

SIEMENS TRAFFIC CONTROLS

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SYSTEM/PROJECT/PRODUCT: STC UTC SYSTEM

System Management Guide

for an STC PC SCOOT System

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6=Paper Insert, 7=MAC Disc, 8=LIFESPAN, 9=SUN, 10=Other - add note.

The document comprises the following components :-

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Note : 10 - Document stored under AMW.

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1. INTRODUCTION

1.1 Purpose

This document defines the procedures necessary for managing the daily operation of an STC PC SCOOT System, hereafter referred to as the System.

The document is written for System Managers or those required to backup or restore the System.

1.2 Scope

The document is limited to procedures required for saving and restoring information contained on an STC PC SCOOT System.

It is recommended that users of this document have attended a UTC Operators' Course and a Data Preparation Course.

The document describes the System management procedures associated with the various configurations of PC SCOOT Systems.

1.3 Related documents

Note: In the references below, the characters 'xxx' substitute for the 3 digit number which uniquely identifies a particular UTC or PC SCOOT System i.e. the customer variant for these documents.

- | | | |
|-------|------------------|---|
| 1.3.1 | 666/UH/16940/000 | Systems Requirement Specification for an STC UTC System |
| 1.3.2 | 666/UH/16940/xxx | Customer Requirements Specification |
| 1.3.3 | 666/HB/16940/000 | Operators Handbook for an STC UTC System |
| 1.3.4 | 666/HE/16940/000 | System Handbook for an STC UTC System |
| 1.3.5 | 666/HD/16940/000 | Data Preparation Handbook for an STC UTC System. |

1.4 Definitions

The vagaries of the printing process mean that it is sometimes difficult to decide if a space character is required in a command that is to be typed. In this document, to avoid confusion, the ▼ character is used whenever the space character needs to be typed in a command line.

1.5 Issue state and amendment

Issue 01.00A	First draft
Issue 01.00B	Second draft after review
Issue 01.00	First Issue
Issue 02.00	Inclusion of Stop/Start procedures
Issues 03 to 07	Not issued
Issue 08.00	Minor corrections plus addition of appendices to cover different system configurations. Issue number aligned with software issue number.
Issues 09 to 14	Not issued
Issue 15.00	Changed to Microsoft Word format.
Issue 16	Not issued
Issue 17	Issue number aligned with software issue number 17
Issues 18 to 20	Not issued
Issue 21	Major revision to better reflect current system configurations.
Issues 22	Not issued
Issue 23	Minor revision.
Issues 24 to 27	Not issued
Issue 28	Revised to include PC based version

2. SYSTEM MANAGEMENT OVERVIEW

2.1 General

The procedures for starting and stopping a PC SCOOT System are described in this document.

A number of tasks need to be performed on a regular basis to ensure the integrity of the PC SCOOT System. These are:

- a) Make periodic backup copies of the PC disks to ensure that data lost through hardware or other problems can be restored with the minimum loss of information and as quickly as possible.
- b) Recover some or all previously stored data for System restoration or for analysing historic data.

In order to be ready for the unlikely event of the PC SCOOT System being lost or corrupted it is necessary to create and maintain backup copies of the computer's system disk.

Recovering from the total loss or corruption of the PC SCOOT System will require the restoration of a system disk backup.

The System Manager should become acquainted with the PC SCOOT computer and the operational procedures required for locating and removing the backup media.

In the event of a failure of an PC SCOOT computer's System disk it will be necessary to boot from a CD-ROM.. System Managers should ensure that they know how to do this and that they know where the CD-ROM is stored.

2.2 THE SAFETY OF BACKUP COPIES

2.2.1 Introduction

As a result of making a backup of the system disk onto a removable disk you will be left with a number of small, easily lost and valuable items. These must be stored in such a way as to make them easily identifiable and safe from disasters, such as fires or floods.

2.2.2 Identification of Backup Media

Backup media should be clearly labelled to show that it is a PC SCOOT backup and should not be used for any other purpose.

2.2.3 Types of Backup Media and Their Use

There are 2 types of backup media normally associated with a PC SCOOT system; they are:

CD-ROM.

A CD ROM would be used to boot the PC SCOOT computer in the event of a failure of the system disk. It may also be used to store UTC checkpoint data.

Stand-Alone Hard Drive	A stand-alone hard drive would be used to make a complete backup of the PC SCOOT computer's system disk and also differential backups of the system disk. It can also be used to store UTC checkpoint data. The stand-alone hard drive is usually connected by cable to a USB port on the PC SCOOT computer.
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2.2.4 Recommended Quantities of Backup Media

It is suggested that 2 stand-alone hard drives be used. After a PC SCOOT system upgrade a system disk image should be made on each stand-alone hard drive. Differential backups of the PC SCOOT computer's system disk should be each drive alternately.

It is suggested that 2 emergency boot CDs be created and stored in different locations.

Multiple copies of UTC Checkpoint data may be made to a CD-ROM. The number of such disks is left to the discretion of the PC SCOOT system manager.

2.2.5 Storage of Backup Media

The backup media need to be kept in a location that will not be affected by any disasters affecting the PC SCOOT System, such as a fire. Ideally, they should be kept in a separate building and/or in a fireproof safe. At the very least, ensure that they are separated from the computer by some form of firebreak, such as a wall.

Once the location has been determined, consideration should be given to the way in which they are stored. This should provide room and light to allow each item to be easily identified and then removed without the need to move every other item in the process.

3. STARTING AND STOPPING A PC SCOOT SYSTEM

3.1 Introduction

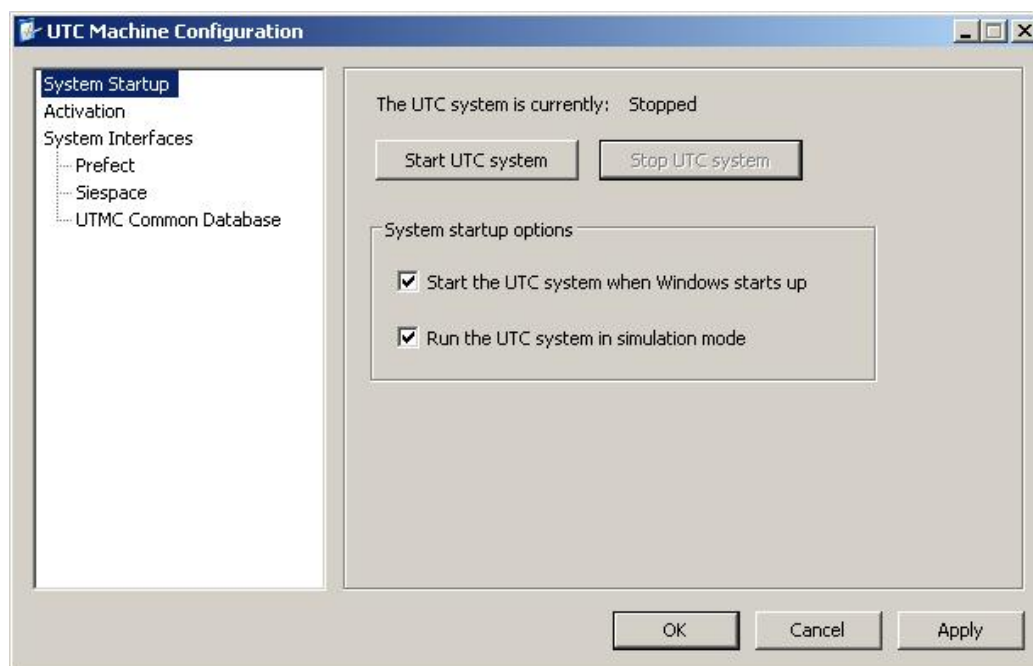
It may be necessary to stop the UTC system from running for a number of reasons, which include installation of new system software, shutdown for hardware modification or maintenance, etc. It is recommended that a standard shutdown / start-up procedure be used whenever this becomes necessary.

3.2 PC SCOOT Computer System Start-up

3.2.1 Single Computer System Start-up

When the machine is switched on it will normally go through its start-up sequence automatically.

If the PC computer is running but the traffic system is not running the traffic system may be started separately. The user should select Start ->All Programs -> Siemens Traffic Controls -> UTC -> Machine Configuration. The machine configuration window should then appear:



Ensure that the status of the check boxes in the “System startup options” are what you require and click the “Start UTC system” button. After a short while the UTC system status shown near the top of the window will change from “Stopped” to “Starting” and then to “Started”.

3.2.2 Multiple Computer System Start-up

If a multiple computer system is to be started up it is recommended that the TMC be started first and allowed to fully start up before any TCCs are started up. The procedure described in the previous section should be used to start the individual computers.

3.3 PC SCOOT Computer System Shut Down

3.3.1 Single Computer System Shut Down

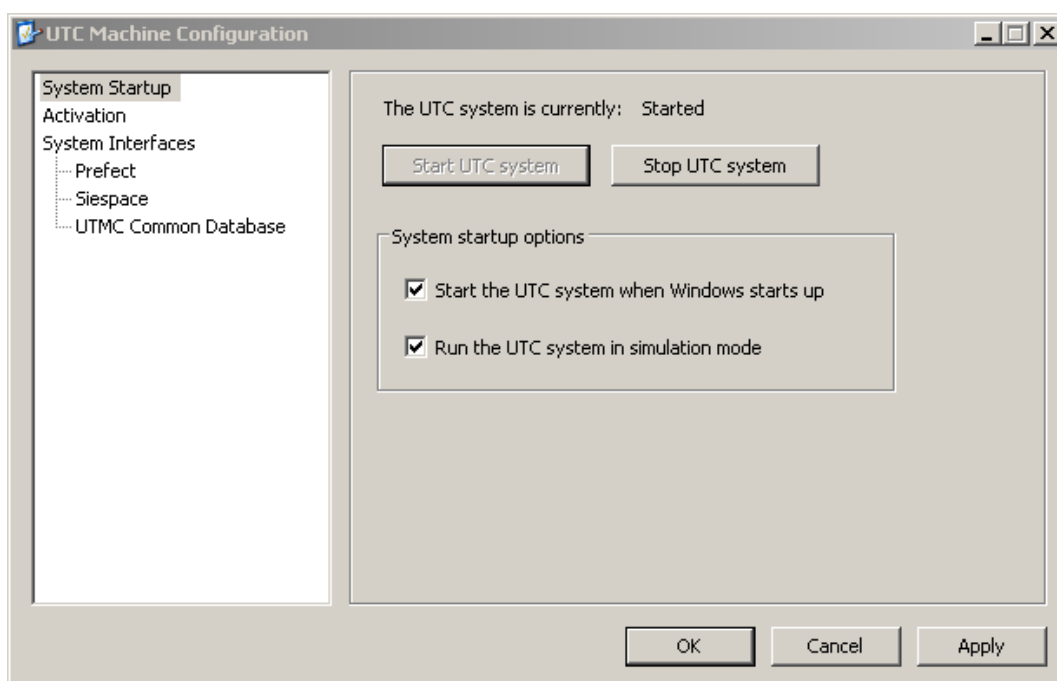
There are 2 methods of shutting down a PC SCOOT computer.

For the first method the following command should then be entered in the UTC command entry box:

KILL▼H01000

After the command is accepted, a shutdown message is output on to all the terminals, and the VAX light on the TC12 Instation cabinet(s) will be lit.

For the second method the user should select Start ->All Programs -> Siemens Traffic Controls -> UTC -> Machine Configuration. The machine configuration window should then appear:



The “Stop UTC System” button should be clicked and after a short while the UTC system status shown near the top of the window will change from “Started” to “Stopped”.

3.3.2 Multiple Computer System Shut Down

In a multiple computer System individual computers may be shut down by following the procedure described in the previous section.

If all the computers in a multiple computer system are to be shut down, it is recommended that this be done in the following order.

Shut down TCC A (KILL▼H01000)

Shut down TCC B (KILL▼H02000)

Shut down the TMC (KILL▼H99000)

In each case the “UTC Machine Configuration” screen may be used as an alternative to the “KILL” command.

4. PC SCOOT SYSTEM DATA BACKUP AND RESTORE

4.1 Introduction

Periodic backups are necessary to minimise the loss of data and reduce System downtime by allowing the rapid recovery of System data lost through corrupted files or hardware failures. The following must be considered:

- Taking a backup should follow a large amount of traffic data entry. In this way the work will not be lost if a problem occurs with the UTC System.
- Normal operational backups need to be carried out to maintain a continuous record of historic data. The intervals between backups should be related to the data file lifetimes defined during the data preparation phase (System Wide Variants), and a small overlap should be included to guarantee no loss of data. The files that have lifetimes are:
 - Detector archive files. The System stores 5-minute detector data for a defined number of days.
 - Weekly detector summary files. The number of weeks for which the hourly summary files are stored.
 - Log archive file The number of days for which log archives are stored.

4.2 Backup Strategy

It is suggested that the data should be backed up every 28 days, this will ensure that provided the file lifetimes are greater than this value no data will be lost. However consideration should be given to more frequent back-ups if for instance a large amount of data has been added to the system.

Note: This process backs up all UTC data and hence will ensure all types of data are stored.

4.3 Backup and Restore Items

The data items stored and recovered during backup and restore are UTC traffic information, consisting of:

- Configuration Data
 - UTC System Configuration Data (e.g. Data-Prep data, CASTs)
 - Application Configuration Data (e.g. Maps, GDD/TDD files)
- Archive Data:
 - System Log Archive Files
 - Archive Weekly Detector Counts
 - Archive Daily Detector Counts
 - Archive Car park Values
- Upload/Download Data:
 - Controller Data Files

- ASTRID (if configured) Data Files

The System will backup and restore the required items.

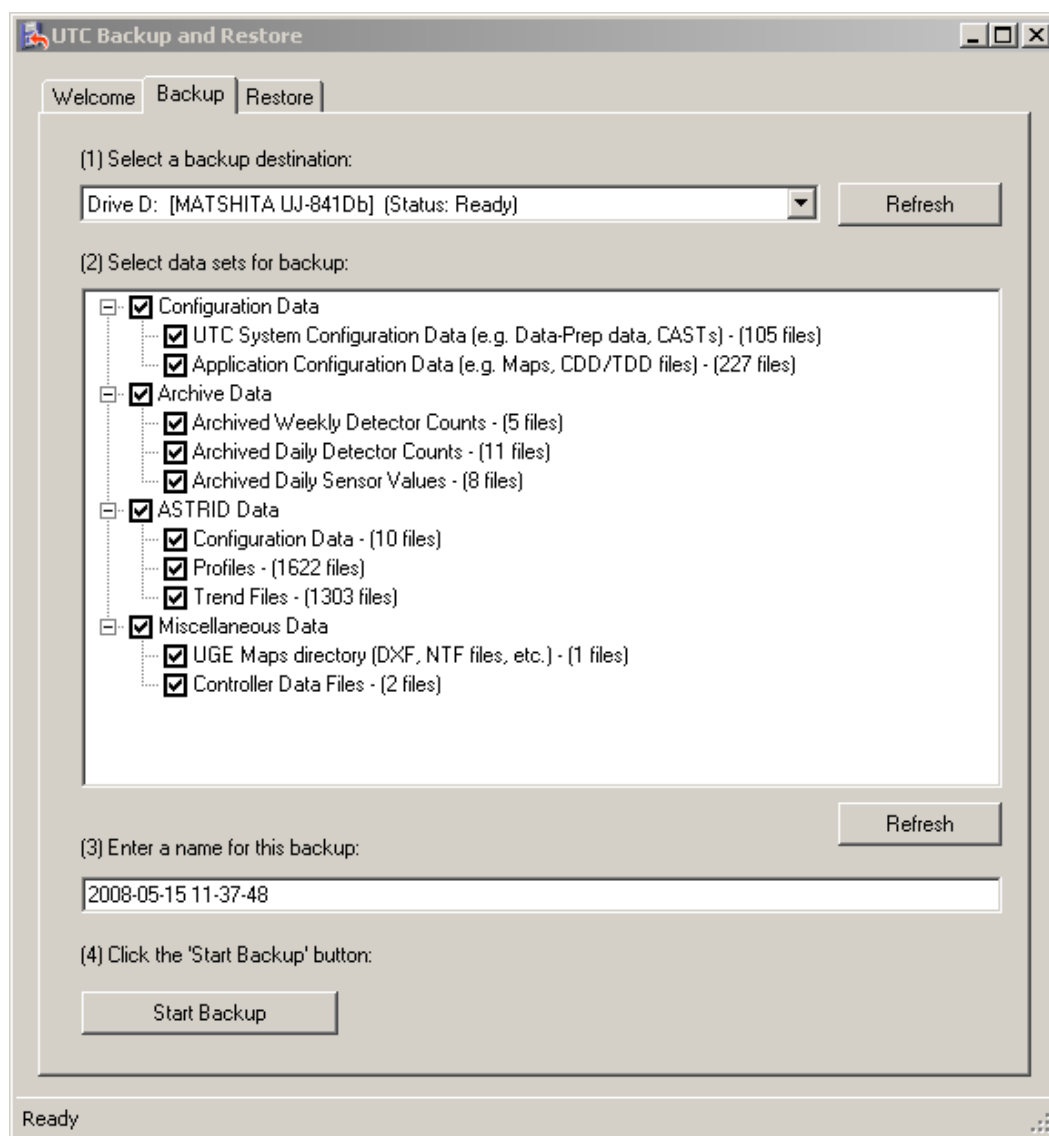
4.4 UTC Data Backup

Data backup can take place with the UTC System running normally.

It is recommended that data backups take the form of a data checkpoint with the data being written to a CD.

The UTC Backup and Restore program is started by the user selecting Start ->All Programs -> Siemens Traffic Controls -> UTC -> UTC Backup and Restore. The UTC Backup and Restore window should then appear:

The user should enter his user name and password and click “Login”. After the user is logged in the backup screen is accessed by either clicking on the word Backup near the bottom of the screen or by clicking on the Backup tab.



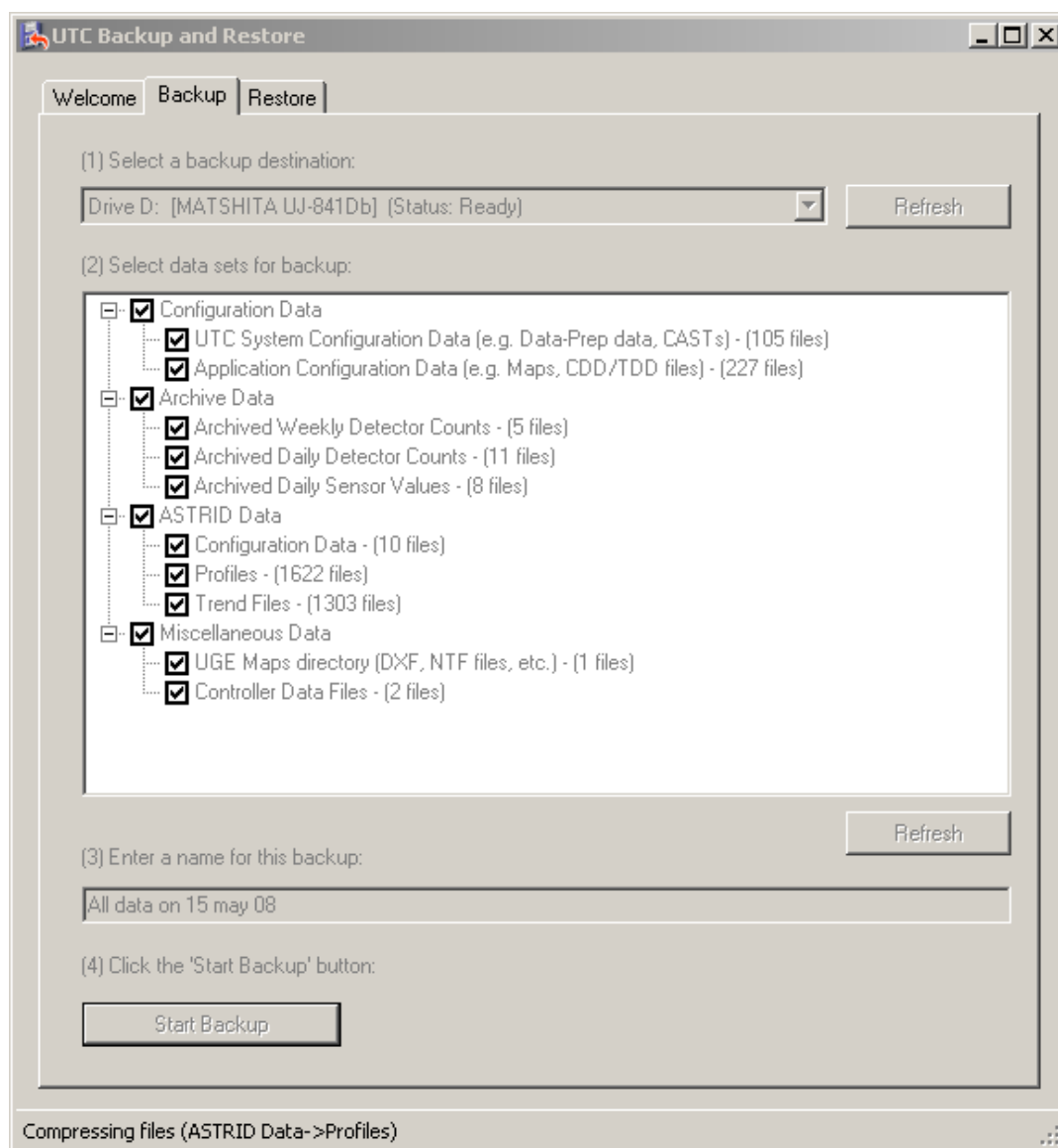
A backup destination should be selected. The alternatives will normally be either the UTC checkpoint area (on the system disk) or the PC's CD writer. If at this time there is no CD in the drive the status will be shown as "No disc". After a disk has been put into the drive the refresh button should be clicked and after a short while the status should change to "Ready".

The data which is to be backed up should be selected by checking or unchecking the appropriate boxes. If any changes are made they should be confirmed by clicking the "Refresh" button.

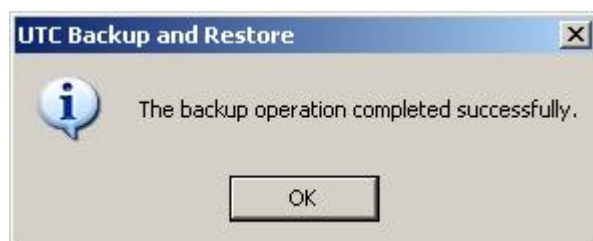
The current data and time will normally appear in the backup name box. The user may overwrite this with a description of the backup which will help to identify the particular backup if it subsequently proves necessary to restore a backup.

Finally the "Start Backup" button should be clicked.

The progress of the backup may be watched by looking at the line of text at the bottom of the backup screen.



After the data has been written to the CD a completion message will be output.

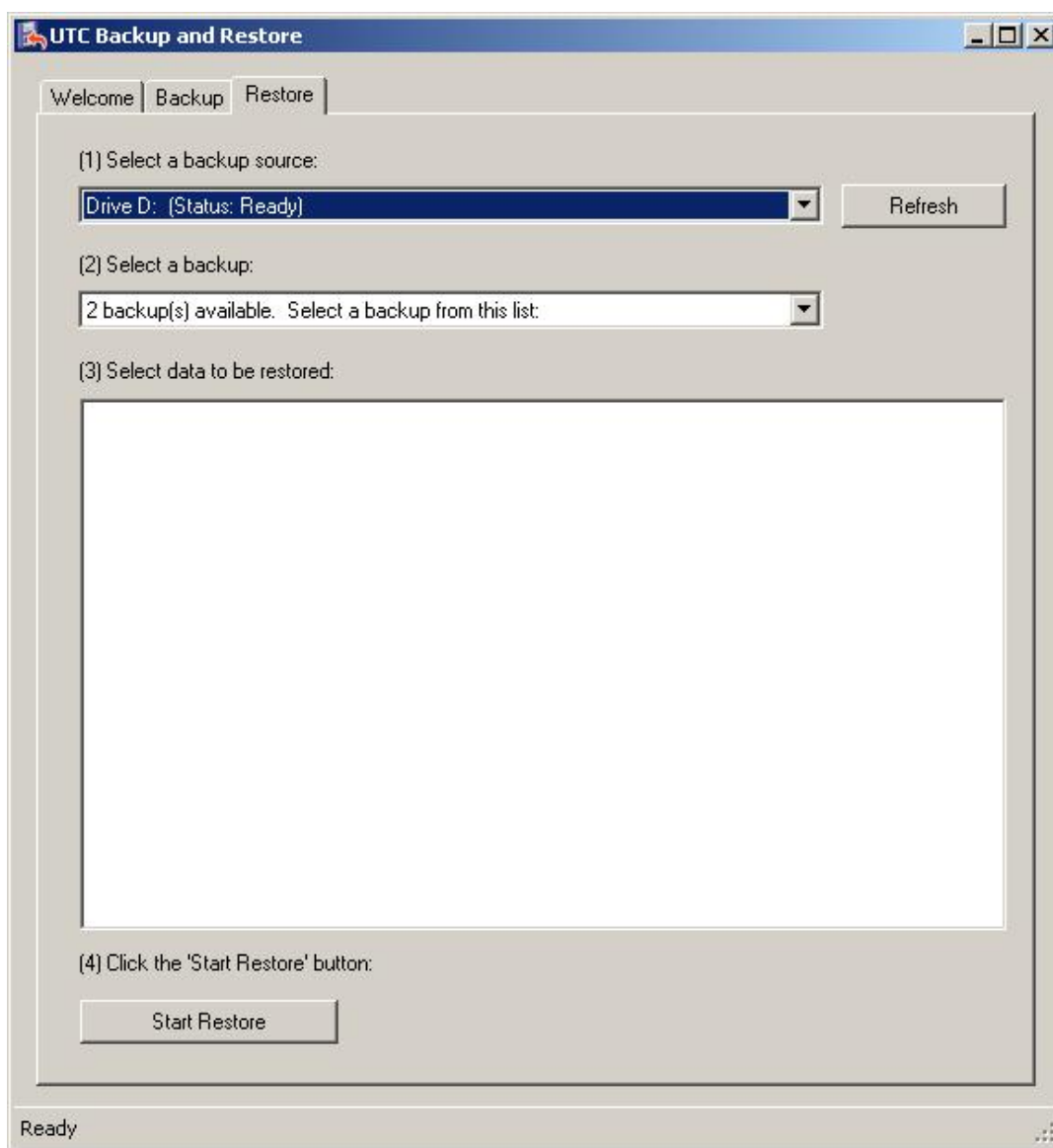


Clicking on “OK” will return the user to the backup screen from where another backup may be performed.

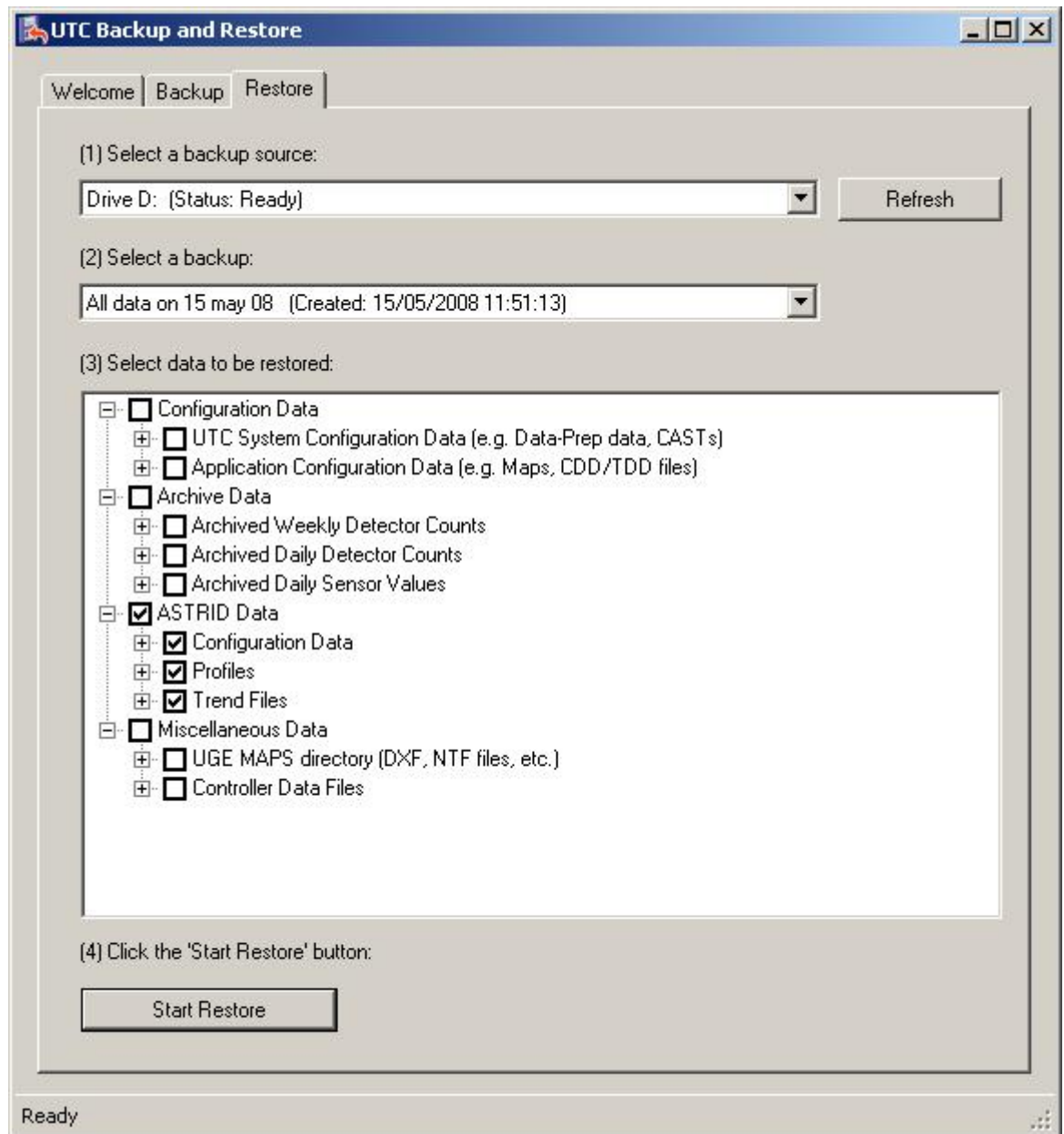
It should be noted that several backups may be made to the same CD.

4.5 UTC Data Restoration

The UTC Backup and Restore program should be started in the same way as described under UTC Data Backup (see 4.4). Selecting “Restore” will cause the Restore screen to appear.

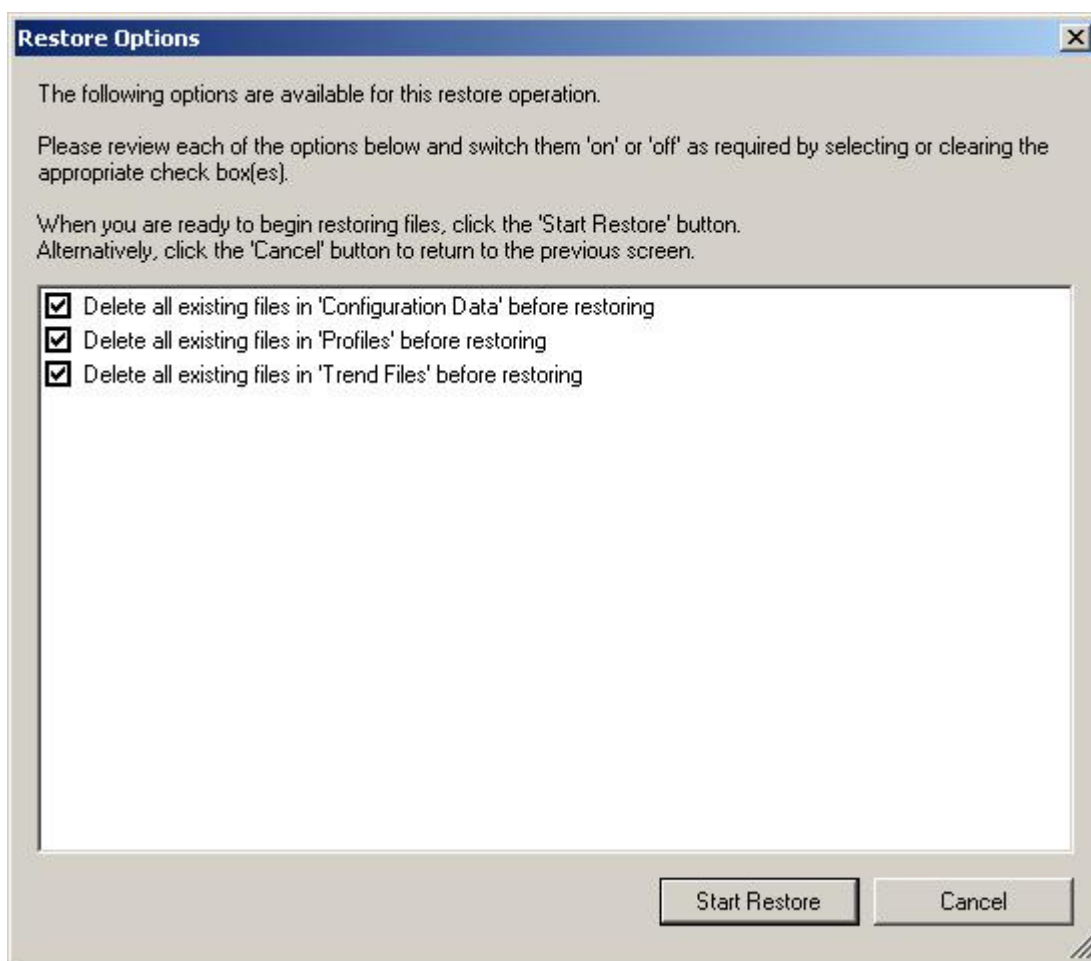


After the backup source has been selected a list of backups available can be seen by clicking on the “Select a backup” drop down list.

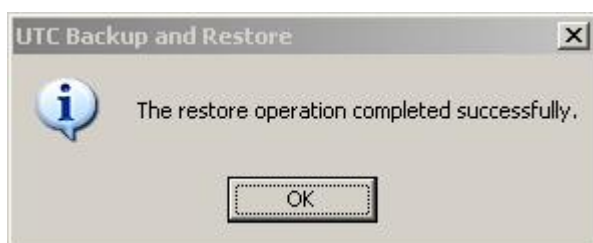


The data which is to be restored should be selected by checking the appropriate boxes and the “Start Restore” button clicked.

When the “Backup Options” screen appears the options should be reviewed and then the “Start Restore” button clicked.



When the data has been restored the restore complete window will appear.



4.6 PC SCOOT ASTRID Data Management

Astrid collects a large amount of data during its operation that will eventually fill the system disk. It is recommended that users back up ASTRID data every months to ensure that they have a complete set of historical ASTRID data.

The PC SCOOT system is set to delete ASTRID data which is more than 6 months old. The 6 month period may be changed on request to the UTC Support Desk.

4.7 Disk Fragmentation

The nature of the ASTRID data collection process means that over a period of time the System disk may become badly fragmented. The Disk Defragmenter program (Start -> All Programs -> Accessories -> System Tools -> Disk Defragmenter) should be used periodically to reduce disk fragmentation.

5. PC SCOOT SYSTEM IMAGE BACKUP

This process should be repeated when a change is made by STC to the UTC System software or at yearly intervals.

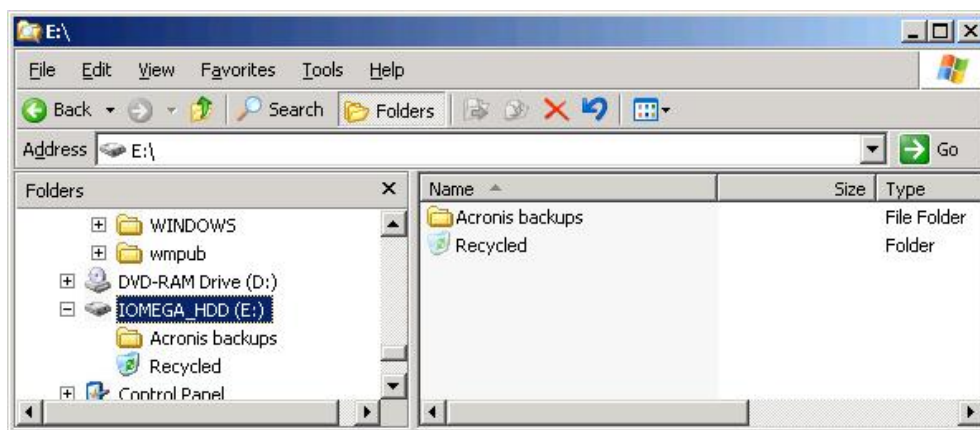
The Acronis software which is used to make system image backups copies disk sectors to the backup media. If the system disk is defragmented a system image backup must be made immediately afterwards.

The system is supplied with two External Iomega USB Hard Disk Drives (298GB). It is recommended that a full backup is created on each drive. One drive should then be stored in a secure location and the other connected to the PC SCOOT Server. Regular Differential backups should then be carried out so that the latest system can be restored in the event of a system drive failure. The differential backups can be done manually (see 5.3) or scheduled (see 5.4) to be carried out automatically. The following sections show how backups are done. By convention a folder called '**Acronis backup**' is created on the drives to contain the backup files.

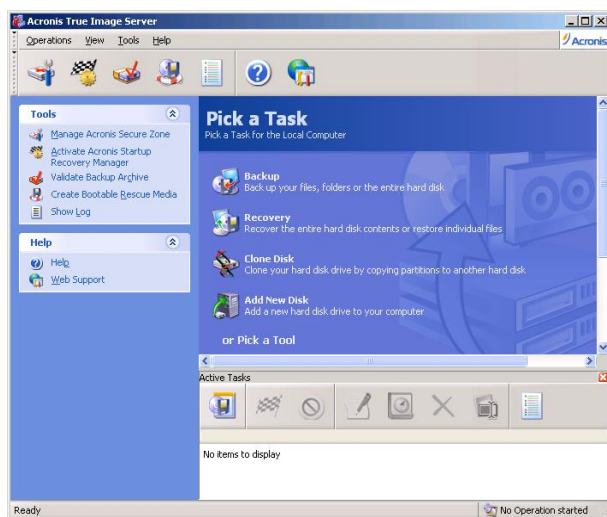
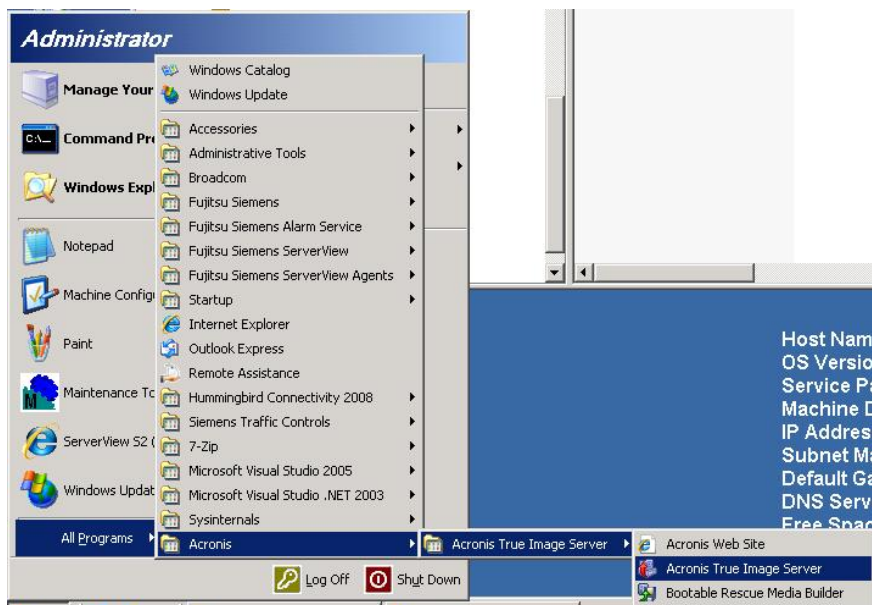
The screen shots in this procedure are from Version 9 of Acronis – other versions may vary slightly.

5.1 Full Backup

To carry out a full backup, plug one of the Iomega drives in to a USB port, connect the power supply and turn it on. It will appear in the Windows Explorer window, see screen shot below.



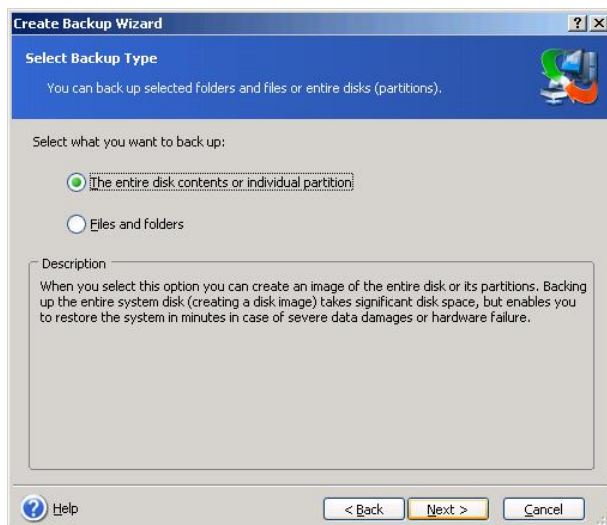
Start the Acronis True Image Server: Start -> All Programs -> Acronis -> Acronis True Image Server - Acronis True Image Server.



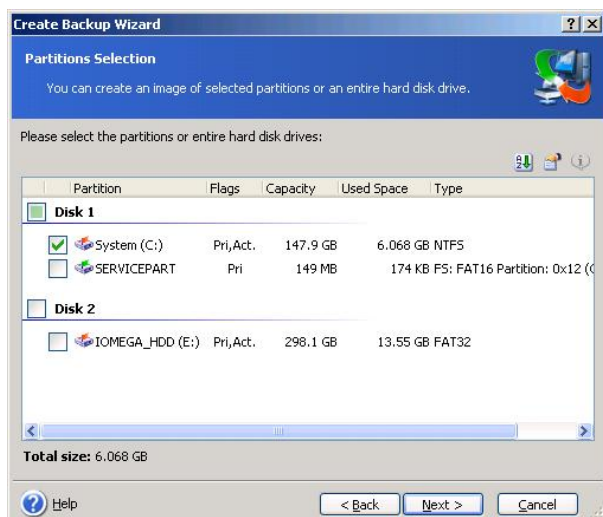
In the Acronis True Image Server window select **Backup** from the **Pick a Task** Box.



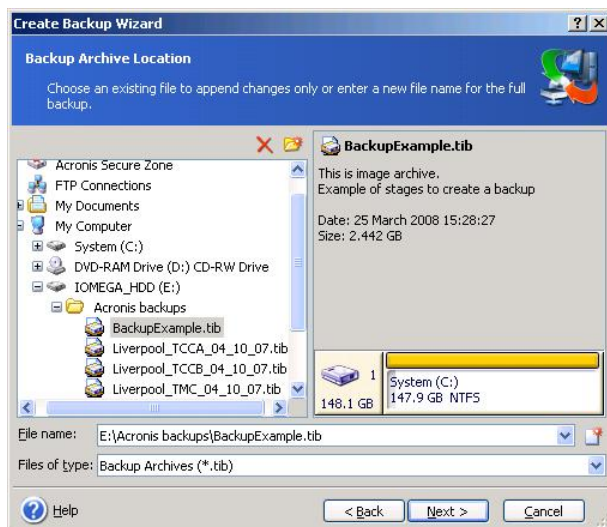
This will start the Create Backup Wizard, select **Next**.



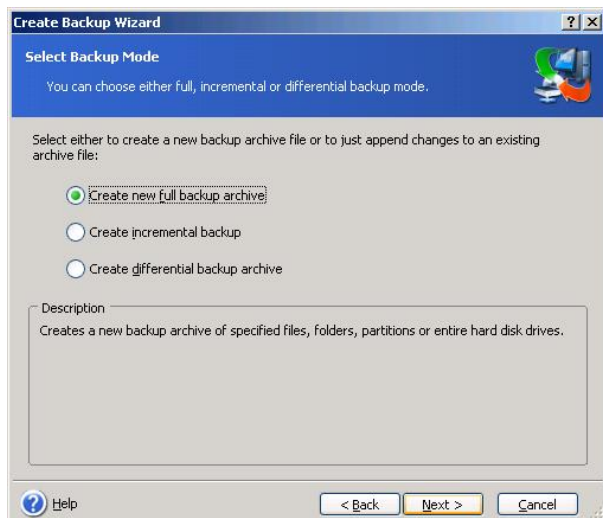
Select the radio button labelled 'The entire contents or individual partition', then select **Next**.



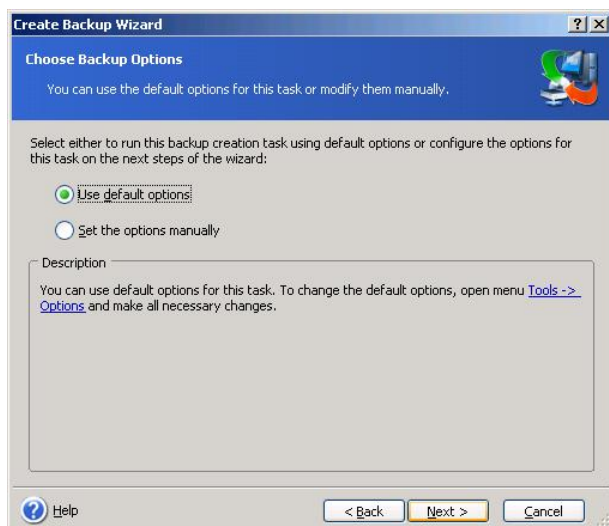
Select the checkbox for **System (C:)**, then select **Next**.



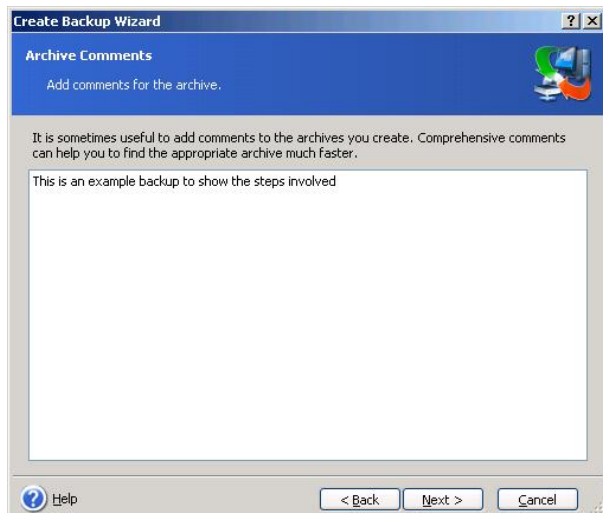
Select the IOMEGA drive\Acronis backups in the left hand pane and enter a file name (in the example the file name entered is BackupExample.tib), then select **Next**.



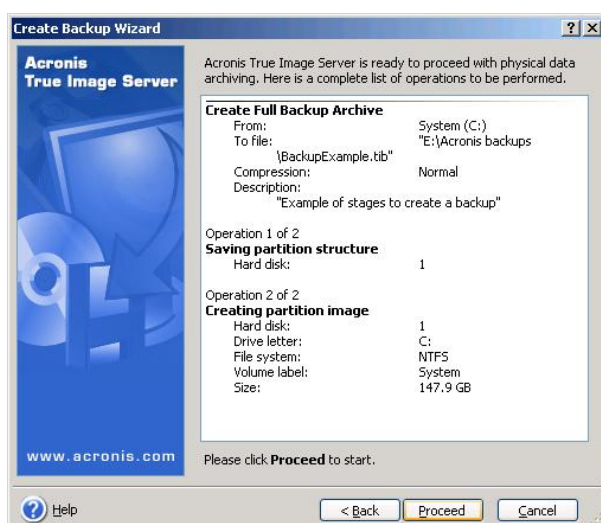
Select the radio button labelled 'Create new full backup archive', then select **Next**.



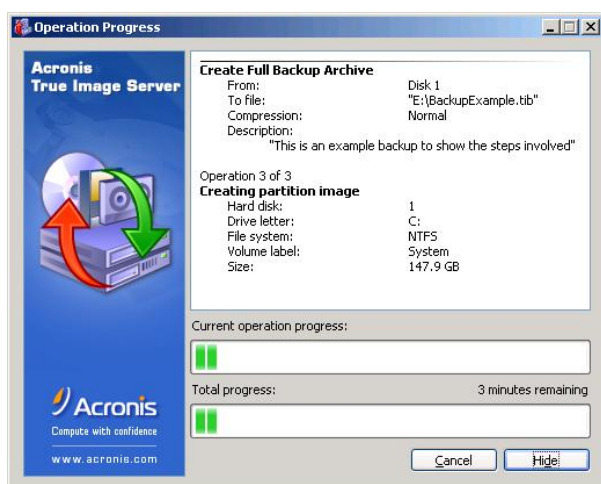
Select the radio button labelled 'Use default options', then select **Next**.



Add a comment, if required, then select **Next**.



Check the details and if OK select **Proceed**.



The backup will take a few minutes.

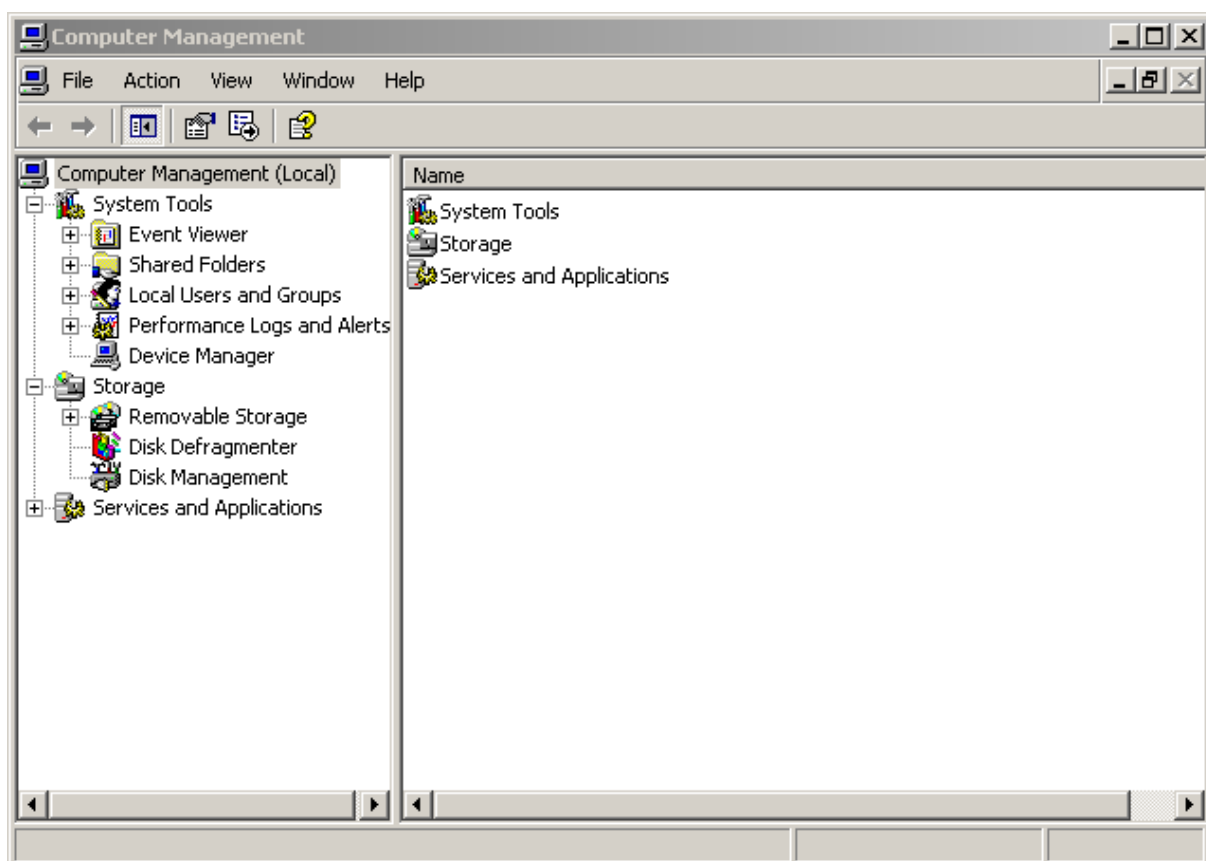


When complete the information window showing successful completion will be displayed, select **OK**.

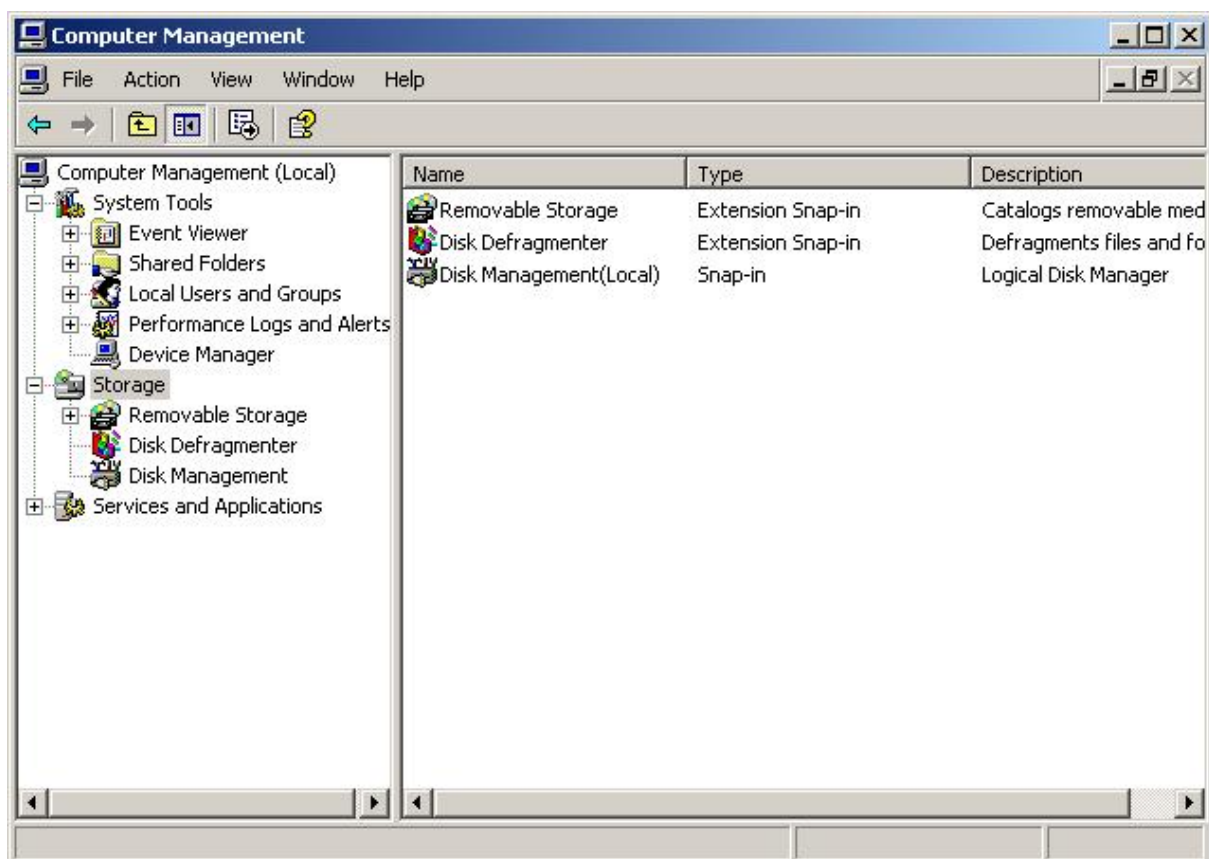
5.2 Fixing Removable Hard Disk Drive Letter

When the Removable hard disk is unplugged from the PC SCOOT computer's USB port and then plugged in later it may not be assigned the same drive letter as it had originally. This will cause problems if scheduled differential backups are used. It is therefore recommended that a particular drive letter be fixed to the removable hard drive.

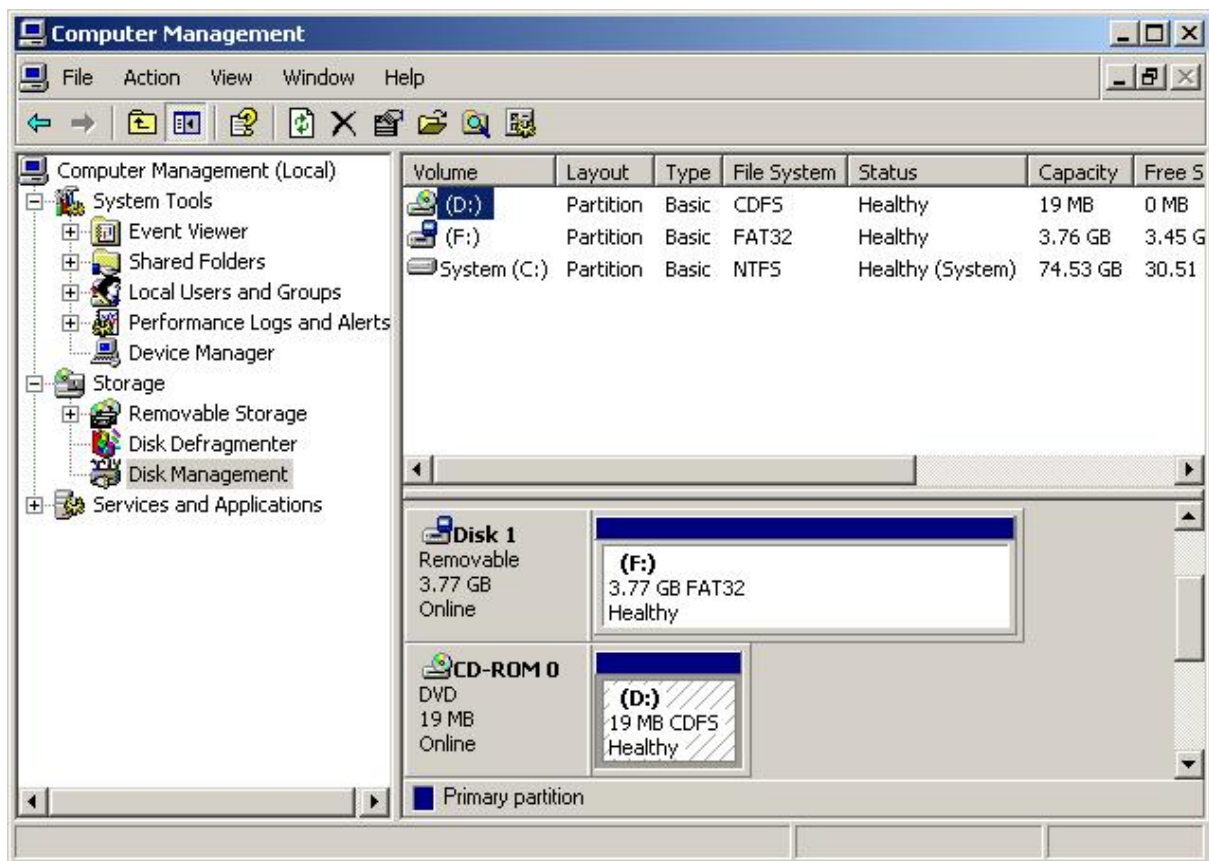
Select Start -> Control Panel -> Administrative Tools -> Computer Management



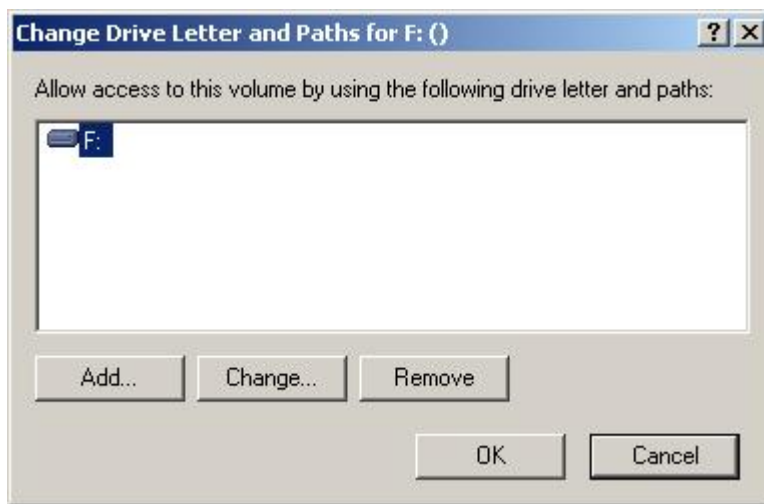
Select Storage



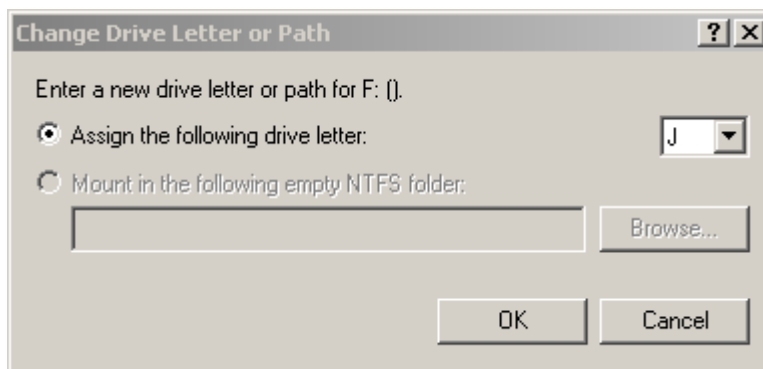
Select Disk Management



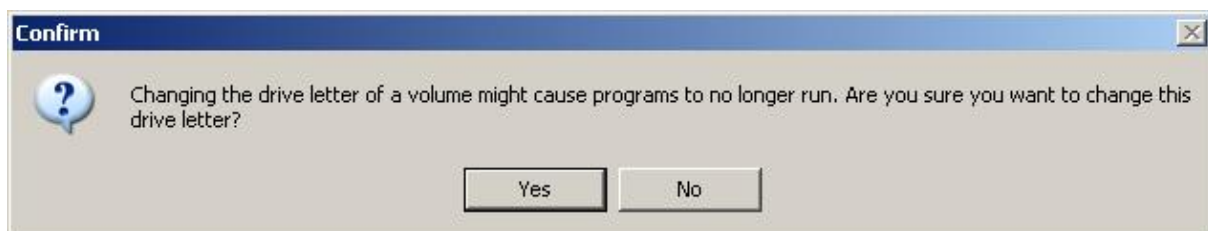
Right clicking on the removable drive (in the example shown here a 4GB memory stick is used rather than a removable disk drive) will bring up a pop-up menu from where “Change drive letter and paths” should be selected.



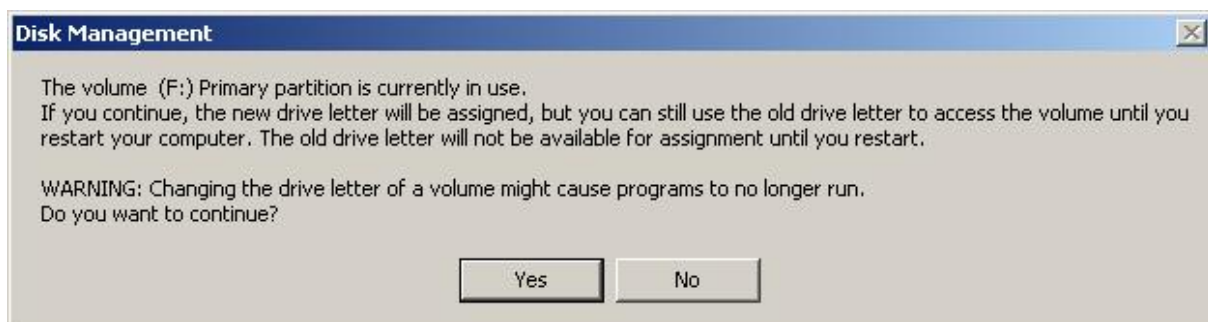
Clicking on the “Change” button enables the user to select a different drive letter from the drop-down list on the right hand side of the screen. It is suggested that a drive letter higher up the alphabet be used.



Click on OK

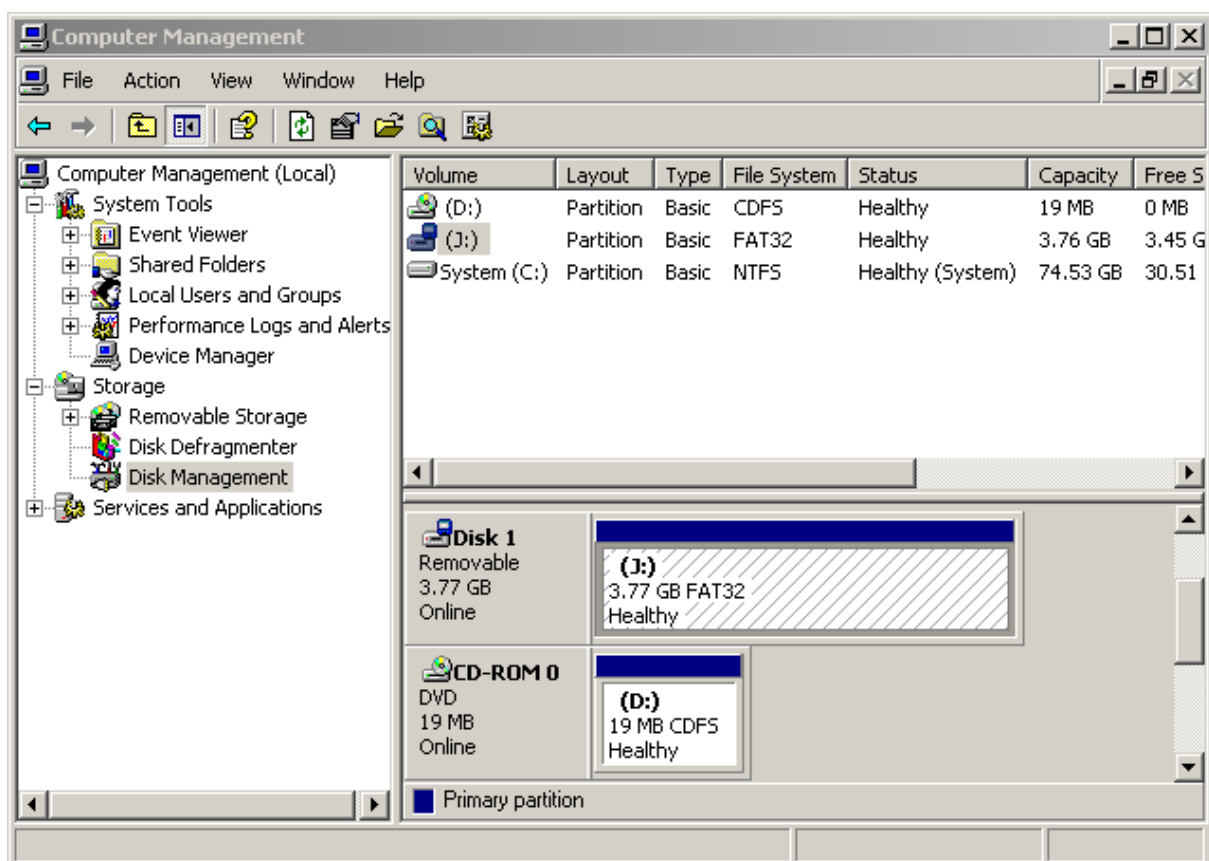


If you are content to change the drive letter click OK.



Click Yes

After a short delay the drive letter shown in the Computer Management screen will be seen to change to the new letter.

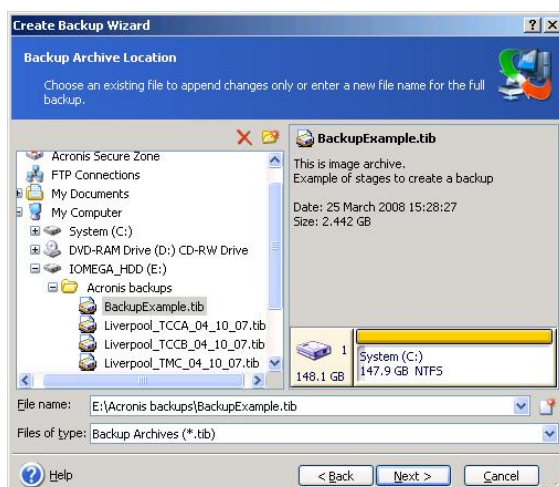


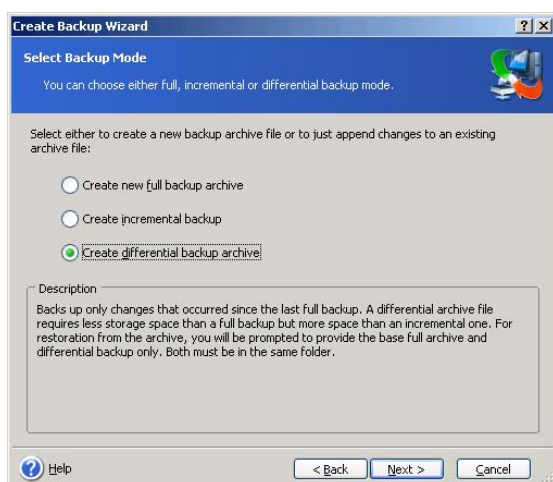
When completed close the Computer management, and Administrative Tools windows.

5.3 Manual Differential Backup

A differential backup must be stored in the same folder as the related system image backup.

Start the backup procedure as for a full backup, but at the stage where the option to create a full backup or to append changes to an existing backup is offered, select the full backup file from the left hand pane, then select **Next**.





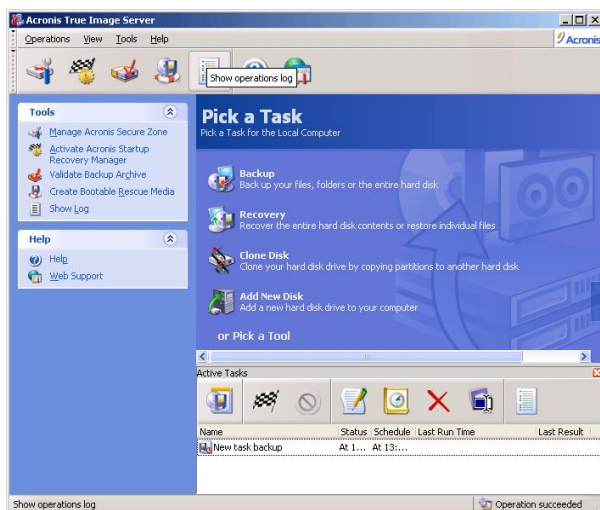
Select the radio button labelled '**Create differential backup archive**', then select **Next**, and proceed as for the full backup.

5.4 Scheduled Differential Backup

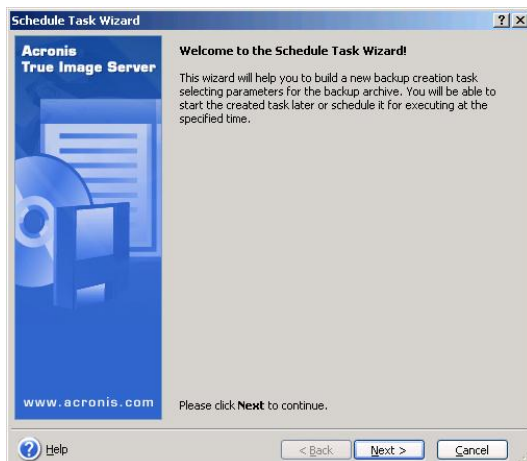
It is possible to set the System such that a differential backup is performed regularly. It is suggested that the backup be done weekly at 3:30am on Sunday morning.

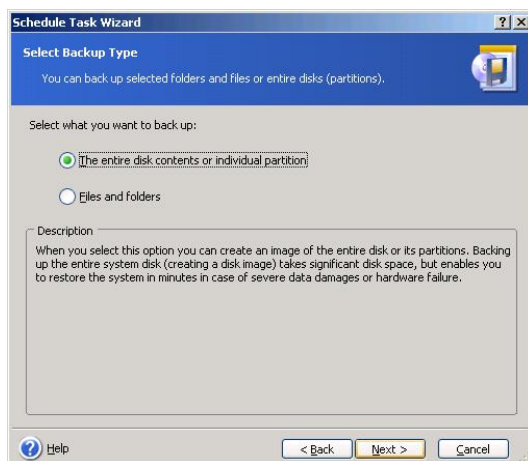


Select the icon from the 'Active Tasks' pane of the Acronis True Image Server window.

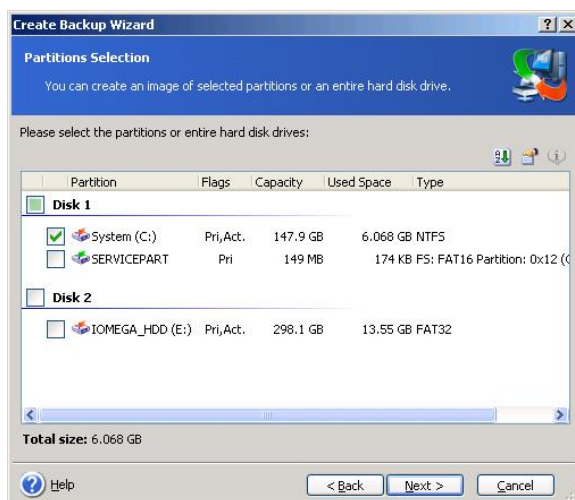


This will open the Schedule Task Wizard, select **Next**.

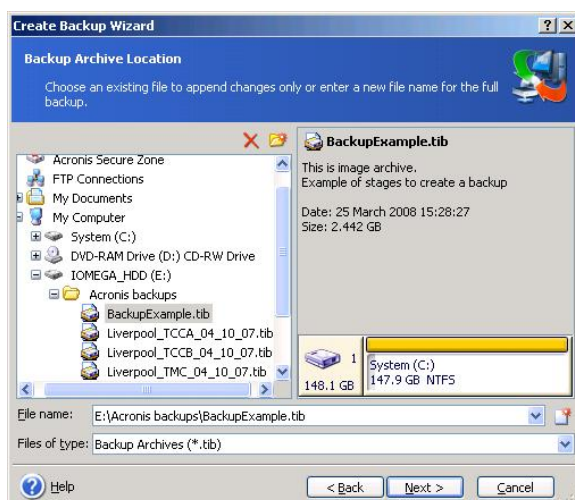




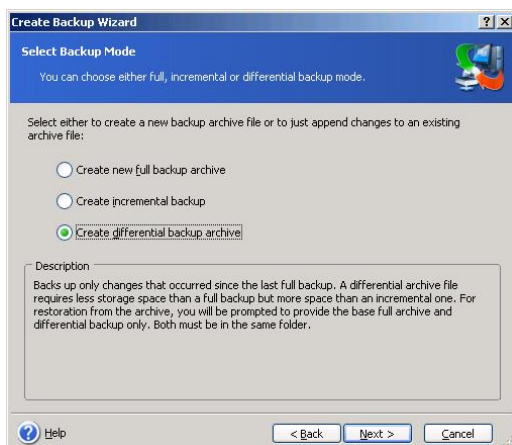
Select the radio button labelled 'The entire disk contents or individual partition', then select **Next**.



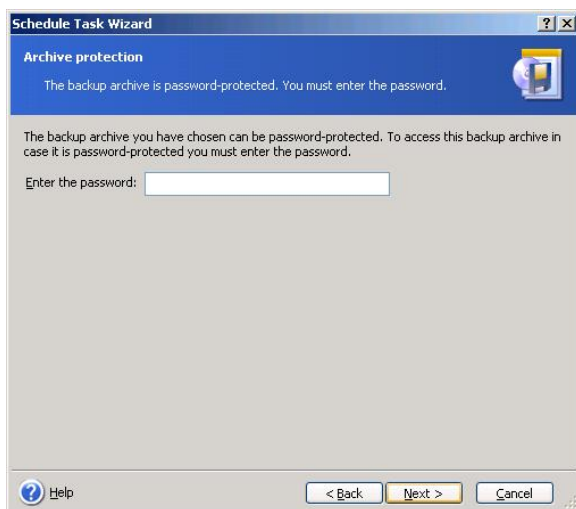
Select the checkbox for **System (C:)**, then select **Next**.



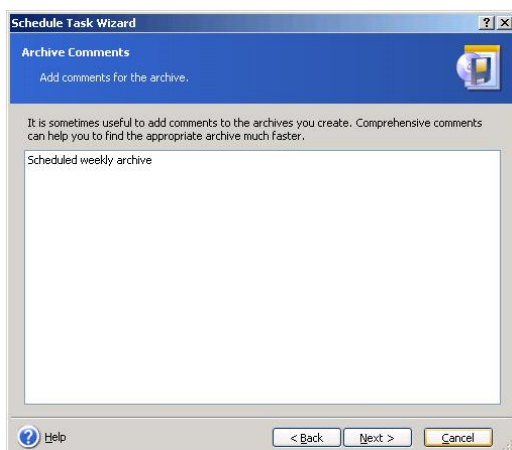
Select the file in the left hand pane that the differential backup is to be based on, then select **Next**.



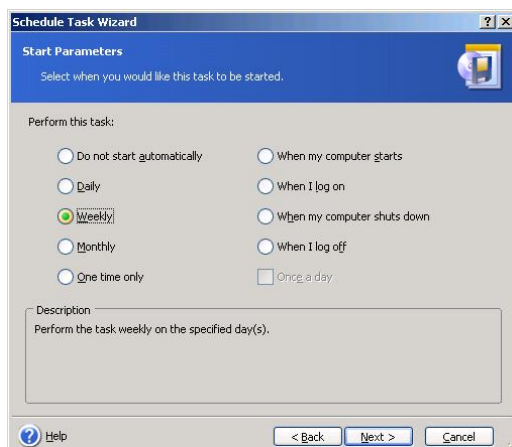
Select the radio button labelled 'Create differential backup archive', then select **Next**.



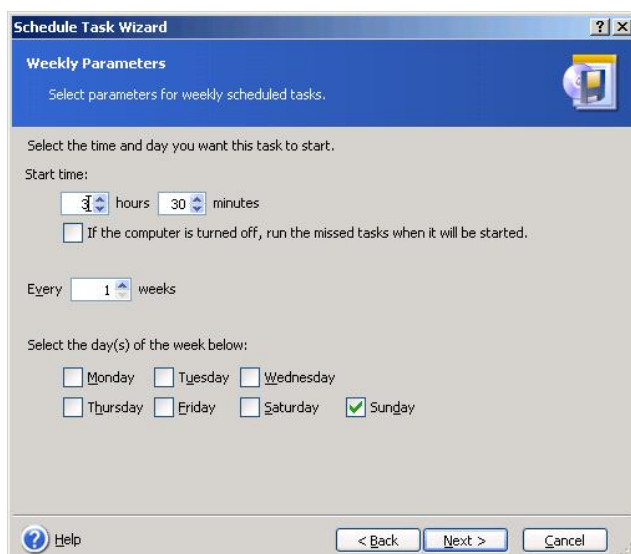
Leave the password box blank, then select **Next**.



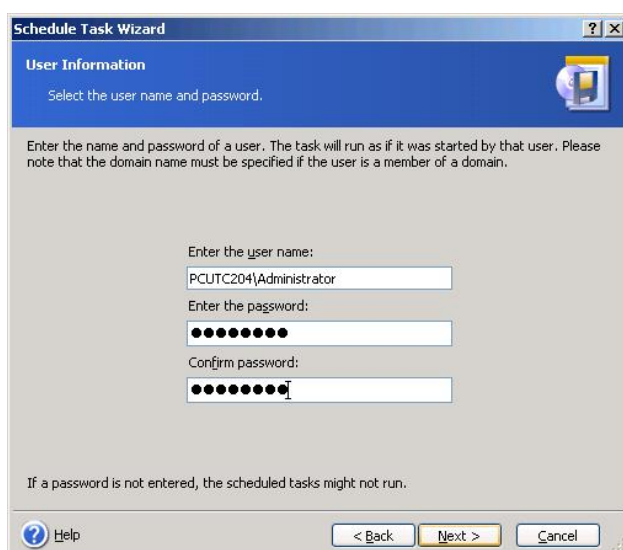
Add a comment if required, then select **Next**.



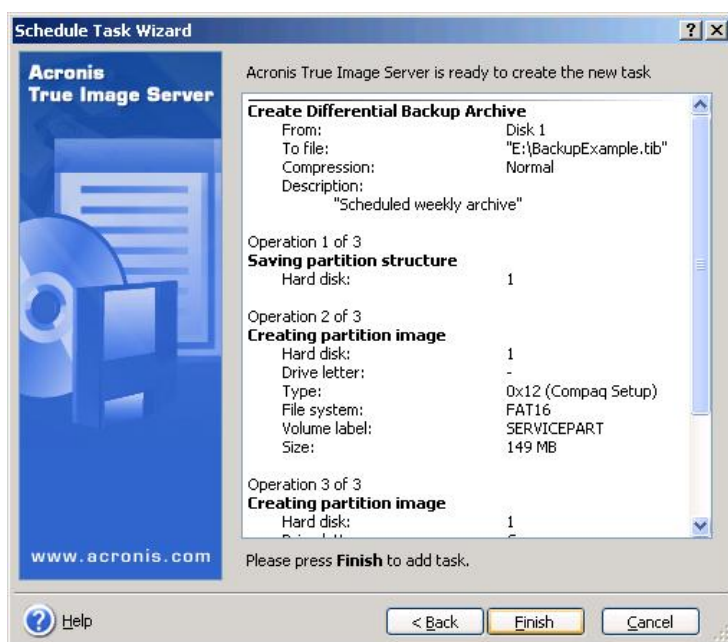
Select the radio button for the period of the backup (weekly is selected in this example), then select **Next**.



Select the time and the day when the backup is to take place (the recommended time is 3:30am on Sunday), then select **Next**.



Enter the Administrator Password, then select **Next**.



Select **Finish**.

6. CREATION OF A BOOTABLE RESCUE CD

Select Start -> All Programs -> Acronis -> Acronis True Image Server -> Bootable Rescue Builder

The Acronis Media builder windows opens, click **Next**.

Select “Acronis True Image Server (Safe Version)” and click **Next**

Put a blank recordable CD in the computer’s CD-RW drive.

In the bootable media selection window, select CD-RW drive and click **Next**.

In the next screen “Ready to create the bootable media” click **Proceed**.

A “Processing, please wait” widow appears and eventually an “Operation successfully completed” window will appear. Click **OK**.

Remove the CD from the drive, label it and store it in a safe place.

7. PC SCOOT SYSTEM IMAGE RECOVERY

This process is only used when the System disk has been replaced or corrupted, typically by a hardware failure. The process, including data restoration, will take a few hours during which time the UTC System will be off-line.

Ensure that the Iomega drive is plugged into a USB port on the PC and that it is powered on.

With a the bootable rescue CD in the drive switch on the PC after a while the “Acronis Rescue Media” screen appears with 2 options. Select Acronis True Image Server (safe Version).

There is then a delay whilst the Acronis software loads and then the “Pick a task” window appears. From the list of tasks select “Recovery”.

In the “restore data wizard” window click **Next**.

In the “Achive Selection” window select the removable hard disk (IOMEGA) and in the Acronis backup folder select the backup that you wish to restore – details of the selected backup appear in the right hand side of the window. Click **Next**.

In the next screen check that the backup selected is the correct one and click **Next**

In the “Restoration Type” selection window select the restoration type (probably “Restore disks or partitions”) and click **Next**.

In the “Partition or disk to restore” window there should only be a disk C shown; if there are 2 apparently identical disks shown (C & D) you should seek advice from the UTC Support Desk. If all is correct, select “System C” and click **Next**.

In the “Restore partition type” window the “active partition” type should be selected and click **Next**.

In the “Restored partion size” window, accept the default and click **Next**

In the next select window select “No, I do not” and click **Next**.

In the “restore Operation Options” window click **Next** and then click **Proceed** in the next window.

A progress window will appear which will show a continuously updated count down of time remaining.

Finally a “The data was successfully restored” window will appear. Click **OK**.

Remove the bootable rescue CD from the drive.

Close the “The data was successfully restored” window and the computer will shut down and reboot itself.

8. PC SCOOT SYSTEM UPGRADE PROCEDURE

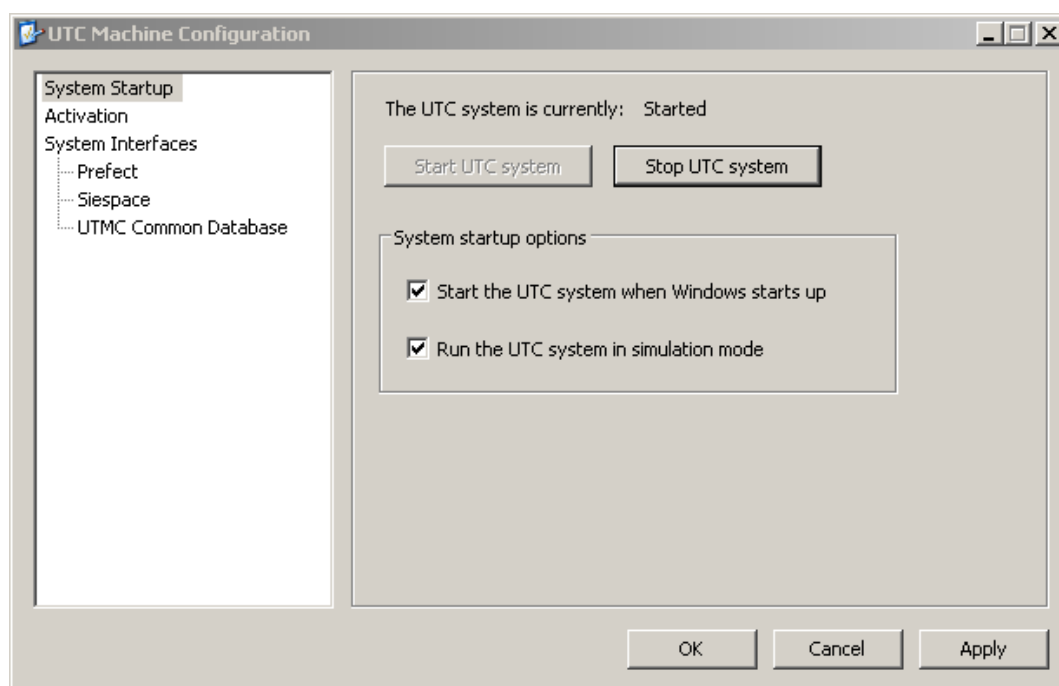
8.1 Before You Start

- The upgrade process usually takes about one hour per computer. However, the update process can take as long as three hours from start to finish depending upon the amount of data to be prepared, the number of files in the System update, the number of files on the current System, etc. Be prepared to have the Traffic System off-line for up to three hours.
- Make absolutely sure that you have an up-to-date backup of the System before starting this process!
- See the System Management Guide for a VMS UTC System for details on how to do this.
- Multi-machine System updates. For multi-machine Systems, it is usual to update the TMC first and then each TCC. In this way as each TCC comes on-line it will be loaded with the correct version of data from the TMC as it comes up.
- If you have problems, or have something you do not understand, contact the UTC Support Desk.

8.2 Stop the UTC System

In order to stop the UTC System all open UTC windows should be closed.

Run the UTC Machine Configuration utility by selecting Start->Siemens Traffic Controls->UTC->Machine Configuration



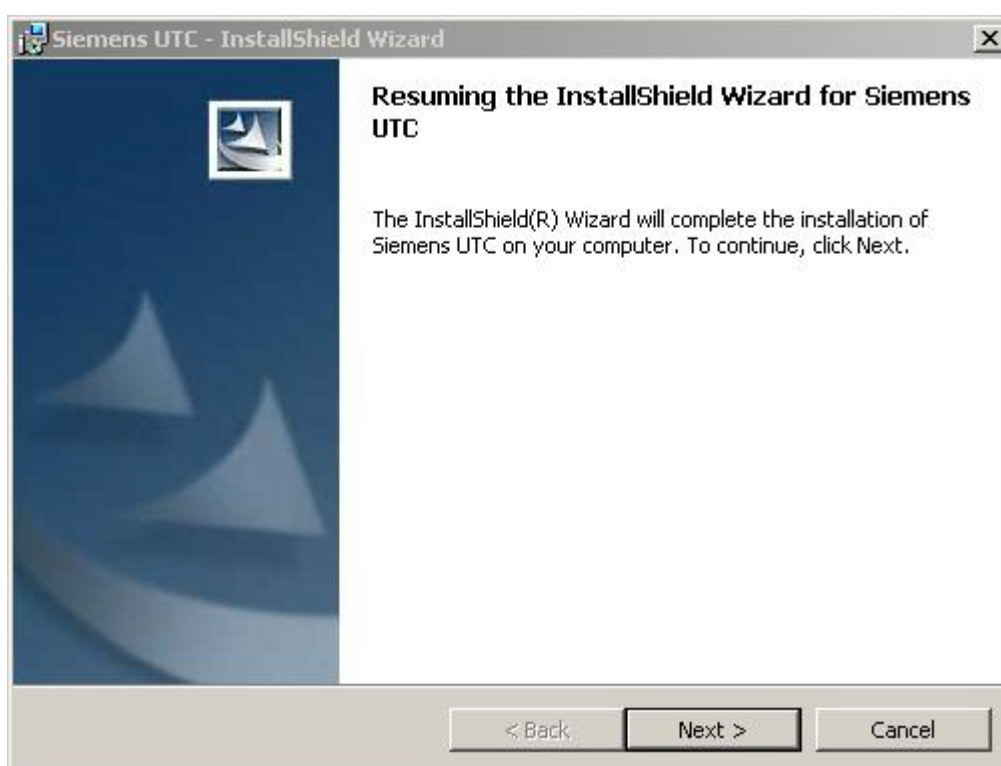
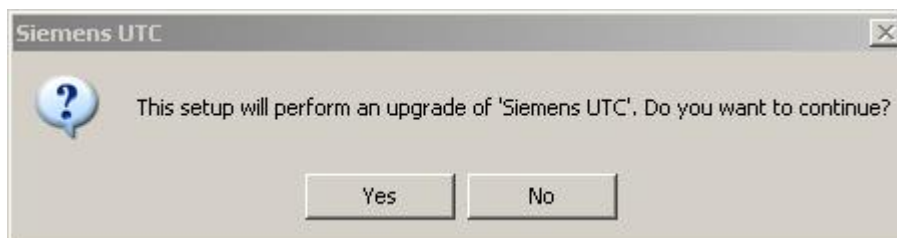
Click on the Stop UTC System button.

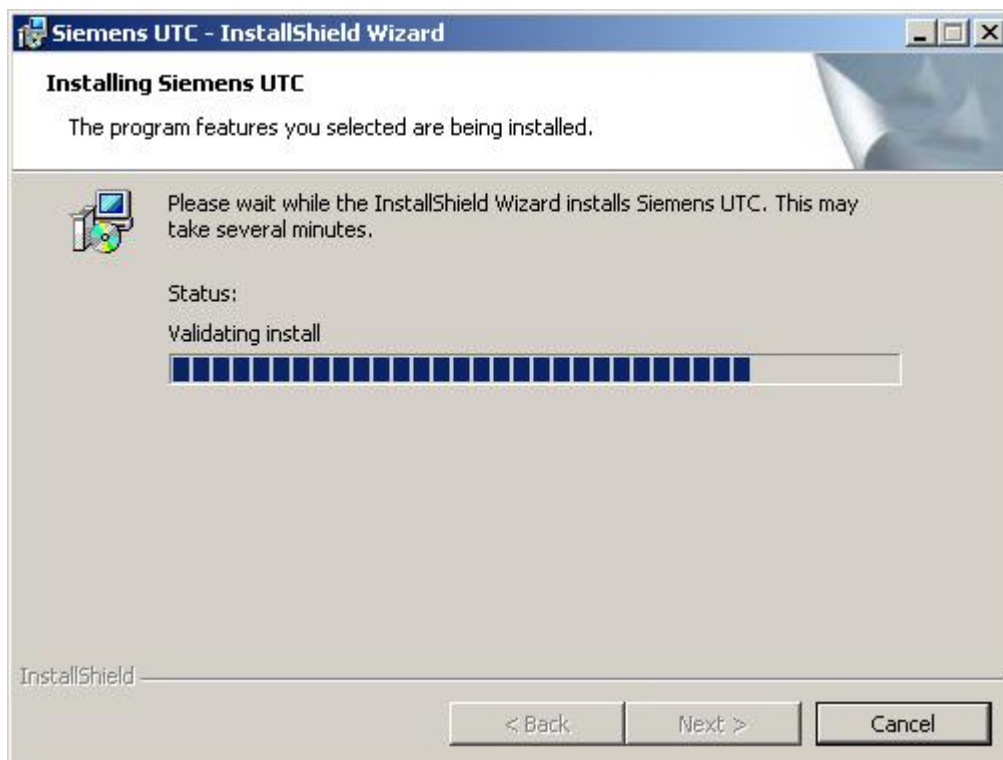
8.3 Perform the Installation

Insert the UTC Upgrade CD in the CD Drive.

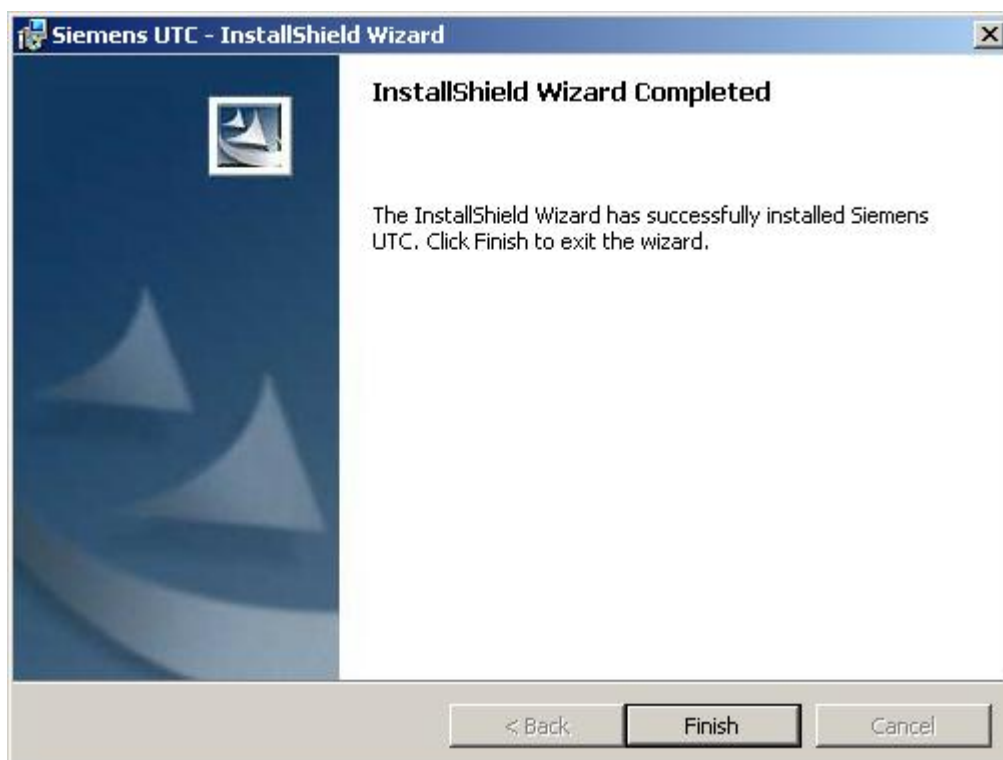
Open Windows Explorer and navigate to the CD. Double click on the Setup.exe file.

The upgrade window appears; click on Yes





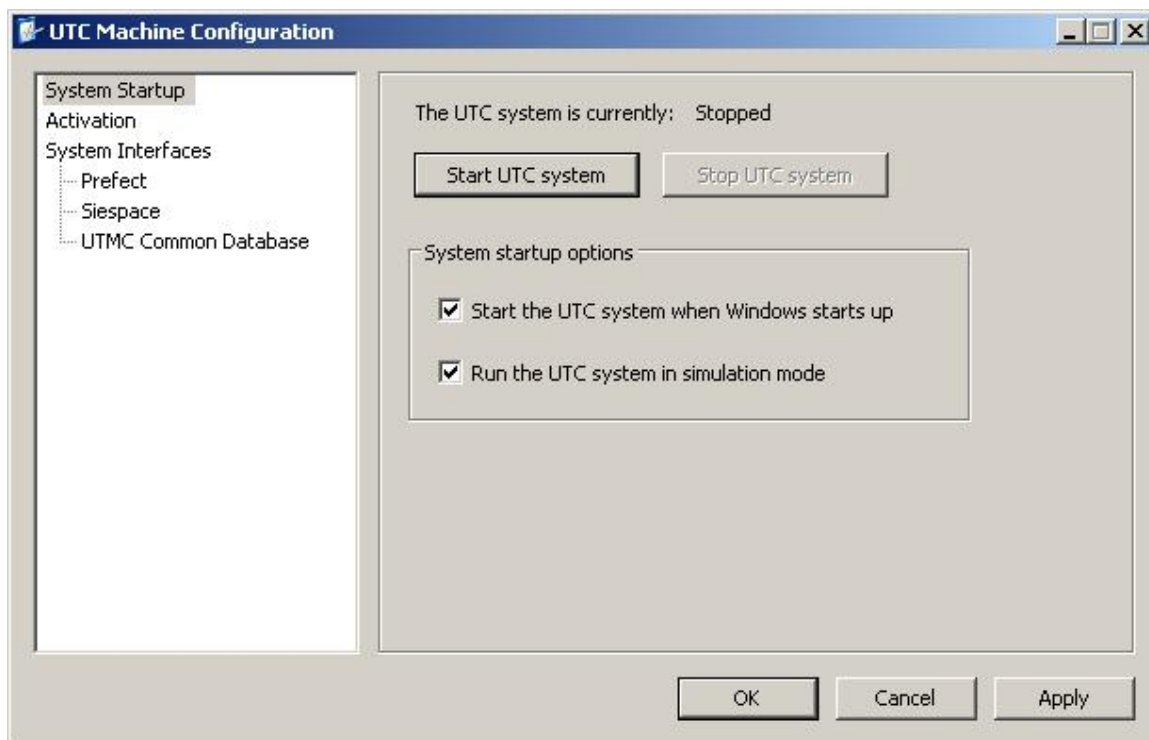
The progress of the installation can be seen in the InstallShield Wizard window and finally the completion window will appear.



Click on Finish.

8.4 Re-Start the UTC System

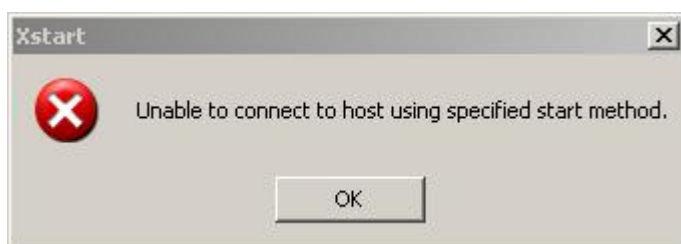
Run the UTC Machine Configuration utility by selecting Start->Siemens Traffic Controls->UTC->Machine Configuration



Click on the Start UTC System button.

After a while log in to the UTC System.

If you see the following window you need to wait a while longer.



When you have managed to login, check that the System is running correctly.

8.5 System Image Backup

You should now back up the new System to ensure that it can recover from a disc failure, should it happen at some time in the future..