

*Consortium for  
Electric  
Reliability  
Technology  
Solutions*

CAISO  
Real-Time  
Dynamics  
Monitoring  
System™  
(RTDMS)

## INSTALLATION AND SUPPORT GUIDE

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Prepared by

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 **CALIFORNIA ISO**

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## 1. INTRODUCTION

This document briefly describes the RTDMS Server and Client machine requirements, their installation and setup procedures, the RTDMS Server configuration, RTDMS quick startup steps, and troubleshooting support for hardware and software problems.

The installation starts with the two CDs provided with this package. One CD is for the RTDMS Server application and the other is for the RTDMS Client application, both of which provide a user driven menu to guide the user during the installation.

### Configuration Overview

The typical system configuration for the Real-Time Dynamics Monitoring System (RTDMS) is shown in Figure 1. The RTDMS system adheres to a server-client architecture where a central RTDMS Server, connected to the PDC, reads data from the PDC and manages it in memory for fast data access. Multiple RTDMS Clients at remote locations can simultaneously connect to the RTDMS Server and access real-time data (or cached data) over a local area network, and present it within its various displays. In addition to real-time monitoring capabilities, the Server also stores short duration data files whenever transient events are detected, which can be loaded into the Client for offline post-disturbance analysis.

### Server Requirements

The RTDMS Server is a Windows application that retrieves data sent by the Phasor Data Concentrator (PDC), performs appropriate calculations, buffers data in memory, and processes RTDMS Clients' data requests. The RTDMS Server should be installed on the machine which receives data from the PDC. The Server machine should have sufficient memory – 1GB or more is adequate for the current number of PMUs in the WECC network and upto 1 hour of cached data. In the future, depending on the number of PMUs and phasor signals, the time duration of the data that will be cached, and the number of RTDMS clients that will access the Server concurrently, additional memory may be needed.

### Client Requirements

The RTDMS Client enable users to connect to the visualization applications for real-time monitoring. The RTDMS Client may be installed on machines running Windows XP Professional or Windows 2000.

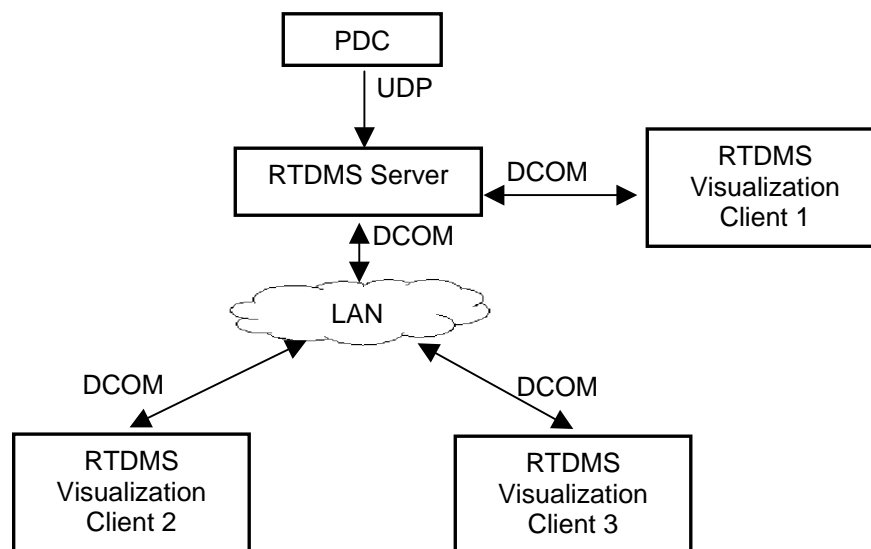


Figure 1: RTDMS System Configuration Architecture

## 2. RTDMS INSTALLATION

The two installation CDs provided with this document, labeled RTDMS Server 3.0 and RTDMS Client 3.0, contain the installation files for the RTDMS Server and the RTDMS Client applications respectively. The RTDMS Server and Client should be installed on separate machines. The application is designed to support multiple RTDMS Client applications simultaneously. While the Server Installation CD should be used one time only to install the central RTDMS Server, the RTDMS Client Installation CD may be used to install the RTDMS Client application on multiple client machines.

This section of the guide provides the installation instructions for both the RTDMS Server and the RTDMS Client applications. To install these applications, please follow the steps described below.

### 2.1. RTDMS Client 3.0 Installation Instructions

**Note:** During the installation process, you will be asked for the IP address of the machine on which the RTDMS Server will be (has been) installed. Please have this information handy prior to the installation process.

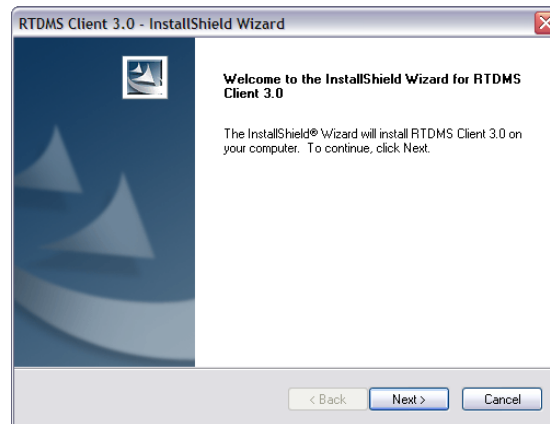
To install the RTDMS Client application:

**Step 1** – Close all applications before beginning the installation process.

**Step 2** – Insert the RTDMS Client 3.0 Installation CD. The computer should automatically launch the “RTDMS Client 3.0 InstallShield Wizard” and the “Welcome Screen” will appear (Figure 2).

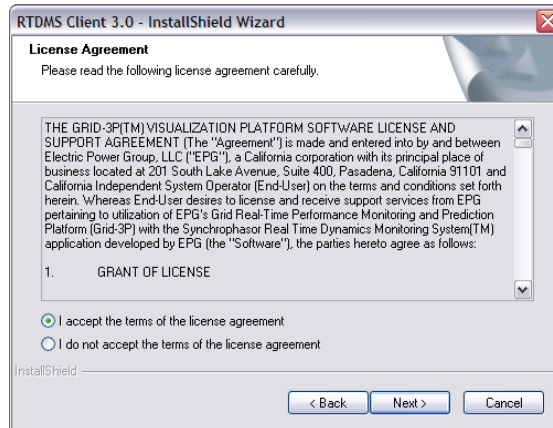
**Note:** If this Auto-Run failed to launch the InstallShield Wizard, open **Windows Explorer** and double click on **RTDMSClient3\_Install.exe** to manually launch it.

**Step 3** – Click “Next” to continue with the installation process.



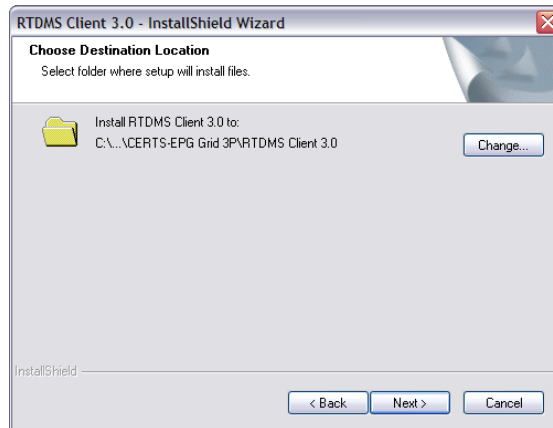
**Figure 2: RTDMS Client Installation – Welcome Screen**

**Step 4** – Accept the License Agreement (Figure 3). Read the License Agreement and if you agree, check the “I accept the terms of the license agreement” option and click “Next” to continue.



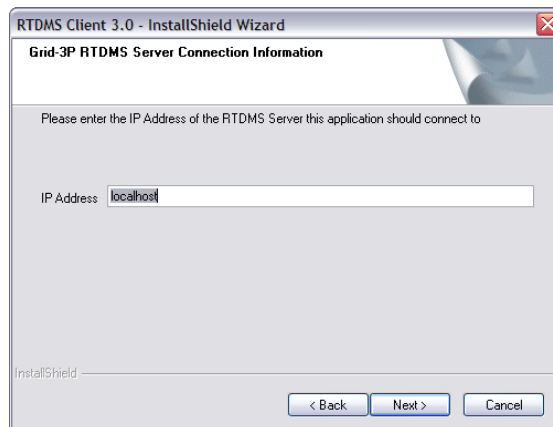
**Figure 3: RTDMS Client Installation – License Agreement**

**Step 5** – Choose Destination Location (Figure 4). By default, the program will be installed in “C:\Program Files\CERTS-EPG Grid 3P\RTDMS Client 3.0”. Click on “Change...” button to specify a different location. Click “Next” to continue.



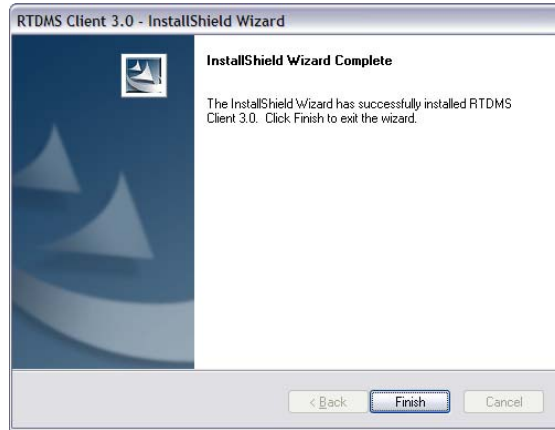
**Figure 4: RTDMS Client Installation – Destination Location Selection**

**Step 6** – Specify the IP Address of the machine on which the RTDMS Server is installed (Figure 5). Click “Next” to continue.



**Figure 5: RTDMS Client Installation – Specify IP Address of the RTDMS Server Machine**

**Step 7** – Complete the installation process (Figure 6). Once the installation is complete, the installation program will summarize the installation process. Press “Finish” to complete the installation.



**Figure 6: RTDMS Client Installation – Completion**

Upon successful installation, the “CAISO RTDMS Client 3.0” icon will be created on the desktop. If the RTDMS Server 3.0 has not been installed, please proceed to Section 2.2 to install and setup the RTDMS Server 3.0.

## 2.2. RTDMS Server 3.0 Installation and Setup Instructions

The RTDMS Server installation is a two part process: the first is the installation of the RTDMS Server application using the provided CD and the second is its DCOM configuration to allow connectivity to the RTDMS Clients.

### 2.2.1. RTDMS Server 3.0 Installation

To install the RTDMS Server application:

**Step 1** – Close all applications before beginning the installation process.

**Step 2** – Insert the RTDMS Server 3.0 Installation CD. The computer should automatically launch the “RTDMS Server 3.0 InstallShield Wizard” and the “Welcome Screen” will appear (Figure 7).

**Note:** If this Auto-Run failed to launch the InstallShield Wizard, open **Windows Explorer** and double click on **RTDMSServer3\_Install.exe** to manually launch it.

**Step 3** – Click “Next” to continue with the installation process.

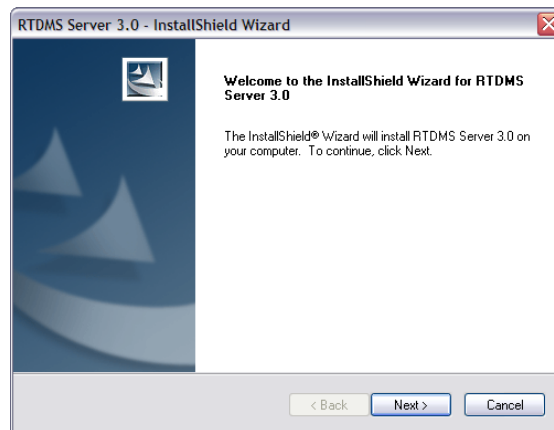


Figure 7: RTDMS Server Installation – Welcome Screen

**Step 5** – Accept the License Agreement (Figure 8). Read the License Agreement and if you agree, check the “I accept the terms of the license agreement” option and click “Next” to continue.

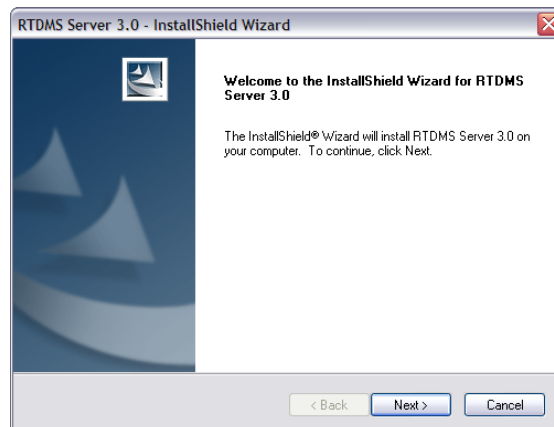
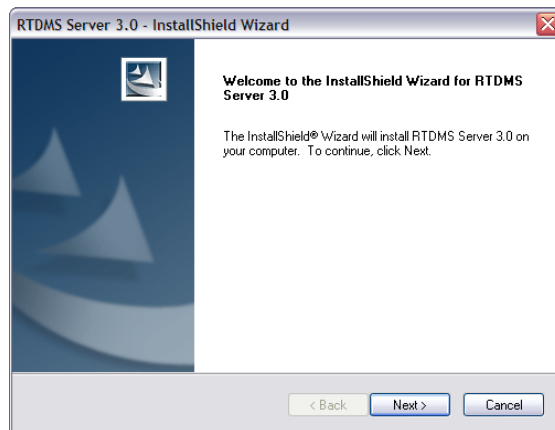


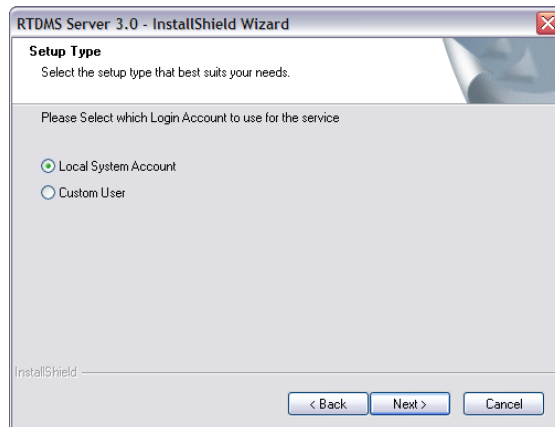
Figure 8: RTDMS Server Installation – License Agreement

**Step 6** – Choose the destination location (Figure 9). By default, the program will be installed in “C:\Program Files\CERTS-EPG Grid 3P\RTDMS Server 2.0”. Click on “Change...” button to specify a different location. Click “Next” to continue.



**Figure 9: RTDMS Server Installation – Destination Selection**

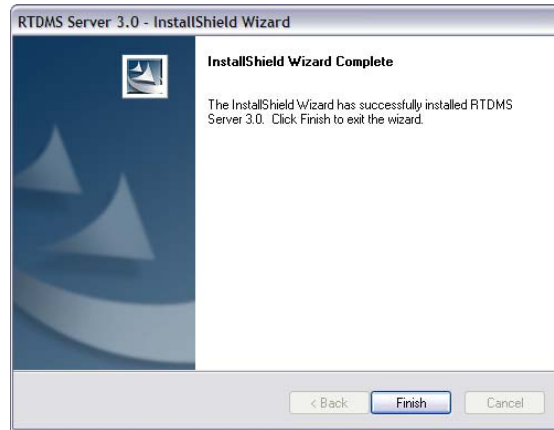
**Step 7** – Choose the User Account that will be used to run the background windows service required as a part of the RTDMS Server (Figure 10). By default, the installation selects “Local System Account”.



**Figure 10: RTDMS Server Installation – Login Account Selection**

**Step 8** – Complete the installation process (Figure 11). Once the installation is complete, the installation program will summarize the installation process. Press “Finish” to complete the installation.





**Figure 11: RTDMS Server Installation – Completion**

The RTDMS Server installation is now complete and the “CAISO RTDMS Server 3.0” icon has been created on the desktop. Please go ahead and setup the DCOM configuration by following the instruction in Section 2.2.2.

### **2.2.2. RTDMS Server 3.0 Setup (DCOM Configuration)**

RTDMS’s Server/Client architecture communicates using DCOM. When they both are running on the same machine, the only configuration necessary is to allow DCOM. However, when RTDMS Server and Client run on different machines in LAN, the Server needs to be configured to run remotely and the Client needs to be configured to connect to the specific Server.

“Dcomcnfg” is a Microsoft tool that allows you to configure the level of DCOM authentication and the control access to it, as well manage the security tokens associated with DCOM and guarantee the integrity and privacy of all communications between the Client and the Server. To configure the Server to run on a separate machines remotely using the “dcomcnfg” tool, you must first log in as a user with administrative privilege. Next, click “Start” button, select “Run ...” from the “Start” menu, type in “dcomcnfg”, and click “OK” button. After “dcomcnfg” is started, the following steps need to be performed to configure the RTDMS Server so that it may run remotely.

Depending on your operating system (Windows 2000 or Windows XP Professional, please refer to the appropriate sections for Server and Client configuration). For more information on DCOM settings, please refer to:

[http://msdn.microsoft.com/library/default.asp?url=/library/en-us/com/htm/security\\_417r.asp](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/com/htm/security_417r.asp)

### **RTDMS Server DCOM Configuration (Windows 2000)**

#### **Step 1 – Configure the Access Permissions**

1. Select “PhasorArchiver” on the “Applications” tab.
2. Click “Properties...” button (the server properties dialog appears).
3. Click the “Security” tab.
4. Click “Use custom access permissions” radio button.
5. Click the “Edit...” button (the Registry Value Permissions dialog appears).
6. Click “Add...” button (the Add Users and Groups dialog appears).
7. Select the group called “Everyone” and click the “Add” button<sup>1</sup>.
8. Add “System” user if it is not added by default.

<sup>1</sup> Selecting “Everyone” permits all users of the machine to access the RTDMS Server. Alternately, one of the existing windows user account may be selected in which case the RTDMS Server access is restricted to that account.

9. Click "OK" button twice to exit both the windows.

**Step 2** – Configure the Launch Permissions

1. Select "PhasorArchiver" on the "Applications" tab.
2. Click "Properties..." button (the server properties dialog appears).
3. Click the "Security" tab.
4. Click "Use custom launch permissions" radio button.
5. Click the "Edit..." button (the Registry Value Permissions dialog appears).
6. Click "Add..." button (the Add Users and Groups dialog appears).
7. Select the group called "Everyone" and click the "Add" button.
8. Add "System" user if it is not added by default.
9. Click "OK" button twice to exit both the windows.

**RTDMS Server DCOM Configuration (Windows XP Professional)****Step 1** – Configure the Access Permissions

1. Select Component Services->Computers->My Computer->DCOM Config on the Component Services dialog.
2. Select "PhasorArchiver" and right click mouse button, select "Properties..." from context menu (the server properties dialog appears).
3. Click the "Security" tab.
4. Click "Customize" radio button in "Access Permissions".
5. Click the "Edit..." button (the Access Permission dialog appears).
6. Click "Add..." button (the Select Users and Groups for dialog appears).
7. Select the group called "Everyone" and click the "Add" button.
8. Add "System" user if it is not added by default.
9. Click "OK" button to exit both the windows.

**Step 2** – Configure the Launch Permissions

1. Select Component Services->Computers->My Computer->DCOM Config on the Component Services dialog.
2. Select "PhasorArchiver" and right click mouse button, select "Properties..." from context menu (the server properties dialog appears).
3. Click the "Security" tab.
4. Click "Customize" radio button in "Launch Permissions".
5. Click the "Edit..." button (the Launch Permission dialog appears).
6. Click "Add..." button (the Select Users and Groups for dialog appears).
7. Select the group called "Everyone" and click the "Add" button.
8. Add "System" user if it is not added by default.
9. Click "OK" button twice to exit both the windows.

### 3. RTDMS SERVER CONFIGURATION AND SUPPORT

This section describes the RTDMS Server's graphic user interface, and the RTDMS Server configuration files ()

#### 3.1. RTDMS Server Graphic User Interface (GUI)

When RTDMS Server is started, a dialog window will be displayed. It will allow users to view the server status, check error log, select filtering options, view/change static information for each PMU and phasor signals, as well as their most recent signal value and associated timestamp at the RTDMS Server (Figure 12).

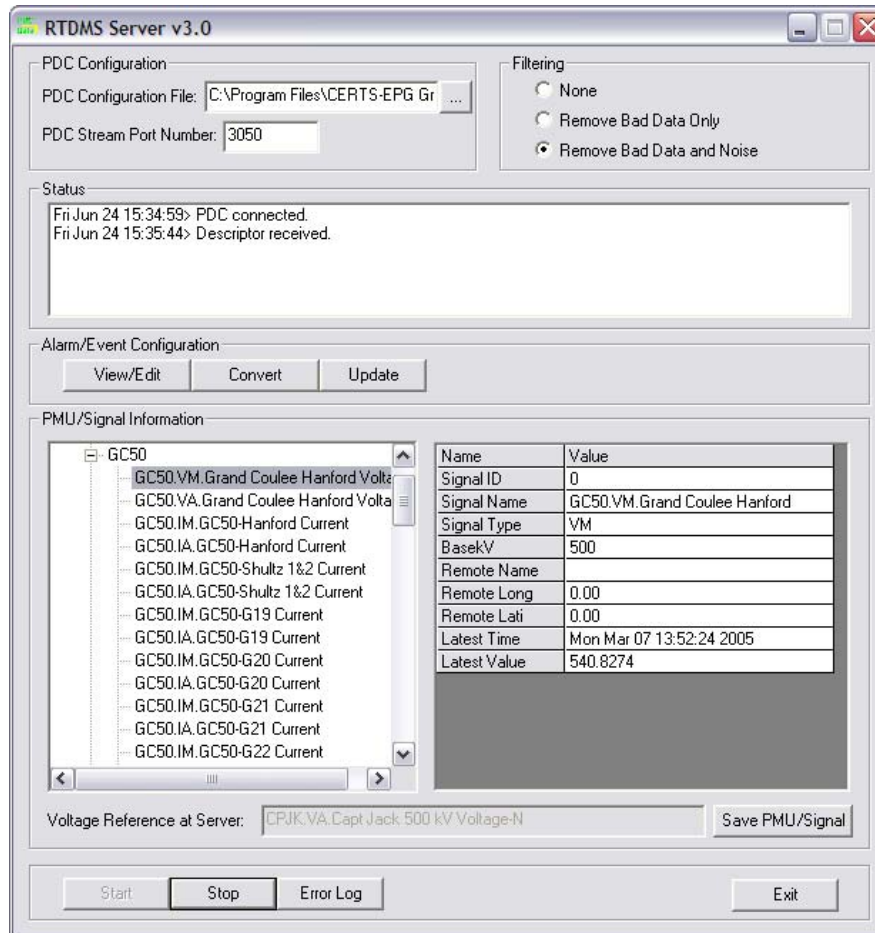


Figure 12: RTDMS Server Graphic User Interface

##### 3.1.1. PDC Configuration

There are two edit boxes that allow the user to select "PDC Configuration File" name (i.e., the standard PDCStream configuration file which contains the labeling information, scaling and offset factors etc associated with the streaming data), and input the "PDC Stream UDP Port Number" to which he streaming data is being sent by the PDC.

##### 3.1.2. Filtering

There are three options:

1. None

2. Remove Bad Data Only
3. Remove Bad Data and Noise

None – When this option selected, the raw data received by the RTDMS Server is passed along to all the RTDMS Client applications without any filtering operations to detect and eliminate bad or missing samples or low-pass filter the noise to eliminate bad data.

Remove Bad Data Only – When this option selected, the raw data received by the RTDMS Server is processed to detect missing packets and consequently prevent false alarming due to resulting misinformation in the computed quantities. Dropped packets are identified when certain measured quantities, such as voltage magnitudes and frequency, fall with a specified band about their known default values as specified in the configuration file.

Remove Bad Data and Noise – When this option selected, not only is the data filtered to detect missing packets, certain signals such as frequency are low-pass filtered by an IIR filter with configurable parameters (i.e., filter order and the 3dB cut-off frequency).

### 3.1.3. Status Window

The status window provides the most current RTDMS Server status and associated date/time information (such as “PDC connected”, “Descriptor received”, “PDC re-connected”), or descriptive comments for any encountered errors.

### 3.1.4. Alarm/Event Configuration

The Alarm/Event Configuration buttons let the user view/edit the ‘PhasorArchiver.ini’ file – this is the file that contains all the central alarming and event archiving parameters (Refer to Section 3.3). The user may click on the “View/Edit” button to manually change the ‘PhasorArchiver.ini’ parameters and then click the “Update” button to refresh the Server settings with these updated parameters (without restarting the Server). Alternately, the parameter settings within any configuration file that can be created on the RTDMS Client using its “Configuration Utility” (i.e. the ‘.mat’ extension files such as ‘phasor\_conf\_default.mat’) may be imported into the RTDMS Server to automatically update the parameters in the “PhasorArchiver.ini” with the settings as defined within the imported configuration file. To do this, place the configuration file within the ‘RTDMS Server 3.0’ directory (when the RTDMS Server is installed in the default installation directory, these files reside in the ‘C:\Program Files\CERTS-EPG Grid 3P\RTDMS 3.0 Server’ directory), click on the “Convert” button to update the ‘PhasorArchiver.ini’ file, and finally the “Update” button to refresh the Server settings with these updated parameters.

### 3.1.5. PMU/Signal Information

PMU/Signal Information Panel displays the static information in a tree control for its structure (left side) and grid control for detailed information of selected item (right side). User can change company name and version information. User can also change PMU’s Name, Longitude, Latitude, and Vendor information. User can also change Phasor signal’s Remote Name, Remote Longitude and Latitude information. After complete the changes, click Save PMU/Signal button to save the results. Furthermore, by selecting a voltage angle signal, and through a right click option, the user can set the signal as the reference for all the angle signals. This voltage reference is shown in the Server GUI (Figure 12).

## 3.2. RTDMS Server Configuration File

The ‘BPAPDCReader.ini’ file is the general configuration file for the RTDMS Server. It should be located in the same directory as **BPAREader.bat** and **BPAPDCReader.exe**. The configuration file name should not be changed. The file is divided into five sections with each section having its variable configurable items.

Note: It is advisable to make of a copy of ‘BPAPDCReader.ini’ before editing it.

### 3.2.1. Section [PDC]

This section contains the configurable items related to PDC connection.

**ConfigFile:** the PDC Data Stream configuration file name which provide packet description and scaling factors. The PDC Data Stream configuration file should be located in the same directory as **BPAREader.bat** and **BPAPDCReader.exe**. Whenever the PDC Data Stream configuration file is updated, this item should be updated too.

**Port:** the client machine's UDP port to which PDC sends packets. Default is 3050.

**MaxErr:** the maximum continuous error number allowed during parse/calculate phasor data before PDC Data Server tries to reset its socket. The default number is 50.

### 3.2.2. Section [Filtering]

This section contains the configurable items related to filtering options.

**Type:** initial filtering type. 0-none, 1-noise filtering, 2-noise filtering and low pass filtering.

**Thresh\_VM:** the voltage magnitude dead band threshold (in Volts) used to detect missing data (used in conjunction with the frequency condition specified below). The default is 200.

**Thresh\_FR:** the system frequency dead band range (in Hz) with respect to the nominal offset (specified in the ConfigFile) used to detect missing data (used in conjunction with the voltage magnitude condition specified above). The default is 0.004.

**Npad:** a low pass IIR filter parameter used for noise removal. It defines the required padding prior to the signal for initialization. The default is 100.

**VM1:** a low pass IIR filter parameter for the voltage magnitude signals. It defines the filter's 3dB cut-off frequency (normalized). The default is 0.2.

**VM2:** a low pass IIR filter parameter for the voltage magnitude signals. It defines the filter order. The default is 2.

**FR1:** a low pass IIR filter parameter for the frequency signals. It defines the filter's 3dB cut-off frequency (normalized). The default is 0.2.

**FR2:** a low pass IIR filter parameter for the frequency signals. It defines the filter order. The default is 2.

**VReferencePMUCode:** List of ordered PMU codes of which voltage signal will serve as reference. Default is CPJK,JDAY,SUML,MALN.

**VReferenceSignalNo:** The No. of signal of above PMU to server as reference. Default is 1 (Can be chanded through the Server GUI).

**VReferenceBadSampleCriteria:** For the signal selected as reference, if the bad sample number is equal or greater this number, it indicates that the signal is not good enough to be the reference. The RTDMS Server will try to find another signal as reference.

### 3.2.3. Section [NoArchiving]

This section contains the configurable items about what PMU/signal will not be archived.

**PMUCodes:** not empty and comma delimited - list the pmus' whose signals will not be buffered. empty - all pmus will be subjected to buffering.

SignalTypes: not empty and comma delimited - list the signal types for proper PMUs not be saved to archiver. empty - all signal types will be considered (IM, IA, VM, VA, FR, PP, PQ)

Following example means that PMU PMOC's phasor data will not be buffered. All current angle and magnitude will not be buffered.

PMUCodes=PMOC  
SignalTypes=IA,IM

### 3.2.4. Section [ErrorLog]

This section configures the size of error log at the RTDMS Server. Error log is a text file which can be open by clicking Error Log button.

ErrorLogSize: Default is 500.

### 3.2.5. Section [Dummy]

This section configures if interconnection frequency is needed to calculated and buffered as a dummy signal.

SystemFreqName: not empty - Create system frequency signal and archive it. Empty - No system frequency signal will be created.

For example: SystemFreqName=SysFreq

## 3.3. RTDMS Alarms and Events Configuration File

The 'PhasorArchiver.ini' file is the alarms configuration file that contains all the, data caching, central alarming and event archiving parameters.

### 3.3.1. Section [Cache]

This section contains the memory cache related parameters.

Size: duration of data to be cached in memory, in seconds. Default is 3610 (i.e. a little over an hour).

ErrorLogSize: number of error messages to be log in a log file. Default is 500.

### 3.3.2. Section [Event]

This section contains the event detection trigger parameters used for alarming and event archiving on frequency and voltage magnitude disturbances.

FrequencyEvent: 1-enable frequency event checking; 0-disable. Default is 1.

FrequencyThreshold: threshold for frequency event, (i.e., Max-Min within a second) in Hz. Default is 0.05 or 50 mHz.

VoltageEvent: 1-enable voltage magnitude checking; 0-disable. Default is 1.

VoltageThreshold: threshold for voltage event, ((Max-Min)/BasekV within a second) in p.u. Default is 0.01 or 10% of base kV voltage.

PreEventSpan: duration of data to be archived before an event happens, in seconds. Default is 60 (1 minute).

PostEventSpan: duration of data to be archived after an event happens, in seconds. Default is 120 (i.e. 2 minutes).

EventDataFolder: the destination folder to save event files.

MaxDiskSpaceUsage: the maximum allowed disk space to store event data files, in MB. Default is 20000 MB.

MinDiskSpaceRequired: minimum free disk space required to for event data archiving, in MB. Default is 5000 MB.

### **3.3.3. Section [Alarm]**

This section contains the alarming threshold parameters.

AlarmLogFolder: set the folder to save alarm log file.

AlarmLogPeriod: duration of alarms logged in one file, in seconds. Default is 86,400 (i.e. 1 day).

### **3.3.4. Section [Freq]**

This section contains the frequency alarming threshold parameters (local and interconnection frequencies).

Enabled: 1-enabled, 0-disabled. Default is 1.

ThresholdLO: lower bound threshold. Default is 59.970.

ThresholdHI: upper bound threshold. Default is 60.030.

### **3.3.5. Section [VM]**

This section contains the voltage magnitude alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 1.

ThresholdDefaultLO: default lower bound threshold, in per-unit, when specific threshold for the particular base kV is not found. Default is 0.95.

ThresholdDefaultHI: default high bound threshold, in per-unit, when specific threshold for the particular base kV is not found. Default is 1.15.

BaseKV: comma separated list of base kV values.

ThresholdLO: comma separated list of lower bound thresholds, in per-unit. Default is 0.95.

ThresholdHI: comma separated list of upper bound thresholds, in per-unit. Default is 1.15.

### **3.3.6. Section [VA]**

This section contains the voltage angle alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 1.



ThresholdLO: lower bound threshold, in degrees. Default is -90.

ThresholdHI: upper bound threshold, in degrees. Default is 90.

### **3.3.7. Section [IM]**

This section contains the current magnitude alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 0.

ThresholdLO: lower bound threshold. Default is 0.

ThresholdHI: upper bound threshold. Default is 0.

### **3.3.8. Section [IA]**

This section contains the current angle alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 0.

ThresholdLO: lower bound threshold. Default is 0.

ThresholdHI: upper bound threshold. Default is 0.

### **3.3.9. Section [Path]**

This section contains the angle difference path alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 1.

Paths: how many paths are defined to be enabled.

Path0-x: path definition in the format of: Name,signameFrom+signameTo,LO,HI

### **3.3.10. Section [Cut]**

This section contains the MW/MVAR alarming threshold parameters.

Enabled: 1-enabled, 0-disabled. Default is 1.

Cuts: how many cuts are defined to be enabled.

Cut0-x: path definition in the format of:

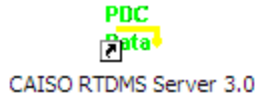
Name,signame:scale+signame:scale+...,LOMW,HIMW,LOMVAR,HIMVAR



#### 4. RTDMS STARTUP

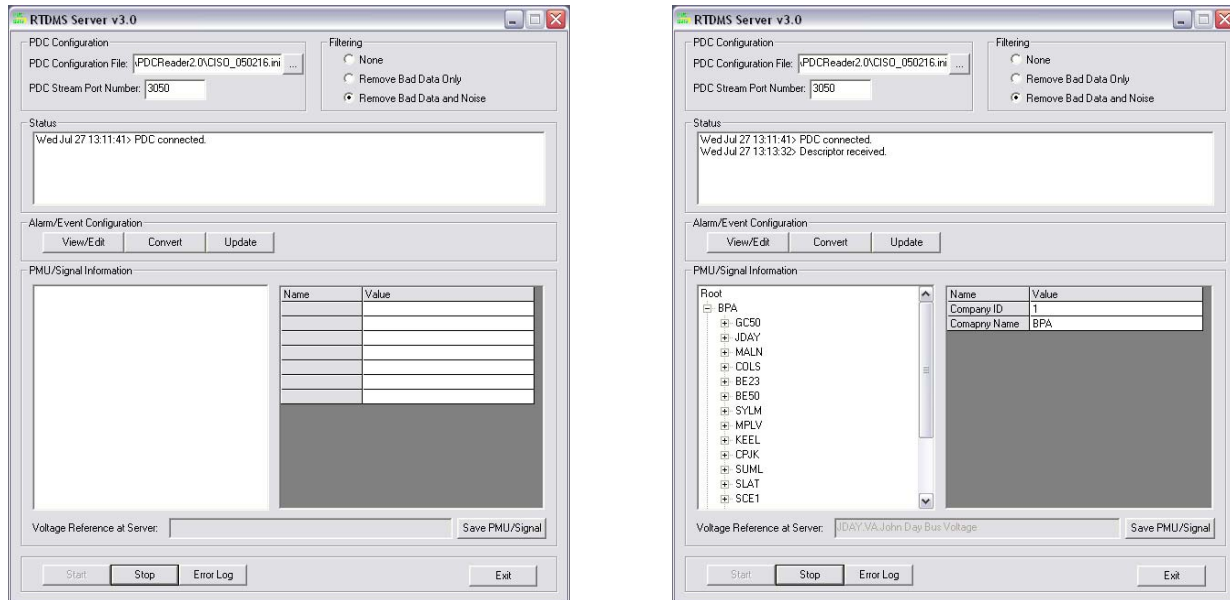
Before the application can be started, please ensure that the PDC is setup to broadcast data to PC machine on which the RTDMS Server 3.0 has been installed, and both the RTDMS Server 3.0 and RTDMS Client(s) 3.0 are installed and setup correctly to communicate with each other. The step-by-step process in installing and setting up the RTDMS Server and Client is explained in detail in the previous sections of this installation manual.

The RTDMS Server 3.0 must be running before the RTDMS Client(s) can be started. To start the RTDMS Server 3.0, click on the “CAISO RTDMS Server 3.0” shortcut icon located on the desktop of the PC machine on which the Server is installed and the PDC is broadcasting data to in real-time.



**Figure 13: RTDMS Server Start Icon**

Clicking on the icon will automatically launch and start the RTDMS Server (Figure 13). When the RTDMS Server initially starts, it waits for a ‘Descriptor’ which contains the names of the PMUs whose data is being sent in the real-time stream from the PDC, and this descriptor is included in the stream and is sent at least once every minute. Once the descriptor has been received, the ‘Status’ window is updated with the comment “Descriptor received”, and the ‘PMU/Signal Information’ is populated with the PMU and Signal information (Figure 14).



**Figure 14: RTDMS Server 3.0 Prior to and After the Descriptor Information has been Received**

Only after the descriptor information is made available to the RTDMS Server should the RTDMS Clients be started because this information is passed along from the RTDMS Server to the RTDMS Clients. To start an RTDMS Client, click on the “CAISO RTDMS Client 3.0” shortcut icon located on the desktop of the PC machine on which the Client has been installed (Figure 15). Please refer to the Quick Reference Guide or the ‘RTDMS User Guide’ for further details on the use of the application.



**Figure 15: RTDMS Client Start Icon**

## 5. TROUBLESHOOTING

To install this application please follow the steps described in this guide. If you have any problems implementing the installation steps, please call the support numbers listed below.

Electric Power Group Support information:

Manu Parashar  
[parashar@electricpowergroup.com](mailto:parashar@electricpowergroup.com)  
626-685-2015 Ext. 130

Simon Mo  
[mo@electricpowergroup.com](mailto:mo@electricpowergroup.com)  
626-685-2015 Ext. 123

### 3.4. Hardware Issues

Many of the problems experienced by the users of the application are in fact hardware related issues whose symptoms are visible within the application. Some such common problems are:

- Unreasonably large variations in phase angle values within the display are symptoms of local hardware problems at the PMU site (such as loss of synchronization signals) or communication losses.
- Consistently high/low voltages may reflect erroneous scaling constants that are based on transformer CT/PT ratios. Should this occur, the users are encouraged to contact the corresponding dispatch or operations personnel to obtain EMS or SCADA reading and verify the measurements. Should the independent readings not match, a recalibration of the scaling factors at the central data source may be required.

### 3.5. Software Issues

#### 3.5.1. Windows XP Service Pack 2 Related Problems

RTDMS Server and RTDMS Clients communicate with each other through DCOM. These two applications should therefore be unlocked after installation. Windows XP SP2 puts severe limitations on DCOM/RPC protocols by default. In order to get RTDMS Server working again, you have to release these restrictions. To do this, follow the instructions below:

Note: Not all of the following steps may be absolutely necessary. In some cases, just changing/creating the registry value mentioned in step #11 may be enough, especially if you work in Workgroup mode.

**All changes apply to the RTDMS Server machine only.**

1. On the XP SP2 Host, click on Start -> Run and enter "dcomcnfg". This opens the Component Services console.
2. Expand Component Services -> Computers and right-click My Computer. Select Properties -> Com Security.
3. For both "Access permissions" and "Launch and Activation permissions", click the "Edit limits" and "Edit default" buttons and give full permissions to all users who have to access RTDMS Server and more generally DCOM components (this will vary with your configuration and your LAN—if you don't know, ask your Admin). If all domain users need access to the scanner, give permissions to "Authenticated Users". Note that SYSTEM may not have remote access permission by default. Give it this permission.
4. Click "OK" and close the console.

5. Now click on Start -> Run and enter "gpedit.msc". This opens the Group Policy console.
6. Go to Computer Configuration -> Windows Settings -> Security Settings -> Local Policies -> Security Options.
7. In the right pane, double-click "DCOM: Machine access restrictions ..." . Check "Enable policy", click "Edit security" and give full permissions to the same users as above.
8. Do the same for "DCOM: Machine launch restrictions ...".
9. Close the console.
10. If you log on to a domain, you may have to repeat the same steps for the "Default Domain Policy" (see Start | Programs | Administrative tools).
11. Open the registry editor, go to HKEY\_LOCAL\_MACHINE\SOFTWARE\Policies\Microsoft\Windows NT\Rpc, create a DWORD value named RestrictRemoteClients and leave the default value unchanged (0).
12. Reboot your system. You don't need to do anything on the client systems, whether or not they are running XP SP2.

For more information about XP Service Pack 2, please go to:  
<http://support.microsoft.com/default.aspx?&pr=windowsxpsp2>