

User Manual

English



Perception remote control using DIAdem





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For Perception 6.60 or higher

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1 Getting Started

Welcome to the Perception remote control manual using DIAdem. This manual describes how you can use the COM/RPC interface of Perception from within DIAdem. For more information on the COM/RPC interface we refer to the user manual called "**Programmers Reference Perception RPC interface**" (I2699_1.0en)

1.1 Introduction

The DIAdem program of National Instruments can be used to control Perception. Perception has implemented an RPC interface, to simplify the usage of this interface HBM has designed a COM wrapper around the RPC client. This COM wrapper can be used as an ActiveX from within DIAdem. For more information we refer to the appendix called **Using RPC-COM** wrapper and C# in the Perception RPC interface manual.

This document will describe how you can use this COM wrapper, it demonstrates how you can start from scratch and build your first simple DIAdem application communicating with Perception.

1.2 Intended audience

This documentation assumes you have sufficient knowledge of DIAdem, this manual is NOT a tutorial on how to use DIAdem.

This documentation also assumes you understand your HBM equipment, software, and basic acquisition terminology.

Understanding acquisition terminology is vital to understanding digital recordings: trigger, sample rate, pre-/post trigger, etc.

1.3 Requirements and installation

The HBM RPC Interface is an option that is enabled through the use of the HASP® 4 USB Token. When this option is installed, a colored icon is shown on the splash screen at start-up.

When this icon is grayed you should contact your local dealer for more information on how to obtain this option.

The HBM Remote API is an option that is enabled through the use of the HASP[®]4 USB Token.

This option is also listed as **Remote API: control Perception using the SOAP interface or using RPC calls** in the Perception menu: Help > About Perception > More... > Options page

We assume you have installed DIAdem. In addition you must install the required software modules as described below.

1.3.1 System requirements

• HBM Perception software with Remote API option enabled

1.3.2 Supported hardware

- HBM GEN Series Modular Data Acquisition System
- HBM Liberty Ruggedized In-vehicle Data Acquisition System



1.3.3 Installation

For installation information we refer to the appendix called **Using RPC-COM wrapper and C#** in the Perception RPC interface manual.

2 Creating your first DIAdem script for controlling Perception

In this section we show you how you can use the Perception COM wrapper from within DIAdem. Two simple scripts are created which can be used to start and stop an acquisition at Perception.

Do the following steps to achieve this:

• Start DIAdem and select the SCRIPT page

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• Open the Script-> Type Libraries... menu



• Select the library called PerceptionComRpc

Registered Typ	ype Libraries	×
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Perception	ion UI Support	
Perception	on VideoBenchMark3D	
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Properties		
Troperates		
Litle:	PerceptionComRpc	
ID:	8098371E-98AD-03E0-BEF3-21B9A51D6B3E	
Version:	1.0	
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• Enter the following code:

- Save this file as StartPerception.VBS
- Make sure Perception has been started at the same PC and is ready for doing an acquisition. If Perception is at another PC then you have to replace the server address in the above code from "localhost" to the PC name or the IP-address of this PC where Perception is running.
- Run the script (CTRL+F5)
- Now you should see that Perception has started a new acquisition.
- If needed stop the acquisiton manually at Perception.

Modify the above script by replacing the <code>Serv.Start</code> with <code>Serv.Stop</code> and save the script as StopPerception.VBS. The script now looks like:

```
'-- VBS script file
```



• Run the StartPerception script (CTRL+F5) again and stop the acquisition now by using the StopPerception script.

3 Simple Acquisition Control

This demo will demonstrate how to create a DIAdem dialog box where we can start and stop a recording in Perception.

• Go to the menu Edit->Create User Dialog Box



- Give the dialog a new title: "Perception Control"
- Save the dialog as PerceptionControl.SUD
- Add two labels and five buttons to the dialog

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		Font	(None)	
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		Left	-1	
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		ShowDlgReduc	0 - No	
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• Add the following code:

```
_____
·_____
'-- SUD script file
'-- Created on 06/03/2015 10:25:02
'-- Author: Jos van Damme
'-- Comment: Simple Perception Acquisition control
Option Explicit 'Forces the explicit declaration of all the variables
in a script.
Dim PerceptionServer
Dim IsConnected
Sub Dialog EventInitialize(ByRef This)
  Set PerceptionServer = CreateObject("PerceptionCom.PerceptionCom")
  IsConnected = false
End Sub
Sub Dialog_EventTerminate(ByRef This)
  PerceptionServer.DisconnectFromServer
End Sub
Sub BtnConnect_EventClick(ByRef This)
  PerceptionServer.SetServerAddress ("localhost")
  PerceptionServer.ConnectToServer
  IsConnected = true
 ShowConnectionState
End Sub
Sub BtnDisconnect EventClick(ByRef This)
  PerceptionServer.DisconnectFromServer
  IsConnected = false
  ShowConnectionState
End Sub
```



```
Sub ShowConnectionState
  If (IsConnected) Then
    LblConnectionStatus.Text = "Yes"
  Else
    LblConnectionStatus.Text = "No"
 End If
End Sub
Sub BtnRun_EventClick(ByRef This)
  if (Not IsConnected) Then
    MsgBox("Can not start because Perception is not connected")
 Else
   PerceptionServer.Start
 End if
End Sub
Sub btnStop_EventClick(ByRef This)
  if (Not IsConnected) Then
   MsgBox("Can not stop because Perception is not connected")
  Else
    PerceptionServer.Stop
  End if
End Sub
Sub btnPause_EventClick(ByRef This)
  if (Not IsConnected) Then
   MsgBox("Can not pause because Perception is not connected")
 Else
   PerceptionServer.Pause
 End if
End Sub
```



4 Open a Perception configuration (VWB) file

The demo will now be extended with the possibility to load a Perception configuration (VWB) file. The LoadVWB function will be used for this.

• Add a Text, EditBox and a Button control to the dialog

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• Add the following code:

```
Sub btnLoadVWB_EventClick(ByRef This) 'Created Event Handler
if (Not IsConnected) Then
    MsgBox("Can not load a configuration file because Perception is not
connected")
    Else
    Dim VWBFileName
    VWBFileName = EdtVWBFileName.Text
    call PerceptionServer.LoadVWB( VWBFileName )
    End if
End Sub
```

- Before testing make sure that the VWB file is available.
- Now test this new dialog in DIAdem by pressing Ctrl+F5

Remark: The LoadVWB supports virtual directory names that get replaced automatically by real locations.

These virtual directories are:

SharedDocs - Represents the Shared Documents folder on the computer (C:\Documents and Settings\All Users\Documents)

MyDocs - Represents the My Documents folder of the currently logged in user (C:\Documents and Settings\Username\My Documents)

Virtual directories names are surrounded by the two characters < and >, called angle brackets.

You can use the following VWB file entry in the above example:

<MyDocs>\My Workbench\Demo1.pVWB

Depending on your OS and your username this can be replaced by:

C:\Users\Damme\Documents\My Workbench\Demo1.pVWB



5 HBM – PNRF Data Plugin

At the web page of National Instruments you can find software which can be used to directly read the Perception data (PNRF) files into DIAdem. This plugin can be downloaded for free from http://www.ni.com/example/31522/en/.

When importing files with the HBM_PNRF DataPlugin, each measurement is saved in a separate waveform channel. See picture below.



6 Recommendations

So far we just showed some simple examples to get started, but the RPC/COM interface is much richer than the examples above have shown. To get more insights in this interface we recommend to have a look into the **"Programmers Reference Perception RPC interface"** (I2699_1.0en) and the **Perception COM Help** help file.

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Hide Locate Back Forward Stop Refresh Home Print Options		
Contents Index Council a	HBM - RPC/COM Perception Interfaces	
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Load/WB Method (FullPath)	Namespaces RPC_COM IPerceptionCOM Start()	C# 💌
MaintrameSetDefaultSetting: Method (Maintrame)		
Unesnot Method Paula Mathod	RPC/COM Perception Interfaces	
SaveSettings Method (FulPath)	The Start command starts acquisition or data.	
SaveVWB Method (FulPath)	Declaration Syntax	
SetAlamLevelSettings Method (Mainframe, Recorder, Channel, Mask, Mode, Primary	C# Visual Basic Visual C++	
SetCalibrationSettings Method (Mainframe, Recorder, Channel, Mask, Method, StartF	unid Start ()	
SetChannelEnabled Method (Mainframe, Recorder, Channel, Enabled)	tone search)	
SetCommonSettings Method [Mainframe, Mask, Name, RealTimeClock]	Examples	
 SetContinuousSettings Method (Maintame, Hecorder, HecordingMode, HecordingTill SetContinuousSettings Method (Maintame, Personale, Changel, Ecolidad) 		
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SetMasterTimebaseSettings Method (Mainframe, Mark, Mode, SwicSource, SwicStz	using System;	
SetNetworkSettings Method (Mainframe, Mask, NetworkName, UseDHCP, IPAddres	using System.Collections.Generic;	
SetPowerControlSettings Method (Mainframe, Recorder, Channel, Mask, AmplifierPox	using System.ComponentModel;	
SetRecCommonSettings Method (Mainframe, Recorder, Mask, Name)	Using System Data;	
SetRecDefaultSettings Method (Mainframe, Recorder)	using System.Text;	
SetRecStorageSettings Method (Mainframe, Recorder, Mask, StorageMode, Record	using System.Windows.Forms;	
Sethecoweepsetings Method (Marriane, Hecorder, Mask, SweepLengh, Tigger	using PerceptionCOMRpc;	
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SetRecTriggerBusSettings Method (Mainframe, Recorder, Mask, MasterSlaveBusMo)	I I I I I I I I I I I I I I I I I I I	
SetSCBridgeBalancingSettings Method (Mainframe, Recorder, Channel, Mask, AutoE	public partial class Form1 : Form	
SetSCBridgeCalibrationSettings Method (Mainframe, Recorder, Channel, Mask, Interr	1	
SetSCBridgeSetupSettings Method (Mainframe, Recorder, Channel, Mask, Sensitivity,	// Define a private member to hold a reference to Perception	
SetSCCommonSettings Method (Mainframe, Recorder, Channel, Mask, Mode, Enable	// All the communication to Perception will be done via this member	
SetSUCouplingSettings Method (Manitrame, Hecorder, Lhannel, Mask, InCoupling, S	private Perceptionical a_Perception = hair;	
SetSCERctations Hathad Maintama, Recordsr, Channel, Mask, Enable, Ess.	public Form1()	
SetSCI putBangeSettings Method (Mainfatte, Hecorder, Channel, Mask, Type, Hode, Ha		
SetSCUserScalingSettings Method (Mainframe, Recorder, Channel, Mask, Multiplier,	InitializeComponent();	
SetServerAddress Method (Address)	// Create an instance of the COM server	
SetShuntResistorActive Method (Mainframe, Recorder, Channel, Active)	<pre>n_reroeption = new reroeption(0);</pre>	
SetStorageSettings Method (Mainframe, Recorder, StorageMode)		
E SetSweepSettings Method (Mainframe, Recorder, SweepLength, SweepMode, Trigg	<pre>private void btnConnect_Click(object sender, EventArgs e)</pre>	
Set LimebaseSettings Method (Maintrame, Recorder, HigSampleHale, LowSampleHa StatTrianau(OSattings Mathod Maintrame, Mark, EutTrian, EutTrian, Alam O, Mark		
 SetTriggenUserings Method (Mainframe, Matik, ExtTrigIn, ExtTrigUul, AlamUUMod StatTriggenUserings Method (Mainframe, Recorder, Channel, Mark, Mode, Prima 	<pre>// Set the address of the Perception Server machine // Set the address of the Perception Server machine</pre>	
SetTriggerPulseDetectorSetting: Method (Mainframe, Recorder, Channel, Mask, Hole, Fillia	<pre>// If however the Perception server is running on apother machine then</pre>	
SetTriggerRepeatTimerSettings Method (Mainframe, Recorder, Channel, Mask, Repe	// you have to enter the computer name or IP-address of this PC	
SetTriggerSettings Method (Mainframe, Recorder, Channel, TriggerMode, PrimaryTrig	<pre>m_Perception.SetServerAddress("localhost");</pre>	
E Start Method	<pre>m_Perception.ConnectToServer();</pre>	
StartAutoBalance Method (Mainframe, Recorder, Channel)	// Gat the acquisition state to check if we have communication	
E Stop Method	ShowAcquisitionState();	
 StorageRctive Method (Manname, Active) Schoolhal unit/autions Mathed (L/scaleurs, DateDarD, disc, TimeDerD, disc, Trianget) 	}	
Diage Method		
< ×	private void ShowAcquisitionState()	
		Y

We also recommand to have a look in the C# example programs.

It is also possible to join a COM/RPC training to understand the interface, this training does not use DIAdem but C# and Microsoft Visual studio.

HBM also provides programming support, this support can be bought in blocks of 8 hours.

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