Avaya Solution & Interoperability Test Lab

Application Notes for Datapulse™ Precision 4.2 with Avaya Communication Server 1000E R7.5 - Issue 1.0

Abstract

These Application Notes describe the configuration of Datapulse™ Precision to interoperate with Avaya Communication Sever 1000E.

Information in these Application Notes has been obtained through DevConnect Compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

These Application Notes describe a compliance tested configuration of the interoperability of Datapulse™ Precision to interoperate with Avaya Communication Server 1000E. Datapulse™ Precision retrieves call detail records (CDR) from the Avaya Communication Server 1000E system.

2. General Test Approach and Test Results

The interoperability compliance test included feature testing. The feature testing evaluated the ability of Datapulse™ Precision to correctly collect and present the generated call data for various scenarios The Avaya Communication Server 1000E with Datapulse Precision was tested in the Avaya Lab. Test cases were executed jointly by an Avaya and a Datapulse representative. All tests were manual tests and all results were discussed and agreed.

2.1. Interoperability Compliance Testing

Feature functionality testing focused on verifying that Precision could successfully collect, process and present all Communication Server 1000E call data. All tests were manual tests and covered the following areas:

- Precision's three methods of connection to the Communication Server 1000E
  - Direct Serial connection
  - NetBuffer
  - IPBuffer
- Ensured that Internal calls provide CDR data and Precision can process and report correctly for each connection method
- Ensured that Internal calls that include Operator Console 2250 provide CDR data and the data is interpreted correctly by Precision for each connection method
- Ensured that Incoming and Outgoing trunk calls are reported correctly by Precision for each connection method
- Ensured that data for each of the various Deskphone types, IP (UNIStim), SIP and digital sets was properly reported.

2.2. Test Results

All tests that were executed passed successfully except for the following observation.

- An issue with the CDR data that is produced by the Avaya Communication Server 1000E was encountered during testing. Datapulse prepared a patch the can be applied in order to workaround the issue until a fix is available from Avaya. An Avaya tech ticket has been opened to track this issue.
  Avaya Support Ticket #10316: CDR output is incorrect due to additional carriage return in the 'Ring Time' CDR data.

2.3. Support

Technical support for the Avaya products can be obtained from Avaya. See the support link at http://support.avaya.com for contact information.

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Technical support can be obtained for Datapulse Precision from Datapulse. Submit a Support Issue http://www.datapulse.co.uk/uk/services/submitproblem.aspx or email Datapulse at support@datapulse.com

3. Reference Configuration

The reference configuration described throughout these Application Notes is shown in **Figure 1, Figure 2** and **Figure 3.**

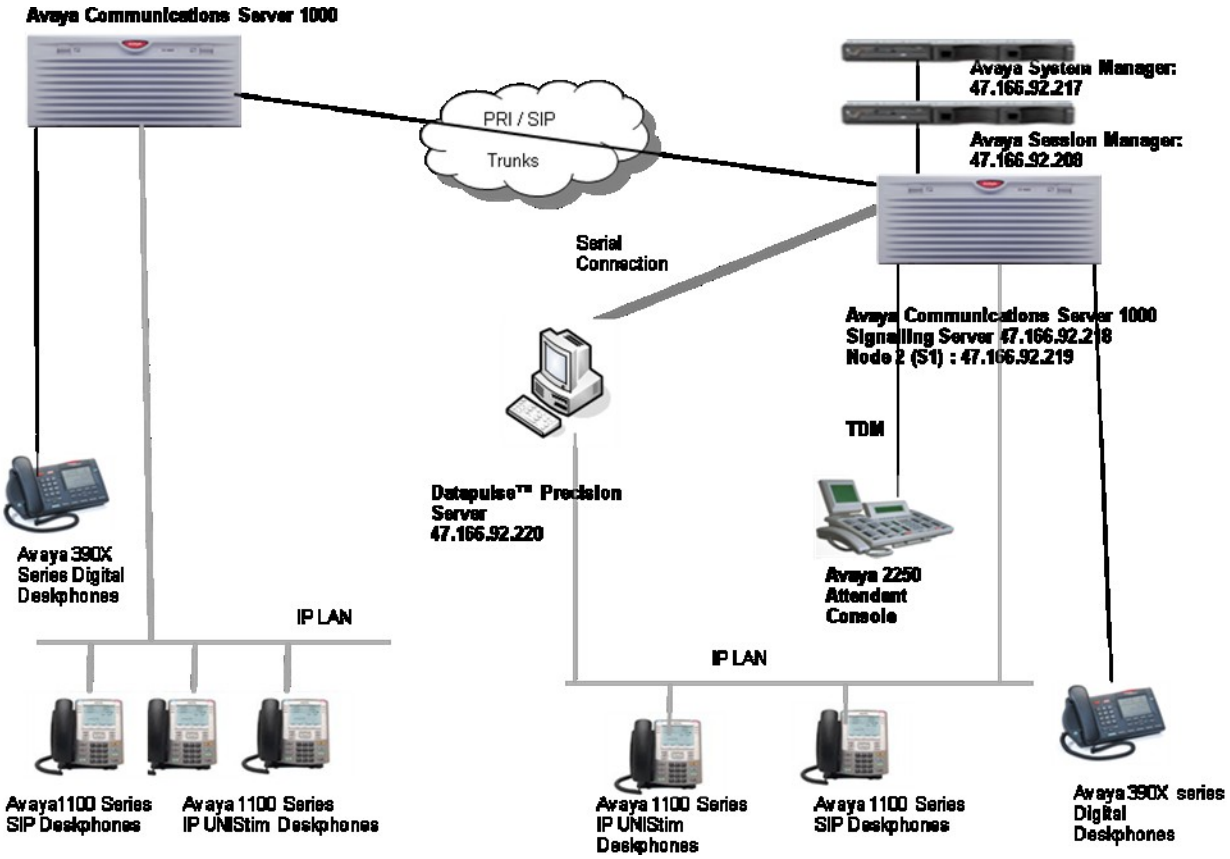

Figure 1: Avaya Communications Server 1000E / Datapulse Precision Direct Serial connection

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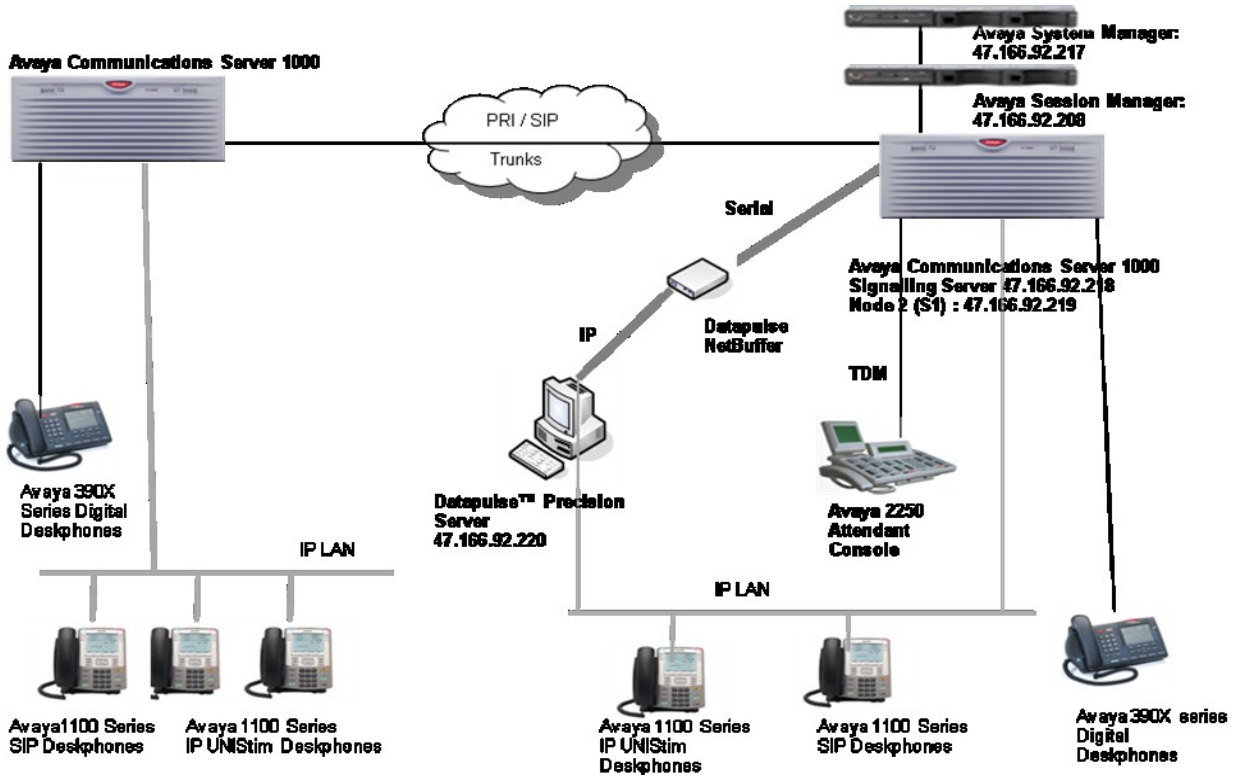

Figure 2: Avaya Communications Server 1000E / Datapulse Precision NetBuffer connection

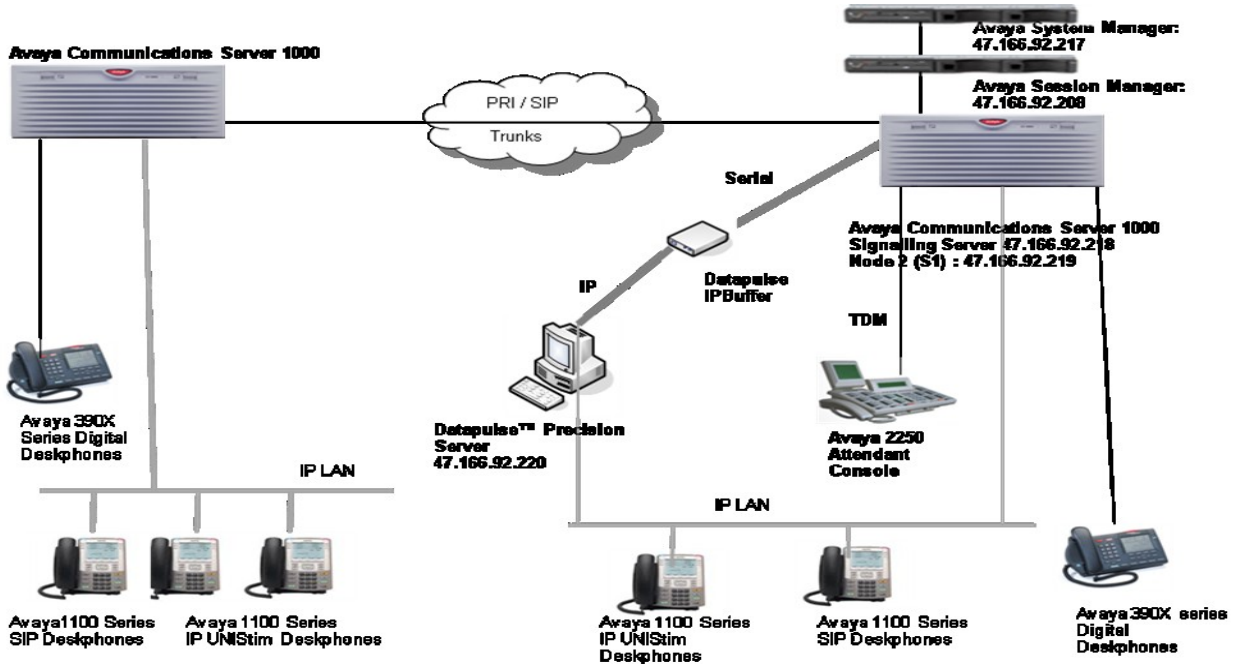

Figure 3: Avaya Communications Server 1000E / Datapulse Precision IPBuffer connection

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3.1. Avaya Communication Server 1000E

The Communication Server 1000E runs on the Common Processor Pentium Mobile (CP-PM) server as a co-resident configuration. The patch level installed at the time of testing is listed in the **Appendix**. As the diagram shows, a number of Avaya Deskphones may be configured. Typically, the set-up will have external communication via a SIP or PRI trunks to the PSTN or another Communication Server 1000E as shown in **Figure 1, Figure 2** and **Figure 3**.

3.2. Datapulse™ Precision

Precision is a call management system, i.e. a call-billing and costing tool, that provides monitoring and reporting of network traffic on a switch, tracking of lost and abandoned calls and detection of telephone misuse and assists in reducing operating costs. It collects data from the CDR output and processes and costs it according to the selected tariff. Call data can be generated for various calls type and scenarios e.g., intra-switch calls, inbound trunk calls and outbound trunk calls. There are 3 supported configuration options.

- Serial connection – Direct connection to the Communication Server 1000E to collect CDR Data
- NetBuffer – Serial cable is connected to the Buffer, Web interface to Precison server
- IPBuffer - Serial cable is connected to the Buffer, Web interface to Precison server

Note: Scannex NetBuffer and IPBuffer products are supported by Datapulse.

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4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided.

Equipment	Software/Firmware
Avaya PBX Products	
Avaya Communication Server 1000E	Avaya Communication Server 1000E R7.5 Patches on the sysetms are listed in **Appendix**
Avaya S8800	Avaya Aura® Session Manager R6.1 6.1.00.610023-1
Avaya S8800	Avaya Aura® System Manager R6.1 6.1.0.0.7345-6.1.5.9
Avaya Avaya Communication Server 1000E Media Gateway	CSP VERSION: MGCC CD01 MSP VERSION: MGCM AB01 APP VERSION: MGCA BA07 FPGA VERSION: MGCF AA18 BOOT VERSION: MGCB BA07 DSP1 VERSION: DSP1 AB03 DSP2 VERSION: DSP2 AB03 DSP3 VERSION: DSP3 AB03 DSP4 VERSION: DSP4 AB01 DSP5 VERSION: DSP5 AA01
Avaya Attendant Products	
Avaya 2250 Attendant Console	ASIP 09 00 UIP0711
Avaya Console Interface Unit – NTAG58AA	Rel:04
Avaya Internal Telephone Sets	
Avaya 1100 series IP Telephones • 1140e • 1230e • 1165e Avaya M3900 series Telephones • M3904 Avaya 1100 series SIP Telephone • 1140 • 1230	0625C8A (UNIStim 5.0) 062AC8A (UNIStim 5.0) 0626C8A (UNIStim 5.0) Version: AA93 SIP 1140- 4.00.04.00 SIP 12x0 -4.00.04.00
Avaya External Telephone Sets	
Avaya 1100 series IP Telephones • 1140e Avaya M3900 series Telephones • M3904	0625C8A (UNIStim 4.2) Version: AA93

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Datapulse Products	
Datapulse PC (Direct Connect)	Precision Server Software 4.2.1.6
Scannex NetBuffer (See Note below)	Version 2.63
Scannex IPBuffer (See Note below)	Version IPBCF2-10.71

Notes: Datapulse will support both Scannex NetBuffer and IPBuffer issues with their Precicion product.

5. Configure Avaya Communication Server 1000E

This section provides the procedures for configuring CDR features in the Communication Server 1000E system. For all other provisioning information such as initial installation and configuration, please refer to the product documentation. The Communication Server 1000E system is configured to generate CDR to the serial port.

- Configure CDR in the Customer Data Block
- Configure CDR in the Route Data Block
- Configure CDR for Avaya proprietary phones

5.1. Configure CDR in the Configuration Data Block

A number of configuration changes are required on the Communication Server 1000E Configuration Data Block.

Note: Not all of the following prompts need an answer. Only answers in bold characters are mandatory for a basic configuration. Accept the default responses for each prompt by pressing the **Return** key except for those that are highlighted in **bold.**

Notes: The configuration and verification operations illustrated in these sub-sections were all performed using terminal access over a serial link into a TTY port using the program "Reflections". The information provided in these sections describes the configuration for this solution.

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5.1.1. Direct the Call Data to the Avaya Communication Server 1000E Serial Port

To direct the call data to the required serial port the following configuration changes are required:

```
LD 17
REQ  CHG                          Change
TYPE ADAN                         Action Device And Number
ADAN NEW TTY 12                   New Teletype port number. (any number)
CTYP MGC                          Media Gateway
IPMG 4 0                          IP Media Gateway – The IPMG on which the TTY is
                                  being configured. 4 = Superloop, 0= Shelf
PORT 0                            Port Number for TTY. (0-4)
DNUM
DES CDR-PORT                      Designator, can be any name
BPS
BITL
STOP
PARY
FLOW
USER CTY                          CDR TTY - The TTY port only outputs CDR records
TTYLOG
BANR
```

5.1.2. Configure CDR in the Configuration Record

To change the format of the Call Records make the following change on the Communication Server 1000E.

```
LD 17
REQ  CHG
TYPE PARM     Change System Parameters
...
FCDR NEW      Utilises 'NEW' CDR format. Information field locations are fixed.
               Requires package 234
PCDR
TPO
...
SBA_ADM_INS
SBA_USER
CLID YES      Calling Line ID included in CDR records
```


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5.1.3. Configure CDR in the Customer Data Block

There are a number of call types to be enabled in the Customer Data Block.

```
LD 15
REQ: CHG
TYPE: CDR                          Change the Call Detail Records

TYPE CDR_DATA
CUST 0
CDR YES                            Yes to change CDR
         IMPH YES                  CDR enabled for incoming calls
         OMPH YES                  CDR enabled for outgoing calls
         AXID YES                  Auxiliary Identification provide the TN when the
                                    call involves a multiple appearance DN
         TRCR YES                  Carriage Return sent after each CDR message
         CDPR
         ECDR YES                  Send End-to-End Signalling digits in CDR format
         BDI
         OTCR
         PORT 12                   Enter the port number that was configured in
                                   Section 5.1.1
         CNI
         BCAP
CHLN
FCAF
```

5.1.4. Enable Time to answer Customer Data Block

Enter overlay 15 (LD 15) to enable time to answer information and abandoned call records to be displayed in the CDR record.

```
LD 15
REQ CHG
TYPE: CDB          Change the Customer Data Block
OPT TTAA           Time to Answer information and Abandoned call records allowed
```


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5.2. Configure CDR in the Route Data Block

Enable CDR records to be transferred from Inter-switch trunks.

```
LD 16
REQ  CHG
TYPE RDB
CUST 0
ROUT 14
DES
TKTP
M911P
...
CNTL
DRNG
CDR  YES                    Yes to change CDR
       INC  YES             CDR enabled for all incoming calls
       LAST YES             The terminating ID field in the CDR record will contain
                                  the last party.
       QREC YES             Initial connection (Q) record will be output for incoming
                                  calls.
       OAL  YES
       TTA YES              Time to Answer output
       ABAN YES             Abandoned call records output
       AIA  YES
       OAN  YES
       OPD  YES
NDP
NATL
DNIS YES
...
CCBA
ARDN
```

5.3. Configure CDR for Avaya Deskphones

CDR is enabled on individual phonesets in LD11 or LD20.

```
LD 20
REQ: CHG
TYPE: 1140                  Set type to be configured
TN   96 0 0 20              Terminal Number of the set
ECHG YES
ITEM CLS ABDA ICDA CDMA     Class of Service to be applied to the phoneset
                            ABDA – Abandoned call record and time to answer allowed
                            ICDA – Internal Call Detail Recording Allowed
                            CDMA – allows external station activity records to be
                                  generated for the set.
                            Note: The phoneset will output D records whenever a trunk
                                  is accessed by, or terminates on, the phone. The D
                                  record is output regardless of the CDR settings in
                                  the Route Data Block (LD 16).
```


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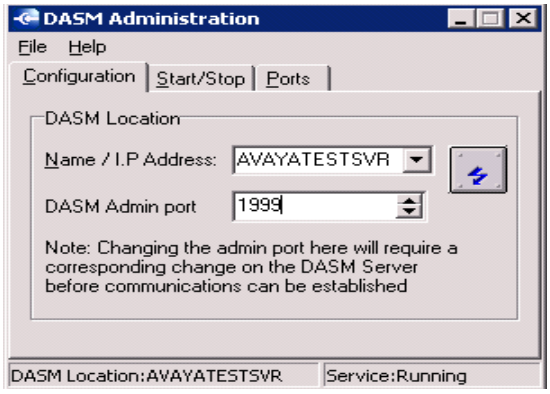
6. Configure Datapulse™ Precision

In order to configure Precision it is necessary to configure data collection ports. This can be done using the **Data Acquisition and Storage Module** (DASM). Ports are the means of collecting data from the Communication Server 1000E. DASM listens for data on these ports and, when it arrives, moves the data into a stream file for processing.

- Configure TCP/IP data collection ports
- Configure COM Serial port as the data collection port
- Define Communication Server 1000E Switch Configuration for Precision
- Configure Scannex NetBuffer
- Configure Scannex IP Buffer

6.1. Configure Data Ports using Data Acquisition and Storage Module

DASM Administration is run on the Precision Server from **Start → Datapulse → DASM → DASM Administration**. The **DASM Administration** window appears.



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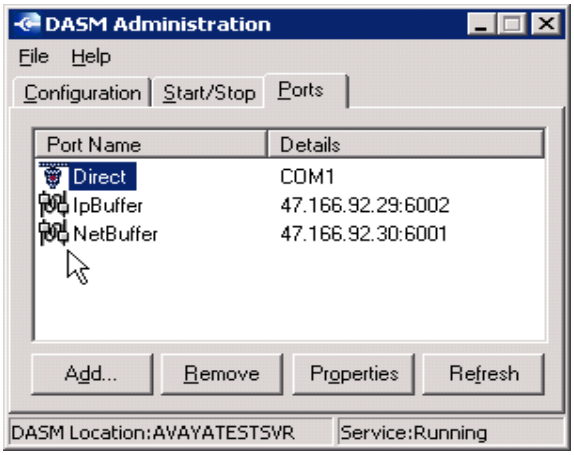
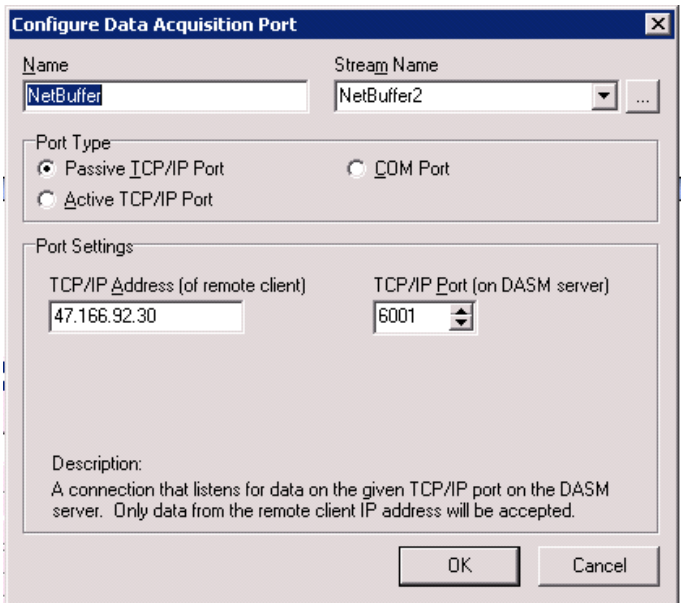
Enter the the **Name** or **IP Address** of Precision Server in the **Data Acquisition and Storage Module**. Enter 1999 in the **DASM Admin port** field as shown. Click on **Ports** tab to reveal the ports configuration window.



Ports can be configured as **COM** or **TCP/IP**. A COM port is a direct serial connection into the PC which the DASM service monitors for data, whereas a TCP/IP port is a TCP port that the DASM service listens on for data. If using a **NetBuffer** or **IPBuffer**, a **TCP/IP** port is used. TCP/IP ports can be passive or active. For Communication Server 1000E in combination with NetBuffers and IPBuffers, the passive option is used.

6.1.1. Configure Data Port as a TCP/IP Port

Click **Add…** to add a new port. The **Configure Data Acquisition Port** window appears.



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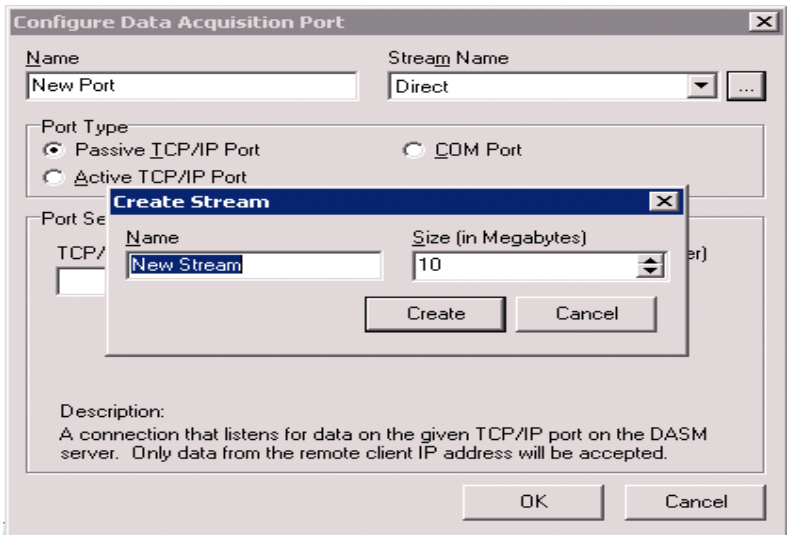
In the **Name** field enter any name to identify the port. In this case 2 TCP/IP ports were configured one for use of NetBuffer and one for use of IPBuffer so **NetBuffer** and **IpBuffer** were used for the port names. Click **…** ellipsis button to the right of the **Stream Name** field. A new window called **Create Stream** appears.



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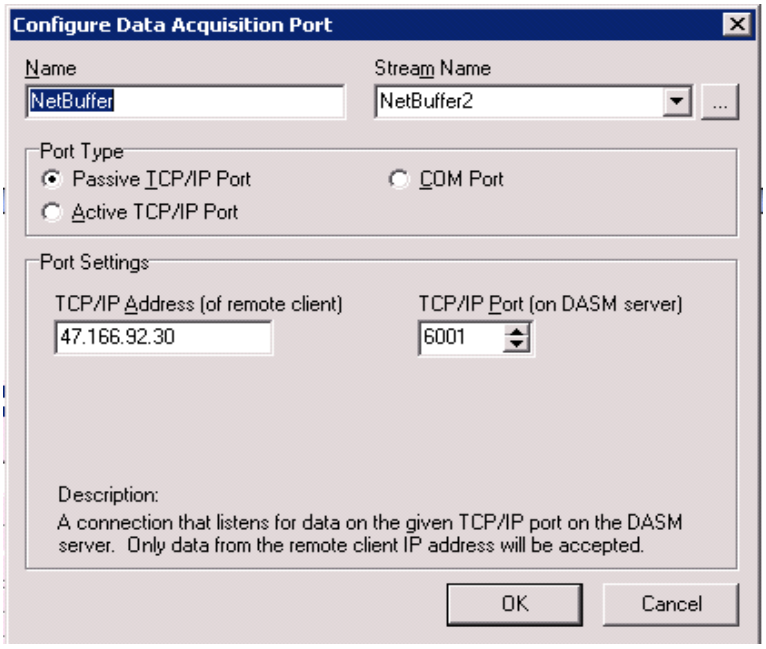
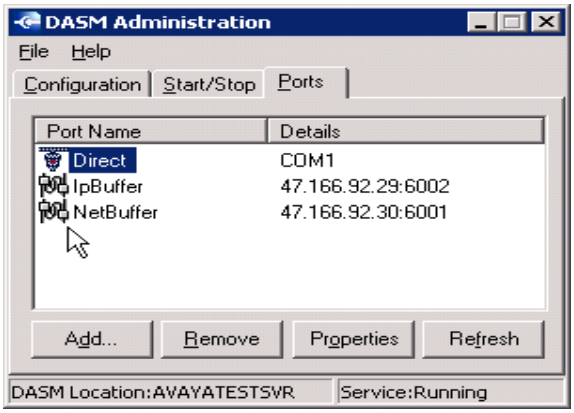
Enter any name in the **Name** field, the **Size (inMegabytes)** field can be left as default **10.** A stream is a circular file into which DASM feeds the data received on its ports. It uses one stream per port. The data is inserted into the stream by DASM as and when it receives it. Once the stream is full, it deletes the oldest data and inserts the newest, hence it being called a circular file. Click on the **Create** button.The previous window **Configure Data Acquisition Port** appears again for continuation of the port configuration. Select **Passive TCP/IP Port.**



In **TCP/IP Address (of remote client)** enter the stream **IP address** of the remote device which will be pushing the data to the Precision server (i.e. NetBuffer or IPBuffer). In this case 47.166.92.29 and 47.166.92.30 were used for the two buffers. Use the default port **6000** in the **TCP/IP Port (on DASM Server)** for the first port setting and port **6001** for the second. Click Ok to return to the DASM Administration window.



The serial cable from the Communication Server 1000E should be plugged into one of the serial ports in the IPBuffer or in the case of the NetBuffer there is only one serial port to connect to.

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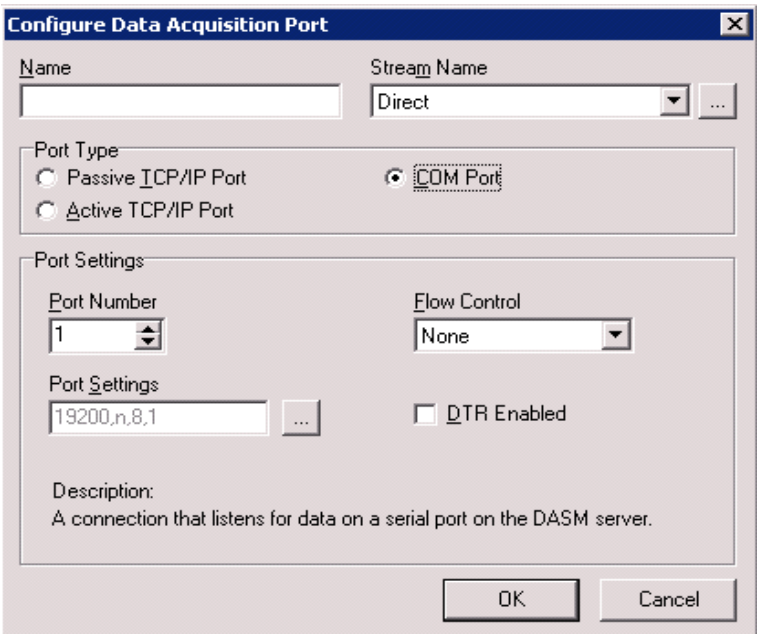
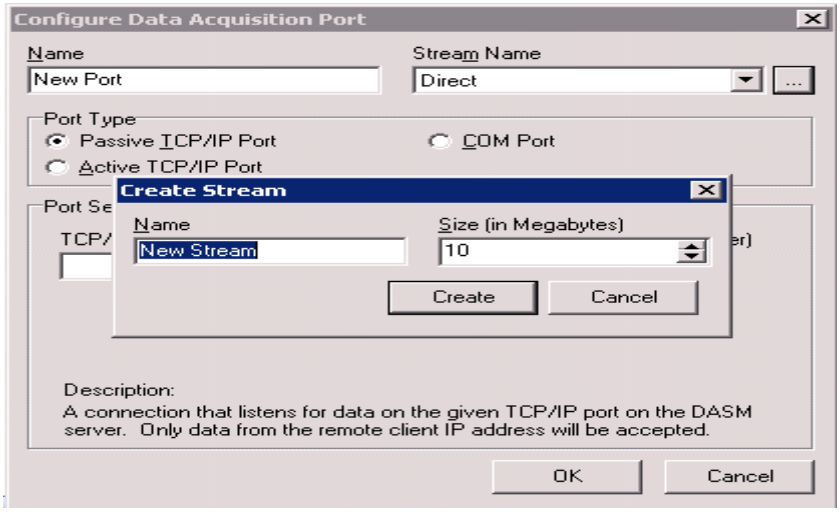
6.1.2. Configure Com1 as a Serial Data Collection Port

When configuring a com port to receive data on, this requires a port number. This corresponds to the physical com port on the Precision server. PCs rarely have more than 1 or 2 com ports on them and these are usually labelled as com1 and com2 and recognised in the OS as the same. So, if input data is required on com1 then configure DASM to use Port Number 1. The serial cable from the Communication Server 1000E should be plugged into this com port on the Precision server.



In the **Name** field enter any suitable name to identify the port e.g., **Direct**. Click **…** ellipsis button to the right of the **Stream Name** field. A new window called **Create Stream** appears.



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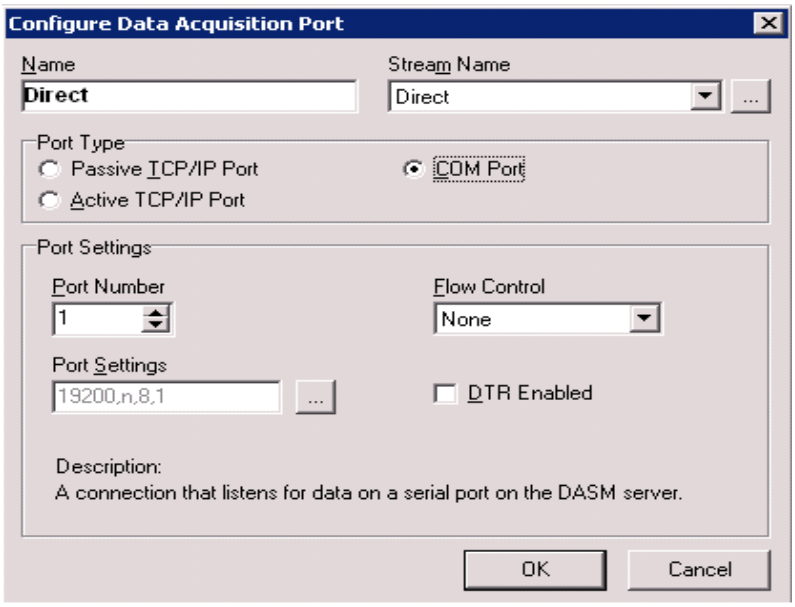
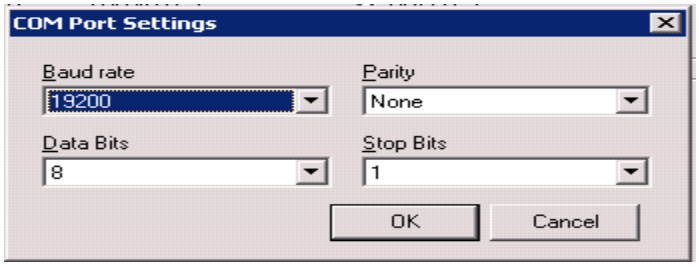
Enter any name in the **Name** field identify the stream e.g., **Direct**, the **Size (inMegabytes)** field can be left as default **10.** Click on the **Create** button. The previous window **Configure Data Acquisition Port** is presented.



The previous window **Configure Data Acquisition Port** appears again for continuation of the port configuration. Select **COM Port** as shown**.** The COM port settings should be set to match those that were configured on the CDR port on the Communication Server 1000E. See **Section 4.1.1** So if the port settings on the Communication Server 1000E are 9600, None, 8 and 1, then make the DASM port match. Click the **…** ellipsis. The **COM Port Settings** window is presented.



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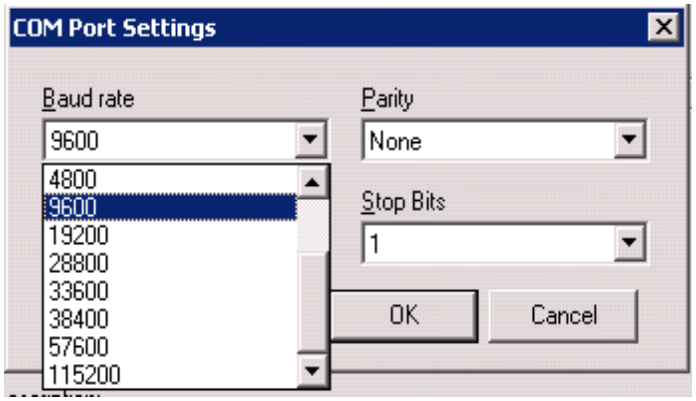
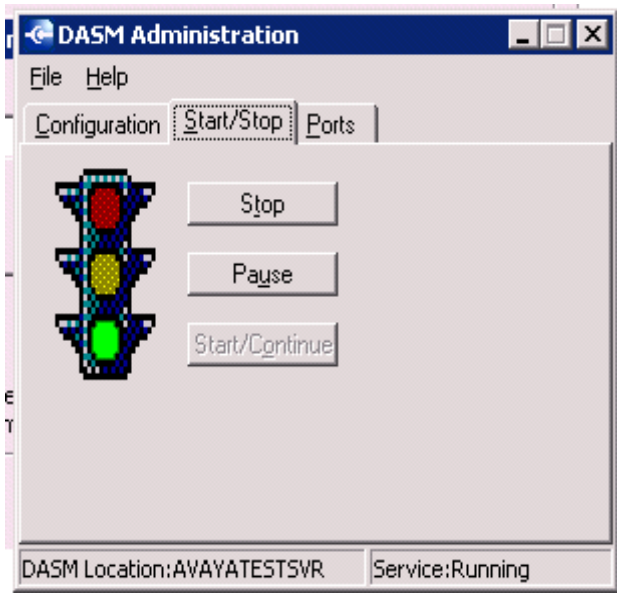
Enter the settings to match the Communication Server 1000E settings and click **OK.**



The DASM service must be restarted once the ports and streams are created. The easiest way to do this is via the **Stop** and **Start** buttons on the **Start/Stop** tab on **DASM Administration** window.



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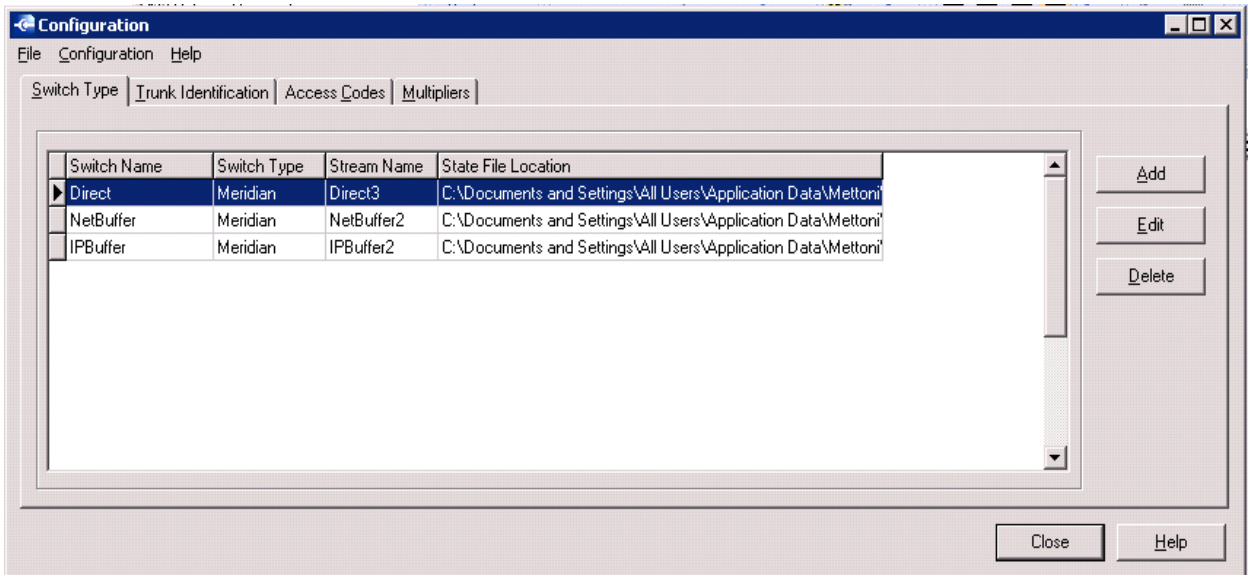
6.1.3. Define Avaya Communication Server 1000E Switch Configuration for Precision

Once the DASM ports and streams are created, Precision needs to the Communication Server 1000E to be defined. The switch is effectively a one-to-one mapping from the Communication Server 1000E to the Precision database via the DASM port and stream. The switch is configured in the Precision Configuration tool. Go to **Start → Datapulse → Precision CPE → Configuration**. The following window appears. On the **Switch Type** tab click the **Add** button on the right hand side.



The **Edit Switch** window appears.

- **Switch name** – any suitable name. For convenience the port names that were configure in **Section 5.1.1** or **Section 5.1.2** should be used.
- **Stream Name** -i.e. the stream that is being used to contain data from the CS1000E. This needs to have been already set up via DASM. See **Section 5.1.1** or **Section 5.1.2** depending on whether TCP/IP port or Serial Port is being used.
- **Switch type** - this is always 'Meridian' for Communication Server 1000E (Meridian being the precursor for Communication Server 1000).

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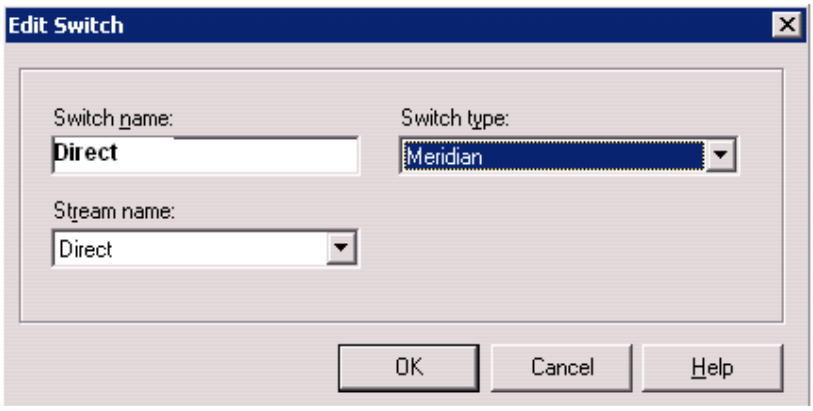

Click the **OK** button to exit this window.

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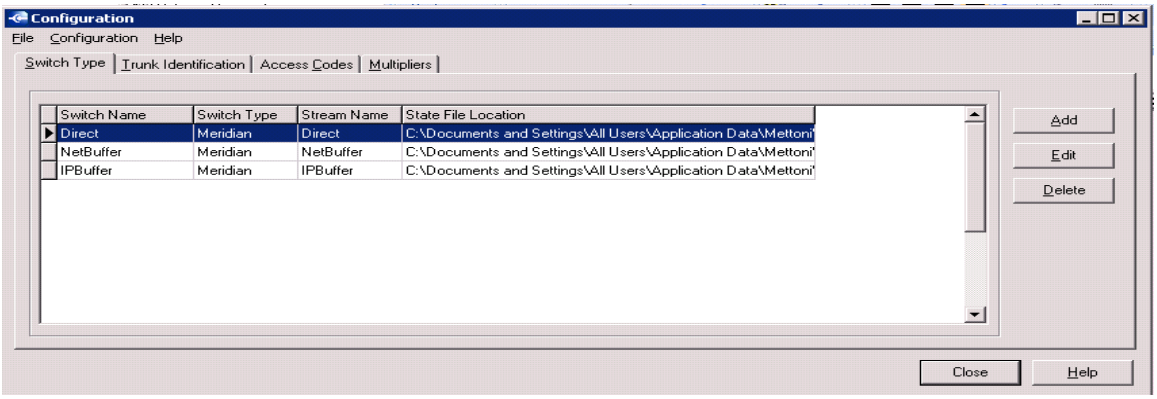
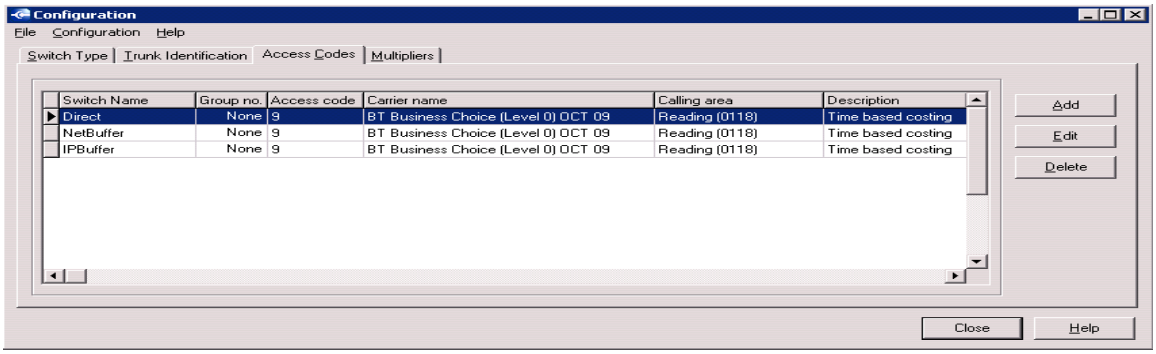
The **Configuration** window reappears.



Any access codes that will be used on the Communication Server 1000E need to be added on the **Access Codes** Tab. This is so that Precision can strip off the access code to obtain the actual number dialled in order to cost the call and report on locations dialled, etc. Click **Add** or **Edit** buttons on the **Access Codes** tab as required.



The access code also stores information on the tariff used and the location from which the calls are being made in order to calculate the cost of calls. The tariffs are installed via the Tariff Manager utility. This configuration is not in the scope of these Application Notes.

6.2. Configure Scannex NetBuffer

Run SEDiscover. Go to **Start → All Programs → Scannex → SEDiscover → SEDiscover**.

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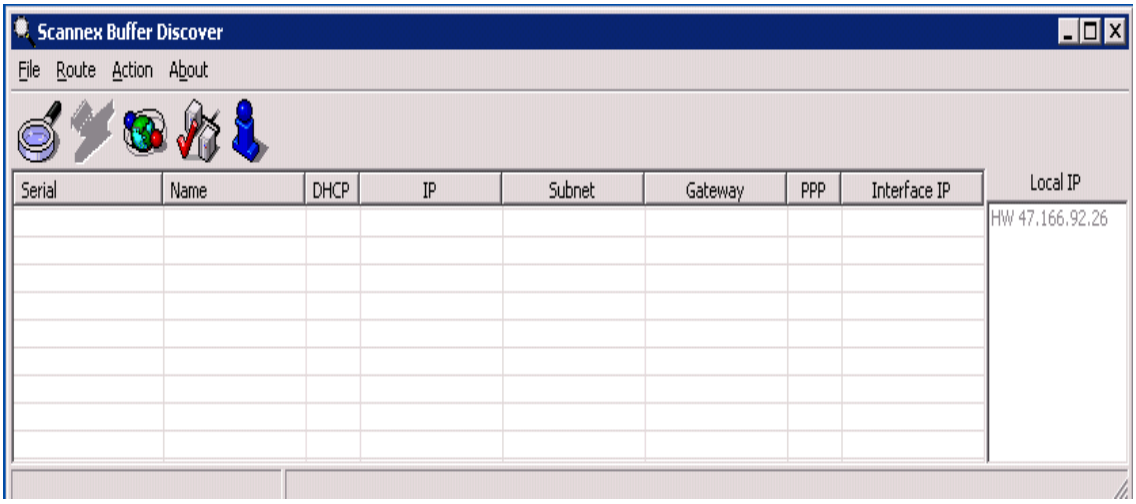
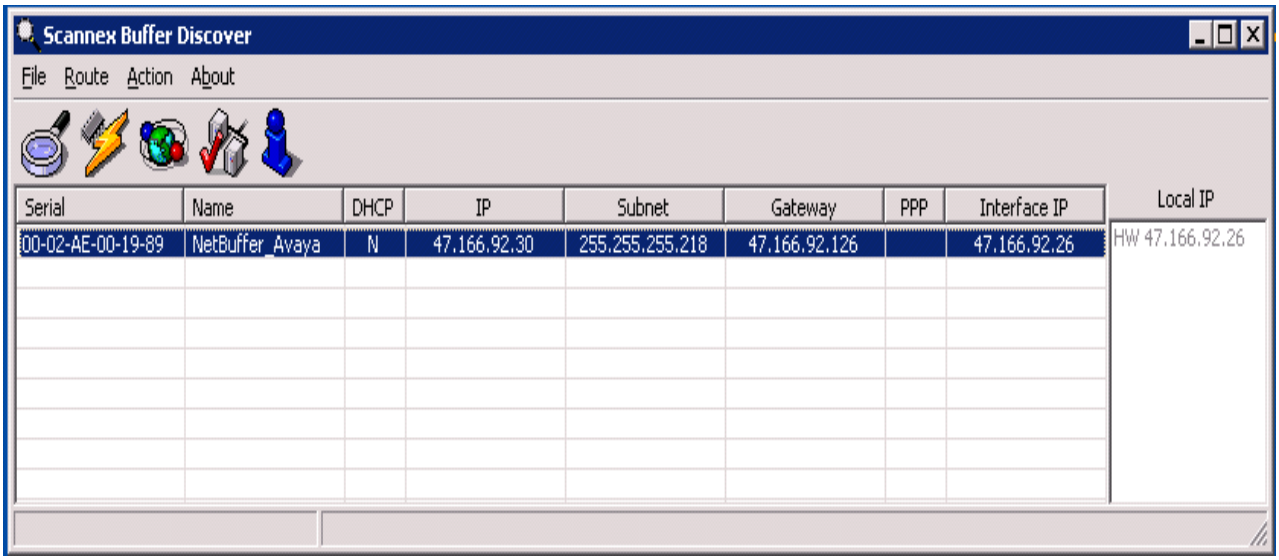
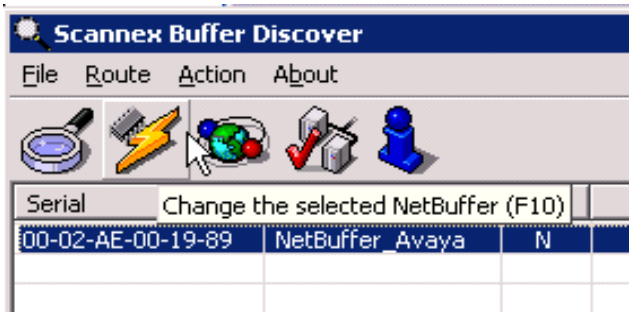
The **Scannex Buffer Discover** window appears.



To find a NetBuffer on the network, click the **magnifying glass** icon.



When the NetBuffer is identified select it and click **lightning** icon to configure IP settings.



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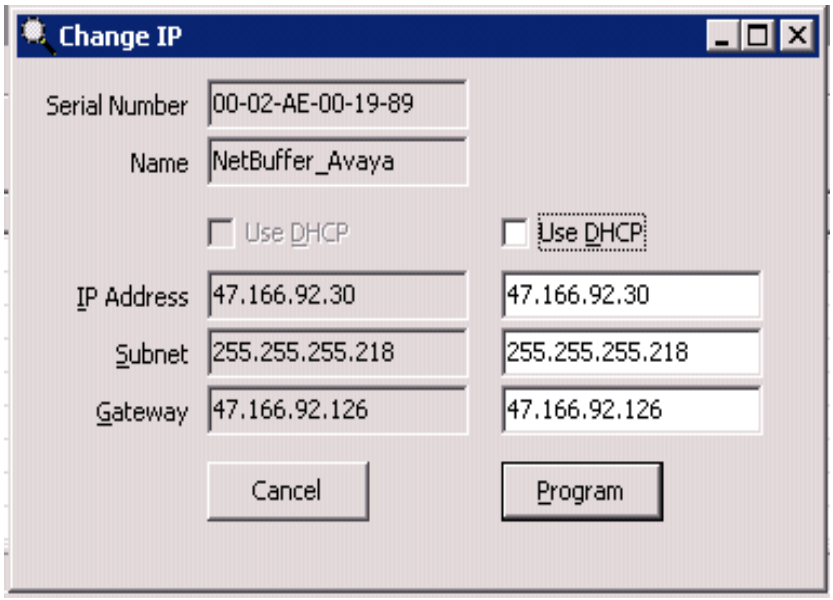
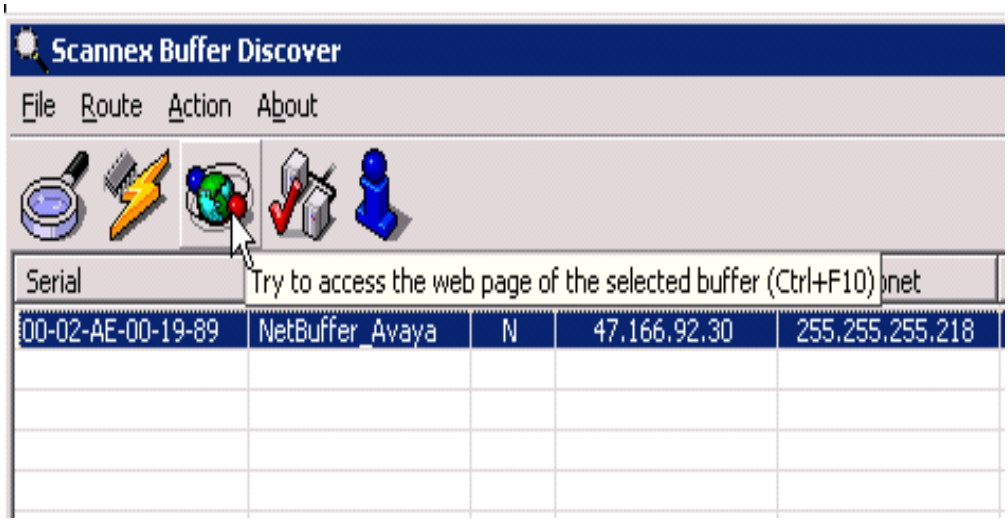
The **Change IP** window appears. Enter the IP configuration to be assigned to the NetBuffer. Click **Program** when complete to save the settings and to return to the previous window.



To access admin utility click on the acces button as shown.



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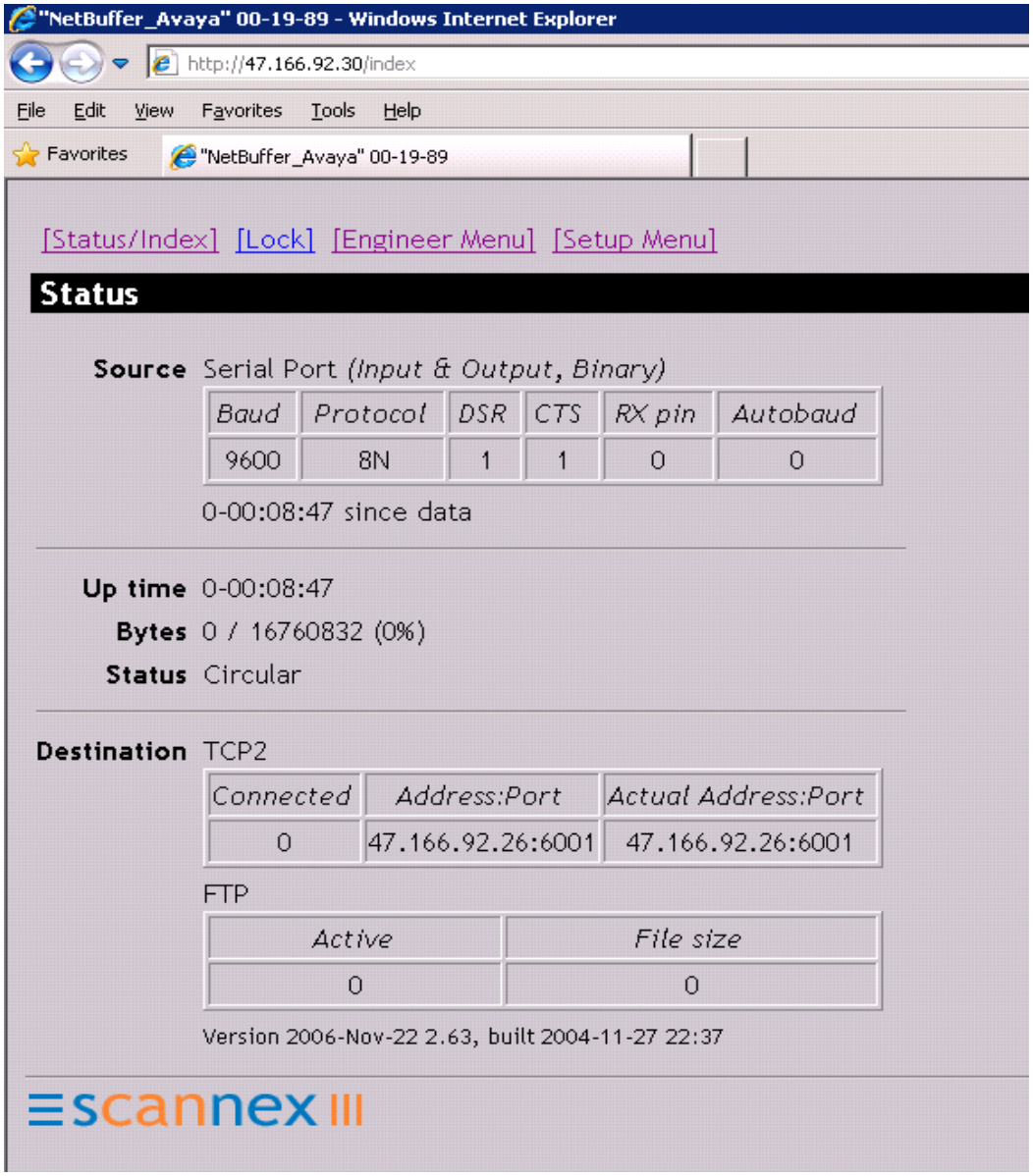
The following window should appear in your web browser. Click on **Setup Menu**.



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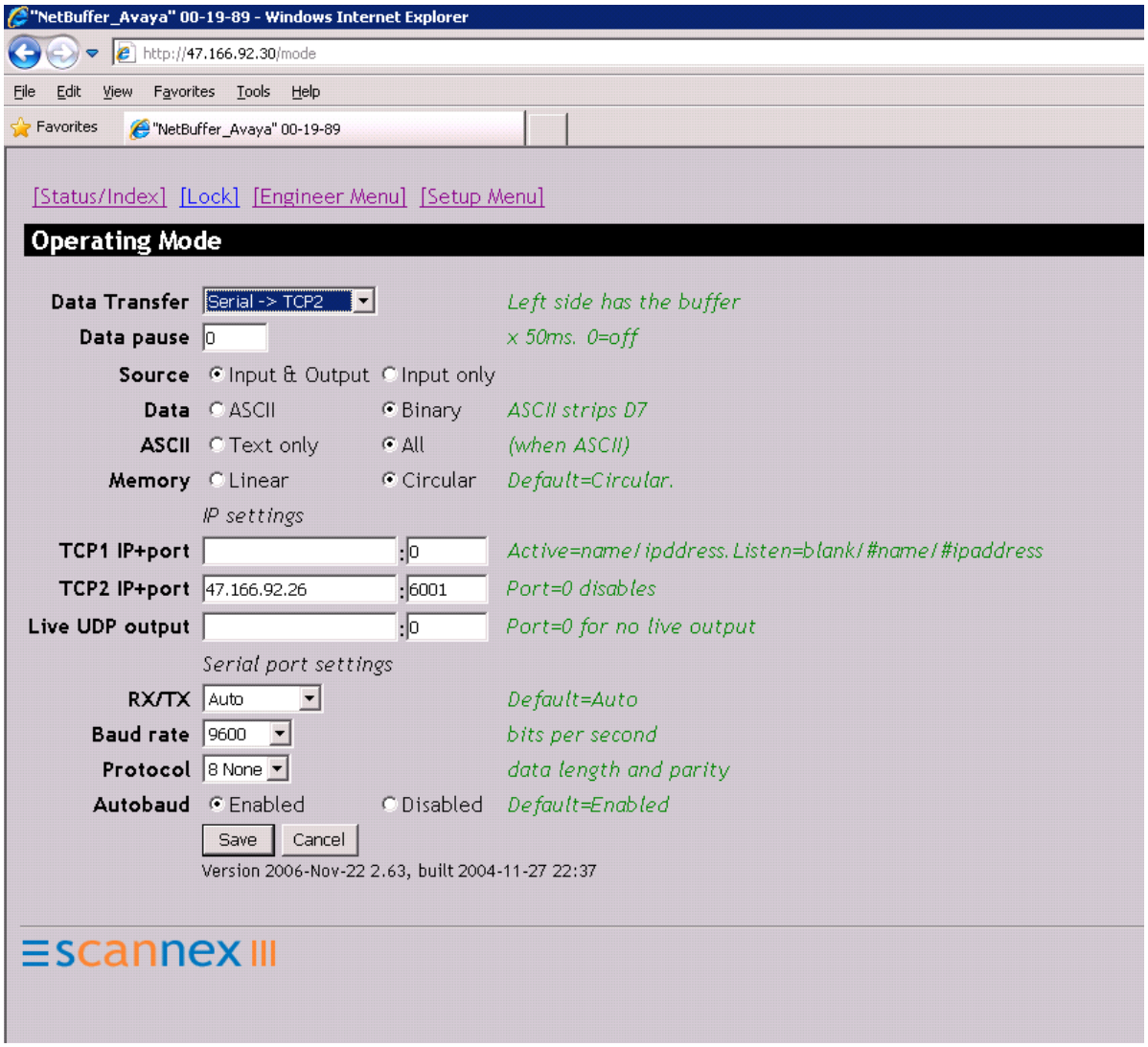
The **Operating Mode** page appears. Select **Serial → TCP2** from the drop down list next to **Data Transfer** to correspond to the physical port that is used to connect to the Communication Server 1000E. In the **TCP2 IP+port** field enter the **IP Address** of the Precision server and the **port** number that was configured for the NetBuffer in **Section 5.1.1**. All other setting remains at their default values. Click **Save**.



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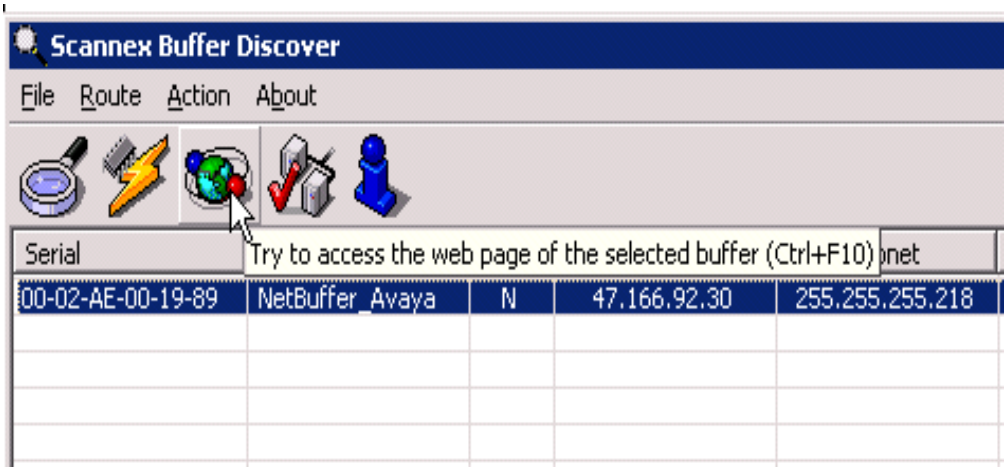
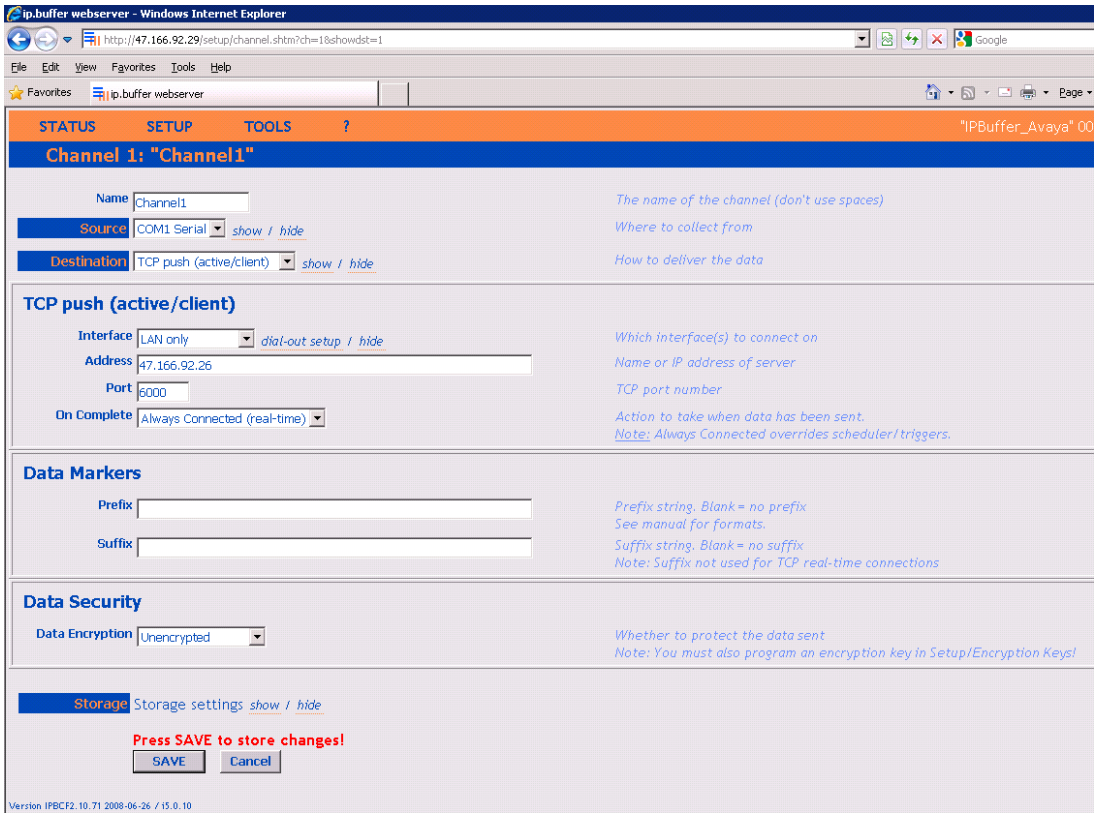
6.3. Configure Scannex IPBuffer

Use SEDiscover to detect and connect to the IPBuffer in the way as was done for the NetBuffer in the previous section. To access admin utility click on the acces button as shown.



The Source page in IPBuffer admin utility is presented. Enter **Name** and **COM1** serial in the **Source** field and **TCP push (active/client)** in the **Destination.** Enter the **IP address** of the Precision server in the **Address** field**.** Click **SAVE** to store the changes as shown**.**



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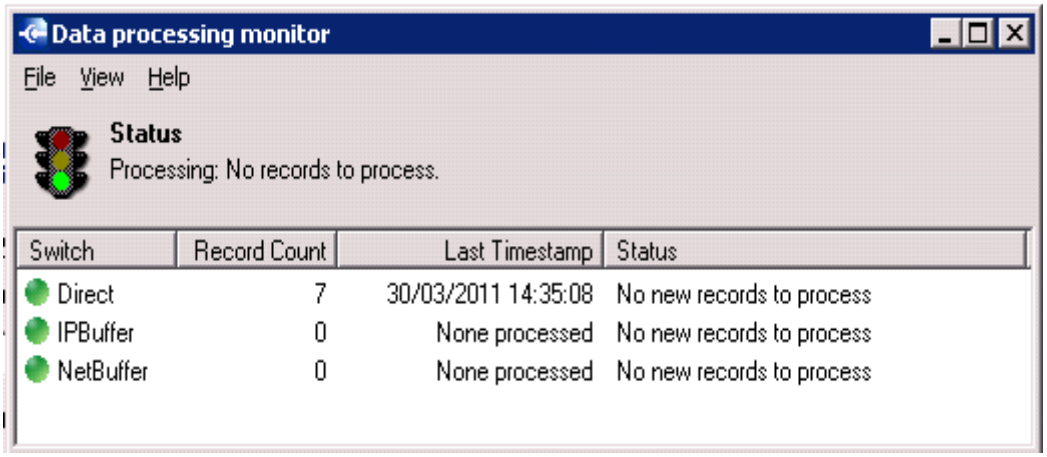
7. Verification Steps

The following check can be carried out to ensure correct configuration and status of Precision.

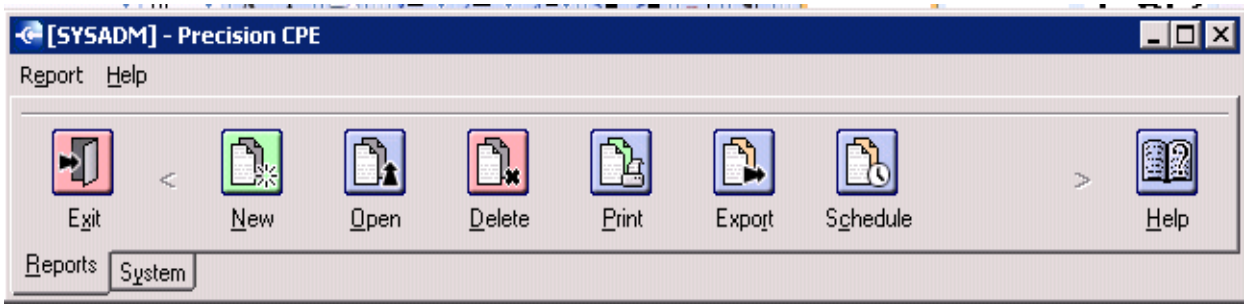
7.1. Verify Precision Status

Go to **Start → Datapulse → Precision CPE → Data Processing Monitor.** The following window appears showing the status of the system, i.e., whether the data processing service is running OK, that the DASM ports and streams are ready and whether or not they are or have received any data.



7.2. Verify Data Collection

Go to **Start → Datapulse → Precision CPE → Reporting**. The **[SYSADM] – Precision CPE** window is displayed. This allows the user to create several different types of reports, to view them or print, export or email them.



The most basic report for viewing call data is the Selected Call Details report. This allows the user to look at the basic data without it having been manipulated in any way.

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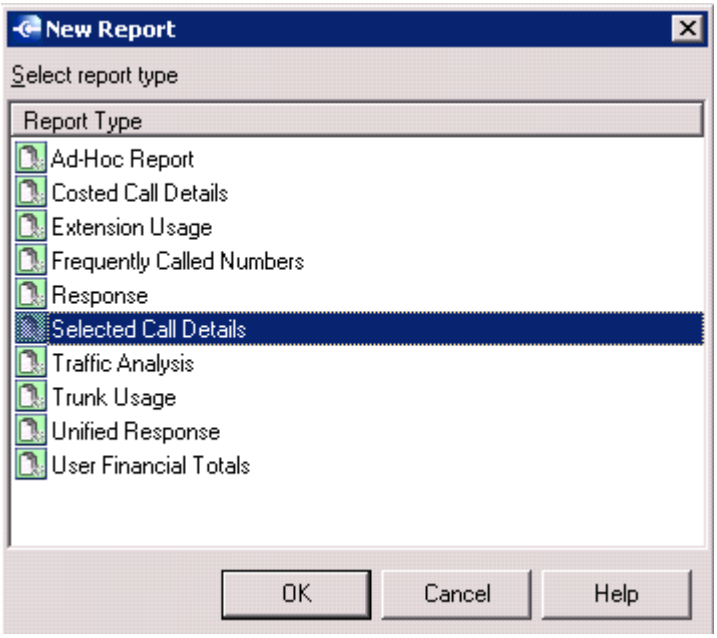
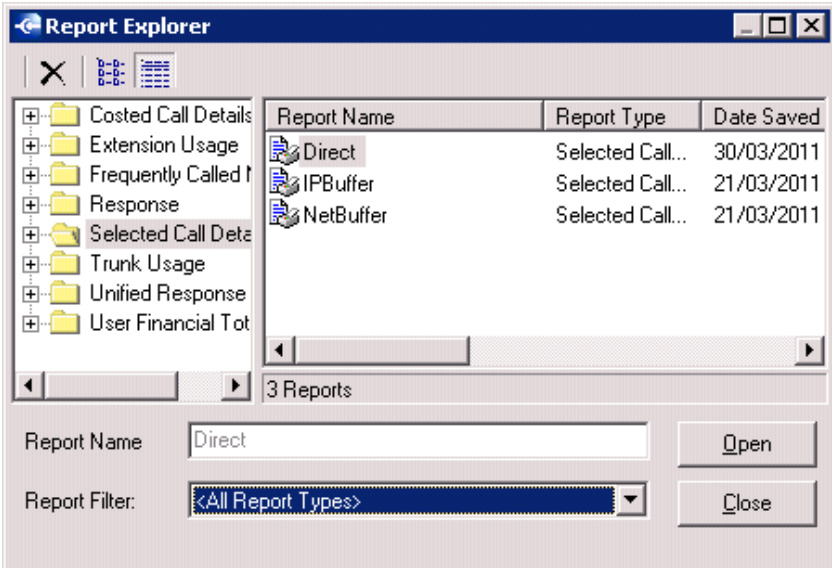
Click on the **New** button to create a new report. The **New Report** window appears and requires selection of a report type.



Highlight Selected **Call Details** from the **Report Type** listing and click **OK**.



Enter a **Report Name** or select an existing report. Click **Open.**

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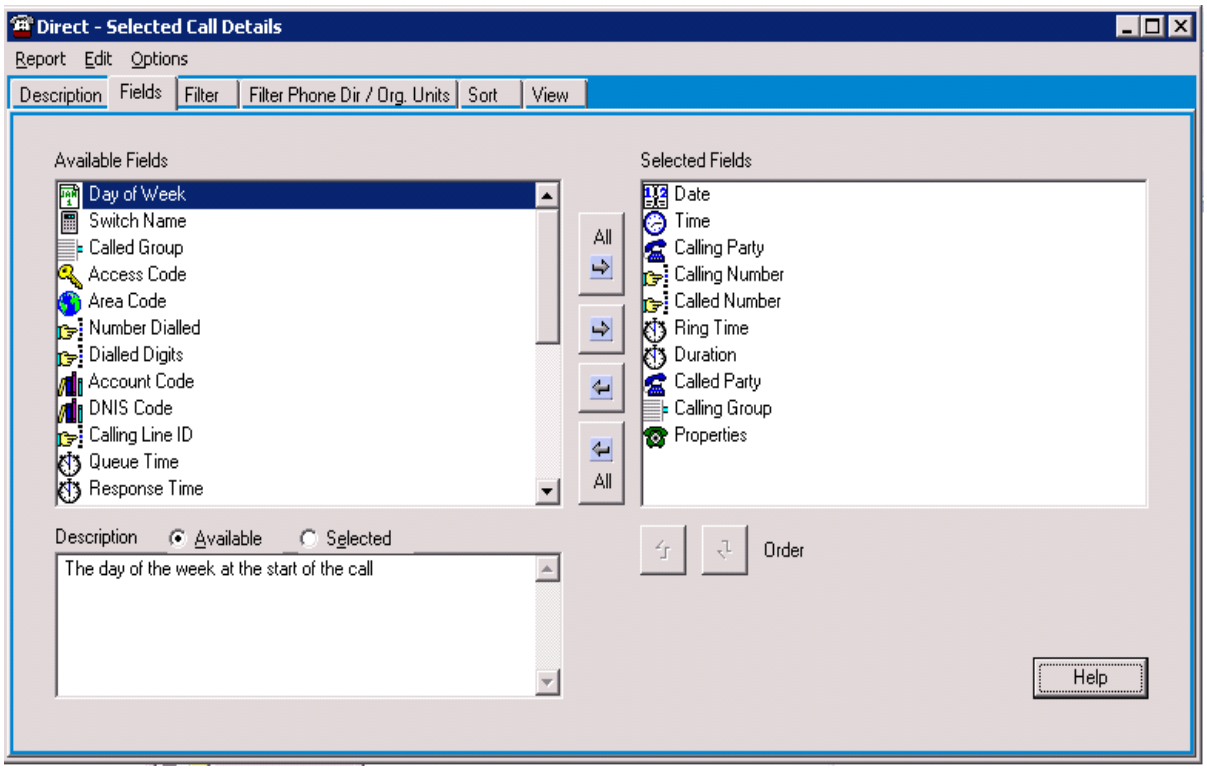
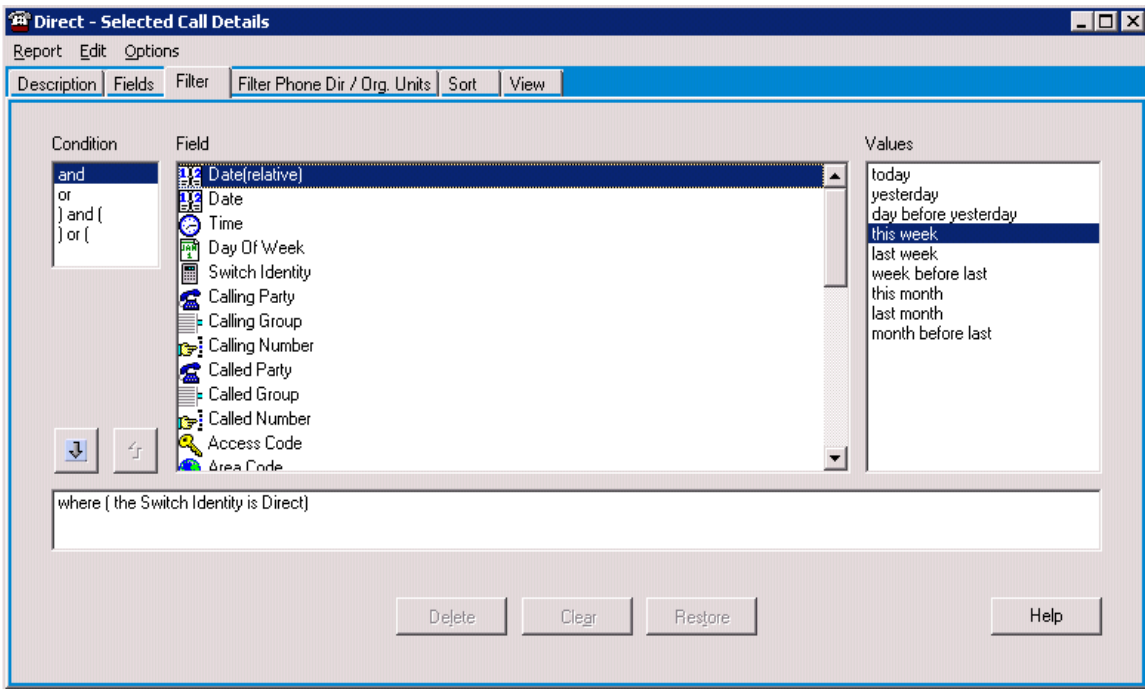
Taking the **Selected Call Details** report as an example, the fields to be shown in a report can be selected from **Available Fields** and moved to **Selected Fields.**



The data can be filtered and / or sorted electing the appropriate tabs.



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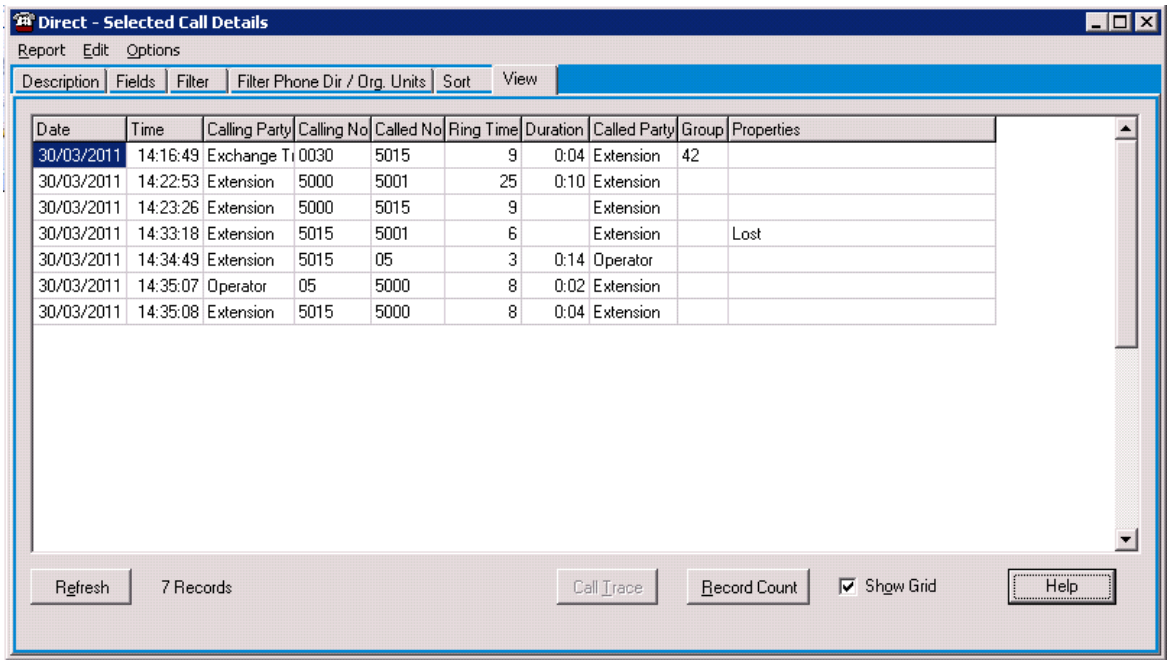
The data is then displayed according to the selected fields, filters and sort.



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8. Conclusion

These Application Notes describe the configuration steps required to successfully integrate the Datapulse™ Precision 4.2 application software with Avaya Communication Server 1000E R7.5. All feature tests that were carried out indicate successful interoperability between the two products.

9. Additional References

These suggested documents form part of the Avaya official technical reference documentation suite. Further information may be had from *http://support.avaya.com* or from your Avaya representative.

[1] Avaya Communication Server 1000 Library Reference, NN43001-100, 05.01, Release 7.5, November 2010

[2] Call Detail Recording Fundamentals, Avaya Communication Server 1000, NN43001-550, 05.01, Release 7.5, November 2010.

Documentation for Datapulse Precision may be requested from Datapulse at *http://www.datapulse.com*

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Appendix 1 – Call Server Patches

```
ld 143
CCBR000
.mdp issp

VERSION 4121
RELEASE 7
ISSUE 50 Q +
DepList 1: core Issue: 01 (created: 2011-03-15 10:26:33 (est))

IN-SERVICE PEPS
PAT# CR #            PATCH REF #     NAME      DATE        FILENAME       SPECIN
S
000  wi00688505      ISS1:1OF1       p30595_1  31/03/2011  p30595_1.cpl   NO

001  wi00835294      ISS1:1OF1       p30565_1  31/03/2011  p30565_1.cpl   NO

002  wi00832106      ISS1:1OF1       p30550_1  31/03/2011  p30550_1.cpl   NO

003  wi00837618      ISS1:1OF1       p30594_1  31/03/2011  p30594_1.cpl   NO

004  wi00852365      ISS1:1OF1       p30707_1  31/03/2011  p30707_1.cpl   NO

005  wi00843623      ISS1:1OF1       p30731_1  31/03/2011  p30731_1.cpl   YES

006  wi00839255      ISS1:1OF1       p30591_1  31/03/2011  p30591_1.cpl   NO

007  wi00832626      ISS2:1OF1       p30560_2  31/03/2011  p30560_2.cpl   NO

008  wi00857566      ISS1:1OF1       p30766_1  31/03/2011  p30766_1.cpl   NO

009  wi00841980      ISS1:1OF1       p30618_1  31/03/2011  p30618_1.cpl   NO

010  wi00837461      ISS1:1OF1       p30597_1  31/03/2011  p30597_1.cpl   NO

011  wi00839821      ISS1:1OF1       p30619_1  31/03/2011  p30619_1.cpl   NO

012  wi00842409      ISS1:1OF1       p30621_1  31/03/2011  p30621_1.cpl   NO

013  wi00838073      ISS1:1OF1       p30588_1  31/03/2011  p30588_1.cpl   NO

014  wi00850521      ISS1:1OF1       p30709_1  31/03/2011  p30709_1.cpl   YES

015  wi00860722      ISS1:1OF1       p30784_1  31/03/2011  p30784_1.cpl   YES

016  wi00839134      ISS1:1OF1       p30698_1  31/03/2011  p30698_1.cpl   YES

017  wi00836981      ISS1:1OF1       p30613_1  31/03/2011  p30613_1.cpl   NO
```


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Appendix 2 – Linux Patches

```
[admin@cores3 ~]$ pstat
Product Release: 7.50.17.00
In system patches: 0

In System service updates: 10
PATCH#  IN_SERVICE   DATE       SPECINS   REMOVABLE   NAME
0       Yes          30/03/11   NO        YES         cs1000-linuxbase-7.50.17.04-00.i386.000
1       Yes          30/03/11   NO        YES         cs1000-baseWeb-7.50.17.01-1.i386.000
2       Yes          31/03/11   NO        YES         cs1000-sps-7.50.17-01.i386.000
3       Yes          31/03/11   NO        YES         cs1000-shared-pbx-7.50.17-01.i386.000
4       Yes          31/03/11   NO        YES         cs1000-dbcom-7.50.17-02.i386.000
5       Yes          31/03/11   NO        YES         cs1000-bcc-7.50.17.03-00.i386.000
6       Yes          31/03/11   NO        YES         cs1000-Jboss-Quantum-7.50.17.01-1.i386.000
7       Yes          31/03/11   NO        YES         cs1000-dmWeb-7.50.17.04-00.i386.001
8       Yes          31/03/11   NO        YES         cs1000-emWeb_6-0-7.50.17.01-1.i386.000
9       Yes          31/03/11   NO        YES         cs1000-vtrk-7.50.17.16-01.i386.000
[admin@cores3 ~]$
```


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Appendix 3 - SoftwareVersion

```
[admin@cores3 ~]$ swVersionShow
Product Release: 7.50.17.00
Base Applications
   base                          7.50.17      [patched]
   NTAFS                         7.50.17
   sm                            7.50.17
   cs1000-Auth                   7.50.17
   Jboss-Quantum                 7.50.17      [patched]
   lhmonitor                     7.50.17
   baseAppUtils                  7.50.17
   dfoTools                      7.50.17
   nnnm                          7.50.17
   cppmUtil                      7.50.17
   oam-logging                   7.50.17
   dmWeb                         n/a          [patched]
   baseWeb                       n/a          [patched]
   ipsec                         7.50.17
   Snmp-Daemon-TrapLib           7.50.17
   ISECSH                        7.50.17
   patchWeb                      7.50.17
   EmCentralLogic                7.50.17
Application configuration: CS+SS+EM
Packages:
CS+SS+EM
Configuration version:     7.50.17-00
   cs                            7.50.17
   dbcom                         7.50.17      [patched]
   cslogin                       7.50.17
   sigServerShare                7.50.17      [patched]
   csv                           7.50.17
   tps                           7.50.17
   vtrk                          7.50.17.16   [patched]
   pd                            7.50.17
   sps                           7.50.17      [patched]
   ncs                           7.50.17
   gk                            7.50.17
   EmConfig                      7.50.17
   emWeb_6-0                     7.50.17      [patched]
   emWebLocal_6-0                7.50.17
   csmWeb                        7.50.17
   bcc                           7.50.17      [patched]
   ftrpkg                        7.50.17
   cs1000WebService_6-0          7.50.17
   managedElementWebService      7.50.17
   mscAnnc                       7.50.17
   mscAttn                       7.50.17
   mscConf                       7.50.17
   mscMusc                       7.50.17
   mscTone                       7.50.17
[admin@cores3 ~]$
```


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