular component to open the corresponding Test Setup window.

Cards Available Window

The Cards Available window is displayed when clicking the *Cards Available* item in the navigator.

This window gives information on the testcards and shows where they are installed on.

To modify properties or to get detailed information about an available card, double-click on the particular component to open the corresponding Testcard Setup window.

Scenario Details Window

The Scenario Details window is displayed when clicking the *Scenario* item in the navigator.

The Scenario Details window shows all tests integrated in the current scenario with their functions and durations. You can also insert new tests here. The Scenario Details window also shows the *Name* and the *Total Duration*.

Name and Total Duration   In the *Name* field you can enter a new name for the scenario. This name will then appear in the navigator immediately. The total duration is the maximum period of time that results from the sum of start delay and duration defined in the Test Setup window.

Select Test(s) Button   To insert an available test in the current scenario, click the *Select Test(s)* button. That opens the *"Select from Available Items Dialog Box" on page 10*.

To modify test properties or to get detailed information about the used tests, double-click on the selected component in the Scenario Details window to open the corresponding Test Setup window.

Test Setup Window

The Test Setup window is displayed when clicking a test item in the navigator. The Test Setup window allows you to set up a test by selecting test properties and to insert cards. This window also gives information about the cards used by the specified test.

Name and Description   The following items are optional:

- *Name*
  You can modify the name of the current test. The name will be valid for all further actions in the current session.

- *Description*
  You can enter a short description of the current test. This entry will appear in the static report.

Test Properties   The test properties are:

- *Function*

  You can select one of the predefined test functions *busload,
  card2sysmem, configscan, cpu2card, cpucard2sysmem,
  master2target, peer2peer, protocolcheck* and *sysmemread* from the
  selection list.

  You can find information about the selected test below the selection
  list.

- *Address (Space/Offset)*

  The address space you have to select from the selection list depends
  on the selected test function. *MEM* is selected by default.

Test Function	Possible Address Space
busload	MEM (default) or IO
card2sysmem	MEM (default)
configscan	not available
cpu2card	MEM (default) or IO
cpucard2sysmem	not available
master2target	MEM (default) or IO
peer2peer	MEM (default) or IO
protocolcheck	not available
sysmemread	MEM (default)

  You can enter an offset in the edit field. The default value is
  `000B8000\h`.

- *Start Delay (<Time Span Format>)*

  The delay time starts when the scenario in which the test is integrated begins to run. See the timing in the figure below.
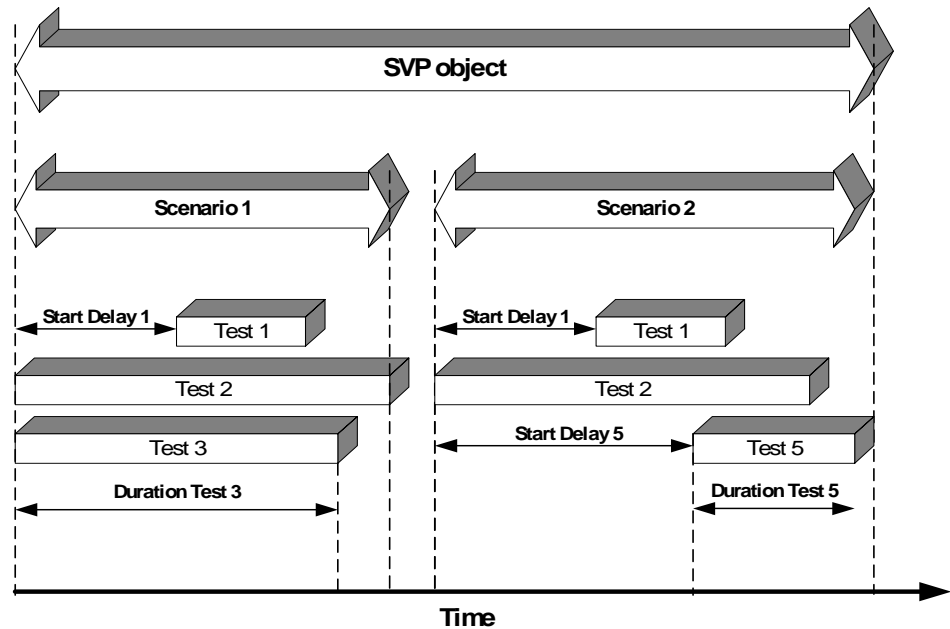
The predefined time span format can be modified by selecting *Options* in the *View* menu.

- *Duration (<Time Span Format>)*

  The duration time defines how long the current test will run.

- *Bytes to Transfer*

  You can enter an integer number of bytes to be transferred in the range $1 \ldots 2^9$. The default value is 4096.

  If the duration time is longer than the time needed to transfer the specified bytes, the testing restarts. If the duration time is shorter than the time needed to transfer the specified bytes, the transfer will not be completed. The elapsed time is displayed in the Scenario Details window.

- *Bandwidth*

  Requested bus bandwidth in percent. You can enter the bandwidth in the range $1 \ldots 100$ or move the slider to specify the value. The test tries to occupy the bus with this bandwidth.

  The default value is 100.

Select Card(s) Button   To insert a new card in the current test, click the *Select Card(s)* button. That opens the *"Select from Available Items Dialog Box" on page 10*.

Cards Selected   The *Cards Selected* container gives information about the cards used by the defined test. A double-click on a selected testcard opens the *"Testcard Setup Window" on page 23*.

Testcard Setup Window

The Testcard Setup window is opened by clicking a testcard item in the navigator. The Testcard Setup window gives information about the testcard and the PCI bus it is plugged into. This window also allows you to modify card settings.

Testcard Info   The *Testcard Info* group contains product and installation identifiers. These entries cannot be modified in online mode. They are determined by the current card and its installation.

Binary Code   The SVP application is searching the testcards after the criterion defined in *ID Cards By* (see *"SVP Test Settings Dialog Box" on page 18*). The number assigned for every card is displayed as binary code next to the *Name* edit field.

Card Operations Buttons   There are several buttons to perform testcard operations:

- *Reset Card*

  Clicking this button allows you to reset the testcard to the factory defaults. The settings are used the next time the card is rebooted.

NOTE   The testcard is unusable prior to rebooting.

- *Ping Card*

  Clicking this button checks the connection to the testcard by calling a ping function (causes green and red LEDs on the testcard to flash). A ping box will report any connection errors.

- *Cardlog ...*

  Clicking this button opens the SVP Reporting dialog box and informs about the connection established to the testcard. For further information on the cardlog report, see *"SVP Reporting Dialog Box" on page 12*.

Settings The Settings group contains several check boxes used to enable or disable the current card features in online and offline mode. Switching off the features that are not necessary for your test configuration results in shorter run times.

Details buttons ▣ next to several check boxes allow you to view the card properties that can be modified for your specific test. For more information about single testcard parameters, please refer to *Testcard Parameters* in the *Agilent E2976A System Validation Package User's Guide* (pdf-file).

The check boxes are:

- *Use PPR*

  To generate protocol permutations for transactions, this check box must be selected. If not selected, the PCI Exerciser uses always the same block size, does not switch through different bus commands and more. Clicking the *Use Master* and *Use Target* details buttons displays the available properties.

- *Use Master*

  To execute the *sysmemread, card2sysmem, cpucard2sysmem, peer2peer* tests, this check box must be selected. For the *master2target* test, this check box also must be selected, if the testcard acts as the master. Clicking the details button next to this check box, opens the *"Card Settings Dialog Box" on page 26* to check the master attributes.

- *Use Target*

  To execute the tests *cpu2card* and *peer2peer,* this check box must be selected. For the *master2target* test, this check box also must be selected, if the testcard acts as the target. Clicking the details button next to this check box, opens the *"Card Settings Dialog Box" on page 26* to select the target attributes.

- *Use Performance*

  To run the PCI performance counters, this check box must be selected. As a result, the performance values efficiency, throughput and utilization are listed in the test report.

- *Inhibit FSI*

  This check box inhibits the Front Side Interface Executable (FSI Executable).

  To enable external control for the *card2sysmem, cpu2card, cpucard2sysmem* and *configscan* tests, this check box must not be selected. For *sysmemread, peer2peer, master2target, protocolcheck and busload,* this check box can be selected.

- *Use Protocol Checker (Rule Masking)*

  To execute the protocol checker, this check box must be selected. Clicking the details button next to this check box, opens the *"Protocol Rule Masking Dialog Box" on page 28* that allows you to enable and disable protocol rules.

- *Use Analyzer*

  The following check boxes are only available when the *Use Analyzer* check box is selected.

  – *Trigger I/O Lines*

    To enable cross-triggering with the test or to connect an external logic analyzer, this check box must be selected. Cross-triggering means, that you connect the trigger I/O ports of two testcards.

  – *Upload Trace on Trigger*

    To write the trace memory from the testcard to a WFM file (default is *tracemem*) after the testing is triggered, this check box must be selected. The trace memory waveform file can be used for in-depth root cause analysis. This option usually is not recommended, because it can take very long time to complete.
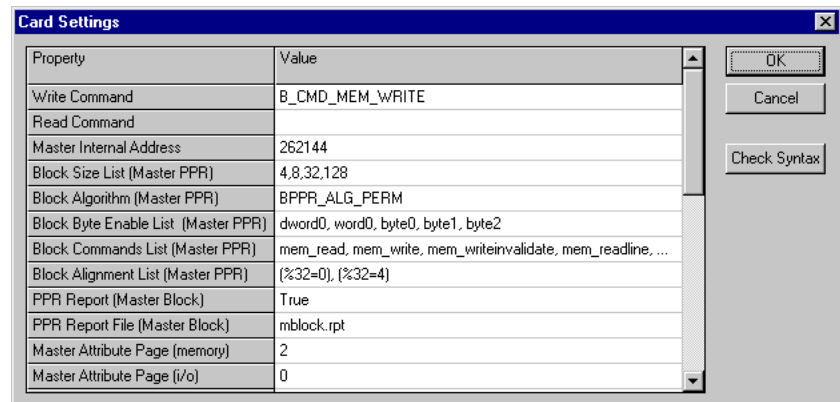
    To change the name or the directory where the file should be stored, click the details button next to the *File* edit field.

Set Defaults Button   Clicking this button sets all card properties in the GUI to default values. For default values, please refer to the *PCI C-API Reference* (pdf-file) which is delivered with the testcard.
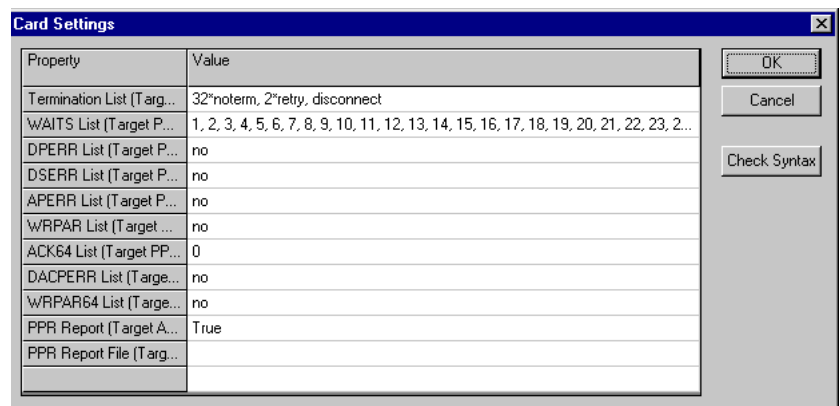
Card Settings Dialog Box

Clicking the details buttons of the *Use Master* and *Use Target* check boxes in the Testcard Setup window opens the Card Settings dialog box. This dialog box contains a table with all available master or target properties and a button for syntax checking.

Master Properties   If the *Use PPR* check box in the Testcard Setup window is selected, the dialog box contains both properties used to permutate master attributes and invariable master properties.

| Card Settings		
Property	Value	OK
Write Command	B_CMD_MEM_WRITE	Cancel
Read Command		
Master Internal Address	262144	Check Syntax
Block Size List (Master PPR)	4,8,32,128	
Block Algorithm (Master PPR)	BPPR_ALG_PERM	
Block Byte Enable List (Master PPR)	dword0, word0, byte0, byte1, byte2	
Block Commands List (Master PPR)	mem_read, mem_write, mem_writeinvalidate, mem_readline, ...	
Block Alignment List (Master PPR)	(%32=0), (%32=4)	
PPR Report (Master Block)	True	
PPR Report File (Master Block)	mblock.rpt	
Master Attribute Page (memory)	2	
Master Attribute Page (i/o)	0	

Target Properties   If the *Use PPR* check box in the Testcard Setup window is selected, the dialog box shows the properties used to permutate target attributes. There are no invariable target properties.

Card Settings		
Property	Value	OK
Termination List (Targ...	32*noterm, 2*retry, disconnect	Cancel
WAITS List (Target P...	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 2...	
DPERR List (Target P...	no	Check Syntax
DSERR List (Target P...	no	
APERR List (Target P...	no	
WRPAR List (Target ...	no	
ACK64 List (Target PP...	0	
DACPERR List (Targe...	no	
WRPAR64 List (Targe...	no	
PPR Report (Target A...	True	
PPR Report File (Targ...		

Check Syntax Button   Clicking the *Check Syntax* button will open the Check Syntax dialog box.

Check Syntax Dialog Box

Clicking the *Check Syntax* button in the Card Settings dialog box opens the Check OK dialog box, assuming that no errors occurred during program execution. Then this dialog box contains a report created by the executed testing. Otherwise a Check Failed dialog box displays the occurred errors.
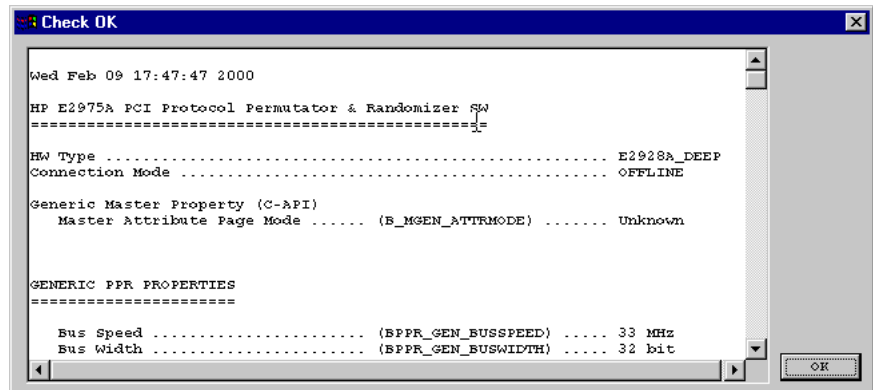
The individual sections of the report are explained in detail in the *Agilent E2975A PCI Protocol Permutator & Randomizer Software User's Guide* (pdf-file) which is delivered with the testcard.

Protocol Rule Masking Dialog Box

The Protocol Rule Masking dialog box lists all protocol rules defined by the PCI specification and some Agilent rules (see the *PCI C-API Reference* (pdf-file) which is delivered with the testcard).
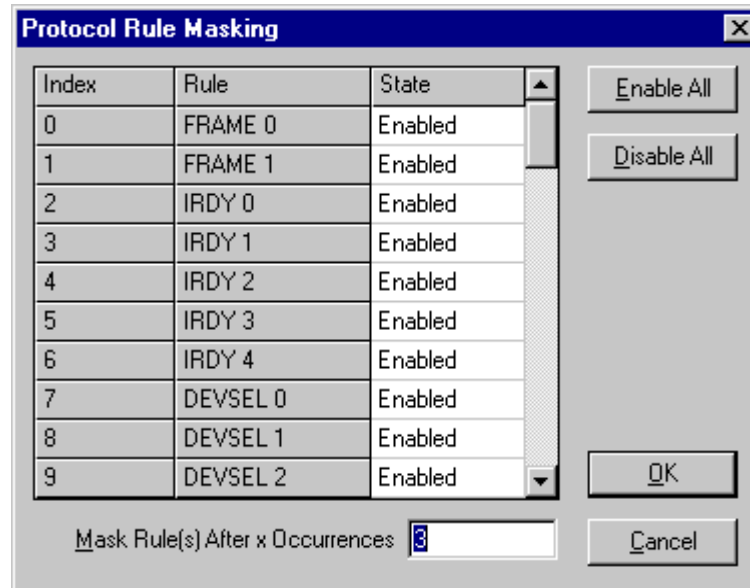
Each testcard has a protocol observer that monitors the PCI bus in real time to detect any protocol violations. This dialog box allows you to enable and to disable protocol rules.

Enable or Disable all Rules   You can enable or disable all rules listed anywhere in the table by clicking the respective button. A right-click in the rule table will open a shortcut menu, where you can also select these features.

Enable or Disable one Rule   You can enable or disable a selected rule by using the shortcut menu, which is available by right-clicking in the rule table. Clicking in the state column of the selected rule will change the current state of this rule.

Rule Description   You can get detailed information by selecting *Rule Description* in the shortcut menu of a selected rule. Clicking on the rule identifier will also show the description of the selected rule.

For example, if you click on IRDY 0, the following description is shown:

Rule Masking after a Specified Number of Occurrences

The Protocol Rule Masking dialog box allows you to mask rules after a specified number of occurrences, so that storage of identical rule violations in the test report is limited. The number can be entered in the *Mask Rule(s) After x Occurrences* field.

Protocol Rules SEM8, SEM9, LAT0

Violations of these rules are known to be caused by

- the E2920 series testcards whenever they are connected via PCI port

- using the FSI-Executable

To detect potential problems with these rules caused by other cards that have this problem, use an external connection and inhibit FSI. To inhibit FSI, select the respective check box in the Testcard Setup window. Otherwise, these rules can be masked out.

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