



# **Compact Contact Center V5**

## **Installation**



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# Introduction

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## General

Compact Contact Center (CCC) modules provide the user with the necessary tools to facilitate the management of call traffic. They are designed to provide a tightly integrated real time and historic reporting package and wallboard support for the eBusiness digital communications platform. The product consists of a set of fully integrated modules sharing a common database utilising Interactive Directory and Database (IDD) technology.

The suite of modules consists of the following applications:

- **Call Center View (CCV):**  
Provides a realtime management package for telephone based staff and supports any size Customer Facing Department (CFD) or contact center. To effectively control customer service levels, real time human resource management is essential and the Call Center View has been specially designed to manage the CFD's or contact center's most valuable and expensive asset – it's people.
- **Call Center View Alarm Reporter:**  
Provides real time & 7 day historic information (for each Contact Center Profile) about alarms that have occurred within the Compact Contact Center. The detailed alarm information for each directory number is presented in report format, which can then be printed.
- **Wallboard Manager:**  
Real time information from the call center is essential to react to constantly changing telephone traffic levels and provide excellent customer service. Wallboards allow managers and staff to monitor the service being provided and respond immediately. Wallboards provide current information on the number of calls waiting, response times and service levels. Wallboard Manager provides the ability to drive physical wallboards and PC wallboards.
- **PC Wallboard:**  
The PC Wallboard delivers traditional wall mounted wallboard functionality to the desktop but with the additional benefit of each PC Wallboard agent being able to configure and monitor a personalized view of the contact center. The PC Wallboard also enables agents to increase their productivity and maintain revenue levels with the added benefit of managing customer callback requests.
- **Report Manager:**  
Provides in depth historical reporting on CFD or contact center activity. In addition to call information, the Report Manager also reports agent activity. This powerful package allows individual call records to be stored and reported upon months later.
- **CCC User Access:**  
CCC User Access allows storage of personal Call Center View and Wallboard settings. It also establishes user rights and password protection for Call Center View, Wallboard and Alarm Reporter software.
- **Workforce Management – Blue Pumpkin:**  
Workforce Management Interface allows integrated rostering, forecasting and scheduling systems to connect across the LAN to a comma separated variable (CSV) file containing a list of Contact Center related metrics.
- **MultiMedia Module:**  
MultiMedia Module (MMM), is a customer contact software solution that enables companies and departments to manage multimedia contacts into and out of the organization. MMM provides applications that manage Telephony, Web Chat, E-mail and Web Call Back communications. For installation of MultiMedia Module, refer to the separate Installation Manual.

## Use of this Manual

This manual covers the installation and administration of Avaya's Compact Contact Center (CCC) at software Level 5.0+. on the following communications platforms:

- IP403/406/412 Office platforms operating Software Level 2.1+

**WARNING** - When using Office platforms operating software Level 3.0, CCC 5.0 must not have the Key and Lamp functionality operational.

Installation instructions for Software levels below 5.0 are contained in previous Issue of this Manual. E.g. Installation instructions for CCC Software level 4.0+ are contained in Issue 4.

This guide is intended for use by installers and administrators who are familiar with the relevant communications platform and have successfully completed the appropriate training courses.



***Ensure that you have read and understood this Manual before beginning installation.***

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## About this Manual

This manual provides the information necessary to set up, install and perform basic set-up on CCC modules. The following overview defines the sequence of actions that **must be performed** to install CCC modules:

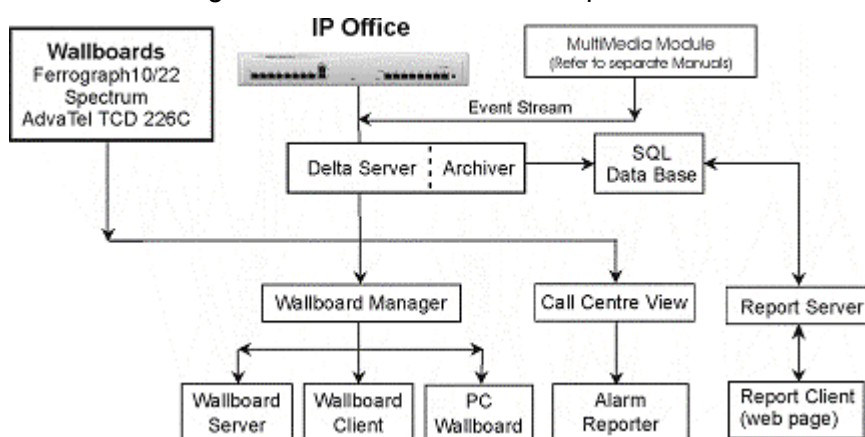
1. Check the pre-requisites for all Server/Client PCs.
2. Install the required CCC applications on the Server, Client and Agent PCs.
3. Define and set up the IP Office requirements.
4. Install the CCC Licenses on the IP Office.
5. Install the Wallboards (optional)
6. Upgrade the Database to SQL 2000 (optional).

Once installation has been completed, the following manuals provide the details for administrating and operating the CCC.

- CCC System Supervisor's
- CCC system Administrators
- Alarm Reporter
- Call Center View
- Reporter
- Report Designer
- Wallboard Manager
- PC Wallboard
- Workforce Management Interface
- PC Wallboard Quick Reference Guide

## Overview of CCC

Avaya's Compact Contact Center (CCC) provides the user with the necessary tools to facilitate the management of call traffic. The diagram below shows the concept:



Installation of CCC on IP Office requires licenses to enable the various modules. For systems of up to 15 agents\* the CCC modules can be installed on a stand-alone Server PC. For systems of more than 15 agents the Server and Client functions must reside on separate PCs.

CCC can support up to 75 agents. There can be up to 21 supervisor positions that can use the Call Center View, Wallboard Client and Reporting applications.

**\*Note:** An **AGENT** is defined as a person who makes or receives calls and has 'logged on' to the system, e.g. has a 'forced log on' status on the switch.

## Fifteen Agent Systems and below

The Compact Contact Center Manager comprises a suite of tightly integrated modules installed on a Server PC platform running Windows 2000/2003. The CCC Manager may be installed either with or without Voice Mail Pro. The following lists the modules included within the CCC Manager which are designed to run concurrently on the Server PC:-

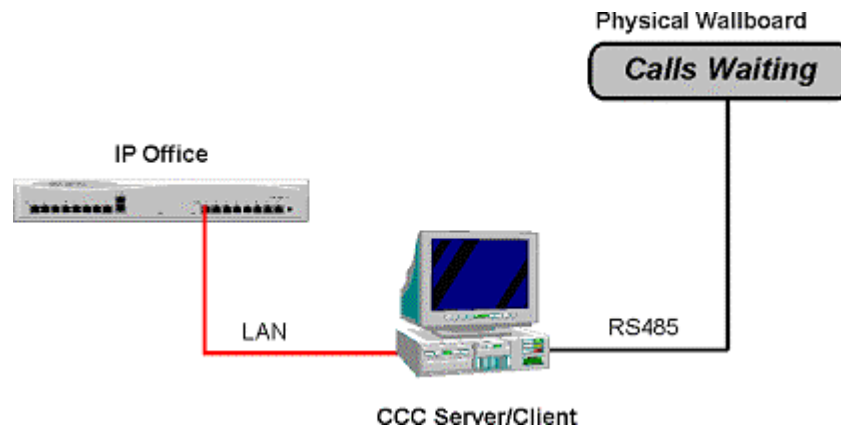
- **CCC Server PC**

- Delta Server
- Call Center View
- PC Wallboard
- Wallboard Server
- Reporter
- Report Server and Client
- CCV Alarm Reporter

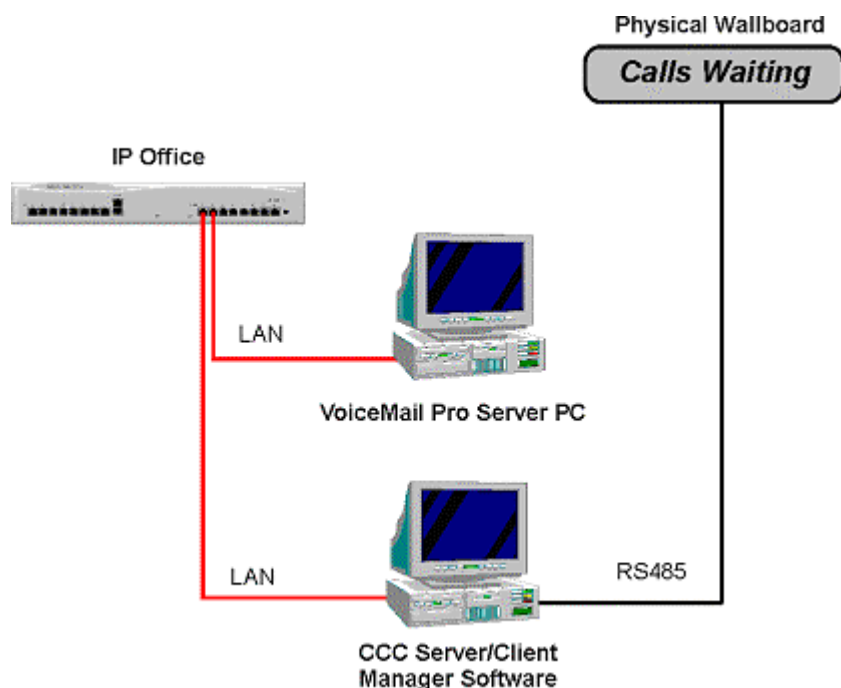
Note: If Wallboard Server is installed, Wallboard Client should not be installed.

- Voice Processing Administration (if Voice Mail Pro is present).

The following diagram shows the Compact Contact Center connectivity (for systems of 15 agents and below) **without** a Voice Mail Pro.



The following diagram shows the Compact Contact Center Manager connectivity (for systems of 15 agents and below) **with** a Voice Mail Pro present.



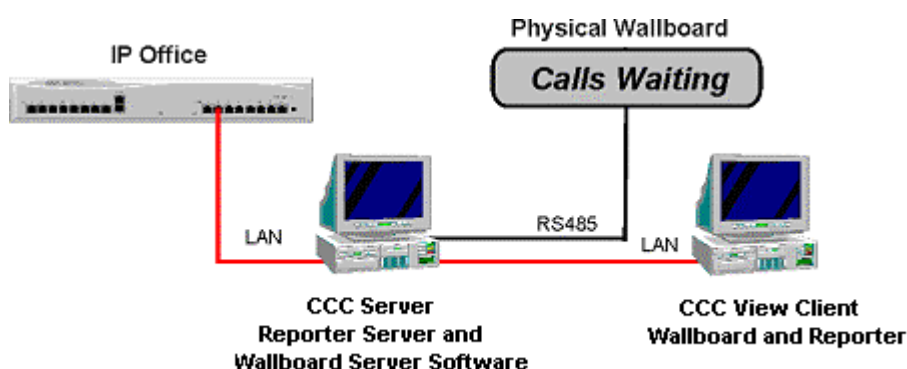


## Systems above Fifteen Agents

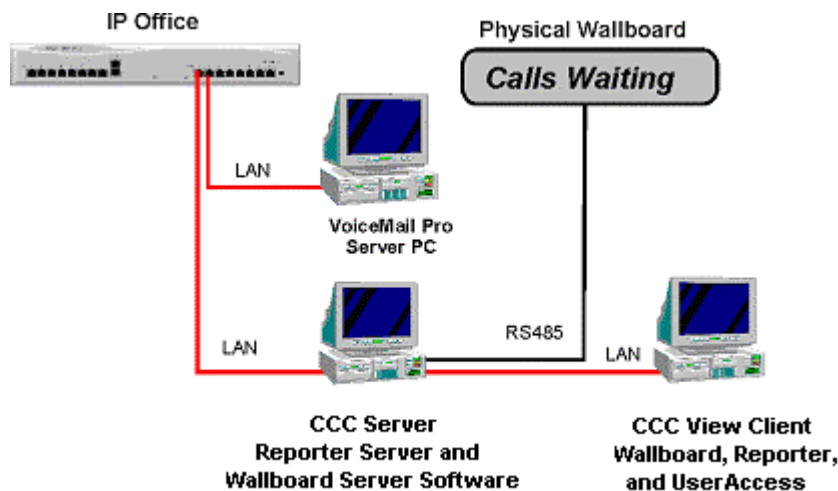
The Compact Contact Center Manager supports 21 concurrent supervisor positions, known as Client PC's. It may be installed either with or without a Voice Mail Pro. The following details where the applications reside:

Client PC	Server PC
Call Center View	Delta Server
Wallboard Client	Report Server
Report Client	Wallboard Server
PC Wallboard	Database Server Supervisor
CCV Alarm Reporter	Workforce Management (Optional).

The diagram below shows the Compact Contact Center Manager **without** a Voice Mail Pro being installed.



The diagram below shows the Compact Contact Center Manager **with** a Voice Mail Pro present.



# Installing CCC Components

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## Introduction

This section describes the procedures of installing the software for the Compact Contact Center suite. **Do not** begin installation before you have read and performed **all** the Server & Client Pre-requisites.

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## Standalone Server & Agent PCs

If you have less than 15 agents, the Server and Client components can be installed on the same PC. The Supervisor will use the Client components on the Server PC.

Standalone Server PC	Agents PCs
Call Center View ( <i>Application</i> )	PC Wallboard
PC Wallboard ( <i>Application</i> )	
Wallboard Server ( <i>Application</i> )	
Delta Server ( <i>Application</i> )	
Report Server ( <i>Installs historic database</i> )	
Report Client ( <i>Installs CCC Reporter</i> )	
Database Server Supervisor ( <i>Allows maintenance plans to be created, backed up and restored</i> )	
Report SDK ( <i>Used when designing custom reports in Crystal Reports</i> )	
CCV Alarm Reporter ( <i>Application</i> )	
Workforce Management Interface ( <i>Application</i> )	

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## Server, Client & Agent PCs

If you have a CCC installation of more than 15 agents, then the Server must be on a separate PC (serving up to five Client PCs also known as Supervisor positions).

Server PC	Client PC (Supervisor Position)	Agents PCs
Wallboard Server ( <i>Application</i> )	Call Center View ( <i>Application</i> )	PC Wallboard
Delta Server ( <i>Application</i> )	PC Wallboard ( <i>Application</i> )	
Report Server ( <i>Installs historic database</i> )	Wallboard Client ( <i>Application</i> )	
Database Server Supervisor ( <i>Allows maintenance plans to be created, backed up and restored</i> )	Report Client ( <i>Installs CCC Reporter</i> )	
Report SDK ( <i>Used when designing Crystal Reports</i> )	CCV Alarm Reporter ( <i>Application</i> )	
Workforce Management Interface ( <i>Application</i> )		

### Notes:

- If the Wallboard Server is installed then the Wallboard Client is not required.
- Report Server is not available for installation until IIS has been installed.
- The Database Server Supervisor requires MSDE.

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## Server Pre-requisites

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### Server Hardware Requirements

Each Server PC **must** meet the minimum requirements as follows:-

- Pentium 2.0GHz or higher, with a 7,200rpm, 40GByte hard disk.
- Minimum 256 Mbytes of RAM.

**Monitor:** 15" (or optional 17") SVGA supporting 800x600.

**Keyboard:** Win 2000/2003 Compatible.

**Floppy Disk Drive A:** 3.5" 1.44 Mb high density.

**CD ROM Drive:**

**Backup Device:** Minimum 30GB Digital Drive (optional).

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### Software Requirements for CCC Server(s)

The CCC Server needs one of the following operating systems installed.

- Microsoft Windows 2000 Server (SP3 or above)
- Microsoft Windows 2003 Server

Make sure that the operating system has had all the Windows critical updates installed and that the following programs have been installed.

- Internet Explorer 5.5 (SP1) or above. If this has come pre-loaded, please check that the version is 5.5 or above.

Before loading the CCC software the pre-installation requirements need to be completed. These are listed below and detailed on the following pages.

- Modify the operating system.
- Install Internet Information Services (IIS). If this has been pre-loaded, please check that the version is 1.1 or above.  
Note: It is vital that IIS is installed prior to .NET. If these are installed in the wrong order, remove .NET (Add/Remove programs) and then re-install.
- Install ASP.NET if using a Windows 2003 Server
- Amend the Event Log settings
- Install the database.
- MS Outlook needs to be installed if the Delta Server email error notification is going to be used.

## Windows 2000/3 Modifications

On a machine with Windows 2000/3 already installed you **must perform** all of the following:-

1. The network protocol must have TCP/IP enabled.
2. Ensure that the Regional Options are set [e.g. for USA set it to English (United States)] and that the Time is set to local time.
3. Make sure that the screen display properties have been set to the following:
  - Desktop area is set to 800 by 600 pixels.
  - Color palette is set to True Color (32 Bit).

**Caution:** It is recommended that the CCC Server is not used as a Domain Controller. If it is it could cause server application errors.

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## IIS Installation

To install IIS on a **Windows 2000** operating system:

1. Click **Start**, highlight **Settings** and then click **Control Panel**.
2. Double click the **Add/Remove Programs** icon.
3. Click the **Add/Remove Windows Components** button.
4. Select **Internet Information Services (IIS)**
5. Click the **Details** button. Ensure that **World Wide Web Server** is selected and click **OK**.
6. Click **Next** to begin the installation.

**Note:** The original Operating System media CD may be required.

To install IIS and ASP.NET on a **Windows 2003** operating system:

1. Click **Start**, highlight **Settings** and then click **Control Panel**.
2. Double click the **Add/Remove Programs** icon.
3. Click the **Add/Remove Windows Components** button.
4. Select **Application Server**
5. Click the **Details** button.
6. Make sure that **ASP.NET** is selected.
7. Make sure that **Internet Information Services (IIS)** is ticked and highlighted.
8. Click the **Details** button.
9. Ensure that **World Wide Web Server** is selected and click **OK**.
10. Click the **Details** button.
11. Ensure that **World Wide Web Server** is ticked.
12. Click **OK** to return to the Internet Information Services (IIS) screen.
13. Click **OK** to return to the Application Server Screen
14. Click **Ok** to return to the Windows Components screen.
15. Click **Next** to being the installation.

**Note:** The original Operating System media CD may be required.

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## Event Log Settings

The Event Log settings are altered through the Windows Event Viewer.

For Windows 2000:

1. Right mouse click on the **My Computers** Icon. Select **Manage**.
2. Expand the Event Viewer folder.
3. Right mouse click on **Application** and select **properties**.  
In the Log size section select **Overwrite events as needed**.  
Click on **Apply** and then **OK**.
4. Right mouse click on **Security** and select **properties**.  
In the Log size section select **Overwrite events as needed**.  
Click on **Apply** and then **OK**.
5. Right mouse click on **System** and select **properties**.  
In the Log size section select **Overwrite events as needed**.  
Click on **Apply** and then **OK**.
6. Close all open windows.

For Windows 2003

In Classic View:

1. Click Start, highlight Programs and then Administrative Tools.
2. Click on Event Viewer.
3. In the left hand pane, right click on **System** and select **Properties**.  
Tick **Overwrite Events as needed**.
4. In the left hand pane, right click on **Security** and select **Properties**.  
Tick **Overwrite Events as needed**.
5. In the left hand pane, right click on **Application** and select **Properties**.  
Tick **Overwrite Events as needed**.
6. Click **OK** and exit the Event Viewer.

## Install Database Application

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### MSDE 2000 Installation

When using MSDE there is a maximum storage capacity of 2Gb. It is recommended that when more than 5 concurrent Report Viewer connections are required that SQL 2000 should be used as the database engine and not MSDE.

Insert the CCC Installation CD into the drive.

1. From the Windows taskbar click **Start**, select **Run** and then click on the **Browse** button.
2. View the CD drive and double click the **MSDE** folder. Select **MSDEInstSP.exe** and double click to start the installation.
3. Select the required language for the installation and click **OK** to continue.
4. Enter and confirm your password for the sa database. The password for this is NMYSBH. Do not tick 'Windows Authentication'.
5. Click the **OK** button. The installation could take up to 20 minutes.
6. Once the setup is complete, reboot the PC when requested.

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### Microsoft SQL Server 2000 Installation

SQL 2000 can be used instead of MSDE. The software is not supplied as part of CCC so it will have to be purchased separately. Follow the installation instructions provided with the software. The software includes Enterprise Manager tools that can be used to control the MSDE database. If MSDE 2000 is installed you are able to upgrade to SQL 2000 at a later date.

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## Installation of CCC Components

When all the installation pre-requisites have been performed, commence CCC Application installation on the Server, then the Client PCs and finally the optional PC wallboard application on the Agents PCs.

**Note:** Only install CCC Components on a Server PC that is operating either as a *local machine* or within a *domain*. Do not spread the installation over both.

The following information is required during the installation process.

- IP Office Address.
- CCC Server Name - The name of the machine that CCC is being installed on.
- SMTP Server Name and Email Address - Required if reports are being distributed by email.
- CRM Host Name.
- SQL Server Name - The name of the machine that the database is installed on.

**Note:** to find the name of a machine, right mouse click on the My Computers icon and select the Properties option. The full computer name is shown on the network identification tab.

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## Server PC Installation

**Note:** The installation described below is based on installing the software for a standalone server.

Depending on the components being installed all or only some of the options described will appear e.g. steps 10, 11, 12 and 14 only occur if Report Server is selected.

To install the required CCC applications on the Server PC, perform the following:-

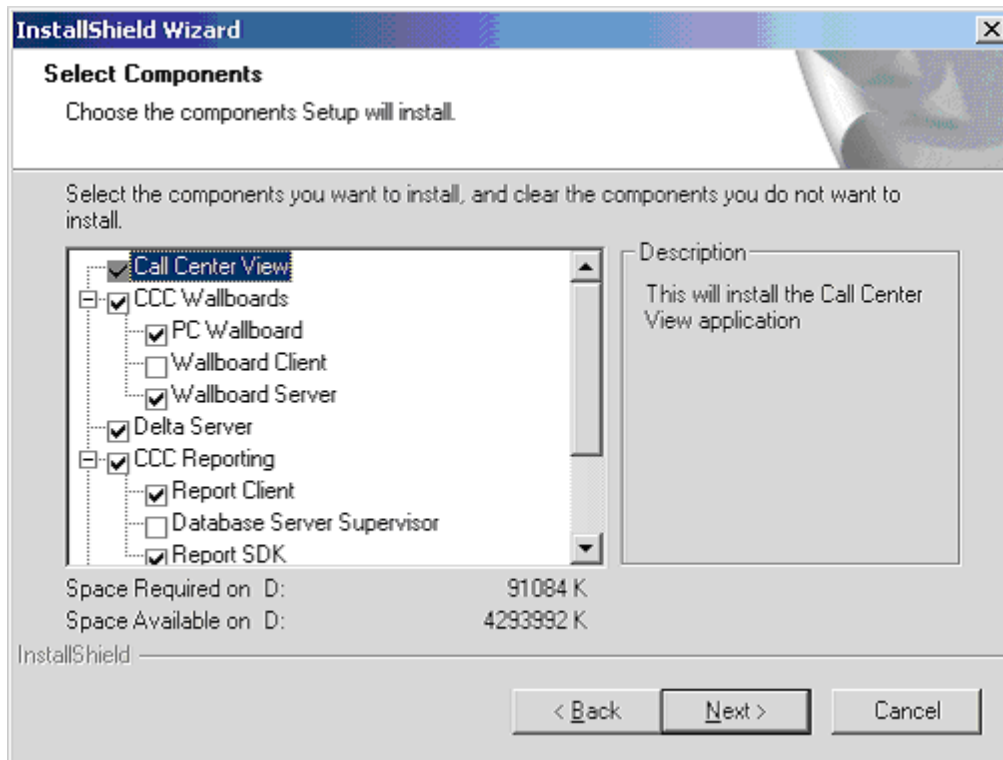
1. With Windows running, insert the **Application CD** into the CD Drive. Use the My Computer facility to view the CD drive. Within the CCC Folder, find and double click on **Setup.exe**.
2. Choose the appropriate setup language and click on **OK**.
3. The InstallShield Wizard will run.
4. If the installation is being carried out on a Windows 2000 server a message will appear asking if Microsoft.Net Framework 1.1 package should be installed. This software is required for CCC reporting. If reporting is not required click NO and continue from step 5. To install the software click Yes.

A license agreement screen will appear. Read through the agreement and then select the option **I Agree** and click **Install**. Microsoft.Net Framework 1.1 files will be installed.

At the message 'Installation of Microsoft .NET Framework 1.1 is complete', click **OK** to continue.

5. At the Welcome screen click on **Next** to continue.
6. Choose the destination location. The **Browse** button allows the location for installation to be selected if the default is not required. The default location is C:\Program Files\Avaya\IP Office\CCC. Click **Next** to continue.

7. The Select Components menu is displayed:



8. Choose the appropriate applications for your Server/Client configuration (tick/un-tick as required). Use the scroll bar to view the Report SDK, CCV Alarm Reporter, Workforce Management - Blue Pumpkin and MultiMedia Module (Interaction Manager) applications. For installation of the MultiMedia Module, refer to the separate installation manual.
9. Click **Next** to continue. The installation of the requested setup will start.
10. If you have chosen to install the Report Server you will be asked *You are about to configure an Archiver to 2000MB do you wish to continue?* Click **Yes**.
11. Installation will start. A message will appear showing that the database devices are being created.
12. The CCC Reporting Admin Console menu is displayed. The application window contains a number of tabs that enable various configuration settings to be specified for the report server windows service and web application to run correctly. The CRM and Email tabs only need to be completed if applicable. The information required for each tab is described below.
- Caution:** Do not click the Update button until you have checked the data in all five tabs.
- **PBX tab**  
Enter the IP Address of the IP Office that contains the licence information.
  - **Database tab**  
Allows the name of the machine containing the call data database to be entered as well as the authentication required. If SQL Server authentication and the database user id fields are left empty then the default name SDXArchiver is used for connecting to the database. If you have connected to a different Database Server, enter the name and password of the new target. For the SQL Server Security field, enter both the name and password entered whilst installing MSDE 2000. (The defaults are sa and NMYSBH). Either accept the default settings for the Database Server/Name field or, if you have connected to a different Database Server, enter the name and password you changed to.
  - **CRM Tab**  
Either accept the default or change the CRM Host name to that of the CRM Server if not on this PC. Make sure that the date and time formats that are used by the MSCRM as specified in the Calendar tab of the system settings dialog are correct. The date and time



formats must be set correctly so that any reports that contain date and time information from MSCRM run correctly. The CRM Server must be licensed.

- **Email Tab**

Enter the name for the SMTP Server (if the Server is on this PC enter 'localhost'). Also enter the CCC user's email address.

- **Service Tab**

Specify the port number that the web application uses to communicate with the windows service. Enter a Server Port number for CCC. Select the port number from the drop down list. All the port numbers are allocated to the local machine.

13. Installation will continue. Enter the CCC Server name when requested. Click **Next** to continue.

14. The setup continues with the Database Management components being installed.

15. The InstallShield wizard complete screen will appear. Select the option **Yes I want to restart the computer now** option and click on the **Finish** button.

16. The Delta Server needs to be configured.

- Start the Delta Server application: **Start | Programs | CCC | Delta Server**
- Click on **Comms** in the Toolbar Pane.
- Select the required IP Office connection and click on the **Apply** button.
- The Server, Server Type and IP Address will show at the top of the screen. The Comms Status should show as 'Comms Restored'.
- Click on **Archiver** in the toolbar pane.
- Enter the SQL Server Name (i.e. the name of the PC hosting the database) and tick the option **Launch Archiver at Startup**.
- Click on the connect button. The screen will remain blank.
- Click on the **refresh** button and the Archiver should be shown as connected. If the Archiver is not shown as connected, follow the steps below to achieve connection.
  - a. Close Delta Server.
  - b. Open the Administrative Tools: **Start | Settings | Control Panel | Administrative Tools**.
  - c. Double click on the **Services** icon.
  - d. Right mouse click on **CCC Delta Server** and select **Restart** from the menu.
  - e. Close all the open windows.
  - f. Re-start the Delta Server application: **Start | Programs | CCC | Delta Server**.
  - g. Click on **Archiver in the Toolbar Pane**. All the details should be completed and the Archiver shown as connected.

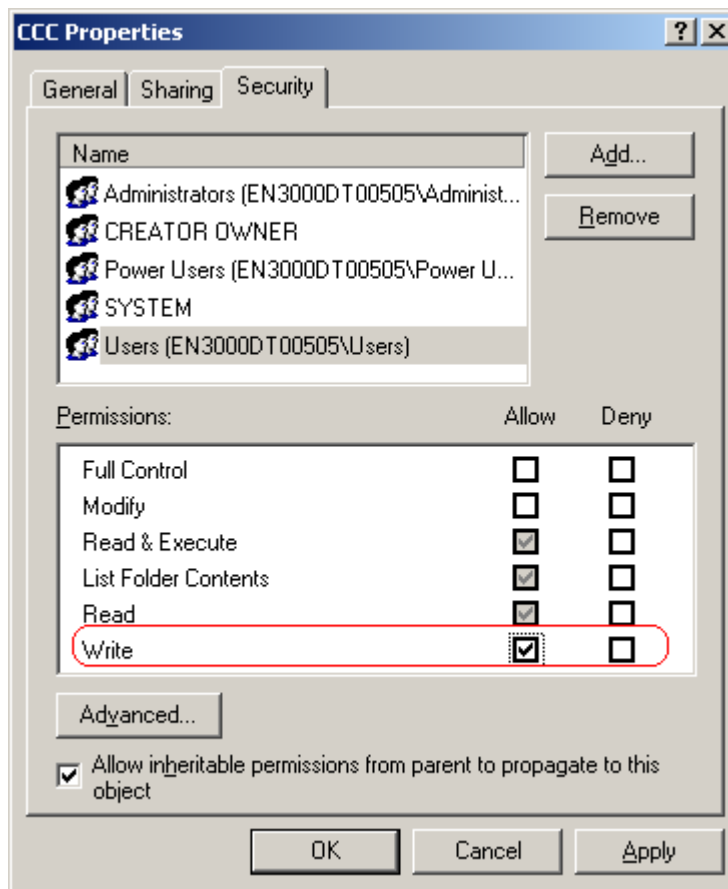
17. Close all programs and re-boot the PC.

## Access Permissions

Once CCC has been installed, read/write permissions need to be assigned to allow full functionality for a supervisor using a Client PC. Users of Call Center View, PC Wallboard and Alarm Reporter will need have write permissions for the folders.

The easiest way to give a folder write permissions is detailed below. This is only an example of how permissions can be set. There are other ways that this can be done according to your network setup and security policies.

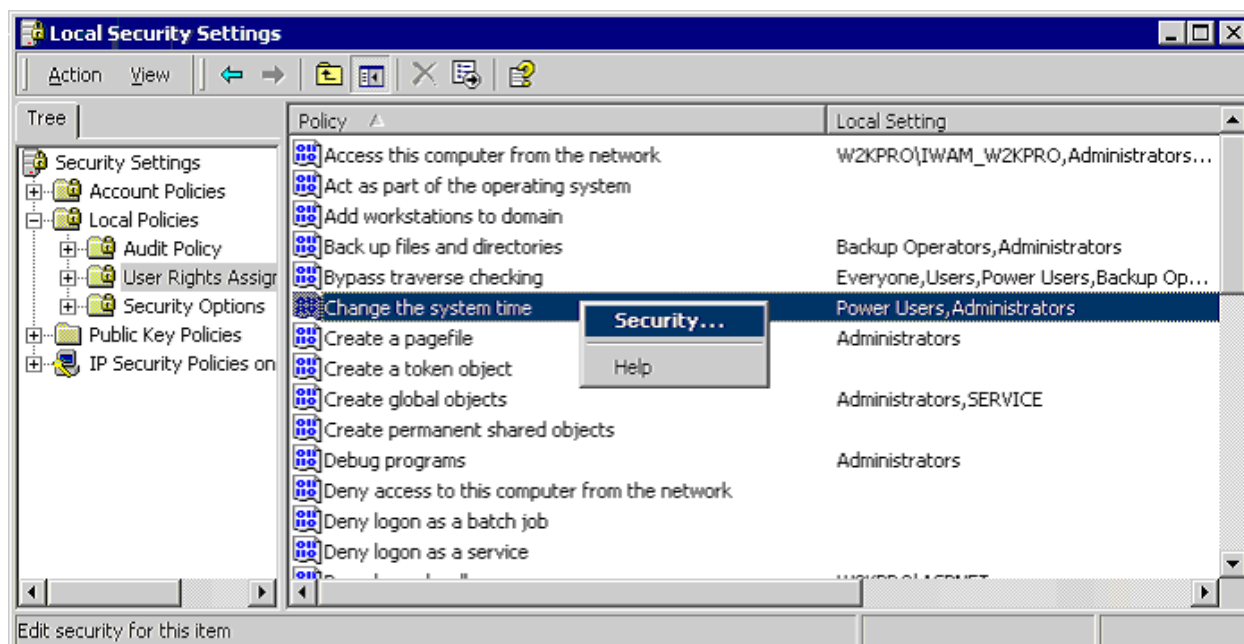
1. From Windows Explorer select the folder containing the programs. By default the directory path will be C:\Program Files\Avaya\IP Office\ CCC.
2. Right click the CCC folder and select Properties.
3. Click on the Security Tab and select Users. In the Permissions section click in the Allow box for Write.



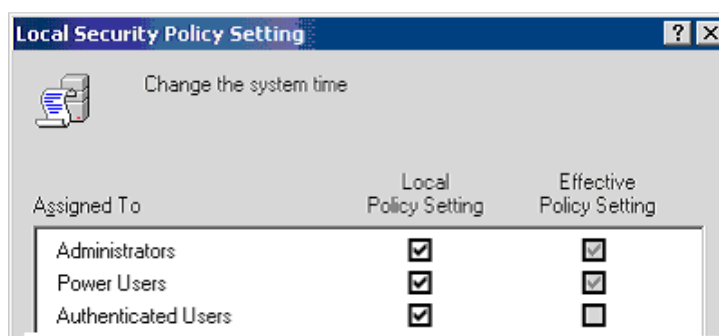
4. Click the **Apply** button and then click **OK**.

The Client PC's also need to be able to synchronise their time with the Delta Server.

1. From the Start button select **Programs | Administrative Tools | Local Security Policy**.
2. Under the **Local Policies** select **User Rights Assignment**.
3. Right mouse click on **Change the system time** and select **Security**.



4. Click **Add** and select **Authenticated Users**.
5. Click **Add** and then **OK**.
6. The Local Security Settings screen will now have authenticated users added to the listing.



7. Click **OK**.

**Note:** This setting can be set at a Domain level to apply to all CCC Client users. Speak to the local Domain Administrator for further information.

## Logon Requirements

When creating Logon profiles for the Server and Client machines the following points need to be considered.

1. If the Reporter application needs to print reports to a domain printer or email, CCC Reporting must be set up to use a domain service account.
2. A service account needs to be created allowing access to MS Exchange Server if email reports are to be sent from either the Delta Server or CCC Reporter.
3. Ensure that the domain service account is used to logon interactively to the CCC server, to create printers for preset reports.

## Client Pre-requisites

## Client Hardware Specifications

Each Client PC **must** meet the minimum requirements as follows:-

- Pentium 800MHz or higher, with a 7,200rpm, >10GByte hard disk.
- Minimum 128 Mbytes of RAM.

**Monitor:** 15" (or optional 17") SVGA supporting 800x600.

**Keyboard:**

**Floppy Disk Drive A:** 3.5" 1.44 Mb high density (optional).

**CD ROM Drive:**

**Backup Device:** Minimum 30GB Digital Drive (optional).

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## Software Requirements for CCC Client(s)

A CCC Client PC needs to have one of the following operating systems installed.

- Microsoft Windows 98 2nd edition.
- Microsoft NT4 Workstation with service pack 6.
- Microsoft Windows 2000 Pro with service pack 4.
- Microsoft Windows XP Pro with service pack 1.

MS Internet Explorer 5.5 and any windows critical updates need to have been installed **before** any CCC software is loaded.

---

## Client Software Modifications

The CCC Client or Agent machines need to have the following modifications.

1. Install the appropriate CCC Licences.
2. Ensure that the Time Zone is set e.g. for USA set it to English (United States). Make sure that the time is set to local time.

---

## Client PCs Installation

For Client configurations (Supervisor positions) follow the procedures detailed for the Server installation. Refer to the introduction for details of the appropriate applications to install.

**Note:** Once the CCC applications have been installed the Access Permissions need to be amended.

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## Agent PCs Installation

Agent PCs can optionally have the PC Wallboard application installed. Follow the installation instructions detailed within the Server PC Installation section making sure that only the PC Wallboard application is selected. Once installed the Access Permissions need to be amended.

**Note:** Ensure that Call Center View is unticked. This can only be unticked once the CCV Alarm Reporter has been unticked.

# IP Office Requirements

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## Overview

This section assumes that the installer is familiar with the basic programming of the IP Office System and the Manager manual is available.

- IP Office Software must be Level 2.1+.
- Server License keys are required for the applications (see CCC Licenses).
- If Internet Explorer is on the same PC or server as the delta server software, you must make sure that where there is an Internet service that there is also an Internet user. You need to amend the user configuration within the Manager software.

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## CCC Licenses

Some applications and devices for IP Office require the entry of license keys before they will work. They may also require licenses to enable certain features.

For full details refer to the separate IP Office License & Feature Keys manual.

The CCC application is enabled by a license key, which also allows for support of up to five call agents. Additional license keys may be entered to enable support for additional call agents.

Each license is a 32-character string based on a number of unique factors:

- The Serial Number of a Feature Key (a hardware device attached to the parallel or USB port of a PC running the Feature Key Server software).
- The features and software being enabled.

## Entering License Keys

You can view, add, delete and edit License keys through the IP Office Manager application. License keys can be copied and pasted into the Manager application. This will help prevent errors arising from manual entry of the 32-character strings.

1. Start IP Office Manager and load the system configuration.
2. Select **System** in the left hand panel. In the right hand panel, right click on the system icon and select **Edit**. Enter the *License Server IP Address*. E.g. the IP Address of the PC that has the Feature Key plugged into its serial or USB port (ideally the Server PC that will be running the CCC applications).
3. Select **License** in the left-hand panel. The right hand panel will now show details of the License Keys entered on the system.
4. By right clicking in the blank space of the right-hand panel or onto an existing license you can select to add, delete or modify License Keys. The CCC License Keys available are:
  - **IP400 CCC SVR RFA:** Enables Compact Call Center for one supervisor, including reporting on 5 agents and 1 PC Wallbord.
  - **IP400 CCC Report RFA 5:** Enables access to historic reporting for 5 users (or 5 additional users). There are also 2 additional licences to enable either 10 or 20 users.
  - **IP400 CCC Designer RFA:** Enables a supervisor to design and customize their own reports.
  - **IP400 CCC Rostering RFA:** Enables connection to thirs-party agent rostering packages for CCC.
  - **IP400 CCC EMAIL RFA:** Enables Email routing and reporting, outbound calling, web call-me buttons (requiers IP400 CTI Pro RFA and CCC Svr RFA).
  - **IP400 CCC WEB CHAT RFA:** Enables web-chat media type (requires IP400 Email CTI RFA or IP400 CCC Email RFA plus IP400 CTI Pro RFA & CCC Svr RFA).
  - **IP400 CCC EMAIL CTI RFA:** Enables Email routing and reporting, outbound calling, web call me buttons (includes IP400 CTI Pro RFA). Requires CCC Svr RFA.
  - **IP400 CCC AGT RFA 5:** Enables reporting for 5 CCC agents (or 5 additional CCC agents). There are also 3 additional licences to enable 10, 20 or 50 CCC agents.
  - **IP400 CCC PCW RFA 5:** Enables PC Wallboards for 5 agents (or 5 additional agents). There are also 3 additional licences to enable 10, 20, or 50 agents.
  - **IP400 CCC Wallboard 4 RFA:** Provides software activation for up to 4 physical wallboards for use with the Compact Call Center, uo to a maximum of 16. Please noter that this activation does not apply to the WB 22 product.
5. After altering or adding any license keys, upload the new configuration to the system and allow the system to reboot.
6. Load the system configuration again and check the **Status** of the License Keys. If any keys are listed as **Invalid**, check that the correct key has been entered. Repeat the previous steps if necessary to correct any errors.

### Important: Save a Copy of the Configuration

Once the License Keys have been correctly entered, it is very important that you save a copy of the configuration. Select **File | Save as** to save a copy of the configuration onto the PC from which you are programming.

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## Naming Directory Numbers

Since the Telephone System programming is reflected within the CCC Manager applications, it is important to name the directory numbers (i.e. Agents, Groups, Trunks, DDIs, etc) before connecting the CCC.

It is also highly recommended that the directory names be unique to aid identification of specific directory number within the Standard Reports.

Where directory numbers of a specific type are unnamed, or where more than one directory number as a specific type has the same name, the Standard Reports will group data for those directory numbers as a single entity (e.g. all unnamed agents will be grouped together as a single agent called "No Name", and all DDIs named "Company DDI" will be grouped together as a single DDI called "Company DDI, etc.).

If the directory numbers have not been named, then the terminology for the directory numbers implemented in the Contact Center Manager applications is:

- Agent – ACD Agent (XXXX\*) – XXXX
  - Group – Agt Group (XXXX) – XXXX
  - Trunk Grp – Trunk GP (XXXX) – XXXX
- Where XXXX is the directory number

**Note:** An **AGENT** is defined as a person who makes or receives calls and has 'logged on' to the system, e.g. has a 'forced log on' status on the switch and has logged on to a handset.

---

## Mailbox Set-up

Mailboxes need to be set-up on any PC that needs to be able to receive Delta Server error reports.

**Note:** The examples in the following instructions are for Microsoft Exchange Server, but the server can be any extended MAPI compliant server.

Perform, on all CCC PCs, the following:-

1. Right-click on your **Outlook** icon and select properties. If the Server profile you require is not shown, click **Add** and select from the available list.
2. Click on **Properties** and view the **General** tab.
3. Enter the Server and mailbox names.
4. Click **OK** to finish.
5. On successful installation, proceed with Starting CCC User Access.

## Group Reporting

When configuring it is important to understand how calls are attributed to groups on the Call Center View, Wallboards and Report Manager.

**Note:** When configuring IP Office for use within a Call Center, none of the groups used with CCC should have their ring mode set to Group. Collective Group ringing is not a supported mode of operation as the call data collected will be inaccurate.

---

## IP Office in the Contact Center Environment

Staff Management is a LOCAL issue hence all real time and historic analysis for teams will require local CCC's.

Traffic Management is a GLOBAL issue. Therefore in an IP Office configuration calls waiting across an entire network (queued) are displayed on all Call Center View implementations across IP Office.

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## Call Center View and Wallboard Manager

The Call Center View and Wallboard Manager products report on groups directly derived from the Database. Agents and Trunks may be reported on in as many groups as they are members of within the database. It is important however to understand how statistics for these groups are derived and it is important for the user of the system to understand these reporting structures. These are defined below.

**Call Totals and average durations** for Groups are calculated by totaling the statistics for the members of group. Should an agent or group be a member of multiple groups, their call totals will appear in multiple groups.

**Lost Calls** are only attributed to the initial target agent group i.e. Initial ring group. Lost calls are also attributed to Trunk Lines, and Trunk Groups.

**Agent Status** Information for a group shows the number of agents or trunks within a given group, which are in each state.

### Agent Statistics for:

- **Calls Waiting, PCA, GOS, Longest Wait, LWait (Ans), L Wait (Lost), Overflowed to/From** statistics are only incremented for calls which are directly presented to that agent group. That is they only increment where the agent group is used for Call routing purposes.

### Trunk Statistics for:

- **Calls waiting and Lost** are calculated by totaling the statistics for the members of the trunk group. **PCA** and **GOS** are calculated for each trunk group after totaling answered calls (plus lost for GOS) for the members of the trunk group. **LWait (Lost)** and **LWait (Ans)** reflect the longest wait of all those logged against any member of the trunk group.

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## Report Manager

The CCC has two concepts for historic reporting that cater for different views a supervisor may require of their contact center. One type of report referred to as 'Target' reports provides analysis based on where the call was presented and relates closely to the manner in which the call routing has been configured. The second type of report, referred to as 'collective' reports, is based on arbitrary sets of agents and need not necessarily correspond to the manner in which switch call routing is programmed.



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## CCC reporting associated with Voice Mail Pro

The following conditions apply to the initial answer/ lost segment of calls which were first presented to the Voice Mail Pro (VM) (e.g. Voice Mail front ended systems):

1. Trunk/DDI – Call remains unanswered until answered by a non-Voice Mail Pro device or if terminated within 3rd party Voice Mail, or encountered an "Answered" flag in Voice Mail Pro.
2. 3rd Party Voice Mail – Answered if Voice Mail connects, lost by Voice Mail if caller hangs up before Voice Mail can answer.
3. Voice Mail Pro – Calls will only be registered as answered when the Voice Mail Pro has successfully processed the call (passed an "Answered" flag in Call Flow)
4. Agent/Agent Group – Designation of answered and lost calls is directly dependent upon clause 1.
5. If a call was lost whilst being transferred by Voice Mail Pro, the lost call statistics will be designated to the transfer target. Calls lost whilst alerting or connected to Voice Mail Pro will be deemed lost by the Voice Mail Pro device or group.
6. A call successfully transferred by Voice Mail Pro will be treated as a new incoming call by trunks, DDI and Agents, but transferred by Voice Mail Pro devices.

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## Login Codes

For reporting on call status and call handling all users should use login codes. This is especially important for the user associated with the extension by default, who should be set to forced login. The use of the Login Idle Period is also recommended.

# Wallboard Installation & Maintenance

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## Introduction

This section provides basic details about the Ferrograph 10, Ferrograph 22, Spectrum 4120C and AdvaTel TCD226C Wallboards together with installation instruction.

Up to 16 Wallboards can be supported on IP Office.

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## Ferrograph Wallboard 10

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### Introduction

The Wallboard 10 is a single line display consisting of 10 tri-color characters. It is connected via multi-drop circuits, to the host PC running the Wallboard Server application.

### Specifications

Ferrograph Wallboard 10	
<b>Voltage</b>	Check label on rear of wallboard
<b>Wattage</b>	35W
<b>Cold Start Inrush Current</b>	30A for up to 6ms
<b>Baud Rate</b>	9600 only
<b>Input</b>	RS485
<b>Weight</b>	4 kg
<b>Dimensions</b>	L 469 x D 75 x H 123 mm

Installation power distribution circuit rating to be greater than 6 amps. Any circuit breakers must be capable of handling the cold start inrush current without tripping.

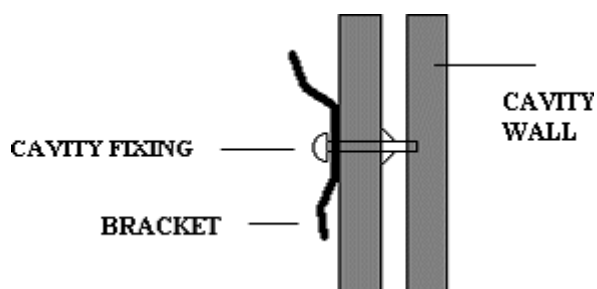
The display is supplied with 2 wall mounting brackets, ceiling mounting kit, PC connection plugs and wall fixings.

The Wallboard 10 displays all come with a 2 meter power cable provided for mains supply. Ensure the voltage requirement is compatible with the intended mains supply and that the supply rating is greater than 5 amps.

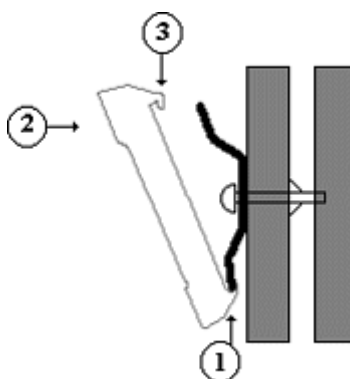
The wallboard can be mounted on the ceiling or wall.

## Wall Mounting

Fix the 2 wall mounting brackets using the cavity fixings provided. The bracket is angled to allow a 10 degree downward tilt to the display. Please ensure the brackets are the correct way up. See the diagram below.



To mount the display, first hook the bottom of the two wall brackets into the bottom rear channel recess of the display. See the diagram below.



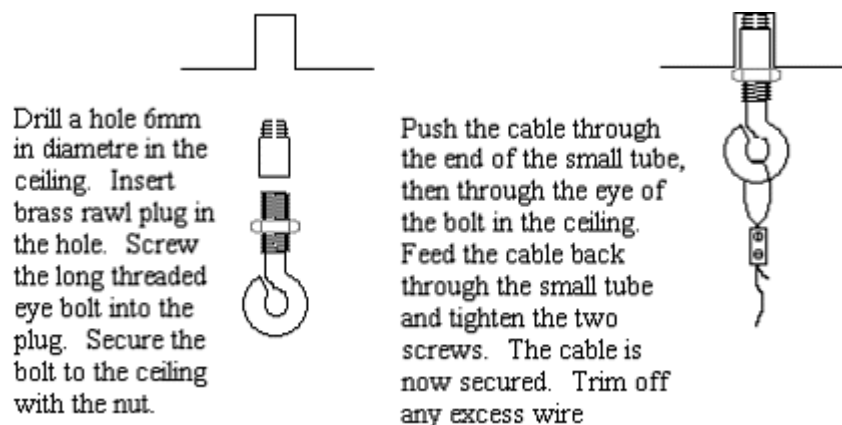
Push display flat against the wall and upwards to fully locate the bottom half of the bracket. Allow display to then drop down onto the top edge of the 2 brackets to obtain a locked fixing. To remove, reverse the above procedure.

**Note:** The display can be adjusted by sliding sideways in both directions.

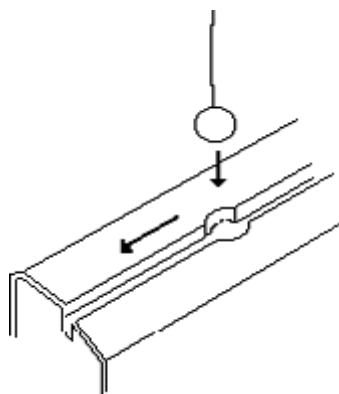
## Ceiling Mounting

From the mounting kit provided, fix the ceiling hanging wires and adjust to the height required. See the diagram below.

**WARNING: Ensure the ceiling can support the weight of the wallboard prior to fixing.**

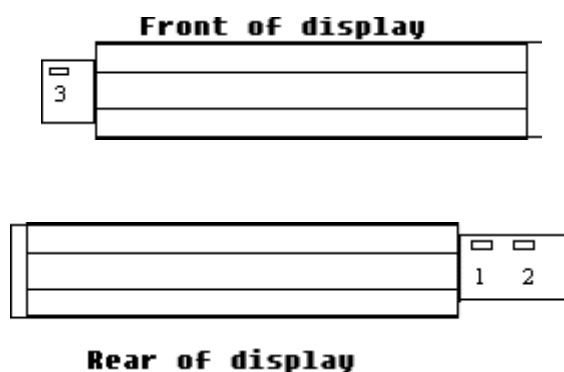


Slide in the 2 ends of the hanging wires into the top groove of the display housing through the pre-drilled center hole. Center the display on the hanging wires. See the diagram below.



## Serial Connection and Configuration

An RJ45 junction box is provided as standard, alternatively if required an RJ45 coupler and 2 way adapter can be used. The serial cable is normally connected to the logic board for RS485 operation, check label on rear of display for specific configuration. The serial communications lead from the PC is connected to the junction box as shown later in this manual. Modifications to the network numbers and baud rates can be done by following the sections below, but changing the dip-switch settings as per the diagram below.



1= RS232 Connection.

2= RS485 Connection.

3 = Dip Switches.

To set the network number requires access to the Wallboard 10 logic board as explained above.

To address individual displays in a network, a network number can be set on the dip-switch on the logic board. Network 0 is a general address and will accept all data from the host system. The network number is set using switches 1,2,3 and 4.

### Dip-switch Number

OFF position represents 0

ON position represents 1

Address	SW1	SW2	SW3	SW4
0	0	0	0	0
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1
9	1	0	0	1
10	0	1	0	1
11	1	1	0	1
12	0	0	1	1
13	1	0	1	1
14	0	1	1	1
15	1	1	1	1

**Baud Rate**

The Baud Rate can be changed to 1200, 2400, 9600 or 19200 using the dip-switch. The Baud Rate is set using switches 5 and 6.

5	6	Baud Rate
ON	ON	1200
OFF	ON	2400
ON	OFF	9600
OFF	OFF	19200

Ensure the Baud rate is set to 9600.

---

**Test Functions**

Test functions are provided to assist installation engineers. These are selected on the dip-switches. Test functions are selected using switches 7 and 8.

If switch 7 and 8 are **OFF** at power reset:

Function	7	8
Freeze Display	ON	ON
Alternating ON/OFF Blocks of LED's	OFF	ON
Stripes	ON	OFF
Normal Operation	OFF	OFF

If switch 7 and 8 are **ON** at a power reset:

Function	7	8
Information Screen	ON	ON
Stripes	OFF	ON
Alternating ON/OFF Blocks of LED's	ON	OFF
Freeze Display	OFF	OFF

## System Wiring

The principle for wiring up your display wallboards is that the PC output port is connected to the input of each wallboard.

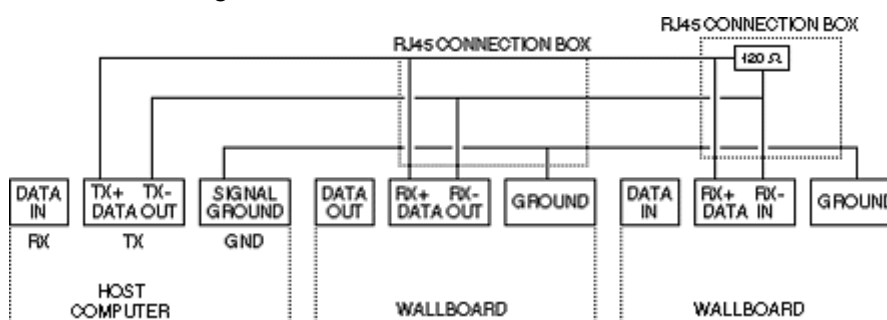
The connection is RS485 and the screen of the cable is connected to the wallboard signal ground, which is floating.

The wallboard housing frame ground is connected to earth by the power cable

### RS485

This standard officially allows 30 wallboards to be connected via a RS485 transmission cable of up to 1200 Meters to a PC RS485 port.

The PC TX+ is connected to the wallboard RX+; similarly, the PC TX- is connected to the wallboard RX-. The recommended technique is to run a screened cable from the PC to the nearest wallboard, then from this wallboard to the next nearest wallboard etc. At the last wallboard on the bus, it is necessary to connect a 120 Ohm terminating resistor between the wallboard RX+ and RX- connections within the RJ45 connection box. See the diagram below.



The installation technique is that data input of each display is electronically connected to the transmit output of the PC.

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## Periodic Maintenance & Inspection

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### Cleaning Display Screen

Time periods between cleaning depend upon local conditions and are at the discretion of the operator. This routine cleaning can be carried out in the normal way using a damp and/or dry cloth.

**Note:** The screen is specially coated to reduce reflections and although this coating is very durable, misuse or incorrect cleaning procedures can damage it.

---

### LED Illumination Test Inspection

The purpose of this test is to ensure no LED fails to illuminate and should be checked annually.

Remove the right hand end cheek and carefully slide out the logic control board so that the dip-switches are accessible. Set switch 8 to ON, inspect the LED display that will run blocks of Green, Red and Yellow across the display. Look for any LED's that fail to illuminate.

Return switch 8 to the OFF position to stop this test.

---

### LED Matrix Scanning Inspection

The purpose of this inspection is to ensure the LED matrix is being scanned correctly. Remove the right hand end cheek and carefully slide out the logic control board so that the dip-switches are accessible.

Set switch 7 to ON, Yellow diagonal stripes will run across the display. Check that these stripes are straight and that Yellow is the only colour displayed. Having completed this visual inspection return switch 7 to OFF and ensure that all switch settings comply with system requirements for baud rate and wallboard network address number.



## Ferrograph Wallboard 22

### Introduction

The Wallboard 22 is a two line by 22-character tri-color Wallboard. It is connected, via multi-drop circuits, to the host PC running the Wallboard Server application.

### Specifications

Ferrograph Wallboard 22	
<b>Voltage</b>	220/240V AC OR 110V AC. (Check label on rear of wallboard)
<b>Wattage</b>	108W
<b>Cold Start Inrush Current</b>	30A for up to 6ms
<b>Baud Rate</b>	9600 only
<b>Input</b>	RS485
<b>Weight</b>	6 kg
<b>Dimensions</b>	L 1097 x D 75 x H 198 mm

Installation power distribution circuit rating to be greater than 6 amps. Any circuit breakers must be capable of handling the cold start inrush current without tripping.

The display wallboard consists of the following assemblies:

- Housing**  
 A housing that is manufactured from an aluminum extrusion with anti reflective polycarbonate screen and removable plastic end caps.
- Power Supply**  
 9V DC switch mode power supply assembly incorporating an RJ45 chassis mounted data connector. The power supply is configurable for use from either 120V AC or 240V AC (NOMINAL VOLTAGES) supplies.
- Logic Control Board**  
 Logic control board that receives RS485 serial data from the data RJ45 connector.
- Display Board Assembly**  
 Tri-color display board assembly, which consists of three display boards which, are connected one to the other by a fiber optic link. The left-hand display board receives display data from the logic control board, via a fiber optic link and it outputs data to the next display board etc. Each display board consists of decoding and LED row and column circuitry which drives the LED matrix consisting of 18 5x8 LED blocks.

## Installation

Before commencing installation, please check from the packing list that all parts are included.

### Packing List:

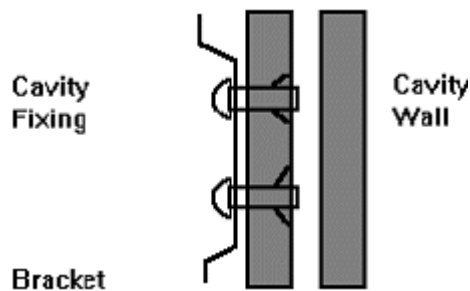
- 1 x Wallboard 22
- 2 x Wall mount brackets
- 2 x Spun hanging wires
- 4 x Cavity rawl plugs
- 4 x Screws
- 2 x Eyehole bolts
- 2 x Masonry rawl plugs
- 2 x Housing clamps
- 1 x RJ45 Terminal Box
- 1 x IEC Power lead

Before commencing installation, please take a couple of minutes ensuring that the final location of the display will be both safe and practical for the customer. Also check that the power socket provided is suitable for this type of display.

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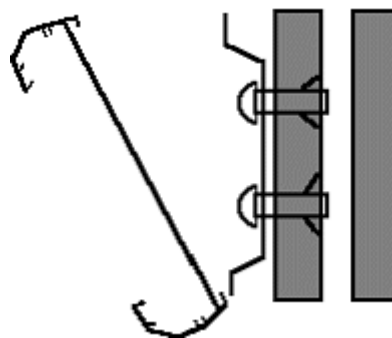
## Wall Mounting

Once a location has been decided upon, mark its location on the wall with a pencil through the two holes in the brackets. Before drilling the holes, a suitable utility detector should be used. Once this has been done, the holes may be drilled and the brackets mounted using the relevant fixings provided.



Before mounting the display onto the brackets, the network address should be assigned. The power lead should also be attached prior to mounting.

To mount the display, first hook the bottom of the two brackets into the bottom rear recess channel of the display. See the diagram shown below.



Push the wallboard flat against the wall and push upwards to fully locate the bottom half into the recess. Now allow the display to fall approximately one inch. The display should now be safely located onto the two brackets.

To remove a wall mounted display then reverse the above paragraph.

**Note:** The wallboard position can be adjusted by sliding sideways in either direction.

## Ceiling Mounting

Using the mounting kit provided, firstly, drill the 6-mm holes for the eyehole bolts and secure them into the ceiling. Pass the spun wire chain through the eyeholes and through the housing clamps and tighten at the required height.

Remove the right hand end cheek of the wallboard by unscrewing the two fixing screws.

Slide the two nipples on the end of the spun wire chain into the middle groove of the display housing and replace the end cheek. Center the display on the hanging wires. Adjustments can be made by sliding the display to achieve the final level.

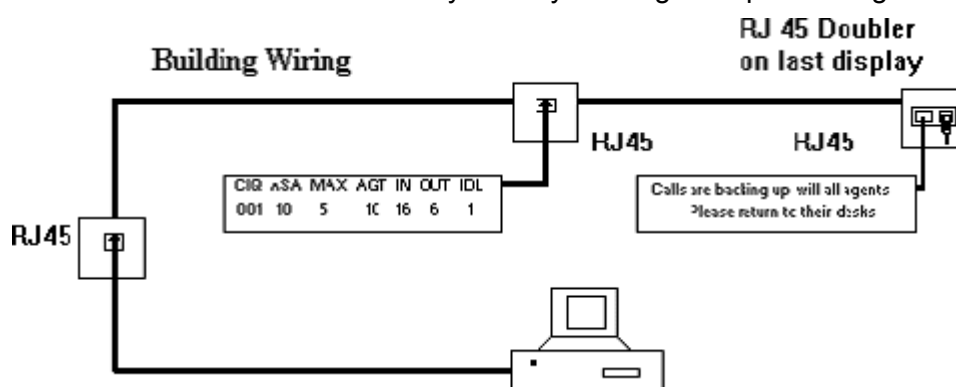
**WARNING: Ensure the ceiling can support the weight of the wallboard prior to fixing.**

## RS485 Serial Connection

The RJ45, RS485 flying lead is one metre long. It cannot be removed from the Wallboard; therefore, this must be taken into consideration for the location of the RJ45 terminal box.

Fit the RJ45 terminal box within one metre of the center of the Wallboard.

The Wallboard should be connected to the host system by utilizing a drop off wiring configuration.



All RJ45 sockets should be wired identically with the terminated RJ45 plug on the final socket with the supplied RJ45 doubler.

## Network Addressing

Each display can be configured to display different messages. This is achieved by allocating each display its own network address. Within each display there is a board containing eight dip-switches. For more information see the section entitled Serial Connection & Dip-Switch Details.

## Additional Equipment

**External Alarm Device** for connection to Wallboard 22 only.

An external alarm device is available to supplement the in-built buzzer. This interface allows a DC powered device to be attached to a couple of pins provided by a 6-pin DIN connector, which is mounted on the rear of the display. This 6-pin DIN port provides the ability to connect the additional device in addition to the internal buzzer.

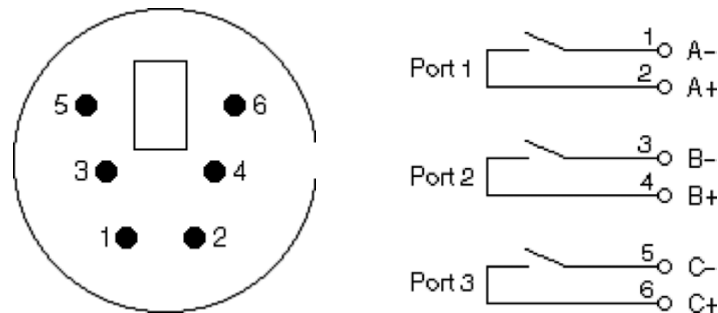
**Note:** It is not possible to drive the external device independently of the internal buzzer.

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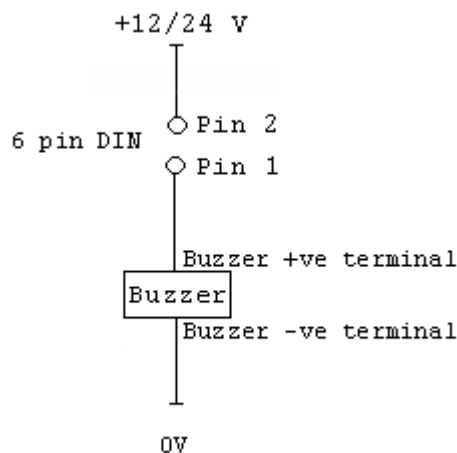
### Connection Details

The external 6-pin DIN connector is located adjacent to the Mains Power Lead (IEC Connector). The pins are numbered on the connector from 1-6. Port 1 will replicate the internal buzzer, and should be used for buzzers. Ports 2 and 3 are not used at this point.

**Socket View - 6 Pin Mini-DIN**



The overall connection schematic looks like this:



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### Compatible External Devices

All of the devices below are available from the Farnell Electronics Catalogue, and have been tested by Ferrograph and are recommended as suitable for connection to the external interface.

**Note:** This external interface has been designed for connection of DC Voltage devices ONLY.

- Continuous/Pulsed Single Tone Sounders – 12V & 24V DC.
- Farnell Reference: FEC143-400, FEC143-402, FEC143-403.

## Periodic Maintenance and Inspection

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### Cleaning Display Screen

Time periods between cleaning depend upon local conditions and are at the discretion of the operator. This routine cleaning can be carried out in the normal way using a damp and/or dry cloth.

**Note:** The screen is specially coated to reduce reflections and although this coating is very durable, misuse or incorrect cleaning, procedures can damage it.

---

### LED Illumination Test Inspection

The purpose of this test is to ensure no LED fails to illuminate and should be checked annually.

Remove the right hand end cheek and carefully slide out the logic control board so that the dip-switches are accessible. Set switch 8 to ON, inspect the LED display that will run blocks of Green, Red and Yellow across the display. Look for any LED's that fail to illuminate.

Return switch 8 to the OFF position to stop this test.

---

### LED Matrix Scanning Inspection

The purpose of this inspection is to ensure the LED matrix is being scanned correctly. Remove the right hand end cheek and carefully slide out the logic control board so that the dip-switches are accessible.

Set switch 7 to ON, Yellow diagonal stripes will run across the display. Check that these stripes are straight and that Yellow is the only colour displayed. Having completed this visual inspection return switch 7 to OFF and ensure that all switch settings comply with system requirements for baud rate and wallboard network address number.

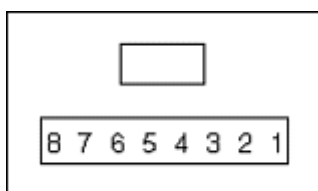
## Serial Connection & Dip-Switch Details

### Wallboard Terminal Box RJ45 Connector Pin Out Details

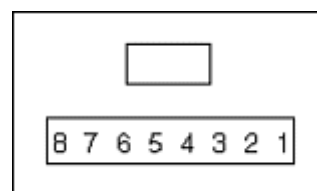
Pin	Signal
2	Signal Ground
3	Sign Rx+ Input
4	Sign Tx+ Output
5	Sign Tx- Output
6	Sign Rx- Input
7	—

### Pin out Connections

Wallboard x RJ45 Socket



Wallboard x+1 RJ45 Socket



Pins from 2 to 7 should be connected identically from all RJ45 boxes to all others.

### Dip-Switch Details

#### Network Address

OFF Position Represents 0

ON Position Represents 1

Address	SW1	SW2	SW3	SW4
0	0	0	0	0
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1
9	1	0	0	1
10	0	1	0	1
11	1	1	0	1
12	0	0	1	1
13	1	0	1	1
14	0	1	1	1
15	1	1	1	1

## Baud Rate

Dip Switch Settings are:

SW5	SW6	DATA BIT/SEC
OFF	OFF	19200
ON	OFF	9600
OFF	ON	2400
ON	ON	1200

Ensure the Baud rate is set to 9600.

## Test Functions

SW7	SW8	FUNCTION
OFF	OFF	Normal Running
ON	OFF	Diagonal Stripe Test
OFF	ON	Full Screen LED Test
ON	ON	Information Screen ( <b>Only on power up</b> )

The information screen shows three pages where the following text is displayed. The dip switches must be set with the display powered down, then switch power on to achieve information screen.

- Yellow Text = Software Version Sign Type.
- Green Text = Network Number.
- Red Text = Baud Rate.

## **RS485 Communication Systems**

This standard officially allows 30 wallboards to be connected via a RS485 transmission cable of up to 1200 metres to a PC RS485 port.

The PC TX+ is connected to the wallboard RX+; similarly, the PC TX- is connected to the wallboard RX-. The recommended technique is to run a cable from the PC to the nearest wallboard then from this wallboard to the next nearest wallboard etc.

At the last wallboard on the bus it is necessary to connect a 120 ohm terminating resistor between the wallboard RX+ and RX- connections using the supplied terminated RJ45 Plug and the RJ45 doubler.

The cable specification must include a twisted pair with an overall screen and characteristic impedance of 100 ohms.

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### **Ground Loops**

Proper operation of RS485 requires a signal return path. A third wire should connect all the system signal grounds together and is most often an additional shield conductor.

Distributed power systems in industrial applications may have differences in the AC power line grounds of several volts as measured from location to location. Ground differences that are greater than 5V RMS can destroy the RS485 transceivers. Loop currents can exist within the shield conductor because of these voltage potentials, causing data errors. Loop currents can be minimized by installing 100 ohm resistor in series with the cable shield and the RS485 Line Driver ground connection or by ensuring that the screen of the cable does not make contact with the wallboard frame earth. Spurs, which lead off from the main RS485 cable to a wallboard, should be kept to less than one metre long.



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## Spectrum 4120C Wallboard

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### Introduction

The Spectrum 4120C is a two line 20-character tri-color wallboard. It is connected via a multi-drop circuit to the host PC running the Wallboard Server application.

### Specifications

<b>Voltage</b>	Check label on rear of wallboard
<b>Wattage</b>	150W
<b>Baud Rate</b>	9600 only
<b>Input</b>	RS485
<b>Weight</b>	8.4 kg
<b>Dimensions</b>	L 1021 x D 129 x H 196 mm

Spectrum Wallboards can be 'daisy-chained'; this will require the use of the Spectrum Remote Controller to enable serial addressing. For this and the Wallboard specifications, safety statements, wall mounting instructions, etc., refer to the documentation supplied with the Wallboard.

For installation guidance, please refer to the documentation supplied with the Wallboard. In some instances the Spectrum 4120C has been renamed as the 3314C. Additional information on this wallboard is available via <http://www.specorp.com/>.

**Caution:** Connection **must** only be made via the Wallboard's RS485 socket.

## Advatel TDC226C Wallboard

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### Introduction

The AdvateL TCD226C is a one line 26 character tri-colour wallboard. It is connected via a multi-drop circuit to the host PC running the Wallboard Server application.

### Specifications

<b>Voltage</b>	240/110V manually switchable on separate PSU
<b>Wattage</b>	120W
<b>Baud Rate</b>	9600 only
<b>Input</b>	RS232
<b>Weight</b>	4.4kg
<b>Dimensions</b>	L 1207 x D 60 x H 125 mm

AdvateL Wallboards can be 'daisy-chained'. Refer to the documentation supplied with the wallboard for details.

**Caution:** Connection to the PC must only be made via the Wallboard's DB9 socket.

The following is a brief outline of the installation of the AdvateL TCD226 Wallboard. For more detailed installation guidance, please refer to the documentation supplied with the Wallboard.

Additional information on this wallboard is available via <http://www.advatel.com/>.

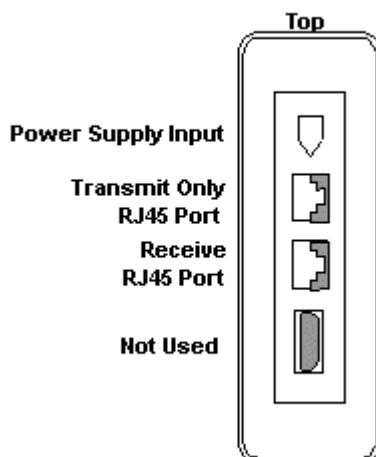
The display wallboard has the following features.

- Allows the connection of input and output cables with RJ45 connectors
- Contains a DB9 pin connector for serial connection to the PC Com port.
- The distance between Wallboard displays can be up to 500 meters
- A manually switchable AdvateL 240/110 VAC power supply is supplied with each wallboard. The power supply is equipped with an internationally acceptable IDC connector
- The wallboard is equipped with a bleeper volume control.

## Hardware Connections

The following diagram below shows the connections to the TCD266C Wallboard.

End View of Wallboard



### Communications Type:

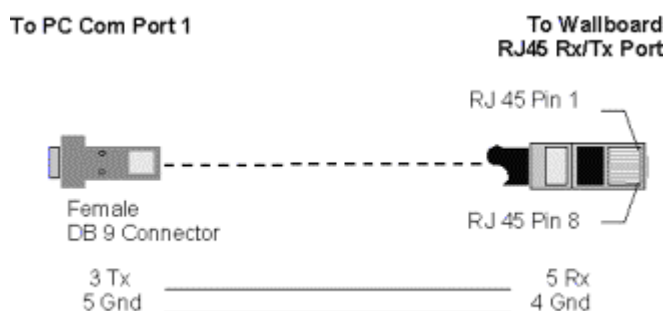
- 9600 Baud, 8 data bits
- Two stop bits, no parity
- RS232 from PC
- Current loop to 2nd and all daisy chained signs.

The data input to the TCD Wallboards can be connected to either the RJ45 or DB9 pin Transmit/Receive ports.

## PC Communications - Serial Port

There are two cable options that can be used when connecting the serial (COM) port of the PC to the input of the first display.

1. DB9 pin female connector that plugs into the COM port on the computer with a RJ45 connector that plugs into the RJ45 Receive/Transmit socket on the display. To correctly identify pin 1 on the RJ45 plug, hold it as shown below with the gold pins facing you. Pins are numbered from top to bottom.

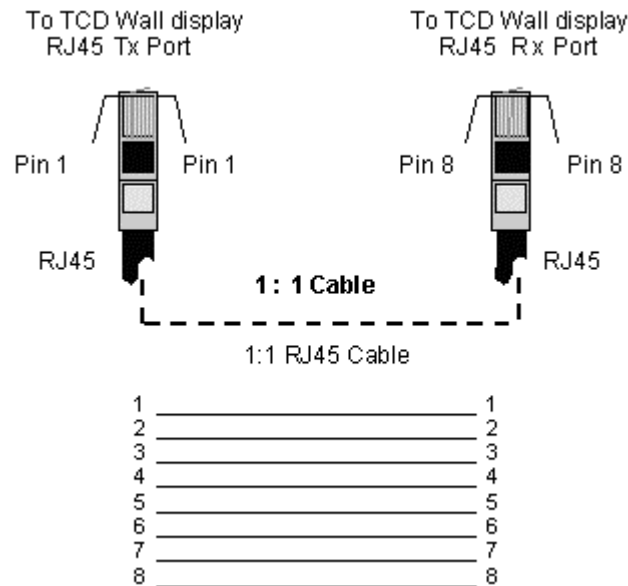


## Daisy Chain

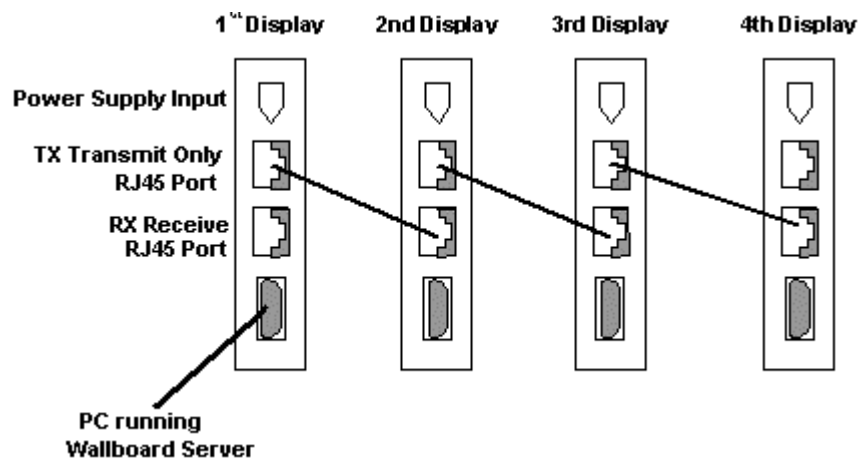
When connecting more than one display in a daisy chain simply use a 1:1 cable terminated on RJ45 connectors.

Plug one end of the RJ45 connector into the Transmit Only RJ45 port on the first display, and plug the other end of the RJ45 connector into the RJ45 Receive/Transmit port on the next display. Repeat this configuration for other displays in the daisy chain. The diagram below shows the cabling configuration of the 1:1 RJ45 cable.

To identify pin 1 on the RJ45 plug, hold it as shown below with the gold pins facing you.



The diagram below shows four displays connected via the RJ45 1:1 cable in a daisy chain configuration.

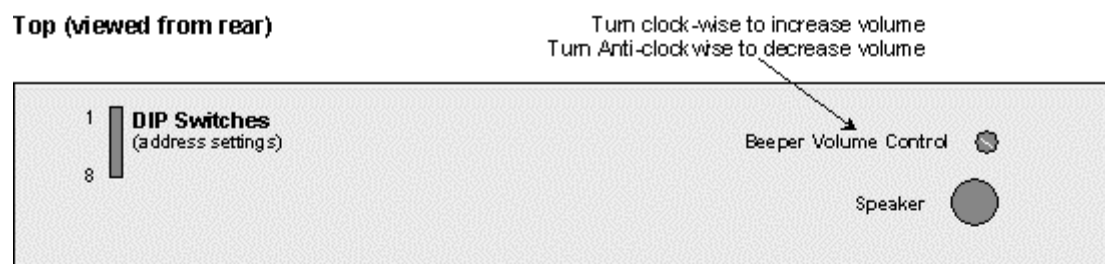


## Wallboard ID and Bleeper Volume Control

Each TCD226C display can be individually addressed. At default, the display is set to Address ID = 1. The addressing DIP switches are located at the back of the display. To access the DIP switches, remove the two securing screws from the end cap and slide out the back cover.

The ID Addresses range from 1 to 32. The ID addresses are shown below are for ID address = 1 to 8 (binary). The bleeper volume control is also shown.

Top (viewed from rear)



DIP Switch Setting for Addresses 1- 8

ID = 1	ID = 2	ID = 3	ID = 4	ID = 5	ID = 6	ID = 7	ID = 8
On	On	On	On	On	On	On	On
1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>

## CCC Wallboard Installation

Before starting the Wallboard Server, you must ensure that the Delta Server is running.

**Note:** The Wallboard Client does **NOT** support the Device option.

### Wallboard Server is started by:

1. Click the **Start** button on the Windows taskbar.
2. Point to **Programs**.
3. Point to **CCC**.
4. Click **Wallboard Server** from the sub-menu.
5. Select whether you want the wallboard server to start automatically after a PC re-boot.

**Note:** Every time you start and/or exit the Wallboard Server, the internal buzzer within the Wallboard (10/22 or a Spectrum Wallboard) is triggered whilst resetting the Wallboard device(s).

### To install a new Wallboard:

1. With the Wallboard Server open, from the **Devices** menu, select **Install New Wallboard**. The Install New Wallboards wizard appears.
2. Select the required Wallboard manufacturer (Ferrograph for 10/22 Wallboards, Spectrum or AdvaTel).
3. Select the required Ferrograph Wallboard model (10 or 20).
4. Click the **Next** button.
5. Select the Communications Port that the Wallboard is connected into (use Communications Ports 5 or 6 if using a Communications Card with a Ferrograph wallboard; otherwise use the number of the Communications Port that the Spectrum wallboard is connected to).
6. Enter the Network Number. There are 30 (1–30) numbers available. For each selected Communications Port, Network Numbers 1–15 can be used. By default Network Number 0 selects all the available Wallboard devices on either port.
7. Enter a name for the Wallboard in the Alpha Tag text box. The name can contain both alpha and numeric characters.
8. Click the **Finish** button to save the settings.

**Note:** The Spectrum and AdvaTel wallboards require a licence on IP Office.

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## Wallboard Properties

This option enables you to configure as well as add either of the Wallboards.

With the Wallboard Server open, from the **Devices** menu, select **Wallboard Properties**. The Wallboard Properties screen lists the installed Wallboards.

1. To add a Wallboard, click the **Add** button.
2. To remove a Wallboard, select the device and then click the **Remove** button.
3. To select a Wallboard as the default device, select the required Wallboard then click the **Set as Default** button.
4. To check the configuration of a Wallboard device, select the Wallboard and then click the **Properties** button.
  - The **General** tab allows you to:
    - Change the Comm Ports setting of the selected Wallboard by selecting a port from the Available Ports and then click the **Change Port** button.
    - Change the Network Number by entering the required network number and then click the **Change Network Number** button. There are 31 (0–30) numbers available.
    - Change the name of the Wallboard by clicking in the Alpha Tag text box and modifying the selected Wallboard name as necessary.

Click the **Close** button to save any changes.

- The **Hardware** tab allows you to:
  - Clear all the messages on the Wallboard by using the **Reset** feature. This should only be used if there are no scheduled messages displayed or that the messages are not displayed properly on the device.

## Check Wallboard Operation

Once you have started the Wallboard server, you can check the Wallboards that you are connected to. To do this:

1. From the **Devices** menu select **Wallboard Properties**.
2. The list of available Wallboards is shown. If no Wallboards show, you will need to install a Wallboard.

### To check a Wallboard:

1. Select the Wallboard to check from the listing.
2. Click on the **Properties** button.
3. Click on the **Hardware** tab.
4. Click the **Self Test OFF** button to start the self-test. A message will show asking '*The self test will clear any messages on the selected wallboard. Do you wish to continue?*' Click on the **Yes** button if there are no messages running.
5. If information appears on the selected Wallboard, click on the **Self test ON** button to turn the test off.
6. Click the **Cancel** button.
7. Click the **Close** button.

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## View Active PC Wallboard

When this option is selected, you will see a list of PC Wallboard(s) currently connected to the Wallboard Server.

To update the list, click **Refresh**.



# Starting User Access

CCC User Access is available on all Server and Client PCs. It allows storage of personal Call Center View profiles and Wallboard settings.

Initially, on each PC, Administrators can log on by entering the following:

**Name:** Admin

**Password:** NMYSBH


**CAUTION:** When you log on as Administrator for the first time, it is recommended that you **change the password**. The new password must be recorded and kept in a secure place.

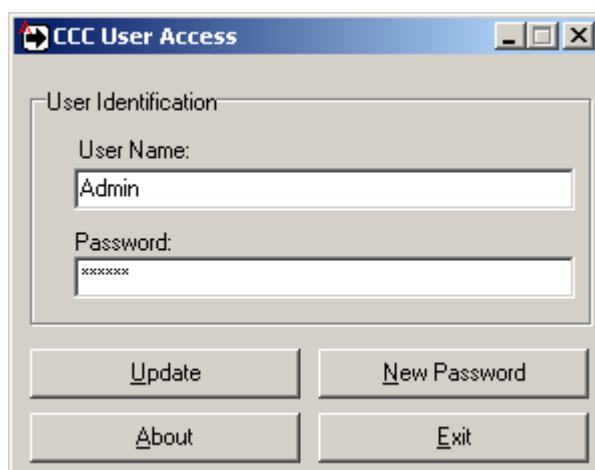
As an administrator you have the ability to change all set up screen and run the CCV Alarm Reporter application.

You can also log on with any name and no password is required. As you are not logged on as an administrator, CCV Alarm Reporter cannot be run and the following setup screens are not available.

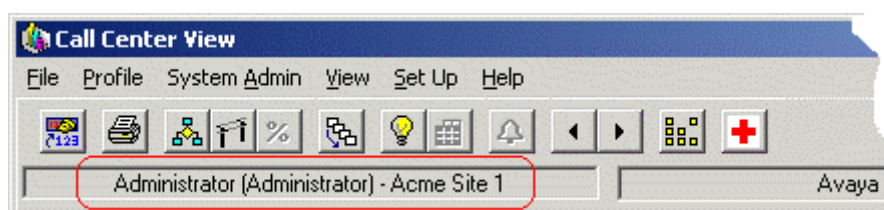
- WB Alarm Scripts
- Alarm WB Destination
- Alarm Settings
- Default Settings.

## To log on using CCC User Access:

1. Double click on the CCC User Access Icon  showing on the toolbar. If this is not visible double click the same Icon on the desktop and then double click on the toolbar Icon (which should now be visible).
2. A CCC User Access screen will be shown. For Administrator rights the User Name must be **Admin**. A password box will appear. Enter the default password (NMYSBH) and the **Update** button will become active. Click on it to update the user identification.



3. The **new password must be recorded and kept in a secure place**. To change the password, click on the **New Password** button, enter your new password and confirm the change.
4. When you have logged on as either Administrator or Supervisor, the status will appear at the bottom of the CCV task bar as follows:



# Delta Server

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## Introduction

The Delta Server receives the IP Office call data via the LAN.

The Delta Server is a component to which all the CCC modules connect. It is able to support up to **150** simultaneous client connections and consists of software that ensures every activity on the telephone system is passed through to these modules. An example of an activity could be that an agent has 'logged on' which would clearly impact the real time Call Center View and the Wallboard Manager software.

The Delta Server additionally holds a model of the IP Office such that each time a new CCC module is started it will synchronise itself with "today's" data, thus ensuring consistency between clients irrespective of when they were started.

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## Launching Delta Server

Ensure the Delta Server has established connection with the telephone system. Every time the Server PC is switched on, the Delta Server starts up automatically, as a service. If the Delta Service has not started then you will not be able to view the web page. To view the Delta Server performing the following:-

- Click the **Start** button on the Windows Taskbar.
- Point to **Programs | CCC | Delta Server**
- Click on **Delta Server**.
- Click on **Comms** in the Toolbar Pane to view the connection information.

The information on the screen is:

### Comms Status

This indicates the status of the link between the Delta Server and the telephone system. These are:

- **Init Comms**  
Indicates Delta Server is initializing and has established communication with the telephone system (this happens every time you start the Delta Server).
- **Comms Restored**  
Indicates that the connection between the Delta Server and the telephone system is established.
- **Comms Failure**  
Indicates that the communications link between the Delta Server and the telephone system has been terminated.

### Toolbar Fields

The Event Viewer, Event Viewer Selector, Email Notification, Log to File, SMDR, Comms etc. enable access to their display field menus.

For details on configuring and using the Delta Server menus, refer to the separate CCC Administrator's Manual.

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# Upgrade Procedure

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## Overview

### Multi Media Module

For the MultiMedia Module, uninstall (control Panel) MMM and reinstall from CCCv4 disc. The original database and records are preserved for use by the software upgrade. As you proceed through the install procedure, you will be asked for account names, server details, etc. Obtain these from the configuration sheets that were compiled on the original installation (refer to separate MMM Installation Manual).

### CCCv4 to CCCv5

Please refer to the sections 'Hardware Requirements' and 'Software Requirements' to ensure that the existing system has necessary pre-requisites before upgrading. Two windows components (IIS and .NET) are required by CCCv5 that need to be installed. It is vital that IIS (Internet Information Services) is installed prior to .NET. If these are installed in the wrong order, uninstall .NET and then reinstall.

1. Install Internet Information Services (IIS). If this has already been installed, please check that the version is 1.1 or above.
2. Install ASP.NET if using a Windows 2003 Server.
3. Perform the installation procedures as detailed in Installation of CCC Components but use the **Repair** option at the **Welcome** screen instead of Modify.

**Note:** If a CCCv4 database is being moved to a new CCCv5 installation, ensure that a repair is run on the database after it has been moved so that the database is updated.

### CCCv3 to CCCv5

The upgrade from a CCCv3 Server PC to a CCCv5 Server PC is done in five stages. These stages are as follows:

1. MSDE must have the latest service pack installed (SP3) to protect your system from recent viruses that have targeted SQL based servers.
2. The Database containing the historic data needs to be backed up.
3. CCV user profiles, wallboard files, custom reports and any report schedule information need to be backed up.
4. The database structure needs upgrading to make it compatible with CCCv4.
5. The new applications need to be installed.

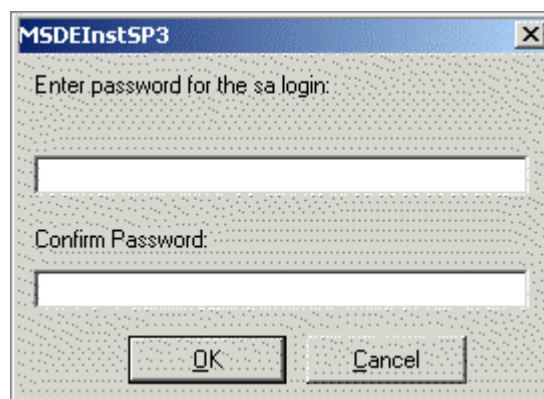
The total time taken to upgrade will be dependant on the current size of the database and the amount of client PC's that need upgrading. As a rough guide 2-3 hours should be sufficient time to complete all upgrade activities.

**Note:** Custom Reports that have been created in previous versions of CCC can not be migrated into CCCv5. All those reports will need to be re-created within Crystal reports and published within Reporter. Previous versions of CCC used Business Objects to create the custom reports. Custom reports are backed up so that they can be referred back to if needed in the future.

## MSDE Upgrade

Recent viruses have led to Microsoft releasing a new service pack for MSDE, service pack 3. If you have not already applied this service pack to your system now is the ideal time to do this. Even if you have applied the service pack you are advised to follow these steps to re-apply the service pack as the install from the CCCv5 application CD will also enable you to set a password for the database login to offer you further security for your data.

1. Close down all of the CCC applications that are running on your Server.
2. Insert the CCCv5 Installation CD into your CD-ROM drive.
3. From the Windows taskbar click **Start**, select **Run** and then click on the **Browse** button.
4. View the CD drive and double click the **MSDE** folder. Select **MSDEInstSP3.exe** and click on the **Open** button. Click the **OK** button to continue.
5. Select the required language for the installation and then click on the **OK** button. The following screen will appear to enable you to setup a password for the database. It is recommended that you set this password to **NMYSBH**:



6. When you have entered the password click on the **OK** button. The installation of the service pack will continue.
7. Once the setup is complete, reboot the PC when requested.
8. Once Windows has restarted log back on and if any of the CCC applications restart make sure that you close them down again before backing up your database.

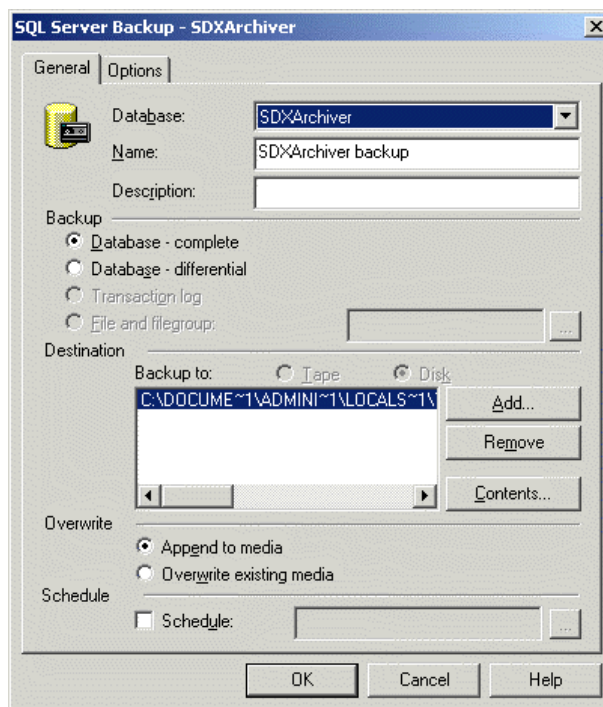
## Backup Your Database

Before proceeding, backup your existing database. This is a precautionary measure that should be taken just in case something goes wrong during the upgrade and you need to revert to the existing database.

1. You will need to create a new directory on your hard drive to backup your files to. In the example shown here we have created a directory on the D Drive called "Backup".

**Note:** The database can be up to 2 gigabytes in size so make sure that you create your backup directory on a drive that has enough storage space.

2. From the Windows taskbar click **Start**, select **Programs | CCC | Database Server Supervisor**. Remember that the password is the one that you set during the installation of MSDE service pack.
3. Click on **OK** to continue.
3. Expand the Databases and Management trees and then right click on **Backup** and select **New Backup Device**. This is so that we can create a backup device to store our existing database on.
4. Give the backup device a name and set a location and filename for the backup and click on **OK**.
5. Right click on **SDXArchiver** in the databases tree and select **Backup Database**.
6. The following screen will appear. If there is anything listed in the Destination box select it and click on **Remove**.



7. Add the new backup device that was have created to be the destination for the database backup. Click on **Add** and, from the **Backup Device** drop down list that appears, select your backup device. Click on **OK**.
8. Make sure that you select the **Database – complete** and **Overwrite existing media** options and then click on **OK** to start the backup.
9. The database backup will now start. The length of time this takes depends on how much data you have stored in your database.
10. When the backup has completed click on **OK** and then close down the Database Server Supervisor application.
11. If you now browse to your backup directory you will be able to see the database backup file that you have just created.

The CCC files now need to be backed up.

## Backup CCC files

The operator profiles used for Call Centre View, the wallboard files, any custom reports and any report schedule information need to be backed up. The Call Centre view profiles, wallboard files and custom reports will not be overwritten and are backed up as a precaution, the report schedule information will be overwritten and will need to be re-entered when the system has been upgraded.

**Note:** Custom Reports that have been created in previous versions of CCC can not be migrated into CCCv5. All those reports will need to be re-created within Crystal reports and published within Reporter. Previous versions of CCC used Business Objects to create the custom reports. Custom reports are backed up so that they can be referred back to if needed in the future.

1. Explore to **C:\Program Files\Avaya\IP400\CCC\CallCentreView** and copy the **Operator** directory to your backup directory that you created earlier. This directory contains the user profiles used for Call Centre View.
2. Explore to **C:\Program Files\Avaya\IP400\CCC\WBServer** and copy the following files:
  - Aggregatevars.mdb
  - Devices.mdb
  - Wallbrd.mdb
  - Sdxwb.ini

If you are using PC Wallboards then also copy the **Users** directory in the WBServer directory. Copy all of these files to your backup directory.

3. If you have created any custom reports then copy these to your backup directory. A new set of standard reports will be installed with CCCv5 so you do not need to back these up.
4. If there were any reports scheduled to print via the Report Scheduler then restart the Report Scheduler and make a note of the schedule list and distribution. Once you have made a note of the schedule close the application down.

The database now needs to be uplifted so that it is compatible with the new structure of CCCv5.

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## Database Uplift

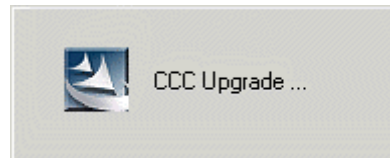
Before the CCCv5 applications are installed we need to modify the database so that it is compatible with the new database structure of CCCv5. To do this we use a tool supplied on the CCC CD-ROM to "uplift" it to the correct level.

1. Browse to your CD-ROM drive containing the CCCv4 CD and go to the **Database Uplift** directory. Copy the **DBUplift3.exe** file and paste it on to the desktop.
2. Double click on the application to run it. Select your required language and click on **OK**.
3. Select your server and remember to enter the password that you set earlier when applying the service pack to MSDE. Click on **OK**.
4. A popup screen will appear telling you that the database on ARCHIVERSQL will be upgraded. Click on **Yes** to start the uplift procedure.
5. The uplift will now start modifying the database structure and applies any changes necessary to make it compatible with CCCv5.
6. Once the uplift has completed click on **OK** and then close down the uplift tool.

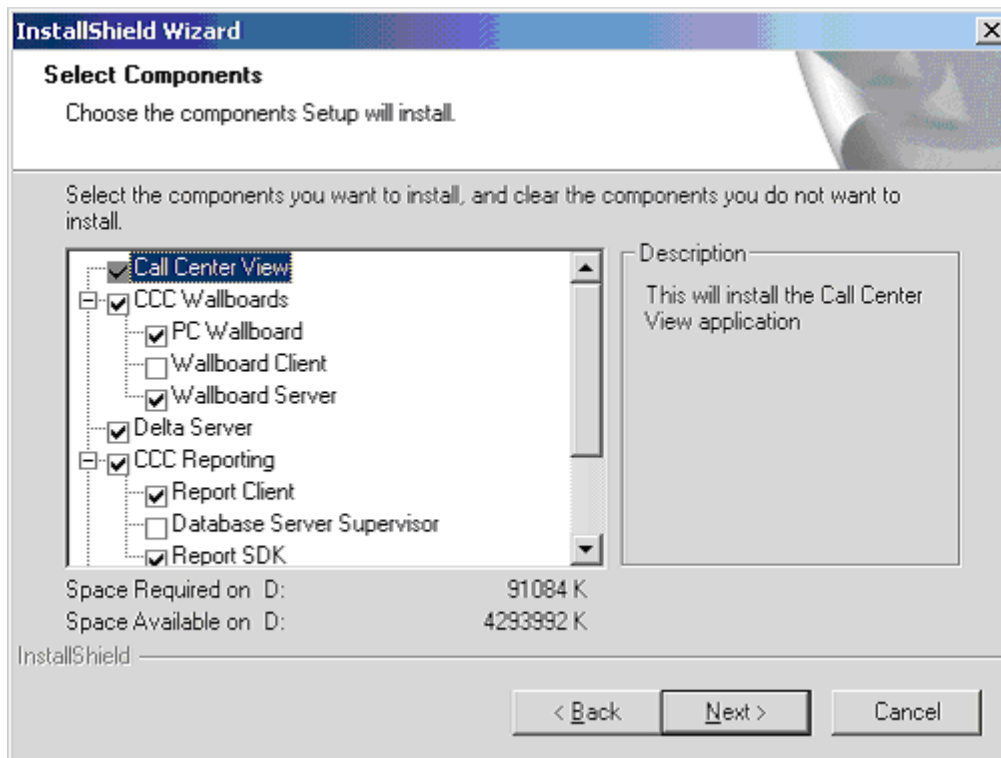
The new CCCv5 applications can now be installed.

## Install CCCv5 Applications

1. From the Windows taskbar click **Start**, select **Run** and then click on the **Browse** button.
2. View the CD drive and double click the **CCC** folder. Select **Setup.exe** and click on the **Open** button.
3. Click the **OK** button to continue.
4. Select the required language and click on **OK**.
5. The InstallShield Wizard starts and after a few minutes the upgrade begins by moving all of your existing applications into a new directory structure. Currently the CCC files will be stored at **C:\Program Files\Avaya\IP400\CCC** but during the upgrade they are moved to **C:\Program Files\Avaya\IP Office\CCC**. Whilst this is happening the following screen will be displayed.

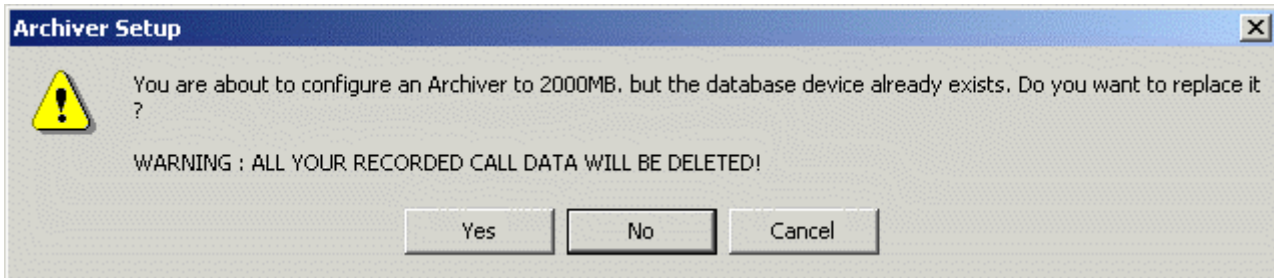


6. Once the files have been moved the new applications need to be installed. At the InstallShield Wizard click **Next**.
7. The components screen then appears. Make sure that you select the correct components to install. You must select the applications that you have already installed so that they can be upgraded. The screen below shows most of the options that you should be installing on your Server, you may also need to select the CCV Alarm Reporter installation as well (not shown).



8. Click on the **Next** button to start the installation.

- At approximately the 50% progress mark the following screen will appear. Make sure that you click on **NO** as you do not want to overwrite your existing historical call data.



- You will then be asked if you want to overwrite your **Reports Database**. You must make sure that you click on **YES** to make sure that the latest CCCv5 Reports are installed.
- When the installation has completed click on **Finish** and when the InstallShield Wizard has closed down reboot the PC.
- Once Windows has restarted log back on and make sure that all of your new CCCv5 applications start.
- If you had any reports scheduled via the Report Scheduler then open these reports and reschedule them.

Once your Server is upgraded and running you need to upgrade any client PC's that you have.

---

## Client Upgrade

- Create a directory to backup your files to.
- You need to backup your CCV operator profiles and any custom reports as described in the MSDE Upgrade section. These should be stored in your backup directory. You do not need to back up any PC Wallboard files as these are stored on the Server PC and only a local copy exists on the Client PC.
- Insert the CCCv5 application CD-ROM into your CD drive.
- From the Windows taskbar click **Start**, select **Run** and then click on the **Browse** button.
- View the CD drive and double click the **CCC** folder. Select **Setup.exe** and click on the **Open** button.
- Click the **OK** button to continue.
- Select the required language and click on **OK**.
- The InstallShield Wizard starts and after a few minutes the upgrade begins by moving all of your existing applications into a new directory structure, as explained previously in the MSDE Upgrade section.
- Once the files have been moved the new applications need to be installed. At the InstallShield Wizard click **Next**.
- The components screen then appears. Make sure that you select the correct client components to install. You must select the applications that you have already installed so that they can be upgraded.
- Click on the **Next** button to start the installation.
- When the installation has completed click on **Finish** and when the InstallShield Wizard has closed down reboot the PC.
- Once Windows has restarted log back on and make sure that all of your new CCCv5 applications start.



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## Upgrade to SQL 2000 Procedure

The following steps will upgrade an installation of MSDE 2000 to SQL Server 2000.

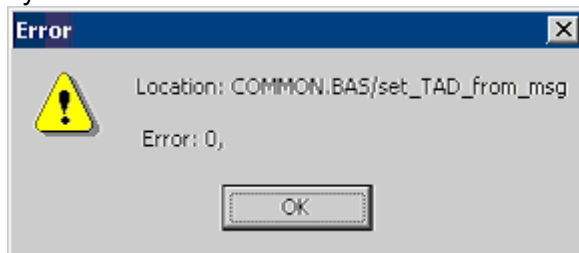
1. Insert the SQL Server 2000 disk into your CD-ROM drive. If the compact disk does not auto run, double click Autorun.exe in the root directory of the compact disk.
2. Select **SQL Server 2000 Components**, select **Install Database Server** and then at the **Welcome** screen, click **Next**.
3. In the Computer Name screen, Local Computer is the default option and the local computer name appears in the edit box. Click **Next**.
4. In the Installation Selection screen, click **Upgrade, remove or add components to an existing instance of SQL Server**, and then click **Next**.
5. Enter the 25 digit CD-Key and click **Next** to continue.
6. In the Instance Name box, default will be selected, click **Next**. (When upgrading the existing installation of MSDE 2000 automatically becomes the default instance of the SQL Server 2000).
7. At the existing Installation screen, click **Upgrade your existing installation** and then click **Next**.
8. At the Upgrade screen, you are prompted as to whether you want to proceed with the requested upgrade. Click **Yes, upgrade my SQL Server Tools and Data** and then click **Next**.
9. At the Connect to Server screen, select the **SQL Server System administrator login information (SQL Server authentication)**. Ensure the Enter sa Password field is empty and then click **Next**.
10. At the Start Copying Files screen, click **Next**.
11. In the Choose Licensing Mode dialog box select **Processor License for** and enter **1** if installing on a PC with one processor otherwise enter **2** if installing on a PC with 2 processors. Click Continue. The file installation process begins.
12. At the Setup Complete screen, click **Yes, I want to restart my computer now**, and then click **Finish**.
13. The SQL Server 2000 Components need to be installed now. Re-insert your SQL Server 2000 disk into your CD-ROM drive. If the compact disk does not auto run, double click Autorun.exe in the root directory of the compact disk.
14. Select **SQL Server 2000 Components**, select **Install Database Server** and then setup prepares the SQL Server Installation Wizard. At the Welcome screen, click **Next**.
15. At the Computer Name screen, Local Computer is the default option and the local computer name appears in the edit box. Click **Next**.
16. At the Existing Installation screen, click **Add components to your existing installation** and then click **Next**.
17. At the Select Components screen, select the required components. It is recommended that in addition to Server Component being selected that you have Management Tools and Client Connectivity options selected. Click **Next** to continue.
18. In Start Copying Files dialog box click **Next** and In the Setup Complete screen click **Finish**.

# Trouble Shooting

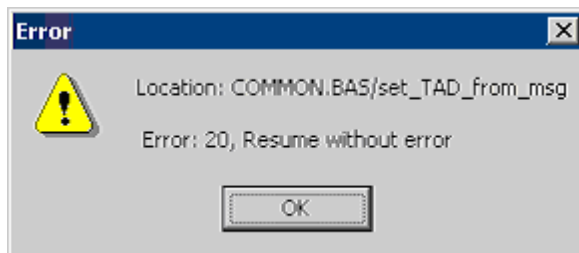
---

## CCC Installation

1. If, for whatever reason, the Server PC has to be renamed, **do not** use spaces in the new name (Microsoft SQL cannot be guaranteed to operate correctly).
2. When shutting down a Server PC, ensure that **all** CCC applications are closed before shutting down.
3. When re-booting, if a Delta Server Port access is denied message appears, (port number conflict), consult with your Network Administrator to obtain a free port number.
4. In some situations you may need to install Archiver separately to achieve an installation with just a Delta Server and Archiver. If just the Delta Server is selected to be installed, then the Archiver is installed automatically. This type of installation may be used for multiple Delta Servers reporting to one shared and remote SQL Server.
5. If the following error messages appear you need to ensure that the Client PC's are able to synchronise their time with the Delta Server.



followed by:



The messages imply that Call Center View is not able to synchronise the time of the local machine running Call Center View with the Delta Server host.

Close Call Center View and set permissions to allow the user running CCV to change the system time.

---

## Wallboard Server/Client

On the Wallboard Server/Client, scheduled messages can only be removed from the schedule by a user with a higher access level than the User that scheduled the message or by the user that scheduled the message. It therefore follows that if a user with Administrator access rights has scheduled a message then only that User can remove that message from the schedule.

# Glossary

**ANI:** Automatic Number Identification (ANI). See CLIP

**Assisted Transfer:** A call transferred from voicemail, which if it returns again to voicemail, will return to the previous position.

**BACP:** Bandwidth Allocation Control Protocol (BACP) is a protocol specification for PPP that allows Multilink PPP routers to negotiate extra bandwidth dynamically over time. Using BACP, two routers can dynamically connect extra "B" channels at times of higher load, then can drop the channels when they are no longer needed. BACP is described in RFC2125.

**BDC:** Backup Domain Controller is a server in a network domain that keeps and uses a copy by a computer without interrupting its current or primary task. For Windows NT Server domains, BDC refers to a computer that receives a copy of the domain's security policy and domain database and authenticates logons.

**Blind Transfer:** A call transferred from voicemail which if it returns again to voicemail, will be treated as a new call.

**BOOTP:** This protocol was invented when it was expensive to store software or configurations in small hosts (and even more expensive to upgrade them) so when the host was switched on it would ask (broadcast) on the LAN for its software. A machine with a disk would reply and send the software. Typically the BOOTP Server would send a file to the host using Trivial File Transfer Protocol (TFTP). The main unit uses BOOTP to obtain new versions of its operational software (which it stores in its flash memory). The Manager program acts as the BOOTP server. The BOOTP server recognizes the main unit by its MAC address, this is a hardware address built into the unit at manufacture. This information is obtained from a BOOTP entry which must also include the unit's IP Address and name of the software file to be sent. BOOTP entries are created automatically and stored in the PC's registry.

**Callflow:** A general term for a sequence of actions used to determine what facilities are offered to a caller.

**CAPI:** Common Application Programming Interface.

**CHAP:** Challenge Handshake Authentication Protocol (CHAP). An authentication scheme used by PPP servers to validate the identity of the originator of a connection, upon connection or any time later.

**CLIP:** Calling Line Identity Presentation. Displays the calling party's number to the called party. Variations include withholding CLI and displaying alternative presentation numbers. ANI (Automatic Number Identification) is the USA equivalent.

**CLIR:** Calling Line Identification Restriction (CLIR) Inhibits the telephone number of the IP Office being presented on an outbound call.

**COLP:** Connected Line Identity Presentation (COLP). Displays the connected party's number to the calling party. Useful where the call has been diverted away from the originally dialed party.

**COLR:** Connected Line Identification Restriction (COLR) Inhibits the COLP service.

**CTI:** Computer Telephony Integration, a technology that acts as an electronic bridge connecting telephones or switches with computers. CTI controls or coordinates business processes and related applications through the exchange of commands and messages between computers and telephone systems.

**DDI(DID)/MSN:** Direct Dial In (DDI/DID) and Multiple Subscriber Numbering (MSN) are telephone company services that can be subscribed to. Call destinations can therefore be passed down the ISDN line and the system can use this information to deliver the calls to their final destination, perhaps individuals or departments.

**DHCP:** Dynamic Host Configuration Protocol, a standards-based protocol for dynamically allocating and managing IP addresses. DHCP runs between individual computers and a DHCP server to allocate and assign IP addresses to the computers and also limits the time computers can use the address. When time expires on the use of the IP address, the computers contact the DHCP server again to obtain an address.

**DiffServ:** DiffServ (RFC 2474) is a TCP/IP quality of Service mechanism used to ensure that IP packets are prioritized according to their importance e.g. prioritization of voice packets over data packets. Prioritization is based upon the Type of Service (ToS) field in the IP header.

**Digital Stations:** Refers to Avaya terminals in the 20xx series. Supported by DS sockets on IP Office control units and Digit Station modules. Note: Not all terminals in the above range are supported on IP Office.

**Digital Terminals:** Refers to Avaya terminals in the 24xx, 44xx and 64xx series. Supported by DT sockets on IP Office control units and Digit Terminal modules. Note: Not all terminals in the above ranges are supported on IP Office.

**Dn:** Directory number.

**DNIS:** Dialed Number Identification Service (DNIS). Available in US markets. DNIS identifies to the called party the dialed number. Can be used to identify the purpose of inbound calls.

**Domain:** The part of the computer network in which the data processing resources are under common control.

**DSS:** Direct Station Select - A DSS key can be programmed with a number or feature code.

**Embedded Voicemail:** A voicemail system stored on a memory card inserted into the IP Office telephone system's control unit.

**Frame Relay:** Connections to private or public Frame Relay services, such as BT FrameStream, can be made via the WAN port on the rear of main unit, or the WAN port of an associated WAN 3 module. Both data and Voice over IP (requires the use of the Voice Compression Module) are supported across Frame Relay.

**G.711 A-Law 64K:** A VoIP compression mode. Each voice call is converted from analog to digital (refer to G.723) and uncompressed.

**G.723.1 6K3 MP-MLQ:** A VoIP compression mode. A real-time implementation of the ITU-T Multi-Pulse Maximum Likelihood Quantization (MP-MLQ) 6.4 kbps and Algebraic Codebook Excited Linear Prediction (ACELP) 5.3 kbps speech coding algorithms. The G.723.1 speech coder operates upon 30 ms frame of digitized, telephone bandwidth speech signals sampled at 8 kHz. The frames are divided into four 7.5 mSec subframes of 60 samples each. Each frame of 240 input samples is converted into 12 16-bit word of compressed data at the high rate or 10 16-bit words of compressed data at the low rate. The Voice Activity Detection/Comfort Noise Generation (VAD/CNG) specified in Annex A to ITU-T G.723.1 is fully implemented, and may be used to further reduce the average bit rate.

**G.726 ADPCM 16K/32K:** A VoIP compression mode. Each voice call is compressed using the standard ADPCM compression technique (refer to G.732). This algorithm uses 16,000 or 32,000 bits per second.

**G.729(a) 8K CS-ACELP:** A VoIP compression mode. A fully compliant, real-time implementation of the ITU-T fixed-point conjugate-structure, algebraic code-excited linear prediction (CS-ACELP) speech coding algorithm. The CS-ACELP operates at 8kbps. The coder processes 10 m Sec frames of speech sampled at an 8 kHz rate, which together with a 5 mSec look-ahead results in a total algorithmic delay of 15 mSec. For each frame of 80 samples of 16-bit linear PCM data, the coder outputs five 16-bit words. Applications using the G.729 vocoder include digital telephony, satellite and wireless communications, and Voice over Frame Relay (VoFR).

**Gatekeeper:** An H.323 entity that provides address translation, controls access, and sometimes bandwidth management to the LAN for H.323 terminals, Gateways, and Multipoint Control Units. IP Office units can register themselves with multiple external H.323 gatekeepers.

**GUI:** Graphical User Interface.

**H.323 VoIP:** Allows voice and data traffic to be networked between systems. Connections between platforms across the WAN, at speeds up to 2.048Mbps (in conjunction with the Voice Compression Module), or across the LAN at 10 or 100 Mbps. Multiple WAN links maybe supported utilizing the optional WAN 3 module(s). Also allows telephone calls to be made from PCs running Microsoft's NetMeeting when fitted with a sound card, speakers and microphone, or combined headset/microphone. Calls can be made between PCs or to standard analog or digital telephones. Please note that at this point in time, we do not consider NetMeeting to offer a Toll Quality voice service. The addition of the IP Telephony Extensions to the H.323 Gateway protocol allows physical H.323compliant IP "Hardphones" and PC based, IP "Softphone" applications to make and receive phone calls.

**H.450:** VoIP Supplementary Services H.450 provides extended features within H.323 based VoIP networks similar in concept to QSig within ISDN.

**HTML:** HyperText Markup Language, the authoring language used to create hypertext documents for the World Wide Web.

**HTTP:** HyperText Transfer Protocol, the application protocol for moving hypertext files across the Internet. The protocol requires an HTTP client program on one end of a connection and an HTTP server program on the other.

**IIS:** Microsoft Windows Internet Information Server. IIS lets you set up a web site. Control and manage it remotely through the internet, assuming that you have the necessary privileges and a Web browser.

**Internet Protocol (IP):** The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet. When you send or receive data (for example, an email note or a Web page), the message gets divided into little chunks called packets. Each of these packets contains both the sender's Internet address and the receiver's address. Any packet is sent first to a gateway computer that understands a small part of the Internet. The gateway computer (or router) reads the destination address and forwards the packet to an adjacent gateway that in turn reads the destination address and so forth across the Internet until one gateway recognizes the packet as belonging to a computer within its immediate neighborhood or domain. That gateway then forwards the packet directly to the computer whose address is specified. Because a message is divided into a number of packets, each packet can, if necessary, be sent by a different route across the Internet. Packets can arrive in a different order than the order they were sent in. The Internet Protocol just delivers them. It's up to another protocol, the Transmission Control Protocol (TCP) to put them back in the right order. IP is a connection less protocol, which means that there is no established connection between the end points that are communicating. Each packet that travels through the Internet is treated as an independent unit of data without any relation to any other unit of data. (The reason the packets do get put in the right order is because of TCP, the connection-oriented protocol that keeps track of the packet sequence in a message.) In the Open Systems Interconnection (OSI) communication model, IP is in layer 3, the Networking Layer.

**IP:** Internet Protocol. The network layer of TCP/IP, containing the network address.

**iPhone:** iPhone is a service that applies telephony rules.

**ISP:** Internet Service Provider. A business that supplies Internet connectivity services to individuals, businesses, and other organizations.

**LAN:** Local Area Network.

**LCP:** In the Point-to-Point Protocol, the Link Control Protocol (LCP) establishes, configures and tests data-link Internet connections. Before establishing communications over a point-to-point link, each end of the PPP link must send out LCP packets. The LCP packet either accepts or rejects the identity of its linked peer, agrees upon packet size limits, and looks for common mis-configuration errors. Basically, the LCP packet checks the telephone line connection to see whether the connection is good enough to sustain data transmission at the intended rate. Once the LCP packet accepts the link, traffic can be transported on the network; if the LCP packet determines the link is not functioning properly, it terminates the link. LCP packets are divided into three classes: 1. Link configuration packets used to establish and configure a link. 2. Link termination packets used to terminate a link. 3. Link maintenance packets used to manage and debug a link.

**LDAP:** Lightweight Directory Access Protocol, a protocol used to access a directory listing. LDAP support is being implemented in Web-enabled and E-mail programs, which can query an LDAP-compliant directory. LDAP has become the Internet standard for directory infrastructure and is expected to provide a common method for searching E-mail addresses on the Internet.

**MAC address:** The address of a device identified at the media access control (MAC) layer of the network architecture. PDC Primary Domain Controller. For a Windows NT Server domain, the computer that authenticates domain logons and maintains the security policy and the master database for a domain.

**MAPI:** Messaging Application Programming Interface - Part of Microsoft's Window's Open Service Architecture (WOSA). Allows programs and devices to send emails via email clients if those clients support MAPI.

**ML-PPP:** Multilink PPP (ML-PPP) is a standard, based on the original PPP standard, that allows a router to open a number of different connections to a remote router. ML-PPP defines a way to divide up the data and send it down multiple paths in such a way that the remote router can put the pieces back in the original order on reception. The main justification for ML-PPP is bandwidth allocation (sometimes known as Bundling or Bonding). The application only sees one "logical link" giving a bandwidth of (say) 256Kbps, even though there are actually four "B" channels connected between the two sites. This is achieved by adding an additional data header on each packet sent. For example, if a router has an ISDN BRI interface, it could transfer data at 64 Kbps on one "B" channel, but then in times of higher load could connect extra "B" channels and so have an aggregate rate of 128 Kbps and above. There is a new standard for the PPP protocol called BAP (Bandwidth Allocation Protocol), which enhances the ML-PPP specification by making sure that all vendors implement the same rules for when extra channels are connected, and when they are disconnected.

**NAT:** Network Address Translation (NAT) is a mechanism that allows you to hide internal IP addresses from external networks. You may have an established network using your own numbering scheme, and would like to access the Internet. There are many cost effective Internet Service Providers (ISP) but they want you to use a different IP address. By using NAT between your machine and their network everyone is satisfied, without any need to renumber your network. An additional benefit is that all your machines can use the NAT facility and access the Internet via the one address. NAT is the translation of an IP address within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside. Typically, a company maps its local inside network addresses to one (or more) global outside IP address and unmaps the global IP address on incoming packets back into local IP addresses. This helps ensure security since each outgoing or incoming request must go through a translation process that also offers the opportunity to qualify or authenticate the request or match it to a previous request. NAT also conserves on the number of global IP addresses that a company needs and it lets the company use a single IP address in its communication with the world.

**NU:** Number Unobtainable.

**PAP:** Password Authentication Password (PAP) is a method for verifying the identity of a user attempting to log on to a PPP server. PAP is used if the password is to be sent without encryption.

**PDF:** Portable Document Format. The file format used for Adobe Acrobat files.

**PPP:** Point-to-Point Protocol (PPP). This is a Protocol for communication between two computers using a Serial interface, typically a personal computer connected by phone line to a server. For example, your Internet service provider may provide you with a PPP connection so that the provider's server can respond to your requests, pass them on to the Internet, and forward your requested Internet responses back to you. PPP uses the Internet protocol (IP), and is designed to handle others. It is sometimes considered a member of the TCP/IP suite of protocols. Relative to the Open Systems Interconnection (OSI) reference model, PPP provides layer 2 (data-link layer) service. Essentially, it packages your computer's TCP/IP packets and forwards them to the server where they can actually be put on the Internet. PPP is a Full Duplex protocol that can be used on various physical media, including twisted pair or fibre optic lines or satellite transmission. It uses a variation of High Speed Data Link Control (HDLC) for packet encapsulation. PPP is usually preferred over the earlier de facto standard Serial Line Internet Protocol (SLIP) because it can handle Synchronous as well as Asynchronous communication. PPP can share a line with other users and it has error detection that SLIP lacks. Where a choice is possible, PPP is preferred.

**PPTP:** Point-to-Point Tunneling Protocol (PPTP). This is a Protocol (set of communication rules) that allows corporations to extend their own corporate network through private "tunnels" over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network (VPN).

**Presumed User:** Some actions presume who the user associated with a call is from factors such as the original target extension or mailbox of the call. This allows those action to be used in modules without having to specify the mailbox on which they should act.

**Proactive List Manager:** The Proactive List Manager module facilitates the importing and assignment of outbound calling lists to Proactive Campaigns. It provides the administrator with the ability to manage outbound Proactive Campaign Lists. It furnishes the tools to create draft calling lists, attach them to campaigns and run the campaigns.

**Reporting:** The browser-based Reporting module provides complete enterprise management reporting through textual and graphical reports. These reports provide enterprise managers with a record of every step in the customer interaction process, and allow them to view and analyze how effectively interactions are being handled and how resources are being deployed. The reports can also provide a better understanding of how their operation and performance affects your networks, resources and people.

**Resource Manager:** The Resource Manager administration module consists of components that enable you to add queues, define interaction results, and assign human resources to all from a single, unified console. Resource Manager has a user-friendly Microsoft Explorer look and feel interface.

**RSVP:** RSVP (Resource Reservation Protocol) is a protocol that allows channels or paths on the Internet to be reserved for the multicast (one source to many receivers) transmission of video and other high-bandwidth messages. RSVP is part of the Internet Integrated Service (IIS) model, which ensures: best-effort service, real-time service, and controlled link-sharing. The basic routing philosophy on the Internet is "best-effort," which serves most users well enough but isn't adequate for the continuous stream transmission required for video and audio programs over the Internet. With RSVP, people who want to receive a particular Internet "program" (think of a television program broadcast over the Internet) can reserve bandwidth through the Internet in advance of the program and be able to receive it at a higher data rate and in a more dependable data flow than usual. When the program starts, it will be multicast to those specific users who have reserved routing priority in advance. RSVP also supports unicast (one source to one destination) and multi-source to one destination transmissions.

**SNMP:** Simple Network Management Protocol (SNMP). A method of communication between a network monitoring agent and a network management application to provide information regarding its operational status.

**SQL:** Structured Query Language is a database language used for creating, maintaining and viewing database data.

**Standard Voicemail:** Also called Voicemail Lite. Provides basic voicemail operation for the telephone system. The Voicemail Pro Server contains all the same functions as Voicemail Lite.

**TAPI:** Telephony Application Program Interface.

**TCP:** Transmission Control Protocol (TCP) is a method protocol used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet. For example, when an HTML file is sent to you from a Web server, the Transmission Control Protocol (TCP) program layer in that server divides the file into one or more packets, numbers the packets, and then forwards them individually to the IP program layer. Although each packet has the same destination IP address, it may get routed differently through the network. At the other end (the client program in your computer), TCP reassembles the individual packets and waits until they have arrived to forward them to you as a single file. TCP is known as a connection-oriented protocol, which means that a connection is established and maintained until such time as the message or messages to be exchanged by the application programs at each end have been exchanged. TCP is responsible for ensuring that a message is divided into the packets that IP manages and for reassembling the packets back into the complete message at the other end. In the Open Systems Interconnection (OSI) communication model, TCP is in layer 4, the Transport Layer.

**TCP/IP:** Transmission Control Protocol/Internet Protocol is a networking protocol that provides communication across interconnected networks, between computers with diverse hardware architecture and various operating systems.

**Trusted Location:** This is a location from which the System will allow data access, e.g. a user dialing in from home, or access to Voicemail without a Voicemail Code e.g. a user collecting their Voicemail messages from a mobile, or the location the Voicemail Server will call to inform the user of a new message.

**UDP:** User Datagram Protocol (UDP) is a very basic protocol that provides an alternative to TCP for IP packet transfer. UDP is inherently unreliable in that it does not open connections before it sends data and does not number or sequence its datagrams in any way. Packets can therefore arrive out of sequence, get lost or get duplicated. UDP is suitable for those applications which do not require reliable packet transfer such as BOOTP and SNMP.

**URL:** Universal Resource Locator is an address that can lead you to a file on any computer connected to the Internet.

**V.110/V.120:** V.110 and V.120 are ITU Protocol standards which support the transport of an RS232 (V.24/V.28) interface and asynchronous characters across a link. Thus simple terminals of between 50bps to 19.2Kbps can be connected to the TA RS232/V.24 port and communicate over a 'B' channel. V.120 offers enhancements over V.110 in that it uses a LAPD-like protocol on the "B" channel so it is possible to support a number of multiplexed low-speed devices over one channel i.e. V.120 makes better use of the bandwidth.

**Voice Compression Module:** Support for the optional Voice Compression Module allows voice calls to be networked between Systems when WAN links are used. Five compression algorithms are supported from 64kbp to 6.3kbps, while the Voice Compression Module also provides echo cancellation where voice calls between systems are then broken out on to the public network. Support is provided for the 5, 10 and 20 channel variants of the Voice Compression Module.

**VoIP:** Voice over Internet Protocol (VoIP). The technology used to transmit voice conversations over a data network using the Internet Protocol.

**VPIM:** Voice Profile for Internet Messaging. Allows different voice messaging systems to exchange voicemail over the internet.





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