

**Agilent Technologies  
N5990A Test Automation  
Platform – Option 001**

**Database with Web-  
Interface**

**Getting Started Guide**

## Notices

© Agilent Technologies, Inc. 2007

© BitifEye Digital Test Solutions GmbH 2007

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

## Manual Part Number

00000-00000

## Edition

Second edition, April 2008

Printed in USA

Agilent Technologies, Inc.

## Warranty

The material contained in this document is provided “as is,” and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

## Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

## Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as “Commercial computer software” as defined in DFAR 252.227-7014 (June 1995), or as a “commercial item” as defined in FAR 2.101(a) or as “Restricted computer software” as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies’ standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

## Safety Notices

### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

## Technical Assistance: Contact Center

If you need product assistance or if you have suggestions, contact the Agilent Technologies, Inc. Contact Center in your area listed on the Agilent homepage at:

<http://www.home.agilent.com>

Representatives of the Agilent Contact Centers are available during standard business hours.

Before you contact the Contact Center, please note the actions you took before you experienced the problem. Then describe those actions and the problem to the technical support engineer.

### Find a Mistake?

We encourage comments about this publication. Please report any mistakes to the Contact Center. The Contact Center representative passes your comments to the Learning Products Department.

**NOTE**

Agilent continually strives to provide its customers with current, accurate, and complete information to assist them in the use of our products. The Agilent documents available online contain up-to-the minute changes that occurred after the preparation of this manual. They are located on the Agilent web at: <http://www.agilent.com/find/support>.

---

## Contents

|   |    |
|---|----|
| TECHNICAL ASSISTANCE: CONTACT CENTER                | 3  |
| CONTENTS  | 4  |
| 1 INTRODUCTION                                      | 5  |
| TEST AUTOMATION SOFTWARE PLATFORM                   | 5  |
| 2 SOFTWARE PREREQUISITES                            | 6  |
| DATABASE SERVER                                     | 6  |
| DATABASE APPLICATION SERVER                         | 6  |
| WEB VIEWER (VFWEVIEWER)                             | 6  |
| 3 INSTALL THE DATABASE SERVER                       | 8  |
| INSTALL SQL SERVER 2005                             | 8  |
| CONFIGURE SQL SERVER 2005                           | 10 |
| 4 INSTALL THE VALIFRAME DATABASE APPLICATION SERVER | 17 |
| 5 INSTALL THE WEB VIEWER (VFWEVIEWER)               | 19 |
| INTERNET INFORMATION SERVER SETUP                   | 19 |
| VFWEVIEWER SETUP                                    | 20 |
| INSTALL ASP.NET EXTENSION AND SETUP IIS             | 22 |
| 6 SETUP VALIFRAME FOR THE DATABASE                  | 24 |
| 7 CONFIGURING A DUT WITH A DATABASE CONNECTION      | 25 |
| 8 USING THE VFWEVIEWER                              | 28 |

# 1 Introduction

## Test Automation Software Platform

The N5990A Test Automation Software Platform is an open and flexible framework for automating tests such as electrical compliance tests for digital buses. Supported buses are e.g. PCI Express, USB and HDMI. The product runs on a standard PC which controls a wide range of test hardware. Typically, the hardware comprises instruments for stimulus and response tests such as pattern generators, bit error ratio testers (BERTs) or oscilloscopes. Key elements of the software platform are a test sequencer, receiver test libraries and interfaces to oscilloscope applications for transmitter tests. Additional options are available. Option 001, the Database and Web-Interface adds the ability to store the procedure results in a database. These results will be reloaded once you select the same DUT again, or you can review the results using the web viewer. The option hereby allows you, to view the test results even if the system is occupied by a colleague.

N5990A is implemented in C# within the Microsoft .NET framework.

The software platform is specified in the data sheet 5989-5483EN. Application examples for PCI Express® and HDMI are given in the application notes 5989-5500EN and 5989-4959EN.

## 2 Software Prerequisites

The software parts of the Database and Web Interface Option consists of 3 independent parts. These parts can be either installed on one PC or on individual PCs. The following list gives you an overview of the required prerequisites for the different parts of this option.

Note: If you install several parts on one PC, all the prerequisites of any of the parts have to be installed.

### Database Server

This part is optional in the term, that if you want to use an existing database you don't have to install a new database. Please be aware, that currently this option is only tested with Microsoft SQL Server 2005 and MySQL. This option ships with the free Microsoft SQL Server 2005 Express Edition. This allows you to setup a new database for ValiFrame. These prerequisites only apply, if you want to use the Microsoft SQL Server.

- 1 Microsoft Windows XP with SP2 or higher
- 2 Microsoft Windows Installer 3.0  
(WindowsInstaller-KB884016-v2-x86.exe)

### Database Application Server

Prior to installing the Database Application Server, the following software has to be installed in this particular order:

- 1 Microsoft Windows XP Professional with SP2 or higher
- 2 Microsoft Windows Installer 3.0  
(WindowsInstaller-KB884016-v2-x86.exe)
- 3 Microsoft .Net Framework redistributable 2.0  
(dotnetfx20.exe)
- 4 ODBC driver for the specific database you want to use. You can check if the ODBC driver is already installed in the control pannel, navigate to Administrative Tools and double click on ODBC data sources. This will give you a list of installed drivers.  
(MySQL ODBC: mysql-connector-odbc-3.51.12-win32.msi  
MSSQL: sqlncli.msi)

### Web Viewer (VFWebViewer)

The web viewer is the web interface to the data stored in the database. The computer with the webserver has the following prerequisites.

- 1 Microsoft Windows XP Professional with SP2 or higher
- 2 Microsoft .Net Framework redistributable 2.0  
(dotnetfx20.exe)

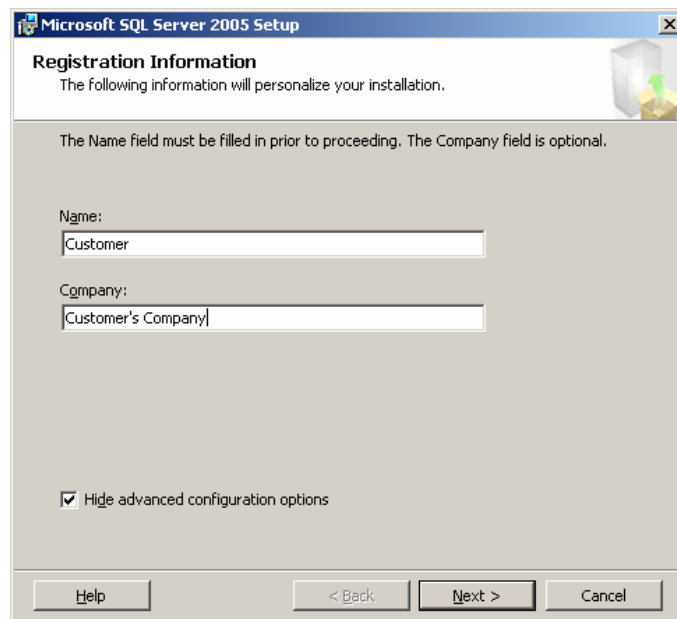
- 3** Microsoft Office 2003 Excel with Office Web Components (OWC11). You can install the Web components from the ValiFrame installation CD (owc11.exe)

### 3 Install the Database Server

This section describes the installation process of the database server. This section describes the process of installing the Microsoft SQL Server 2005 Express Edition. This database server ships with the ValiFrame Option 001 to enable customers without existing database servers to use this option.

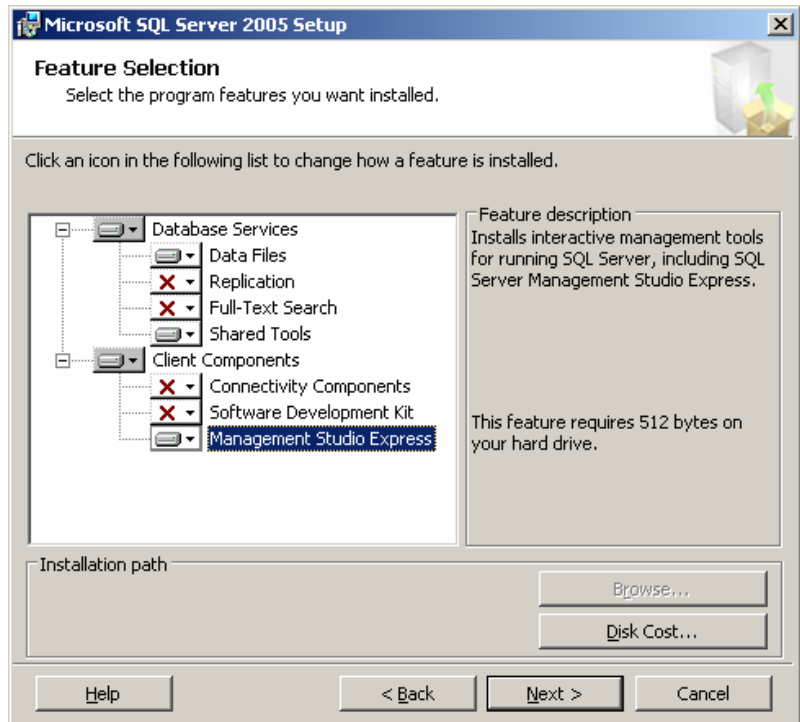
#### Install SQL Server 2005

- 1 Install the SQL Server by double clicking the SQLEXPRESS\_ADV.exe from the Installation CD in the Database folder.
- 2 Follow the installation instructions from the installation wizard. These guide will only describe the steps where you have to select something.
- 3 During the following dialog, make sure, that the “Hide advanced configuration options” is checked.





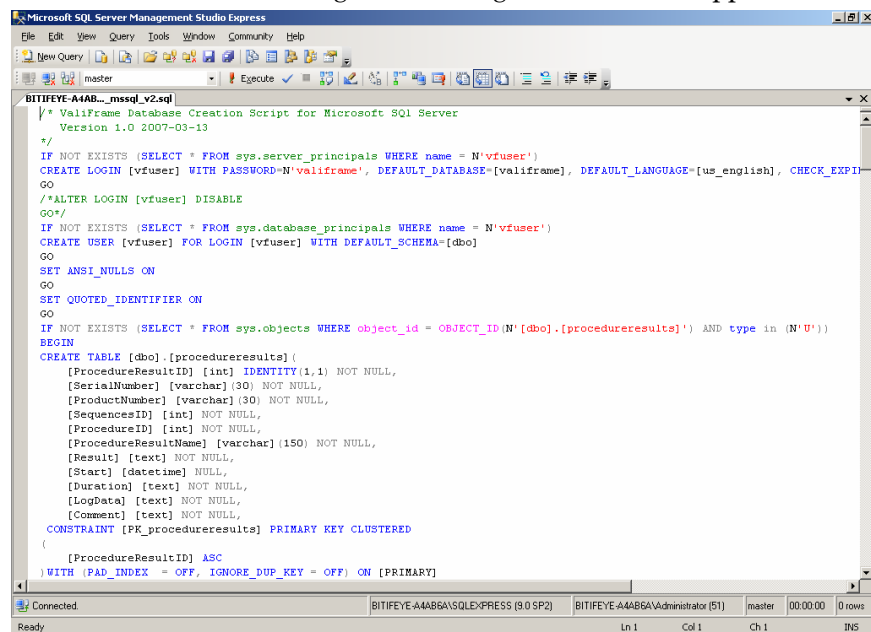
- 4 The next dialog allows you to select the options, that should be installed. Please select the components shown in the image. If you want to run the Application Server on the same PC, also add the Connectivity Components.



- 5 Leave "Windows Authentication Mode" as only authentication mode.
- 6 On the following dialog check both boxes.
- 7 At the following dialog asking you about the error and usage report settings, both checkboxes should be left unchecked.
- 8 Start the installation by clicking install.
- 9 After the installation has finished, the system is ready to get configured.

## Configure SQL Server 2005

- 1 On the installation CD double click on the valiframemssql\_v2.sql script. This will start the Microsoft SQL Server Management Studio Express.
- 2 Click on connect to connect to the database server using the windows authentication.
- 3 After connecting the following window should appear.



```
Microsoft SQL Server Management Studio Express
File Edit View Query Tools Window Community Help
New Query
master Execute
BITIFEYE-A4AB..._mssql_v2.sql
/* ValiFrame Database Creation Script for Microsoft SQL Server
Version 1.0 2007-03-13
*/
IF NOT EXISTS (SELECT * FROM sys.server_principals WHERE name = N'vfuser')
CREATE LOGIN [vfuser] WITH PASSWORD=N'valiframe', DEFAULT_DATABASE=[valiframe], DEFAULT_LANGUAGE=[us_english], CHECK_EXPI
GO
/*ALTER LOGIN [vfuser] DISABLE
GO*/
IF NOT EXISTS (SELECT * FROM sys.database_principals WHERE name = N'vfuser')
CREATE USER [vfuser] FOR LOGIN [vfuser] WITH DEFAULT_SCHEMA=[dbo]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
IF NOT EXISTS (SELECT * FROM sys.objects WHERE object_id = OBJECT_ID(N'[dbo].[procedureresults]') AND type in (N'U'))
BEGIN
CREATE TABLE [dbo].[procedureresults] (
[ProcedureResultID] [int] IDENTITY(1,1) NOT NULL,
[SerialNumber] [varchar] (30) NOT NULL,
[ProductNumber] [varchar] (30) NOT NULL,
[SequencesID] [int] NOT NULL,
[ProcedureID] [int] NOT NULL,
[ProcedureResultName] [varchar] (150) NOT NULL,
[Result] [text] NOT NULL,
[Start] [datetime] NULL,
[Duration] [text] NOT NULL,
[LogData] [text] NOT NULL,
[Comment] [text] NOT NULL,
CONSTRAINT [PK_procedureresults] PRIMARY KEY CLUSTERED
(
[ProcedureResultID] ASC
) WITH (PAD_INDEX = OFF, IGNORE_DUP_KEY = OFF) ON [PRIMARY]

```

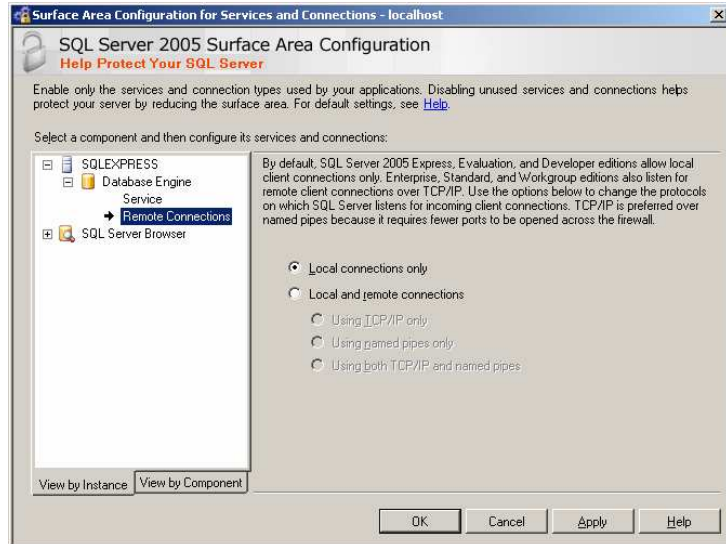
- 4 Click on the Execute button in the toolbar to execute the script. After the execution the ValiFrame database as well as the table in the database were created.
- 5 Close the Microsoft SQL Server Management Studio.
- 6 Navigate to Start > Programs > Microsoft SQL server 2005 > Configuration Tools>SQL Server Surface Area Configuration.
- 7 The following wizard will open



- 8 Click on “Surface Area Configuration for Services and Connections”

## Install the Database Server

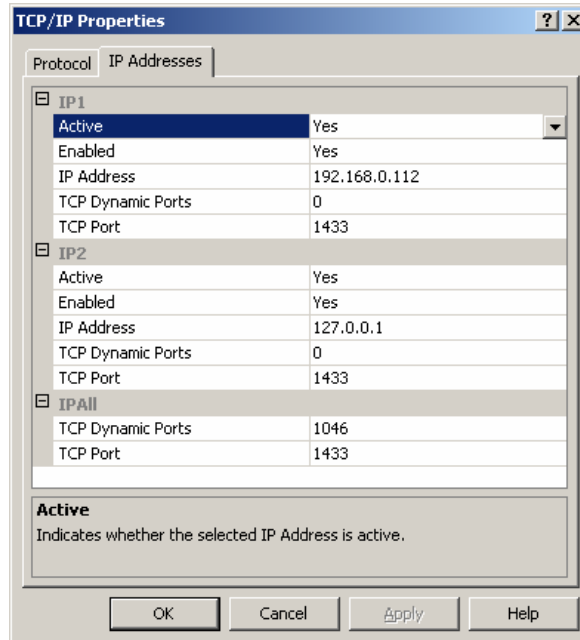
- 9 In the treeview on the left side, navigate to SQLEXPRESS > Database Engine > Remote Connections. The following screen should be visible. Select “Local and remote connections” and



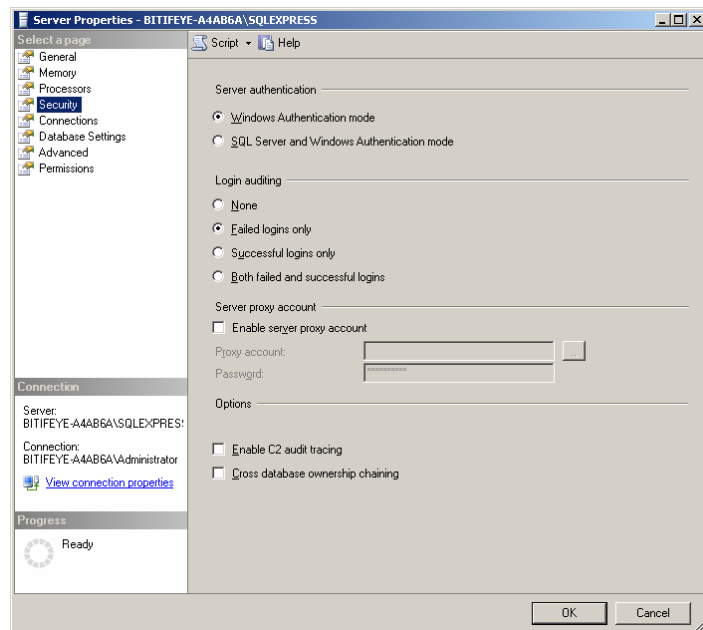
Using TCP/IP only. Apply the settings using the Apply button!

- 10 Click OK and Close the program.
- 11 Navigate to Start > Programs > Microsoft SQL server 2005 > Configuration Tools and open the SQL Server Configuration Manager
- 12 Select the node SQL Server Configuration Manager > SQL Server 2005 Network Configuration > Protocols for SQLEXPRESS. On the right side a list of protocols will become visible.
- 13 Right click on the TCP/IP entry and click on Properties. On the protocol tab set Enabled to yes.

- 14 On the IP Addresses tab, set all Enabled entries to yes. In addition insert in all TCP Port fields the value 1433. The dialog should look similar to the one shown below.

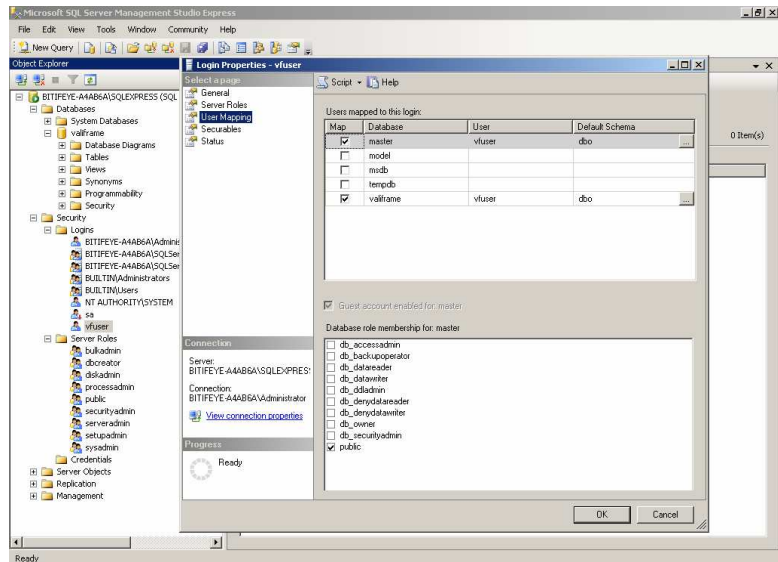


- 15 Close the SQL Server Configuration Manager.
- 16 Open the SQL Server Management Studio from the start menu and connect to the server using the default values. Right click on the root node and select Properties. Select the Security section and enable SQL Server and Windows Authentication Mode. Click OK to close the dialog.



## Install the Database Server

- 17 In the Management Studio navigate to Security > Logins > vfuser. Right click on the user and select Properties. In the new dialog select User Mapping and check the valiframe database, like it is shown in the screenshot

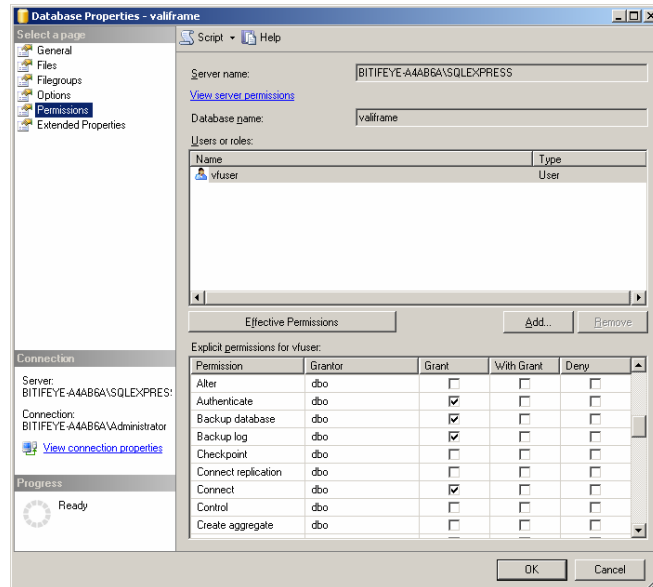


**Important:** In this dialog in the General section you can modify the default password of the user vfuser. The default password is valiframe. It is highly recommended, that you change this password! Please use the new password during the installation of the Database Application Server.

**Important: Do not change the default language of the vfuser login, this will result in a non working ValiFrame Database Option! The default language must be English!**

- 18 Close the dialog with clicking OK.

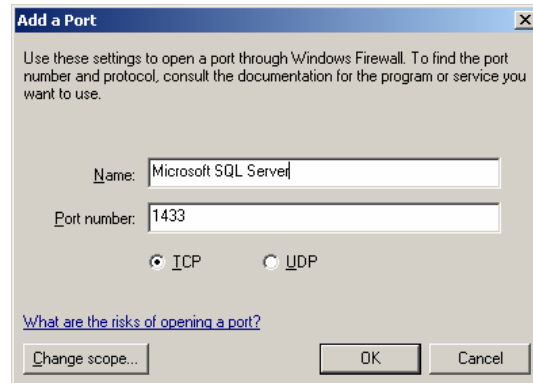
- 19 Navigate to Databases > valiframe and right click on the item to select Properties. Select the Permissions section. This dialog allows you to specify the rights, the user vfuser has for the database valiframe. For all of the items listed below check the Grant checkbox.



- a Authenticate
  - b Backup database
  - c Backup log
  - d Connect
  - e Delete
  - f Insert
  - g Select
  - h Update
  - i View database state
  - j View definition
- 20 Click OK to close the dialog. Close the Management Studio.
- 21 Make sure that the client firewall does not block port 1433, as this is used from the SQL Server for remote connections. If you are running Windows XP without any special client firewall, most likely the Windows Firewall is active.

## Install the Database Server

- 22 Navigate to Start > Settings > Control Panel and double click on the Windows Firewall Icon. Go to the exceptions tab and click on the Add Port... button. Enter the information shown below. Close the dialogs.



- 23 The computer requires a restart now to make sure that all settings become effective.

**Note: It is highly recommended, that you create regular backups of your database. However how to schedule a regular backup of your database is beyond the scope of this document. Please contact your local IT department for help.**



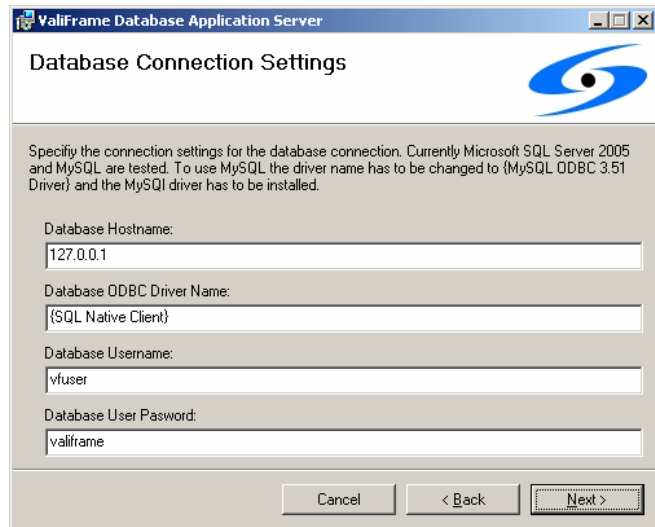
## 4 Install the ValiFrame Database Application Server

This section describes the installation process of the ValiFrame Database Application Server. This program acts as a proxy between the Database Server on one side and the VFWebView or ValiFrame on the other side.

- 1 Start the setup process of the Application Server by double clicking on the ApplicationServerInstaller.msi at the installation CD.
- 2 The application server setup will ask you for the connection details for the connection to the database. The default values can be used if the database is running on the same PC and with the Microsoft SQL Server. (You can change the settings later using the registry editor. The key where the settings are stored is: HKEY\_LOCAL\_MACHINE \ SOFTWARE \ BitifEye \ ValiFrame \ Database \ Properties)

**Attention:** It is highly recommended, that you change the password of the user vfuser. If you change the password you have to change it in this dialog and in the database.

## Install the ValiFrame Database Application Server



The screenshot shows a Windows-style dialog box titled "ValiFrame Database Application Server" with a sub-title "Database Connection Settings". The dialog contains a blue logo in the top right corner and a paragraph of instructions: "Specify the connection settings for the database connection. Currently Microsoft SQL Server 2005 and MySQL are tested. To use MySQL the driver name has to be changed to {MySQL ODBC 3.51 Driver} and the MySQL driver has to be installed." Below this are four text input fields: "Database Hostname:" with the value "127.0.0.1", "Database ODBC Driver Name:" with the value "{SQL Native Client}", "Database Username:" with the value "vuser", and "Database User Password:" with the value "valliframe". At the bottom are three buttons: "Cancel", "< Back", and "Next >".

- 3** Finish the installation by clicking the Finish button. The Database Application Server will automatically create a shortcut in the startup directory, thus it will be started every time the PC starts up. If you do not want this, remove the shortcut from the startup directory.
- 4** The computer where the Application Server is running, needs the ODBC driver for the database you want to connect to. The ODBC driver for the SQL Server is included on the installation CD. Run the sqlncli.msi to install the driver.
- 5** Restart the computer.

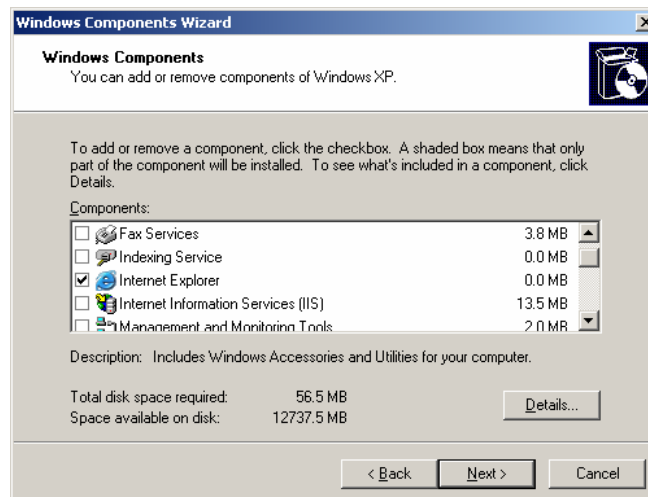
## 5 Install the Web Viewer (VFWebViewer)

The web viewer is the web interface to the data saved from ValiFrame. The web viewer has to be installed on a computer where a web server is running. It is not necessary to install the web viewer on the client PCs. The computer however should be accessible from all client PCs. This section describes the installation and setup process of the ValiFrame web viewer, called VFWebViewer.

**Note: Make sure you have installed the OWC11 prerequisite!**

### Internet Information Server Setup

- 1 Navigate to Start > Settings > Control Panel and double click on the Add or Remove Programs icon.
- 2 Click to the Add/Remove Windows Components button on the left side of the dialog. The following dialog will appear.

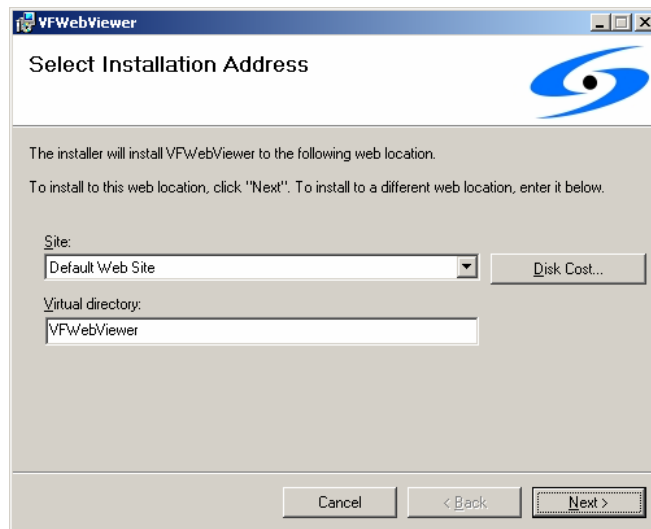


- 3 Check the Internet Information Services (IIS) item and click Next. The installation process of the IIS, Microsofts web server, will start. After the installation has finished click Finish.

## Install the Web Viewer (VFWebViewer)

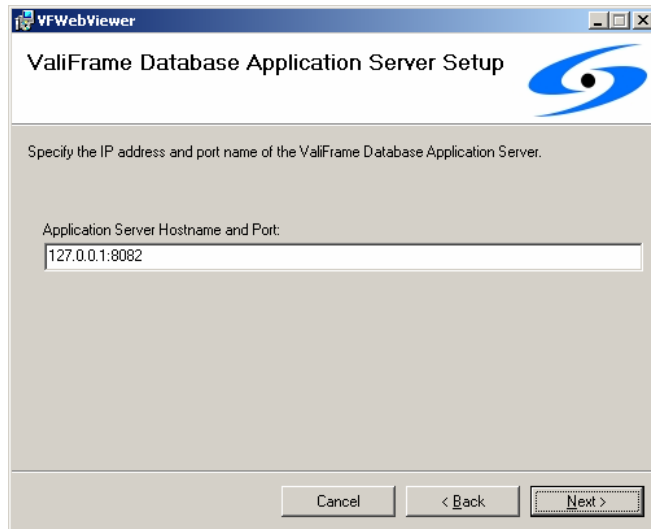
### VFWebViewer Setup

- 1 Start the setup program of the VFWebViewer by double clicking on the VFWebViewerInstaller.msi on the installation CD.
- 2 The second page of the installer asks you for the installation address. **Currently the name of the Virtual Directory must be VFWebViewer.**



## Install the Web Viewer (VFWebViewer)

- 3 The next dialog asks for the IP address and port name of the ValiFrame Database Application Server. If you install the VFWebViewer on the same PC as the Valiframe Database Application Server you can leave the initial values. If the

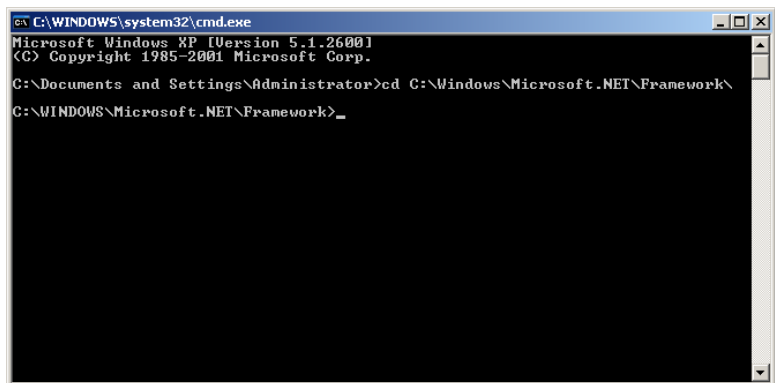


Application Server is running on a different PC enter the IP address of this PC. Leave the port name unchanged. Currently the application server doesn't allow to change the port it is listening on. (You can change the settings later using the registry editor. The key where the settings are stored is: HKEY\_LOCAL\_MACHINE \ SOFTWARE \ BitifEye \ ValiFrame \ Database \ Properties)

- 4 Click Next, the installation process will start. The files will be installed in the directory C:\inetpub\wwwroot\FWebViewer.
- 5 After you have finished the installation, you have to install the ASP.NET extension for the IIS. Unfortunately this is a handy process.

## Install ASP.NET extension and setup IIS

- 1 Start a console window by pointing to Start > Run and insert cmd and hit Enter.
- 2 Type `cd C:\Windows\Microsoft.NET\Framework\` in the console and hit Enter again. Note: You can copy and paste this command from this document. To insert it into the console window copy the command to the clipboard and paste it into the console by right click into the window and select paste.
- 3 After you have executed this command the window should look like the below one.

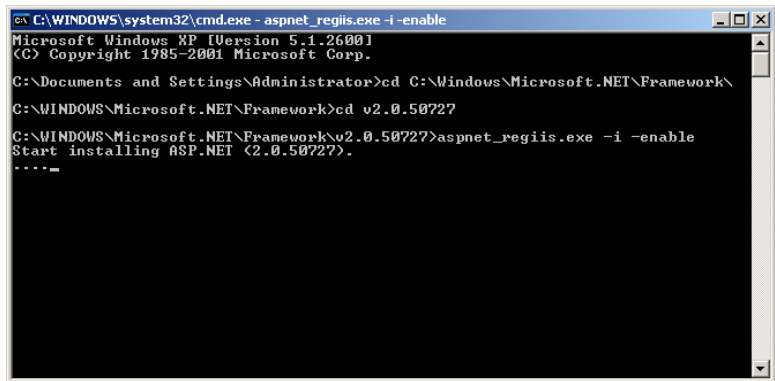


```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>cd C:\Windows\Microsoft.NET\Framework\
C:\WINDOWS\Microsoft.NET\Framework>
```

- 4 Now it is getting a little bit complicated. Type in `cd` and hit the Tabulator (Tab) key (␣), each time you hit the Tab key different texts appear indicating different versions, hit the Tab key until you have seen all texts and remember the highest 2.x version. This could be for example `v2.0.50727`. Hit the Tab key again to display the highest version again and hit the Enter key.
- 5 Type in `aspnet_regiis -i -enable`, the text shown below, should appear. If an error message is displayed saying `aspnet_regiis` could not be found type in `cd..` and hit Enter. Start with the step above type in `cd` and hit tab key, this time use the second highest version number.

## Install the Web Viewer (VFWebViewer)



```
C:\WINDOWS\system32\cmd.exe - aspnet_regiis.exe -i -enable
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>cd C:\Windows\Microsoft.NET\Framework\
C:\WINDOWS\Microsoft.NET\Framework>cd v2.0.50727
C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727>aspnet_regiis.exe -i -enable
Start installing ASP.NET (2.0.50727).
-----
```

- 6 Close the console window.
- 7 To get access to the website from remote PCs you have to open port 80 in your client firewall. If you use the Windows Firewall go to Start > Settings > Control Panel > Windows Firewall. Navigate to the Exceptions tab and click on the Add Port... button. Enter Webserver as name and 80 as port. Click OK and close all dialogs. The website is now accessible from remote computers.
- 8 Make sure the ASPNET user has read and write access to the ValiFrame configuration directory located under C:\Documents and Settings\All Users\Application Data\BitifEye\ValiFrame. To do this right click on the above folder and select properties. Click on security and on Add to add a new user. Type in ASPNET and hit "Check Names". Highlight the ASPNET user in the upper part of the dialog and select modify, read and write permission in the lower part. Close the dialog by clicking ok.

## 6 Setup ValiFrame for the Database

ValiFrame should be installed as described in the ValiFrame installation guide. After the installation was finished, double click on the valiframe.reg file on the installation CD, to activate the Database Module for ValiFrame. This file uses the local IP for the Application Server, if your Application Server is running on a different PC please open the registry editor (Start> Run> regedit Enter) and navigate to HKEY\_LOCAL\_MACHINE \ SOFTWARE \ BitifEye \ ValiFrame \ Database \ Properties. There should be a key named ApplicationServerHostname the value of this key indicates the IP and Port of the Application server.

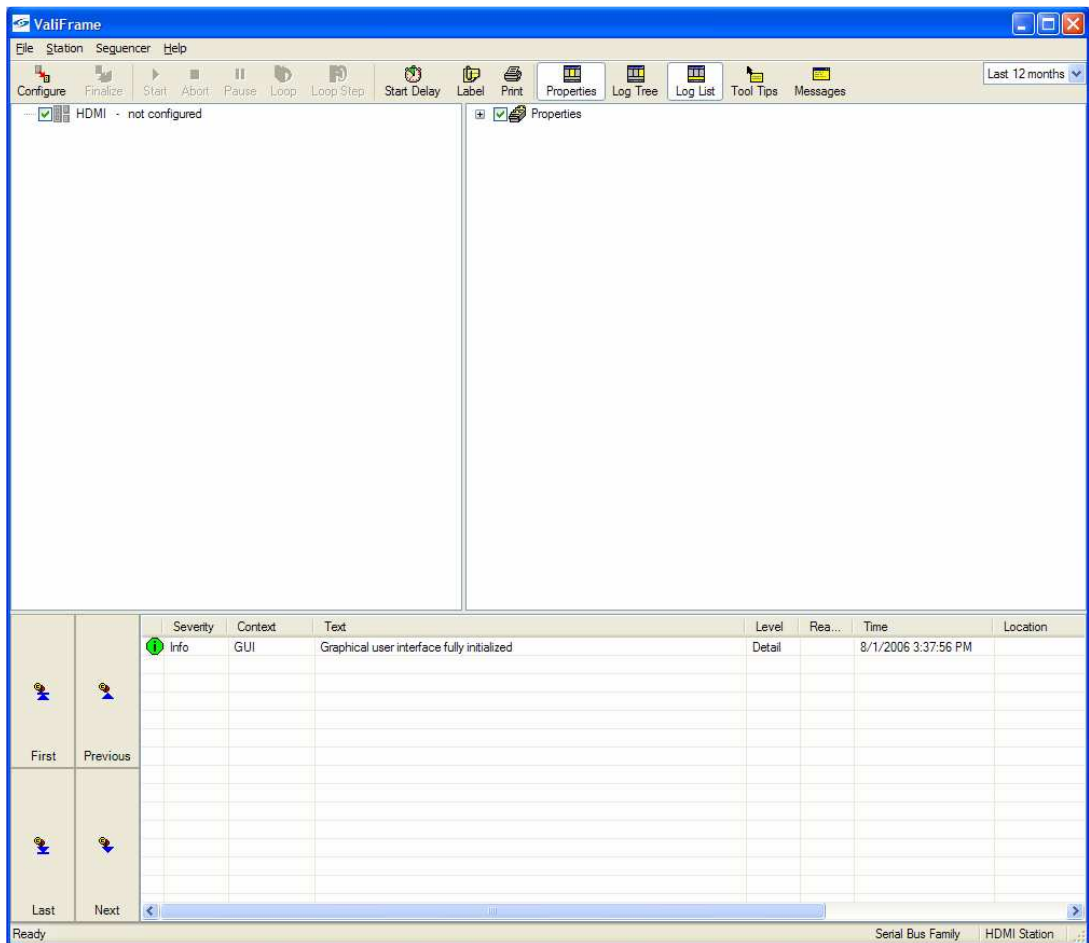


## 7 Configuring a DUT with a Database Connection

Start the software.

N5990A will connect automatically to all instruments which are not set to the Offline mode in the Test Station Configuration program. It is ready for use once all connections were initialized successfully.

The main menu will appear as can be depicted from fig. 1 (example HDMI).



**Figure 1** Initial Test Automation main menu, prior to configuring a DUT

The next step is to configure a device-under-test (DUT) by clicking on the “Configure DUT” button in the tool bar (left most button). The “Configure DUT” dialog box will appear.

## Configuring a DUT with a Database Connection

The screenshot shows a 'Configure Product' dialog box with the following sections and fields:

- Product Section:**
  - Product Number: [Empty text box]
  - Serial Number: [Empty text box]
  - Product Type: [Sink (dropdown menu)]
  - Port Name: [1 (dropdown menu)]
  - Description: [No database entry found (text area)]
- Test Section:**
  - User Name: [Unknown User (text box)]
  - Comment: [Empty text area]
  - Initial Start Date: [3/14/2007 3:01:05 PM (text box)]
  - Last Test Date: [3/14/2007 3:01:05 PM (text box)]
  - Compliance Mode:  (radio button)
  - Expert Mode:  (radio button)
- Video Mode Section:**
  - Supported Video Modes: [List of 8 modes with checkboxes, including 01: 640x480p @ 60 Hz, 02: 720x480p @ 60 Hz, 05: 1920x1080i @ 60 Hz, 08: 1440x240p @ 60.115]
  - Color Depth: [List of 4 options: 24 bit, 30 bit, 36 bit, 48 bit]
  - Color Mode: [List of 8 options: RGB full range, RGB limited range, YCbCr 4:2:2 ITU-R709, YCbCr 4:4:4 ITU-R709, YCbCr 4:2:2 ITU-R601, YCbCr 4:4:4 ITU-R601, xvYCbCr 4:4:4 ITU-R709, xvYCbCr 4:4:4 ITU-R601]
  - Keep Signals After Test:  (checkbox)
- Bottom Section:**
  - Production ID: [Empty text box]
  - Register Product: [Button]
  - OK: [Button]

**Figure 1** Product (DUT) configuration

Enter all information which is relevant to the test that you will run. This information will be shown in the measurement reports. It will also be used for storage with the measurement data. As it will be used to retrieve data from the data base, use unique Product Number and Serial Number pairs.

## Configuring a DUT with a Database Connection

Please take care of a few simple things, when using this dialog with a connected database. Once you start typing the Product Number the values already saved in the database will be available as AutoComplete suggestions. Once you are finished with the Product Number leave the text field and click into the serial number field. After you have left the Product Number text field, ValiFrame will query for the Serial Numbers already stored in the database with the specified Product Number. The existing Serial numbers will also be available as AutoComplete suggestions. Please take care, that the HDMI module always appends the Port Number to the Serial Number. Do not delete this part of the serial it is used to identify the DUT. However if you create a new DUT, you don't have to append the Port Number. Once you are finished with the Serial Number leave the text field, this will start the process where ValiFrame is searching for the DUT settings and enter these values into the dialog.

## 8 Using the VFWebViewer

The VFWebViewer is the web interface for the test data produced by the ValiFrame Test Automation Software. To access the webviewer, start the Internet Explorer and enter <http://IPOfWebserver/VFWebViewer/> where IPOfWebserver is the IP Address or Hostname of the computer the webviewer is running on. If you have installed the webviewer on the same computer you can access the webviewer using this URL <http://127.0.0.1/VFWebViewer>. The following figure shows a screenshot of the webviewer.

The webviewer has the following key features:

- Access all test results
- Show DUT properties
- Display test results in HTML format.

