SIEMENS

# Meter Proxy Quick Start Guide

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## Notice



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# Chapter 1 - Introduction

This guide provides an overview of the Siemens Compact Meter Proxy, and a guide to how to enable and implement File Transfer Protocol (FTP) support in a Siemens Compact field panel that contains the Meter Proxy.

**NOTE:**
Before beginning, configure the panel using the *PXC Compact Series Start-up Procedures* (145-157).

## What is the Meter Proxy?

The Meter Proxy allows a Compact 16 or 24 field panel to act as an FTP client and send a Trend Sample Report containing trend data directly to an FTP server. All trend data points contained in the Compact field panel are uploaded to an FTP server at a scheduled time interval. You can schedule the Trend Sample Report upload by configuring a trigger point that is commanded by the Scheduler or PPCL code.

| | |
|---|---|
| | **⚠ CAUTION** |
| | The Meter Proxy will upload *ALL* trend points to the Trend Sample Report that are defined in the Siemens Compact field panel to the FTP server. The trend point definitions must have a sample interval equal to the sample interval of the Trend Sample Report. |

## How the Meter Proxy Works

The Meter Proxy is a licensable feature that can be added to Compact 16 and Compact 24 Series field panels, which allows the field panels to act as FTP clients to either standard or secure FTP sites.

Meter Proxy is not shipped out of the factory. A firmware load of the BPXCCMP (acquired from Standard Apps) is required.

The Meter Proxy feature is available for BACnet field panels with Firmware Revision 3.3 and later. This feature creates a file containing trended values for all points with trend definitions matching the Meter Proxy configuration. This file is then sent to a dedicated server using the industry standard FTP protocol.

**NOTE:**
You must specify Secure FTP or non-secure FTP mode when configuring the FTP settings from the Human-Machine Interface (HMI).

Non-secure FTP typically uses port 20 and port 21 for file transmission. Secure FTP (SFTP) uses port 22 for file transmission in an encrypted format.

**⚠ CAUTION**

The FTP settings in the Meter Proxy are not standard FTP protocol settings. They have been modified (timing, etc.) to optimize file transfer to the *Siemens Energy and Environmental Solutions Data Center*.

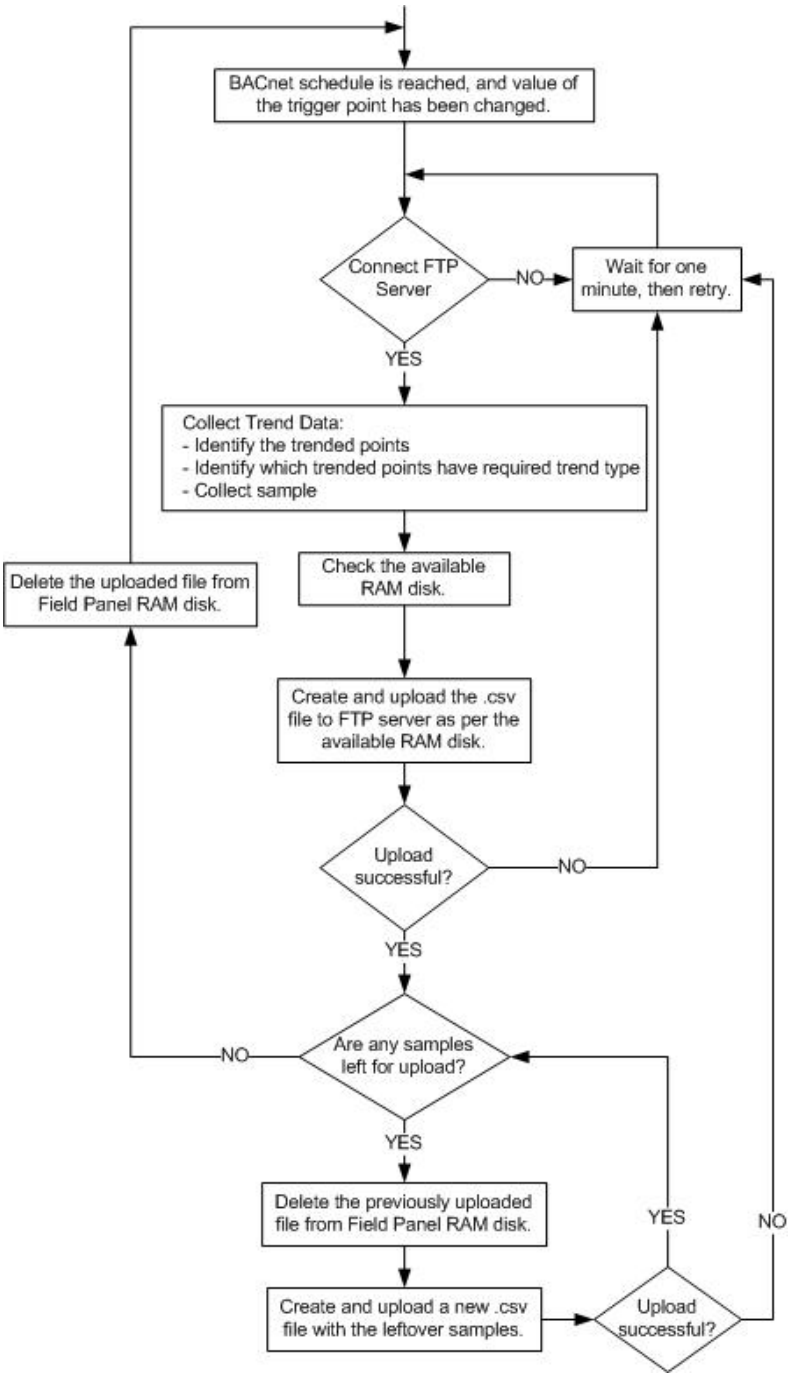
The Meter Proxy generates the Trend Sample Report when the FTP trigger point is turned “ON”. The Meter Proxy then uploads the report to the FTP server as a .CSV file. If an error occurs, the FTP server's availability is checked every minute until an FTP connection is available. The report is then transferred to the FTP server.

Once the schedule is met and changes the value of trigger point to "ON", a second schedule entry is required to change the trigger point value to "OFF". If the first schedule changes the trigger point value to "ON" and the trigger point remains "ON", the field panel will send trend data every minute until the trigger point is changed to "OFF".

Set the trigger point to switch from “ON” to “OFF” in 5 to 60 seconds (30 seconds recommended). You will have to adjust the time onsite due to timing issues caused by the local network that the files will be transferred through.

When the report is transmitted successfully, the file at the field panel is deleted. If the server is not available, the file is not created until the FTP server is available. To verify access to FTP server site, it is recommended that you use the freeware FTP Client program, FileZilla, (or similar FTP client software) which you can download from the Internet (http://filezilla-project.org).

The following illustration shows the process that the firmware uses to upload the Trend Sample Report (.CSV file) to the FTP site.


BACnet schedule is reached, and value of the trigger point has been changed.
Connect FTP Server
NO
Wait for one minute, then retry.
YES
Collect Trend Data:
- Identify the trended points
- Identify which trended points have required trend type
- Collect sample
Check the available RAM disk.
Delete the uploaded file from Field Panel RAM disk.
Create and upload the .csv file to FTP server as per the available RAM disk.
Upload successful?
NO
YES
Are any samples left for upload?
NO
YES
Delete the previously uploaded file from Field Panel RAM disk.
YES
NO
Create and upload a new .csv file with the leftover samples.
Upload successful?

# Chapter 2 - Implementing Meter Proxy

This chapter provides a guide for implementing the Meter Proxy firmware in Compact Series field panels. It includes the following topics:

- Step 1: Gathering Information for FTP Configuration
- Step 2: Planning the Structure of Trend Sample Report Analysis
- Step 3: Adding the License for the Meter Proxy
- Step 4: Adding the Database
- Step 5: Configuring the Meter Proxy
- Step 6: Automating the Trigger Schedule
- Step 7: Verifying Data Transmission

## Step 1: Gathering Information for FTP Configuration

To implement the FTP configuration, you must be prepared to specify the following:

- The server IP address (provided by the target system administrator).

**⚠ CAUTION**

A maximum of 15 characters is allowed. Entering a URL or computer name is not supported.

- A User Name and Password (provided by the target system administrator).

**⚠ CAUTION**

User Name and Password must be from 6 to 15 characters. DO NOT use the # symbol in the User Name or Password.

- The secure mode for Secure FTP (y/n), which is determined by the target directory.

**⚠ CAUTION**

The target directory on the SFTP or FTP site in which the trend data file will be located has been built into the firmware. SFTP setup will place trend data files in the root directory of the SFTP site. Non-secure FTP must be set up to use the [root]/anon_ftp/USC/ToServer directory to receive trend data.

# Step 2: Planning the Structure of Trend Sample Report Analysis

Plan what trend sample intervals will be used in the Trend Sample Report and Trend Point Definitions. Remember, the Trend Sample Report and Trend Point Definitions must have the same trend sample interval.

- Determine the file name prefix for the Trend Data File (such as “Main_Hospital”).

You must specify the .CSV file name prefix (FTP File Prefix) through the HMI; this is done in *Step 5: Configuring the Meter Proxy*. When you fill in the prompts for Meter Proxy, one prompt is for "FTP File Prefix". The text you enter is part of the file name for the .CSV file.

For example: SIEMENS_03182009_111949_AM_20.CSV, where SIEMENS is the file prefix, and the rest is appended to it for date, time, and field panel ID.

Typically the prefix name is the Client Name. Whenever the trigger point is turned ON, the field panel creates a .CSV file which is named using the following format:

```
<FTP File Prefix>_<mmddyyyy>_<hhmmss>_<AM/PM>_<panel ID number>.CSV
```

```
For example: SIEMENS_3182009_111949_AM_20.CSV
```

The FTP file prefix (client name) is stored in flash memory so that it can be retrieved after a coldstart.

- Determine the trend sample interval required for the Trend Sample Report (15 minutes recommended).
- Determine the trend definition sample interval for points being trended.

A maximum of 25 points may be included in the Trend Sample Report. 700 samples (seven days’ worth of data) per point are recommended so that sufficient data is stored in case of an extended communication loss. The trend sample interval defined for a point must match that defined in Ftpsettings or trend data for that point will not be included in the Trend Sample Report.

- Create a trigger point to initiate Trend Sample Report (can be a physical or virtual point).

You must specify a trigger point that is associated with the FTP configuration. The trigger point must be a physical or virtual LDO or LDI point residing in the Compact with Meter Proxy field panel. It is recommended that the trigger point be defined as Normally Open (not Inverted). A Normally Closed (Inverted) trigger point may result in unexpected behavior. The schedule or PPCL will use this trigger point to determine when trend data should be sent to the FTP server. As the value of this trigger point changes according to the schedule or PPCL, a .CSV file containing the trend data for all the trended points will be created and uploaded on to the FTP server. The Trend Sample Report (.CSV file) contains only one trend interval for all the trended points. The trend interval used is defined by the user during the FTP settings configuration.

# Step 3: Adding the License for Meter Proxy

Use the following steps to add the license for the Meter Proxy (LSM-EMP):

| | |
|---|---|
| **HMI** | **S, H, L, A** (System, Hardware, Licensemanager, Add) |

| Prompt/Field | Option/Entry | Description |
|---|---|---|
| License | Begin typing the license number (or copy and paste) | Stop typing before the end of the line |
| | Press **ENTER** | License prompt displays |
| | Continue typing the license (or copy and paste) | |
| | Repeat until the entire license number is entered | |
| | Press **ENTER** | Blank line indicates the end of text entry. The following text is displayed for a successful license entry:<br>`License 1 accepted`<br>`Licenses received 1, Licenses accepted 1, Licenses rejected 0`<br>`Log, Display, Add, dElete, Removall, Quit? –`<br>Panel coldstarts. |

The license entered is checked for its validity.

- If the license is not valid, the license is rejected.
- If the license is valid, it is accepted, and you can perform all the FTP Trend functionality.
- If the license is not installed, the FTP task is not created and no .CSV file is created and uploaded to the FTP server. If you attempt to configure the FTP without a License, the following error displays: FTP Trend license not installed.

Once entered and accepted, a valid FTP Trend license remains persistent even after coldstart.

**NOTE:**
If an FLN license is required, repeat Step 3, adding the license for the FLN(LSM-FLN).

# Step 4: Adding the Database

One of the required FTP settings is a trigger point name. This trigger point name must exist in the database before it can be used in the FTP settings. Therefore, the database (or at least the trigger point name) must be added to the field panel before continuing.

You can add the entire database to the field panel using information in the *PXC Compact Series Start-up Procedures* (145-157), or you can add only the Meter Proxy trigger point name. Refer to the *APOGEE BACnet ALN Field Panel User's Manual* (125-3020) for information on how to add a point.

# Step 5: Configuring the Meter Proxy

Configure Meter Proxy using the HMI configuration commands. The following HMI commands allow you to:

- Specify the trigger point name
- Specify the FTP server IP address
- Specify the .CSV file prefix
- Specify the user name and password
- Specify secure mode or unsecure mode
- Specify the trend time interval samples to be included in the report

## Configuring the FTP Server

To configure the FTP server, use the following HMI commands:

| | |
|---|---|
| **HMI** | **S, H, E, F** (System, Hardware, Ethernet, Ftpsettings) |

| Prompt/Field | Option/Entry | Description |
|---|---|---|
| Display, Modify, Quit? | D, M, Q | |

```
>Point, Application, Time, Message, Cancel, System, passWord, Bye? S
>Diagnostics, Users, dSt, Bacnet, Error_msgs, Hardware, Text, Quit? H
>Fieldpanels, Ethernet, nodeNametable, Disks, Reportprinter, Licensemanager, Quit? E
>ipSettings, Bbmd, sMmpmanger, Telnet, Webserver, mibpOints, Ftpsettings, Quit? – F
```

## Displaying Properties of the FTP Server

Use the following commands to display the trigger point name, FTP server IP address, FTP User Name, FTP File Prefix, Secure mode, and trend data recording schedule. Use these commands again after modifying the FTP server properties in order to verify that the modifications are accurate:

| | |
|---|---|
| **HMI** | **S, H, E, F, D** (System, Hardware, Ethernet, Ftpsettings, Display) |

```
>Point, Application, Time, Message, Cancel, System, passWord, Bye? S
>Diagnostics, Users, dSt, Bacnet, Error_msgs, Hardware, Text, Quit? H
>Fieldpanels, Ethernet, nodeNametable, Disks, Reportprinter, Licensemanager, Quit? E
>ipSettings, Bbmd, sNmp, Telnet, Webserver, Ftpsettings, Quit? F
>Display, Modify, Quit? D

06/30/2011 THU FTP CONFIGURATION REPORT 14:01
--------------------------------------------------------------------------------
Trigger Point Name : TRIGGER
FTP Server IP : 172.168.1.1
User Name : siemens
FTP File Prefix : SIEMENS
Secure Mode : Y
Record every : 15 Minutes

End of report
```

## Modifying the FTP Server Configurations

You must overwrite the existing IP address with a new IP address, user name, FTP file prefix, and trigger point name. Use the following commands to modify the existing FTP server configuration:

| | |
|---|---|
| **HMI** | **S, H, E, F, M** (System, Hardware, Ethernet, Ftpsettings, Modify) |

| Prompt/Field | Option/Entry | Description |
|---|---|---|
| Trigger Point Name: | | Enter the trigger point name. |
| FTP Server IP: | | Press **CTRL+U** to clear the IP address. Then enter the new address.<br>Setting the IP address to 0.0.0.0 disables the feature (default setting). |
| User Name: | | Enter the new user name:<br>Default is **siemens** |

| | | |
|---|---|---|
| | | You must get the User Name and Password from the target system administrator. |
| Existing Password: | | Enter the existing password:<br>Default is **high$123** |
| New Password: | | Enter the new password or the same password if not changing. |
| FTP File Prefix: | | Enter the new FTP client name.<br>The file prefix specified will be appended to the filename created. |
| Secure mode: | Y, N | Press **Y** to enable for a secure FTP Client.<br>Press **N** to disable for a non-secure FTP Client. |
| Trend in Hours, Minutes: | M, H | Specify whether the trend is required in minutes or hours. |
| Minutes/Hrs between samples: | | Specify the trend interval.<br>The trend will occur for the value given in minutes or hours between displayed lines. |

`Command Successful` displays.

Once set, these parameters are stored in the FLASH memory of the Siemens controller.

# Step 6: Automating the Trigger Schedule

To generate a Trend Data File for uploading to the FTP Server site, you must create the Schedule/PPCL to toggle the trigger point ON and then OFF again.

When the scheduled time is reached and the value of the trigger point is turned ON, the field panel will check for the availability of the FTP server. The field panel will also check the availability of FTP server every one minute if the server is not available. The .CSV will only be generated once a FTP connection is established.

When the FTP server is available, trend data will be collected, the RAMDisk will be checked for its space availability, the Trend Data File (.CSV file) will be created with the collected samples and on a successful transfer, the file will be deleted from the field panel to create space for the new .CSV files. If the amount of RAMDisk memory available is not enough for uploading all the collected samples, a .CSV file will be created with the available space and then the leftover samples will be uploaded in a new .CSV file.

If the .CSV file is not properly uploaded, the field panel FTP client will try connecting to the FTP server again after one minute. The field panel FTP client will not stop trying until the file has been successfully uploaded to the defined FTP server.

If the trigger point is left ON, reports will continue to be generated as quickly as possible, which is approximately every two minutes.

**NOTE:**
The trigger point command must be sent at BACnet priority 16 (BN16) in order to activate the (S)FTP transfer of the Trend Sample Report.

# Step 7: Verifying Data Transmission

Verifying data transmission involves the following:

- Verifying (S)FTP Connection and Transfer
- Verifying the Meter Proxy Trigger Point
- Adjusting Meter Proxy Trigger Time

## Verifying (S)FTP Connection and Transfer

Before attempting to send a data file to the SFTP server, verify that the customer site network firewall allows access to the SFTP site. Ethernet ports 20, 21, and 22 must be open. Connect your computer to the same Ethernet switch as the Compact with Meter Proxy and use separate FTP client software (such as FileZilla) to access the SFTP server location and upload a dummy file to the SFTP site.

Transferring the Trend Data File from the Meter Proxy to the SFTP server is an automatic process. To verify that the Meter Proxy has uploaded the file to the SFTP server, use the same separate FTP client software as above (such as FileZilla) to access the SFTP server location and verify that the automatic process was successful.

## Verifying the Meter Proxy Trigger Point

Before you attempt to upload a file to the SFTP server, verify that the schedule or PPCL that commands the trigger point works properly. It's recommended that you use an LED from one of the panel's LDOs. Use the LED to count how long the trigger is turned ON. Following is sample PPCL for proxy triggers. Run the trigger PPCL as a separate PPCL program.

```
08000   C TURN ON/OFF CSV TRIGGER POINT DAILY
08010   IF(TIME .LT. 05:00 .OR. TIME .GE. 05:01) THEN GOTO 8050
08020   IF(SECND1 .LT. 1.0) THEN ON("TRIGGER")
08030   IF(SECND1 .GT. 30.0) THEN OFF("TRIGGER")
08040   GOTO 10000
08050   SECND1 = 0.0
08060   OFF("TRIGGER")
10000   GOTO 1000
```

## Adjusting Meter Proxy Trigger Time

The trigger point must remain ON long enough for the Trend Data File to be transferred, but not more than 60 seconds or the file will be sent twice. Therefore, the trigger point must be turned OFF by the schedule or PPCL within this time.

You must set the trigger point for a minimum of 5 seconds; the trigger time will depend on network conditions at the job site. This means that the trigger time could be anywhere from 5 to 60 seconds. You should start with an initial trigger time of 30 seconds. If the Trend Data File is not sent, increase the trigger time.

### Example of .CSV output file (text format):

```
Key,Name:Suffix,Trend Definitions Used
Point_1:,SBT_BOH2_DEM2_KW,15 Minutes
Point_2:,SBT_BOH2_DEM2_KWH,15 Minutes
Point_3:,SBT_BOH2_DEM2_TUE,15 Minutes
Point_4:,SBT_BOH2_DEM3_KW,15 Minutes
Point_5:,SBT_BOH2_DEM3_KWH,15 Minutes
Point_6:,SBT_BOH2_DEM5_KW,15 Minutes
Point_7:,SBT_BOH2_DEM5_KWH,15 Minutes
Point_8:,SBT_BOH2_DEM6_KW,15 Minutes
Point_9:,SBT_BOH2_DEM6_KWH,15 Minutes
Point_10:,SBT_BOH2_OAT,15 Minutes
Point_11:,SBT_BOH2_TOTAL_KWH,15 Minutes
Date Range:,06/29/2011 13:46:43 - 01/06/2000 04:00:00
Report Timings:,All Hours
<>Date,Time,Point_1,Point_2,Point_3,Point_4,Point_5,Point_6,Poin
t_7,Point_8,Point_9,Point_10,Point_11
06/29/2011,14:00:00,12,3486,0.0,7,2453,27,9218,18,10224,0.0,2538
1
06/29/2011,14:15:00,7,3488,0.0,13,2456,25,9225,8,10227,0.0,25395
06/29/2011,14:30:00,7,3490,0.0,7,2457,28,9232,18,10230,0.0,25409
06/29/2011,14:45:00,13,3493,0.0,7,2460,25,9238,11,10233,0.0,2542
3
06/29/2011,15:00:00,12,3495,0.0,7,2461,21,9244,11,10238,0.0,2543
8
06/29/2011,15:15:00,7,3497,0.0,12,2464,25,9249,20,10242,0.0,2545
3
06/29/2011,15:30:00,7,3499,0.0,8,2467,24,9255,6,10246,0.0,25467
06/29/2011,15:45:00,12,3502,0.0,7,2469,30,9261,10,10249,0.0,2548
1
06/29/2011,16:00:34,7,3504,0.0,8,2471,20,9268,12,10253,0.0,25495
```

## Back up, Restore, and Autorestore

The field panel must be configured to automatically restore the database from flash memory after a coldstart, and Insight should not be used:

- When autorestore is enabled, a coldstart does not result in the same downtime as with earlier revisions of firmware. Because there is no waiting on a full download from the backup system, the database is restored from flash so quickly that it seems as though the field panel never coldstarted.

- Database restoration from flash is disabled by default and should be enabled.

| | |
|---|---|
| **HMI** | **S, H, F, C, L** (System, Hardware, Fieldpanels, Config, db_fiLe) |

| Next Sub-menu Option | Prompt/Field | Option/Entry | Description |
|---|---|---|---|
| **S**ave,<br>**C**lear<br>**R**estore_db | Field panel | Enter field panel name | |
| | Are you sure (Y/N) | Y | Save, Clear, or Restore the database. |
| | | N | Do not Save, Clear, or Restore the database. |
| **A**utorestore<br>● **E**nable<br>● **D**isable | Field panel | Enter field panel name | |
| | Are you sure (Y/N) | Y | Enable Autorestore. |
| | | N | Disable Autorestore. |
| **D**isplay | Field panel | Enter field panel name | |

In order to support autorestore and database backup to flash, the following new HMI prompts (bolded below) have been added.

```
>Point, Application, Time, Message, Cancel, System, passWord, Bye? s
>Diagnostics, Users, dAtes, deStinations, Error_msgs, Hardware, Text, Quit? h
>Fieldpanels, Ethernet, nodeNametable, Disks, Partners, Licensemanager, Vaem, Quit? f
>Log, Display, Add, dElete, Modify, Config, Ostracize, Quit? c
>Hmi, alnSettings, db_fiLe, Fln, mOdem, Names, Defaultlanguage, Quit? l
>Save, Clear, Restore_db, Autorestore, Display, Quit? s
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Database Backed Up to Flash


>Save, Clear, Restore_db, Autorestore, Display, Quit? c
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Flash Backup Erased


>Save, Clear, Restore_db, Autorestore, Display, Quit? r
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Command successful


>Save, Clear, Restore_db, Autorestore, Display, Quit? a
```

```
>Enable, Disable, Quit? e
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Autorestore enabled


>Save, Clear, Restore_db, Autorestore, Display, Quit? a
>Enable, Disable, Quit? d
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Autorestore disabled

>Save, Clear, Restore_db, Autorestore, Display, Quit? d
>Field panel : ---

01/01/2006 SUN DB File Report 00:16
--------------------------------------------------------------------------------
Field panel : 6
Flash backup : Present
Database size : 2482 bytes
Last saved : 00:16:43 01/01/2006 SUN
Result of last backup : Success
Autorestore : Disabled
File manager status : Idle

End of report

>Save, Clear, Restore_db, Autorestore, Display, Quit? a
>Enable, Disable, Quit? e
>Field panel : ---
>Are you sure (Y/N) : y
Field panel 6: Autorestore enabled
>Enable, Disable, Quit? Q
```

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