



empfeinder

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Section 1

Introduction

Why cpFinder?

Using cpFinder - A Snapshot

IMPORTANT NOTES

1. Details on system requirements for supporting cpFinder and instructions for installing it are provided in the Appendices.
2. The user must supply or have access to daily security price data in a format that cpFinder can process. See the appendices for details

Introduction

Background

cpFinder automatically searches security price data for various technical chart patterns. cpFinder can be set to scan all or a chosen subset of your data. You can run it on a daily basis, for example, after you receive your data updates, so that you will be made aware of new patterns as soon as they occur. Manual or visual scanning is therefore no longer necessary, except to confirm pattern validity.

Background to cpFinder's methodology is presented opposite.

Pattern details are provided in Section 3 (Pattern Descriptions)

IMPORTANT NOTE

Volume properties are material in determining pattern validity (see, for example, the reference opposite for details); cpFinder does not check the volume properties. These properties must be assessed manually by the user.

cpFinder's Pattern Recognition Procedures

A security's price bar data (date, open, high, low, close) are scanned by cpFinder in search of technical patterns. There are no consistently used definitions to describe these technical patterns. Different sources use generally slightly divergent descriptions of what constitutes each pattern. For automatically detecting these patterns, however, cpFinder has to use fixed and very specific rules. No leeway can be given; either the data fits a pattern or it doesn't. Whilst the advantage of human interpretation is lost in this approach, the very important characteristics of consistency and repeatability are gained in automatic pattern detection. The rules cpFinder uses for detecting patterns closely follow those given in the book by Thomas N. Bulkowski (*Encyclopedia of Chart Patterns*, John Wiley & Sons, New York, 2000).

cpFinder is somewhat permissive in detecting patterns. It discards as few potential patterns as possible. It is up to the user, therefore, to further check pattern validity and applicability. On the other hand, cpFinder may miss some patterns that a human observer may well have detected (so illustrating the natural supremacy of human interpretation over machine pattern recognition). Nevertheless, the advantages that cpFinder provides over the human interpreter include the speed, repeatability and consistency of automatic pattern detection.

Generally patterns arise as a result of interpreting successive peaks (highs) and troughs (lows), so-called swings, that occur at different scales in the price bar charts according to the rules for the various patterns. So this is the information that cpFinder calculates and analyses to detect most of the patterns.

cpFinder gathers statistics it uses to test for patterns in a security from its price data. The parameters that cpFinder uses to detect the patterns based on these statistics and swings referred to above are built in to cpFinder; they cannot be changed by the user (in the standard version of cpFinder). Also note that as more data becomes available over time, statistics calculated reflect this additional data so that pattern detail may change marginally on a day-to-day basis as new daily data is added. Occasionally a pattern may even be invalidated by updated data (that is, as far as cpFinder is concerned) and so will no longer be shown.

A sample of the patterns that cpFinder can detect is illustrated on the following page.

Why use cpFinder?

Many charting programs provide a wide variety of technical chart indicators such as moving averages, oscillators and so on. However, program support for automatically detecting chart patterns like "head and shoulders" and "ascending triangle" is rare.

cpFinder is designed specifically to plug this gap by providing an easy-to-use stand-alone application that detects many important and useful chart patterns. Several examples of these are displayed opposite.

The full list of chart patterns that the current version of cpFinder can detect is:

Triangular Formations

- Symmetrical

- Ascending

- Descending

- Flag

- Pennant

- Wedge

Head & Shoulders

- Top / Bottom

Trends

- Up / Down

- Double Top / Bottom

- Triple Top / Bottom

- Support / Resistance

- Gaps

All that is required to augment your trading system with cpFinder is daily security price data (in MetaStock or text format). You are already very likely to be using this for your charting software anyway.

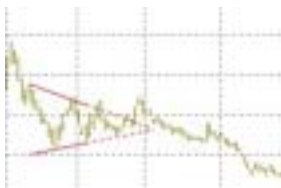
Ascending Triangle



Descending Triangle



Symmetrical Triangle



Flag



Pennant



Wedge



Head & Shoulders (top)



Head & Shoulders (bottom)



Trend (up)



Trend (down)



Using cpFinder A Snapshot

The objective of cpFinder is simple. It automatically and systematically finds certain chart patterns in stock price data.

Using cpFinder to do this is straightforward. Only four steps are required to effectively harness the power of cpFinder. To get an early peek at how easy cpFinder is to use, these four steps are now illustrated.

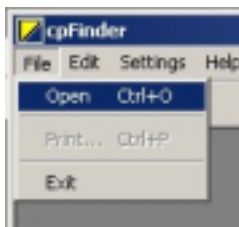
1. *Open file*
2. Select securities
3. Select and search for patterns
4. Browse detected patterns

NOTE

Details on system requirements for supporting cpFinder and instructions for installing it are provided in the Appendices.

Step 1 - Open File

After launching cpFinder (from the desktop or using the Start menu), select the Open option of the File menu item on the menu bar of the opening screen.



Full details on using cpFinder are provided in the Reference Section. However, this snapshot may be all you need to get started.

It summarises the four simple steps to follow to effectively use cpFinder. They are:

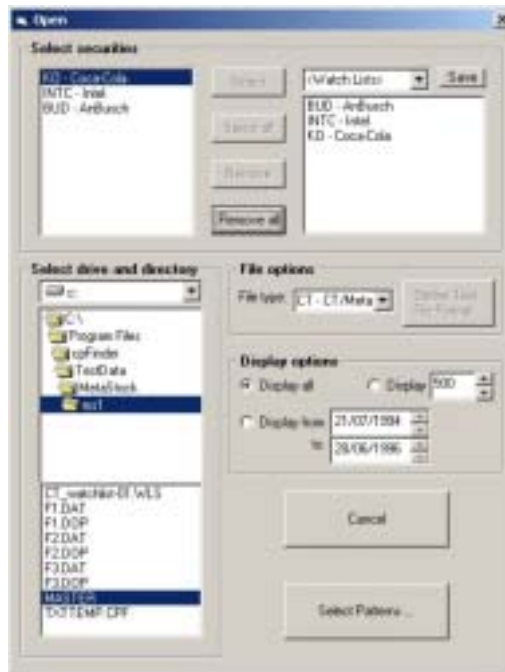
1. Open file
2. Select securities
3. Select and search for patterns
4. Browse the patterns that have been detected in the data

Using cpFinder A Snapshot (cont'd)

1. Open file
2. *Select securities*
3. Select and search for patterns
4. Browse detected patterns

Step 2 - Select Securities

The securities whose price data you wish to use to scan for any technical patterns they may contain, can now be selected from the Open dialog.



This dialog allows you to specify the securities you wish to scan.

The middle left panels allow you to manoeuvre to the drive and directory containing security data. The data used above is one of the test data files (TestData\MetaStock\ms1) installed with cpFinder.

The lower left panel shows the files (if any) found in the current directory. If any stock data that cpFinder recognises is found, the securities it has found are listed in the top left panel.

The securities you wish to work with can then be selected using the buttons (**Select**, **Select All**, **Remove**, **Remove All**) in the top middle. The selected securities are listed in the top right panel.

Now that you have selected the securities you want to process, you can then press the **Select Patterns** button. This raises the Select Patterns dialog.

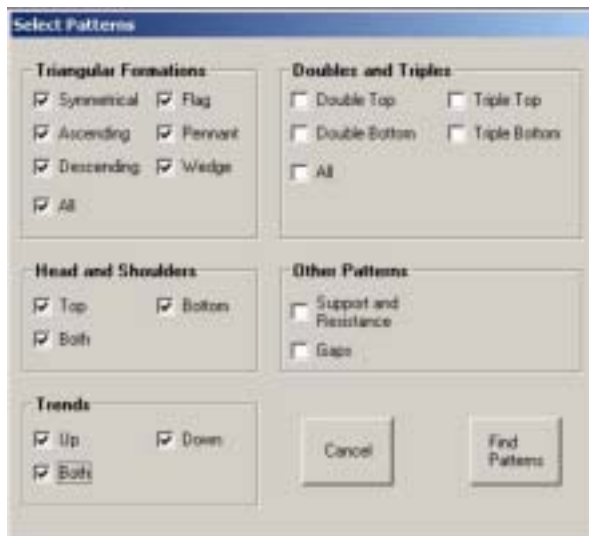
Using cpFinder A Snapshot (cont'd)

1. Open file
2. Select securities
3. *Select and search for patterns*
4. Browse detected patterns

Step 3 - Select and search for patterns

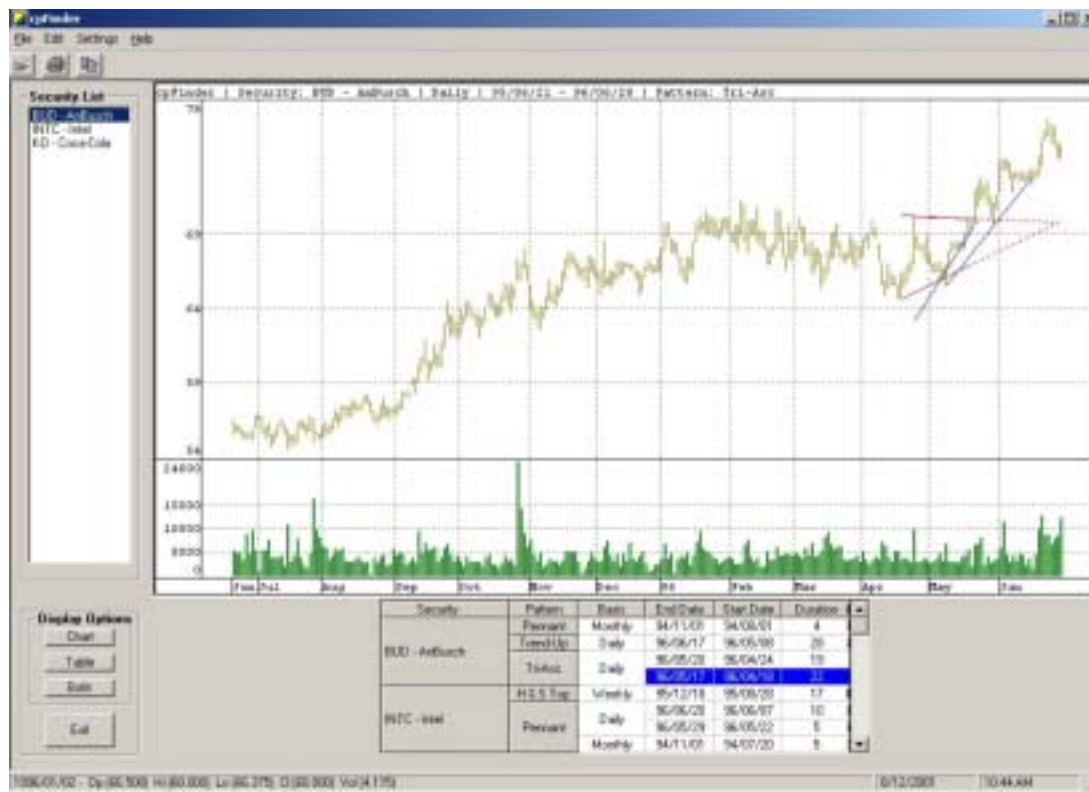
Many of the more important and useful technical chart patterns can be detected by cpFinder. These are listed on the Select Patterns dialog below.

Any or all of the available patterns on the Slect Patterns dialog can be chosen. Let's choose **All** the Triangular Formations and **Both** Head and Shoulders and **Both** Trend patterns by clicking on the repective check boxes. Now press the **Find Patterns** button.



After searching the data, patterns found for the first security in the Security List are displayed as shown on the page following.

Using cpFinder A Snapshot (cont'd)



The display has three components:

1. On the left hand side, a list of securities (Security List) that has been processed for the chosen patterns with the name of the currently displayed security highlighted (by default, initially the first in the list);
2. A bar chart (which also shows volume) on which the patterns found for the currently highlighted security on the list are shown and
3. Below the bar chart, a table of patterns found, by security and pattern type. Note that any patterns found for weekly and monthly data are also listed based on computing the weekly and monthly figures from the daily data.

Using the vertical scroll bar on the pattern table, the bar chart and patterns found for security BUD - AnBusch are displayed by clicking on one of its pattern rows (the second Tri - Asc, ie ascending triangle pattern, in the list)

Using cpFinder A Snapshot (cont'd)

1. Open file
2. Select securities
3. Select and search for patterns
4. *Browse detected patterns*

Step 4 - Browse detected patterns

You can now investigate the patterns that have been detected by simply clicking on the entries in either of the lists. For example, you can highlight an Ascending Triangle pattern.

Click on this entry in the pattern table and the pattern on the bar chart is highlighted (i.e. shown in the highlighted colour) as illustrated on the previous page.

Click again on this highlighted entry and you then zoom in on the pattern as illustrated below:



You can do this for any of the securities and patterns listed. At any stage you can print the currently displayed chart by using the **Print** option of the **File** menu item. Other options available from the menu bar include:

Copy to Clipboard of the **Edit** menu item which allows you to then paste the chart into another document and

Colours of the **Settings** menu item that you can use to change chart colour settings.

When you have completed your investigations for the current set of securities, press the **Close** button. You can then proceed through these four steps again with a different set of securities and pattern choices.

That's all there is to accessing the
chart pattern finding power of cpFinder

Section 2

Reference

Reference

Reference

cpFinder's Startup Screen

On launching cpFinder from the Start menu or from the desktop, the startup screen is displayed. The menubar and toolbar provide access to cpFinder's functions.

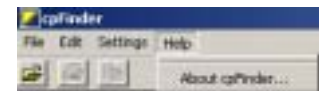
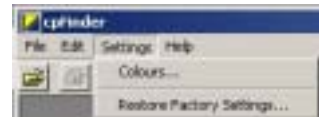


Menu Bar

The menu bar options provide the facilities shown opposite.

Menu Bar entries:

- File
- Edit
- Settings
- Help



Tool Bar

The tool bar provides shortcuts to the Open, Print and Copy to Clipboard functions.

These facilities are detailed in the pages following.



Exiting cpFinder

How to Get To It

Menu bar



What it does

This option is used to close down and exit cpFinder.

Click on the **File** item in the menu bar and then choose the **Exit** option in the drop-down list. cpFinder will then close down.

Open Dialog

How to Get To It

Menu bar



Tool bar



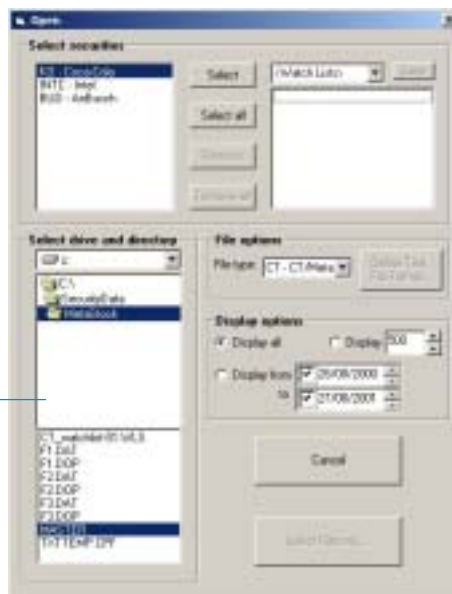
What it does

This dialog provides facilities to

- *Navigate to the drive and directory containing the data files*
- Select securities for processing
- Create and use “watch lists” from the available securities
- Specify the range of data to be displayed
- Launch a dialog for defining text file formats of text-based data files
- Launch a dialog to choose patterns to search for and to execute the scan

Drive and Directory Navigation

This is done in the Select Drive and Directory panel at the lower left quadrant of the dialog.



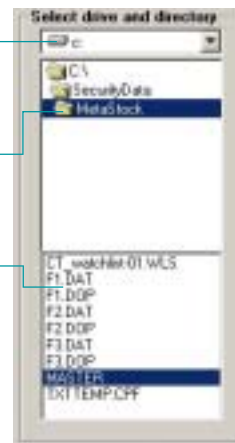
The panel has three sections

Drive selection – click on this to select the drive containing the data

Directory selection – double-click on a directory icon to open it

File list – this lists the files (if any) found in the directory

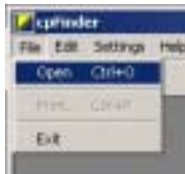
If a directory contains recognisable data, the securities found are listed in the left hand list of the Select securities panel of the Open dialog (see next)



Open Dialog (cont'd)

How to Get To It

Menu bar



Tool bar



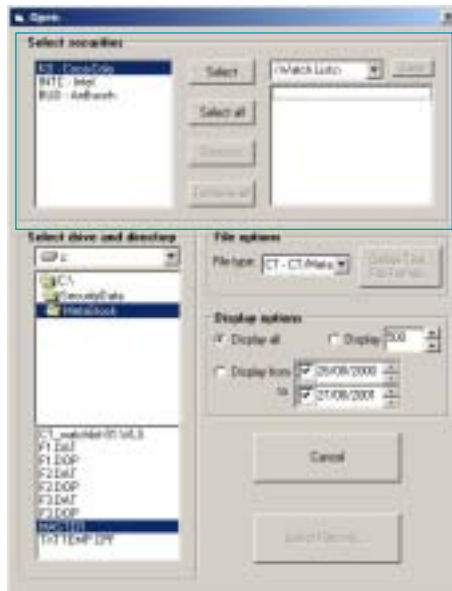
What it does

This dialog provides facilities to

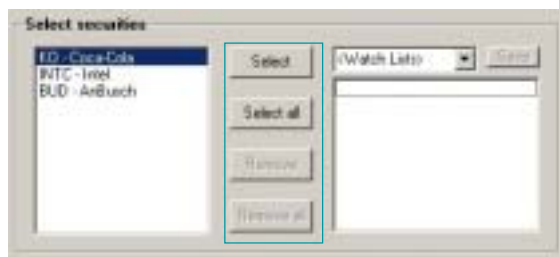
- Navigate to the drive and directory containing the data files
- *Select securities for processing*
- Create and use “watch lists” from the available securities
- Specify the range of data to be displayed
- Launch a dialog for defining text file formats of text-based data files
- Launch a dialog to choose patterns to search for and to execute the scan

Select Securities

The securities you want to process are defined in the Select Securities panel in the top third of the Open dialog.



Available securities are listed in the left hand list of the Select securities panel. Choosing the securities you wish to scan for patterns involves copying the selected securities from the left hand list to the right hand list using the buttons provided between the two lists. The use of these buttons is described in the following sections.



Open Dialog (cont'd)

HINT

You can select more than one security from the left or right lists by either:

- holding down the CTRL key when you click on your selections
- or
- selecting a security and then holding down the shift key when selecting another security; all securities in the range are then selected (highlighted)

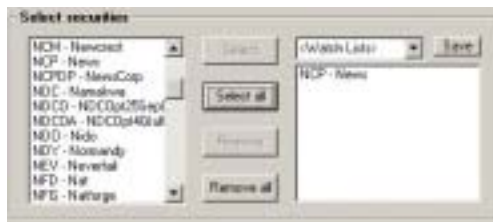
Select Securities - *Continued ...*

Select Button

Highlight a security (or securities - see hint opposite) you wish to select:



Then press Select (or doubleclick on the security); the security is added to the list of selected securities (in its alphabetic location):



Select All button

All securities in the left hand list are placed into the right hand list when this button is pressed:



NOTE

If you select a security into the right hand list that is already listed there, this is detected by cpFinder and your selection is ignored. This means that you cannot create duplicate entries in the right hand list.

Open Dialog (cont'd)

HINT

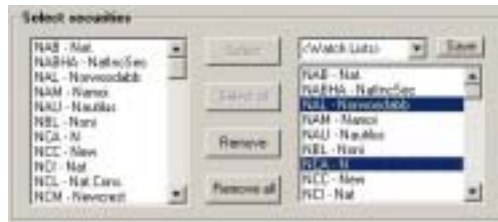
You can select more than one security from the left or right lists by either:

- holding down the CTRL key when you click on your selections (eg as in right hand list opposite)
- or
- selecting a security and then holding down the shift key when selecting another security; all securities in the range are then selected (highlighted)

Select Securities - *Continued ...*

Remove Button

Highlight the security (or securities) you wish to remove from the securities so far selected in the right hand list:



Press the Remove button and the highlighted security/securities is/are removed from the right hand list. (Note that you can remove a single security by double-clicking on it in the right hand list.)



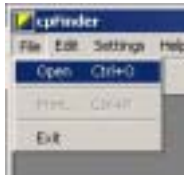
Remove All button

All securities are removed from the right hand list when this button is pressed

Open Dialog (cont'd)

How to Get To It

Menu bar



Tool bar



What it does

This dialog provides facilities to

- Navigate to the drive and directory containing the data files
- Select securities for processing
- *Create and use "watch lists" from the available securities*
- Specify the range of data to be displayed
- Launch a dialog for defining text file formats of text-based data files
- Launch a dialog to choose search patterns to search for and to execute the scan

Watch Lists

It may often be the case that you want to regularly (daily or weekly, say) scan the same selection of securities in a directory for emerging patterns. To support this capability, cpfinder provides the facility to save your selection, under a name of your choosing, in a watch list. Once saved, you no longer have to go through the selection process. All you need to do is load the watch list you saved. There is no limit (theoretically) to the number of watch lists that can be created.

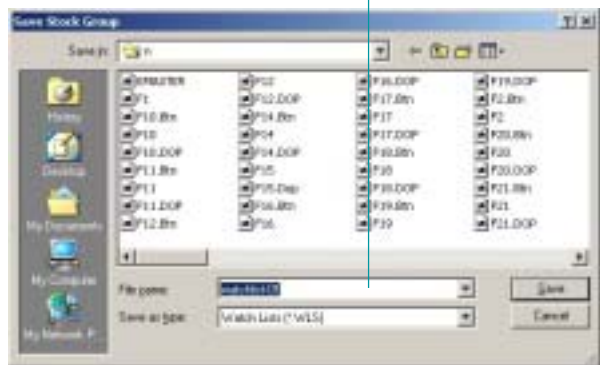
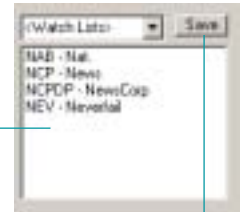
Create Watch Lists

To create a watch list you:

Select the securities you want into the right hand list (See Select Securities).

Click the Save button above the selection list.

Enter the file name in the familiar file dialog by, as appropriate, changing the name from the default provided (watchlist-01).



NOTE

The watch list files have to be saved in the same directory as the data. If you attempt to save into a different directory, a warning message box is displayed which returns you to the directory containing the data when you press the OK button. You can then save the file.

Open Dialog (cont'd)

Watch Lists (Cont'd)

Use Watch Lists

To make use of a watch list:

click on the watch list drop-down arrow

select (click) the watch list you want to use.



The securities contained in the list are then placed in the Selected Securities list. Any existing securities in the selected securities list are removed before the list is populated with the securities in the watch list.



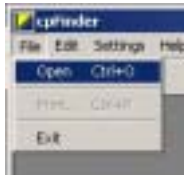
NOTE

If any security that is in the watch list has been removed from the data, a warning message will be displayed for each such security. This, for example, may happen if a security is renamed or has been deleted.

Open Dialog (cont'd)

How to Get To It

Menu bar



Tool bar



What it does

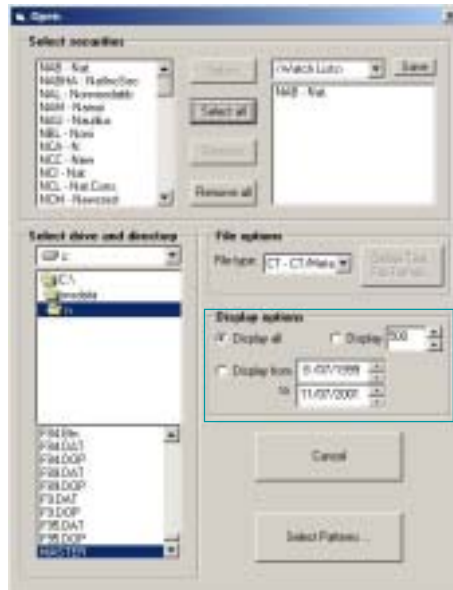
This dialog provides facilities to

- Navigate to the drive and directory containing the data files
- Select securities for processing
- Create and use "watch lists" from the available securities
- *Specify the range of data to be displayed*
- Launch a dialog for defining text file formats of text-based data files
- Launch a dialog to choose search patterns to search for and to execute the scan

Display Options

These options can be used to define the range of data to be displayed. You can display all the data (up to a maximum), a specified number of bars, or bars within a specified date range.

Click on the relevant radio button to select the display option you want; the default is Display all



Display all

This displays all the bars available in the data, limited to a maximum of 500 bars per security. For securities containing more than this limit, the latest 500 bars are displayed.

Display

Up to 500 bars (per security) can be specified for display by entering the required number in the text box and/or by using the up/down spin wheel arrows. No more than 500 records can be specified. The minimum number of bars that can be displayed is 10.



Open Dialog (cont'd)

Display Options (Cont'd)



Display from/to

If you wish to display data within a specified date range, you can use this option.

Before you select any securities, the default date range corresponds to a year's worth of (daily) data up to the current date (as currently displayed by your computer clock).

When the first security is selected (see Select Securities), the **from/to** entries of this option are updated to the first and last dates contained in the data for this security. If the data file contains more than 500 bars, only the last 500 bars can be displayed and the **from** date is set accordingly.

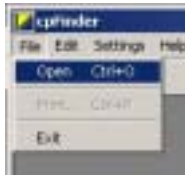
Either of these **from/to** date values can be changed (within the above limitation on the maximum number of bars that can be displayed).

Make changes to the dates by clicking on the day, month or year fields in the **from** or **to** edit boxes; you can then set the value you want by typing it in or by using the up/down spin wheel arrows. There are restrictions on the maximum (500) and minimum (10) number of records (bars) that can be specified for display. The number of records to be charted is approximated from the dates you set. Self-explanatory message boxes are displayed if you specify a date range that is inconsistent with the dates contained in the data or that results in insufficient records (bars) being specified.

Open Dialog (cont'd)

How to Get To It

Menu bar



Tool bar



What it does

This dialog provides facilities to

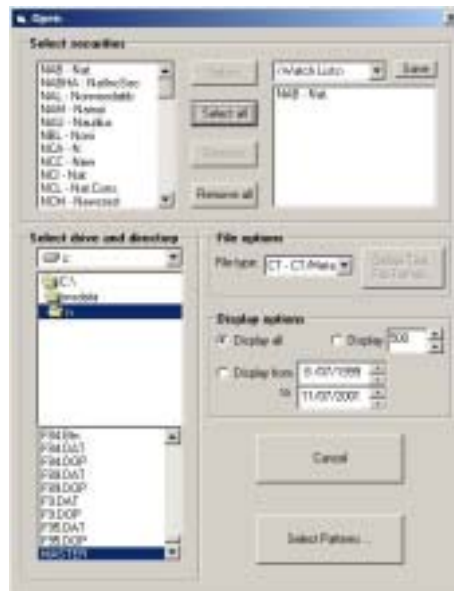
- Navigate to the drive and directory containing the data files
- Select securities for processing
- Create and use “watch lists” from the available securities
- Specify the range of data to be displayed
- Launch a dialog for defining text file formats of text-based data files
- *Launch a dialog to choose patterns to search for and to execute the scan*

Select and Find Patterns

Select Patterns button

Click this button to display a dialog in which you can select the patterns you wish to scan for (in preparation for subsequently activating the scan). It is enabled as soon as at least one security is selected for processing.

When this button is pressed, the Select Patterns dialog is displayed (next topic). This is used to define the patterns you wish to scan for in the securities you’ve chosen from where you can then activate the search.



Cancel button

Click on this button to return to cpFinder’s opening screen.

Select Patterns Dialog

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog

What it does

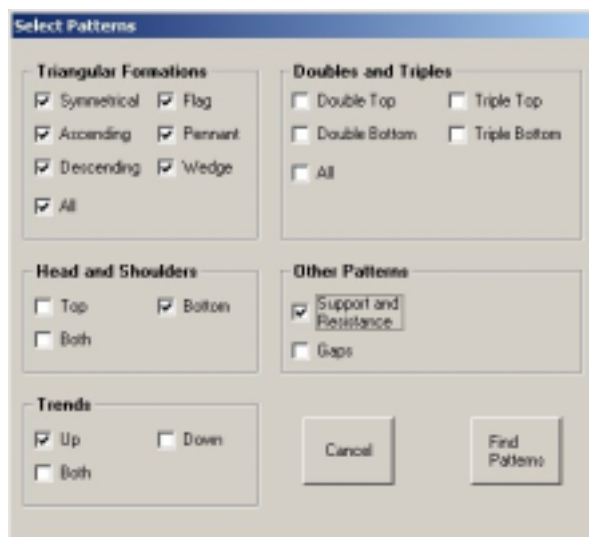
This dialog is used to:

- select the patterns you wish to scan for in the securities you've previously chosen in the open dialog and it is then used to:
- activate the scan (Find Patterns)

Select Patterns

Select the patterns you wish to scan for by simply clicking in the corresponding check boxes. If you wish to select all (or both if there are 2 choices) of the patterns of a particular type, then check the appropriate **All** or **Both** check box. To de-select a choice, just click again in the check box. For example, if all triangular formations have been selected by checking the **All** check box, they can all be de-selected by clicking again in the **All** check box.

Whenever at least one pattern is selected, the **Find Patterns** button of the dialog is enabled.



The available patterns that you can ask cpFinder to search for in the chosen securities are listed in the dialog above.

Select Patterns Dialog (cont'd)

How to Get To It

Menu bar



Tool bar



Then

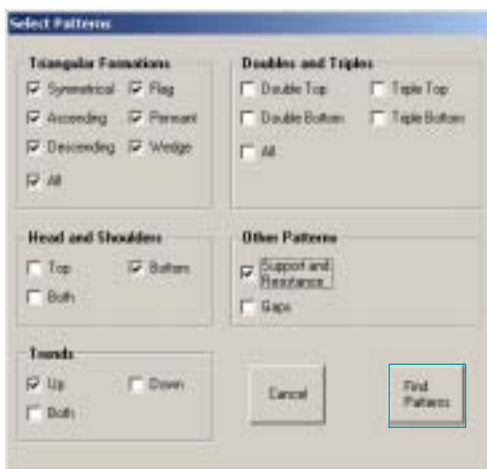
- press the Select Patterns button on the Open dialog

What it does

This dialog is used to:

- select the patterns you wish to scan for in the securities you've previously chosen in the open dialog and it is then used to:
- activate the scan (Find Patterns)

Find Patterns



Find Patterns button

Click on this button to activate the pattern search process. The selected securities are processed sequentially as a batch. During searching, a **Batch Processing Monitor** (see next page) containing the search progress bar, that is updated as each security is processed, is displayed. A Security List containing the selected securities is provided on the left side of the screen with the security currently being processed shown highlighted. When all the selected securities have been processed, the Batch Processing Monitor is closed and the bar and volume charts for the first security in the list, with any patterns found overlaid, are displayed. A list containing all the patterns detected for all the securities processed is also displayed. If there are insufficient data for the pattern search procedure in any of the selected securities, the affected securities are removed from the list of selected securities on the left of the screen. At the end of batch processing, a dialog containing the list of securities removed is presented. By simply pressing the **OK** button, the charts and patterns for the first security are presented as described above. The options for this display are described separately.

Cancel button

By clicking on this button, you are returned to cpFinder's opening screen.

Select Patterns Dialog (cont'd)

Batch Processing Monitor

A Security List containing the selected securities is provided on the left side of the screen with the security currently being processed shown highlighted.



The security currently being processed is also provided in the Batch Processing Monitor. The progress bar gives an indication of the proportion of securities that have been processed.

When all the selected securities have been processed, the Batch Processing Monitor is closed and the bar and volume charts for the first security in the list, with any patterns found overlaid, are displayed. A list containing all the patterns detected for all the securities processed is also displayed. (See Pattern Display.)

If there are insufficient data for the pattern search procedure in any of the selected securities, the affected securities are removed from the list of selected securities on the left of the screen. At the end of batch processing, a dialog containing the list of securities removed because of insufficient data is presented. **[Note that securities in which none of the selected patterns have been detected are also removed from the list – these are not reported.]** Close this dialog by pressing the OK button. The charts and patterns for the first security are then presented as described above.

Select Patterns Dialog (cont'd)

Batch Processing Monitor (Cont'd)

Suspend Processing button



The pattern scanning process can be suspended at any stage by clicking on this button. Processing is stopped after the current security has been scanned (so that this action is ineffective if clicked during processing the last security in the Security List). You are then asked whether you wish to continue processing or not. Clicking on **Yes** allows processing to continue. If you click on **No** you are asked to confirm your choice in a confirmation dialog.



Clicking on **Yes** in the confirmation dialog cancels further processing and you are returned to cpFinder's opening screen. Clicking on **No** in the confirmation dialog signals that processing can resume.

Pattern Display Window

How to Get To It

Menu bar



or

Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the select patterns dialog
- press the Find Patterns button

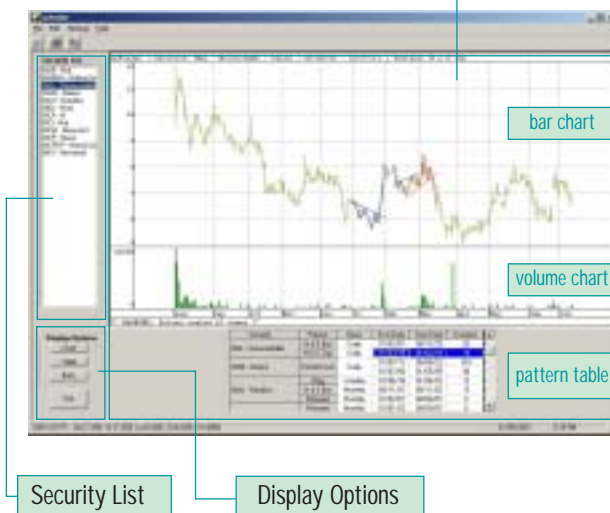
What it does

The pattern display window provides its functions through its three components

- The central major part of the screen area which is used to display the bar and volume charts and/or the table of patterns found (the Chart and Pattern Table Display Area);
- On the left hand side, a list of securities (Security List) that has been scanned for the chosen patterns;
- Below this list, a panel of buttons giving Display options.

Structure of Pattern Display Window

Chart and Pattern Table Display area.

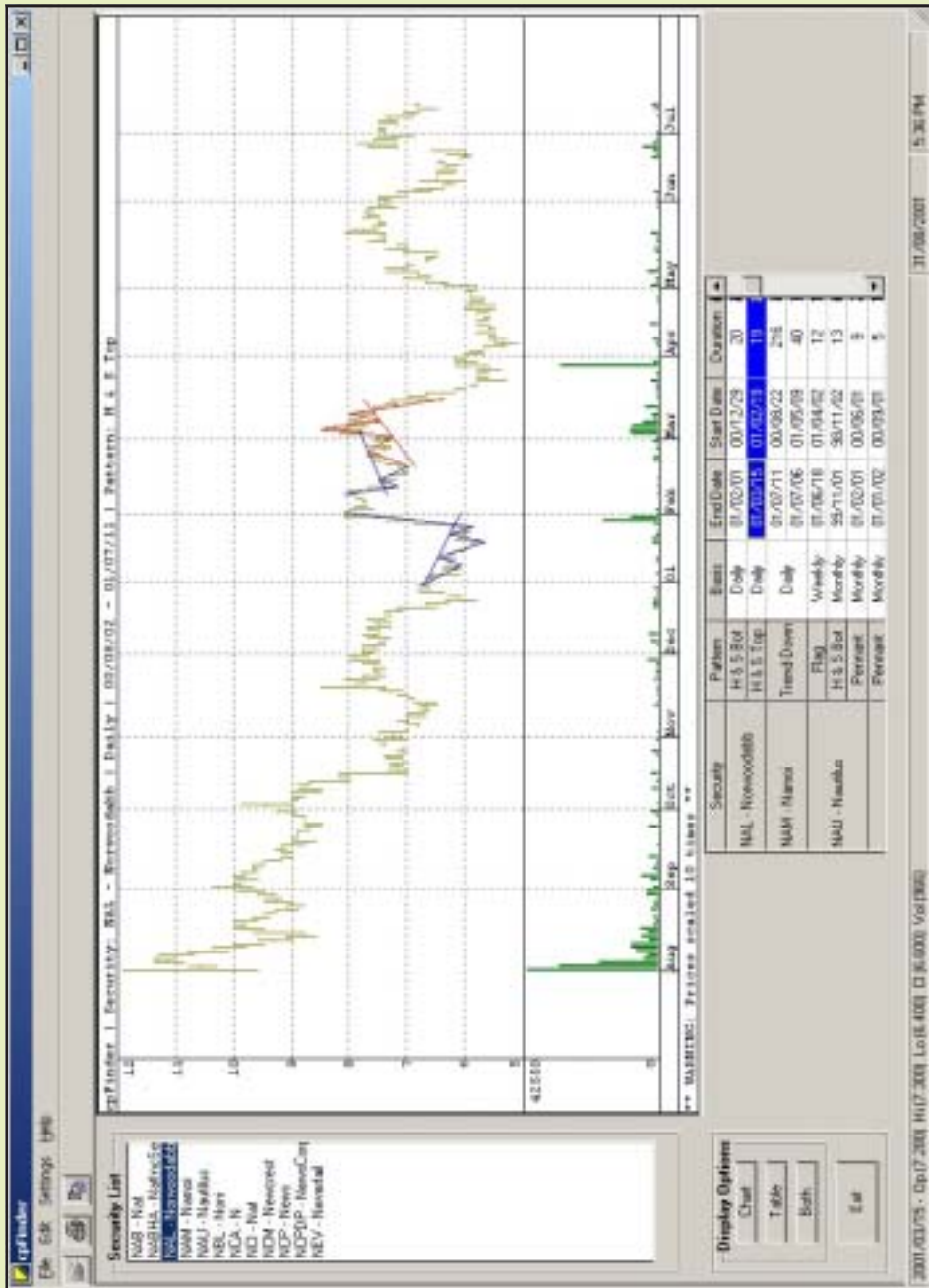


An enlarged version of this appears on the following page.

NOTE

When the cursor is placed in the Bar or Volume Chart area, the current price and volume details at the cursor location are displayed in left hand side the message line at the bottom of the Pattern Display Window. This is more clearly seen in the enlarged version of the above screen display.

Pattern Display Window – Enlarged version

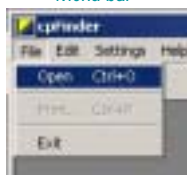


Note: The Exit button of Display Options is now labelled Close .

Pattern Display Window (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the select patterns dialog
- press the Find Patterns button

What it does

The pattern display window provides its functions through its three components

- *The central major part of the screen area which is used to display the bar and volume charts and/or the table of patterns found (the Chart and Pattern Table Display Area);*
- On the left hand side, a list of securities (Security List) that has been scanned for the chosen patterns;
- Below this list, a panel of buttons giving Display options.

See "Pattern Descriptions" for details about the patterns and for pattern abbreviations used in the Pattern Table.

Bar and Volume Chart



The price bars for the range of data selected earlier (in the **Select Securities dialog**) are displayed in the top section of the chart and the volume information is displayed as a histogram in the smaller volume chart below. Price and volume scales are placed on the left axes of the bar and volume charts. A chart heading and, when necessary, a chart footing also appear. Alongside the cpFinder name, the chart heading shows the security name, the data basis (whether the data charted is daily, monthly or weekly) and the date range of the data. If any pattern is highlighted (see below), the name of the highlighted pattern is also provided as the last entry in the heading. The chart footing is only provided if the bar chart has been scaled in which case the price scale factor is reported as a warning message in the footer. Such a footer is shown above. (Divide the scaled price value on the chart by the scale factor to get the actual price).

Pattern Table

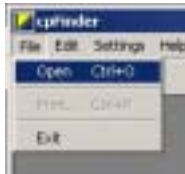
Security	Pattern	Basis	End Date	Start Date	Duration
HAL - Homecall	H.S. Bar	Daily	21/02/02	00/02/01	20
	H.S. Top	Daily	16/02/02	01/02/01	15
HAL - Home	Total Close	Daily	21/02/01	00/02/00	216
		Daily	21/02/00	01/02/99	49
	Flag	Weekly	21/02/01	01/02/00	12
HAL - Home	H.S. Bar	Monthly	20/01/01	00/01/00	12
	Forward	Monthly	21/02/01	00/02/00	9
	Forward	Monthly	21/02/00	00/02/99	5

All the patterns detected in the list of securities that have been processed (given in the Securities List) are entered in this table. They are listed by security and within security by pattern name, data basis (daily, weekly or monthly) and pattern end date (latest end date first). The pattern start date and pattern duration are also listed. Weekly and monthly data are computed from the daily data and processed for patterns in the same manner as the daily data. Durations are reported in the units of the basis used. Thus, if the basis is "Daily", then the duration is given in days, and if the basis is "Weekly", then the duration is in weeks.

Pattern Display Window (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the select patterns dialog
- press the Find Patterns button

What it does

The pattern display window provides its functions through its three components

- The central major part of the screen area which is used to display the bar and volume charts and/or the table of patterns found (the Chart and Pattern Table Display Area);
- *On the left hand side, a list of securities (Security List) that has been scanned for the chosen patterns;*
- *Below this list, a panel of buttons giving Display options.*

Security list

The securities that have been scanned for patterns are placed into the Security List. This list can be navigated by scrolling using the vertical scroll bar (if this is displayed).

Double clicking on any entry in this list brings up the bar chart for the security and the patterns found for it.



Display Options

This set of buttons allows you to control what is shown in the chart/Pattern Table display window. It also provides a button for closing the Pattern Display Window.



Browsing Patterns

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the Select Patterns Dialog
- press the Find Patterns button

What it does

The Facilities provided by the Pattern Browsing feature of the Pattern Display Window allow you to:

- *Select any security whose patterns you wish to view*
- Highlight a particular pattern of interest
- Zoom in/out on a particular pattern
- Display
 - Chart Only
 - Table Only
 - Both Chart and Table
- Close pattern display

Select a Security to View

In the **Security List**, double click on the security whose patterns you want to view. A vertical scroll bar is provided for navigation if the list cannot fit into the space provided. After double clicking, the bar chart for the security will then be displayed together with any patterns that have been found for it. (Note: A single click will only highlight the security clicked; it will not load and chart it).



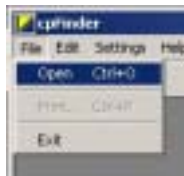
Security	Pattern	Base	End Date	Start Date	Duration
NAB - Newwoodabb	HLS Bot	Daily	01/02/01	01/02/99	18
	HLS Top	Daily	01/02/01	01/02/99	19
NAM - Namoi	Trend-Down	Daily	01/02/11	00/03/22	216
			01/02/08	01/05/09	40
NAU - Nautilus	Flag	Weekly	01/06/18	01/04/02	12
	HLS Bot	Monthly	01/11/01	01/11/02	13
	Perman	Monthly	01/02/01	00/05/01	9

The first pattern for this security in the Pattern Table is brought into view and the row is highlighted.

Browsing Patterns (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the Select Patterns Dialog
- press the Find Patterns button

What it does

The Facilities provided by the Pattern Browsing feature of the Pattern Display Window allow you to:

- Select any security whose patterns you wish to view
- ***Highlight a particular pattern of interest***
- Zoom in/out on a particular pattern
- Display
 - Chart Only
 - Table Only
 - Both Chart and Table
- Close pattern display

Highlight a Pattern

Click on the row in the Pattern Table you want to highlight. The relevant pattern on the bar chart is then displayed in the pattern highlight colour (shown red in the example) and the pattern name (H & S Top) is appended to the bar chart heading.

Alternatively you can click on or near to one of the pattern lines (or near the oval centre, for gap patterns).



NOTE

If the pattern that you have clicked on in the Pattern Table relates to a security that is not currently displayed, the relevant security is loaded and displayed with the selected pattern highlighted. So this is another way of Selecting a Security to View (see previous page).

Browsing Patterns (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the Select Patterns Dialog
- press the Find Patterns button

What it does

The Facilities provided by the Pattern Browsing feature of the Pattern Display Window allow you to:

- Select any security whose patterns you wish to view
- Highlight a particular pattern of interest
- ***Zoom in/out on a particular pattern***
- Display
 - Chart Only
 - Table Only
 - Both Chart and Table
- Close pattern display

Zoom In/Out on a Pattern

By clicking on a currently highlighted pattern, you can isolate the pattern and zoom in on it. (Note that this is a second consecutive click on a row in the Pattern Table. The first click highlights the row and the second click causes zooming to occur on the highlighted pattern. A click next to a currently highlighted pattern on the bar chart also causes zooming to occur. A double click action is not required for zooming).

The amount of zooming that occurs depends on the proportion of the bar chart width the pattern spans; patterns of shorter duration (smaller span) are magnified more than are longer patterns. Only the highlighted pattern is displayed in the zoom. Here we have zoomed in on the pattern (H & S Top) highlighted previously.



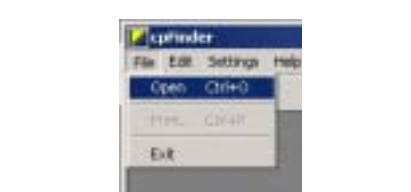
Clicking again on the currently highlighted row (which has its pattern zoomed) of the Pattern Table or anywhere on the bar chart of the zoomed pattern, restores the pre-zoom status.

Clicking on a different row of the Pattern Table when in the zoom mode highlights the new pattern in the table and bar chart. If the new pattern relates to a different security, the relevant security is loaded and its patterns displayed with the newly selected pattern highlighted in the Pattern Table and on the bar chart. In either case, the non-zoomed mode is displayed.

Browsing Patterns (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the Select Patterns Dialog
- press the Find Patterns button

What it does

The Facilities provided by the Pattern Browsing feature of the Pattern Display Window allow you to:

- Select any security whose patterns you wish to view
- Highlight a particular pattern of interest
- Zoom in/out on a particular pattern
- *Display*
 - Chart Only*
 - Table Only*
 - Both Chart and Table*
- Close pattern display

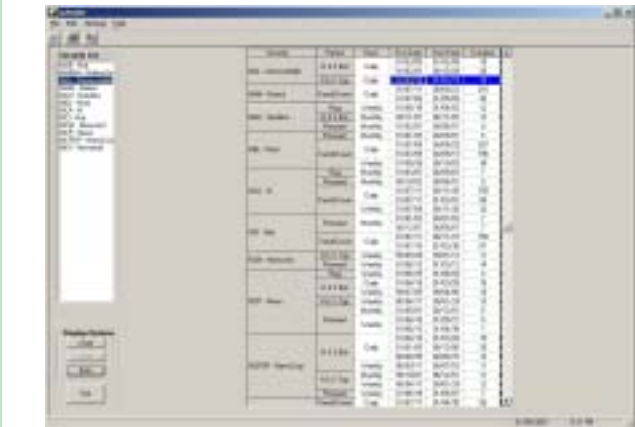
Display Options

These options control what is shown in the Chart and Pattern Table Display Area.

Chart button: When you click on this button, the chart is rescaled to fill the whole Chart and Pattern Table Display Area. The Pattern Table is hidden.



Table button: When you click on this button, the Pattern Table is rescaled to use the whole Chart and Pattern Table Display Area. The chart is hidden.

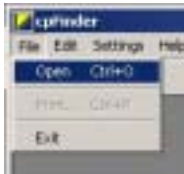


Both button: This is the default setting. When this button is clicked, the top section of the Chart and Pattern Display Table Area is used to display the chart and in the lower smaller section the Pattern Table is provided. (This option is used in most of the examples in this manual.)

Browsing Patterns (cont'd)

How to Get To It

Menu bar



Tool bar



Then

- press the Select Patterns button on the Open dialog
- choose patterns to search for on the Select Patterns Dialog
- press the Find Patterns button

What it does

The Facilities provided by the Pattern Browsing feature of the Pattern Display Window allow you to:

- Select any security whose patterns you wish to view
- Highlight a particular pattern of interest
- Zoom in/out on a particular pattern
- Display
 - Chart Only
 - Table Only
 - Both Chart and Table
- *Close pattern display*

Closing the Pattern Display



Click on the **Close** button to exit the current set of patterns and securities. A warning dialog is displayed asking you to confirm that it is your intention to **Close**. This allows you to cancel the **Close** option if you wish.



The reason for providing this confirmation is that substantial processing time may have been required to generate the current patterns that would otherwise have to be regenerated if the **Close** button was clicked inadvertently.

NOTE

You can exit not only the patterns but also terminate cpFinder itself by clicking on the **Exit** option of the **File Menu**. No confirmation dialog is provided in this case.

Print

How to Get To It

Menu bar



Tool bar

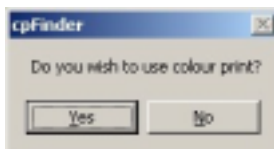


What it does

Prints the currently displayed chart and patterns.

Print Currently Displayed Patterns

Before printing commences, you are given the opportunity of specifying colour if you are sending the chart for output on a colour printer.



Edit

How to Get To It

Menu bar



Tool bar



What it does

Copies the currently displayed screen to the clipboard.

Copy to Clipboard

Using this option, you can copy the currently displayed cpFinder screen to the clipboard (for example, for subsequent pasting into a graphics application). This option is only enabled when a chart is being displayed.

Note that:

- the entire display is copied (not just the chart)

- the effect is the same as pressing the Print Screen key on the keyboard.

Settings

How to Get To It

Menu bar



What it does

Provides facilities for changing the chart colour settings.

Set Colours

This option gives you the chance to change the colours used on the chart. The dialog shows the current chart colours and provides buttons for you to control whether the colour changes should be applied or not. The components of the chart to which the various colours relate are self-explanatory; for example Bar refers to the colour used to display the bars in the bar chart.

To change a colour, simply click on the box showing the colour of the component you wish to change (or click on the text description of it) and use the standard colour dialog to set the new colour. Any changes are not applied to the chart immediately. Instead, once you have set all the colour changes you wish to make, you can then use the buttons on the dialog to apply or discard the changes.



Apply button

Click on this button to immediately apply the changes. The dialog is left open allowing you to try more changes if you so wish.

Reset button

By clicking on this button, you can return to the chart colour settings that existed before you entered this dialog. Any changes you may have made are lost. The dialog is not closed so that you can start making changes again.

Cancel button

This option allows you to cancel any changes made and close the dialog. The colours remain as they were before you entered the dialog.

OK button

With this option, any changes you made to the component colours are applied to the chart (if it is currently displayed) and the dialog is closed. If the chart is not currently displayed, the new settings will be used when a chart is next generated.

Settings (Cont'd)

How to Get To It

Menu bar



What it does

Restores cpFinder's factory settings.

Restore Factory Settings

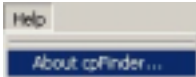
Using this option, you can restore all the settings to those that existed when you first installed cpFinder. A warning dialog is displayed asking you to confirm that you indeed wish to restore all the settings. Clicking on **Yes** restores the original factory settings whilst choosing **No** leaves the settings as they currently are.



Help

How to Get To It

Menu bar



What it does

Provides information about cpFinder.

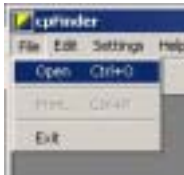
About cpFinder

Provides cpFinder version information

Text File Definition

How to Get To It

Menu bar



Tool bar



What it does

This dialog provides facilities to:

- Navigate to the drive and directory containing the data files
- Select securities for processing
- Create and use "watch list" from the available securities
- Specify the range of data to be displayed
- *Launch a dialog for defining text file formats of text-based data files*
- Launch a dialog to choose patterns to search for and to execute the scan

Defining a Text File Data Format

This option allows you to configure cpFinder to process various text files you may obtain that consist of stock data. The process of text file definition needs to be done only once for each set (directory) of text files you have. More specifically, a text file specification covers the text files contained in a Windows directory; you'll need to provide a specification for each directory containing text files that you wish to open in cpFinder (even in cases where the text formats in different directories are identical.)

The steps to reach the dialog for defining a text file format are:

Click on File (on the Menu Bar) and select Open or click the open icon on the tool bar (see left panel)

In the Open dialog that is now displayed:

Navigate to the directory containing the text data files you wish to format



In the file list, select (highlight) one of the text data files that you wish to define a format for; any of the text data files can be selected

In the File Options panel:

The File Type field is filled and the **Define Text File Format** button is enabled.

Press the **Define Text File Format** button; the text file definition dialog is then displayed.

Text File Definition (cont'd)

Define Text File Format dialog

The “Define Text File Format” dialog that is activated from the correspondingly labelled button on the previous Open dialog.

This dialog allows you to define the text file format in 3 steps.

1. Define the internal file structure
2. Define the types of the fields
3. Test/Cancel/Save the file format definition

Define Text File Format Dialog

Using this dialog, you can define almost any text-based security data file that you are likely to encounter. The files can contain up to 10 entries (fields) per record separated (or delimited) by spaces, commas or tabs. File headers can be present and common date and time formats are supported. (Note that the current version of cpFinder does not support time-stamped data, but this option is planned for a future release).



When the dialog is displayed, the file extension and name of the sample data file you chose earlier (see Defining a Text File Data Format on the previous page) is provided across the top.

The first few records of the file are also listed in the large window in the bottom half of the dialog. This gives you the chance to check that the file contains the kind of text data you were expecting; it also allows you to examine its structure. More specifically, you'll be able to see how many header records, if any, there are and in which column positions within the data records the date, price and volume data values are located. In addition, you'll be able to determine the character used to separate the columns (or fields), that is, the field delimiter and also the format of the date field.

With this information, you can then define the file format by setting the Internal File Format and the data fields (next page).

If the file contains data that does not look like price information, then press the **Cancel** button to cancel this operation. You are returned to the previous dialog (Defining a Text File Data Format) and you can then change your directory/file selection to a text file that contains the price data you wish to format.

Text File Definition (cont'd)

Internal File Format

This step allows you to specify various global aspects of the data files such as the field delimiter and date format. You can also specify any headers that should be skipped.

1. *Define the internal file structure*
2. Define the types of the fields
3. Test/Cancel/Save the file format definition

Step 1 – Define Internal File Format

There are four entries to check and set in this panel.



Date Format

Use this to define the structure of the date items in your data file. Select from the 16 format definition options available in this drop down list the one that corresponds to the date structure in your data. In these format definitions, D represents a day, M a (numeric) month, Y a year and C a century digit. So for example, YYMMDD is appropriate for dates such as 010629 (29th June 2001) and CCYYMMDD for dates like 20010629 (the same date). If date separators are used in the data, for example 01/06/29, then the format YY_MM_DD is appropriate; the underline symbol (_) represents a generic date separator and so can denote commonly used separators such as dash (-), colon (:), forward slash (/) and so on. The default format is YYMMDD.

Time Format

Not used.

Delimiter

This drop down list contains options for the data delimiter used to separate the data fields. The 3 options are COMMA, SPACE or TAB. The default separator is COMMA.

Start load from row

Normally the text data files contain security data starting at the row 1. Sometimes, however, there may be one or more header records (eg to describe the data in the file) in each file. By using the up/down arrows you can specify which row is the first containing price data. By default, this is set to 1. Note that this value must be the same for all the text files in the directory for which this file format is defined. So, for example, if one of the text files has one header record and the other files have no headers, errors will result if the start row is set to 1 because in the file that contains the header, an attempt will be made to treat the header record as data. If the start row is set to 2, the first record will be ignored in all the files; this means that the first data record will not be used in the files that have no headers. In general, you can set this value to skip over the maximum number of headers in the text files selected to avoid the possibility of errors caused by attempting to interpret a header record as data.

Text File Definition (cont'd)

Field Definitions

Each entry or field in the data records represents an item of data of a particular type such as date, high or low etc.

This step allows you to define these types for your data files.

1. Define the internal file structure
2. *Define the types of the fields*
3. Test/Cancel/Save the file format definition

Step 2 - Field Definitions

The middle panel of the dialog allows you to set the type of each data record to match the type of data that the data record contains. Up to 10 fields can be set as indicated by the 10 drop down lists in this panel. The leftmost drop down list defines the first field of the data record, the next the second and so on. The meaning of each field is defined by simply selecting the appropriate entry in its drop down list. Options available are: Skip, Date, Time, Open, High, Low, Close, Vol (Volume) and OI (Open Interest). Note that Time and Open Interest options are not used in this version of cpFinder. The remaining options are self-explanatory except Skip. This option is used if there is a field in the data you do not wish to use. For example, the data may contain the stock symbol as the first field of the record. This information is not required (since, for text files, the symbol would normally be part of or implied by the file name). You would then set this field to Skip.



Once the Internal File Format and Field Definitions have been specified, you can then **Test** the definition. After selecting the definition you can either **Cancel** the operation or **Save and Close** which stores the definition for subsequent use in cpFinder.

Text File Definition (cont'd)

Test / Cancel / Save Field Definitions

Here you can test the definition you've provided and then either save or cancel it.

Steps:

1. Define the internal file structure
2. Define the types of the fields
3. *Test/Cancel/Save the file format definition*

Step 3 - Test / Cancel / Save Field Definitions



Cancel button

This cancels the Define Text File Format operation and returns you to the Select Securities dialog. No information about the file definition is changed or saved.

Test button

When you press this button, your format is tested against the sample data file listed in the data window. A Notepad® application is opened that lists the data read from the text file using the currently specified data format.

Date	Time	Open	High	Low	Close	Volume	Spread
1997/01/01	00:00:00	0.215	0.215	0.200	0.200	89,080	0
1997/01/01	00:00:00	0.205	0.205	0.190	0.190	151,159	0
1997/01/01	00:00:00	0.198	0.198	0.185	0.185	85,260	0
1997/01/01	00:00:00	0.195	0.195	0.185	0.185	0	0
1997/01/01	00:00:00	0.196	0.200	0.185	0.200	88,180	0
1997/01/12	00:00:00	0.200	0.200	0.200	0.200	404,162	0
1997/01/13	00:00:00	0.203	0.205	0.203	0.200	819,172	0

The heading in this list shows the possible fields that can be defined. Where the field is not specified in the definition, the values listed are set to zero. For example, the Time value is typically set to 00:00:00 as it is not used in cpFinder; OI (Open Interest) is also usually zero for the same reason. Once you have checked the Notepad® listing, you can close it by clicking on its close box. If there are errors in the format, make the necessary changes and use the Test button again to re-check. This button always leaves you in the Define Text File Format dialog.

Save and Close button

Once you are happy with the format you've specified, press this button. The format definition is saved and you are returned to the Select Securities dialog.

Section 3

Pattern Descriptions

Pattern Descriptions

Pattern Descriptions

Pattern Descriptions

Pattern Descriptions

IMPORTANT NOTE

Volume properties are material in determining pattern validity (see, for example, the reference opposite for details); cpFinder does not check the volume properties. These properties must be assessed manually by the user.

NOTE

Abbreviated pattern names are sometimes used for reporting purposes in the Pattern Table. These are given in parenthesis after the pattern name in the following descriptions, for example, Tri-Sym denotes a Symmetrical Triangle.

Introduction

General background to cpFinder's pattern recognition methodology is provided in Section 1 (Introduction).

Detail on how the patterns cpFinder detects using this methodology is presented here. Generally cpFinder uses rules for detecting the various patterns defined in the book by Thomas N. Bulkowski (*Encyclopaedia of Chart Patterns*, John Wiley & Sons, New York, 2000).

Note that cpFinder updates its pattern detection statistics as new data is added. This may cause pattern detail to change with new data; occasionally a previously valid pattern may even be invalidated and so removed from the pattern list.

Pattern Duration

cpFinder expects to look for patterns in daily data. This data is also used as a basis to calculate weekly and monthly data so that cpFinder can then search for weekly and monthly-based patterns.

The patterns described here typically need a certain minimum, and sometimes maximum, period over which to evolve. These periods are one of days, weeks or months depending on whether daily-, weekly- or monthly- based data is used to generate the pattern involved. The durations provided in the pattern descriptions are days for patterns found in daily data, weeks for patterns found in weekly data and so on.

When are the Patterns Displayed?

cpFinder only displays patterns when they have fully formed. For example, this means that triangle-based patterns are displayed when the fourth turning point that triggers the particular pattern has been found allowing the upper line (through the 2 high turning points) and lower line (through the 2 low turning points) to be drawn. So cpFinder does not attempt to postulate which potential patterns are forming before they are fully developed.

Pattern Descriptions (cont'd)

Triangular Patterns

Triangular formations are characterised by having 2 peaks and 2 troughs, that is, the sequence peak-trough-peak-trough or trough-peak-trough-peak. The 2 peaks form the upper line of the triangle and the 2 troughs the lower line. Thus it looks like a triangle "on its side" but without its baseline (which is not drawn). The relationship between the line slopes as well as the pattern durations are used to distinguish the various types of triangular formations.

In depicting triangular formations, cpFinder draws the 2 lines with the extension of the pattern to the apex from the last peak or trough defining the triangle drawn dashed (except for the flag pattern which, by its definition, does not have an apex). The pattern duration is calculated from the first defining peak (or trough) to the last defining trough (or peak).

Available Triangular Patterns

- *Symmetrical*
- *Ascending*
- *Descending*
- Flag
- Pennant
- Wedge

Symmetrical (Tri-Sym)



Line Slopes: The upper line slopes down (negative slope) and the lower line slopes up (positive slope) at roughly the same absolute slope value.

Duration: Minimum 15 periods.

Ascending (Tri-Asc)



Line Slopes: The upper line is horizontal (or almost so) and the lower line slopes up.

Duration: Minimum 15 periods.

Descending (Tri-Desc)



Line Slopes: The lower line is horizontal (or almost so) and the upper line slopes down.

Duration: Minimum 15 periods.

Pattern Descriptions (cont'd)

Available Triangular Patterns

- Symmetrical
- Ascending
- Descending
- *Flag*
- *Pennant*
- *Wedge*

Flag



Line Slopes: This is not strictly a triangular formation as the 2 lines in this formation are (roughly) parallel and both may slope either up or down.

Duration: Less than 15 periods.

Pennant



Line Slopes: The two lines converge; the slopes can be of the same or opposite signs.

Duration: Less than 15 periods.

Wedge



Line Slopes: Both lines slope in the same direction (that is, they either both slope up or both slope down) but with different slopes in such a way that they converge.

Duration: More than 15 periods.

Pattern Descriptions (cont'd)

Head and Shoulders Patterns

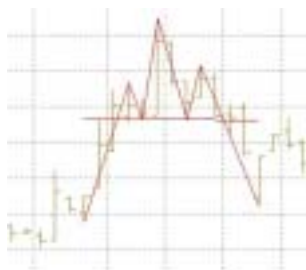
These formations are characterised by 3 successive peaks (troughs) with the central peak (trough) higher (lower) than the surrounding peaks (troughs). The central peak (trough) is called the head and the surrounding peaks (troughs) the shoulders. The pattern should be roughly symmetrical about the head. The line joining the turning points either side of the head is called the neckline. Though the neckline should strictly be horizontal, sloping necklines can also produce meaningful patterns and are therefore accepted by cpFinder.

cpFinder depicts these patterns by drawing the 3 peaks (troughs). It also draws the neckline. Duration is determined by the time between the start of the first shoulder to the end of the last shoulder

Available Head and Shoulder Patterns

- *Top*
- *Bottom*

Top (H & S-Top)



Turning Points: 3 successive peaks

Duration: 15 periods minimum

Bottom (H & S-Bot)



Turning Points: 3 successive troughs

Duration: 15 periods minimum

Pattern Descriptions (cont'd)

Trends

Surprisingly, trends are one of the hardest patterns for cpFinder to detect in a “human” way. For this reason, the trend is treated in a very forgiving way by cpFinder. Even so, occasionally “obvious” trends are missed and “marginal” trends are accepted by cpFinder.

A trend is shown as a line joining the trend turning points from the first turning point until the trend is broken by a trend reversal. There must be at least 2 turning points or at least 10 price bars (highs for down trends and lows for up trends) must touch or be in the vicinity of the trend. Because a degree of latitude is allowed in fitting the trend, the trendline will not, in general, pass through all or any of the turning points, but will at least pass near to them. The trend is depicted as a trendline; its duration is from the first turning point to the trend reversal point.

Available Trend Patterns

- *Up trend*
- *Down trend*

Up (Trend-Up)



Line: An up-trend is an upward sloping line joining troughs. It is ended by a downside reversal.

Duration: At least 15 periods.

Down (Trend-Down)



Line: A down-trend is a downward sloping line joining peaks. It is ended by an upside reversal.

Duration: At least 15 periods.

Pattern Descriptions (cont'd)

Doubles and Triples

These formations simply represent a series of 2 or 3 peaks/troughs:

- that are roughly equal in value
- that are higher/lower than the surrounding peaks/troughs
- whose peaks/troughs are roughly symmetrical in shape.

cpFinder depicts them by joining the 2 or 3 peaks/troughs by a horizontal line.

Available Doubles and Triples Patterns

- *Double top*
- *Double bottom*
- *Triple top*
- *Triple bottom*

Double Top



Peaks: 2 consecutive roughly symmetrical peaks at the same (or close to the same) price high.

Duration: At least 15 periods as measured by the peak-to-peak duration.

Double Bottom

Troughs: 2 consecutive roughly symmetrical troughs at the same (or close to the same) price low.

Duration: At least 15 periods as measured by the trough-to-trough duration.

Triple Top

Peaks: 3 consecutive roughly symmetrical peaks at the same (or close to the same) price high.

Duration: At least 15 periods as measured by the overall peak-to-peak duration.

Triple Bottom

Troughs: 3 consecutive roughly symmetrical troughs at the same (or close to the same) price low.

Duration: At least 15 periods as measured by the overall trough-to-trough duration.

Pattern Descriptions (cont'd)

Other Patterns

These patterns do not fit into the earlier groupings and so are presented here separately.

- *Support and Resistance*
- *Gaps*

Support and Resistance

These are similar to trends but instead of joining turning points with a sloping line, they join sequences of price bar extremes (lows for support and highs for resistance) by horizontal lines; that is, sequences of bars having the same (or very nearly the same) lows (for support) and highs (for resistance). cpFinder is again quite forgiving in detecting these patterns. For example, it allows some price "breakouts", so that the user may need to be selective in interpreting them.

cpFinder depicts support and resistance by the horizontal lines joining the relevant price points; their duration is measured by the difference between their end and starting dates

Support (Supp)



Duration: Minimum 15 periods.

Resistance (Res)



Duration: Minimum 15 periods.

Pattern Descriptions (cont'd)

Other Patterns Continued

- Support and Resistance
- *Gaps*

Gap



Gaps arise when the high for a bar is lower than the low for the previous bar or, alternatively, when the low for a bar is higher than the previous bar's high. cpFinder merely highlights where this pattern occurs and makes no attempt to categorise the type of gap it might be. In particular, it does not distinguish "false" gaps caused, for example, by securities going cum or ex dividend. It is up to the user to verify that the gap is meaningful.

cpFinder depicts gaps by enclosing them in ellipses centred in the gap. If the gap has been closed, a horizontal dashed line is drawn from the gap to the point where it has been closed.

Duration: The gap duration is given by the number of periods this line extends. No minimum or maximum period is defined. If the gap has not been closed, no line is drawn and no duration is provided.

Section 4

Appendices

Appendices

Appendices

Appendix 1

Some resources relating to technical analysis are provided here. The list is by no means intended to be comprehensive, but it is a starting point for further investigation and research.

Resources

Books

Bulkowski Thomas N., *Encyclopedia of Chart Patterns*, John Wiley & Sons, New York, 2000.

Edwards, Robert D, and John Magee, *Technical Analysis of Stock Trends*, (fifth edition), John Magee, Springfield, Mass., 1966. (And later editions).

Elder, Alexander, *Trading for a Living*, John Wiley & Sons, New York, 1993.

Kaufman, Perry J., *Trading Systems and Methods*, (third edition), John Wiley & Sons, New York, 1998.

Meani, Regina, *Charting – An Australian Investor's Guide*, (third edition), Wrightbooks, Elsternwick, Victoria, 1999.

Murphy, John J., *Technical Analysis of the Financial Markets*, New York Institute of Finance, Paramus, NJ, 1999.

Pring, Martin, *Technical Analysis Explained*, (third edition), McGraw-Hill, New York, 1991

Web

www.StockCharts.com/education/ (use the Chart Analysis link)

Appendix 2

System Requirements

- Hardware
- Software

Data Requirements

NOTE

The user must provide or have access to daily security price data in a format compatible with cpFinder.

System Requirements

Minimum Hardware

486 (or later) processor (Pentium® preferred)

64 Mbyte Ram (128 Mbyte preferred)

12 Mbyte available hard disk space

VGA graphics

Note that the speed that cpFinder scans data for patterns is proportional to the clock speed of your CPU.

Software

Windows® 95/98/ME/NT4/2000/XP

Data Requirements

Security/Share Price Data

Daily security price and volume data (that is, price bars containing daily open, high, low, close and volume data) in text or MetaStock® format

At least 100 data records (or bars) per security are required. (Securities containing fewer than 100 data records are ignored by cpFinder)

Note that cpFinder calculates weekly and monthly data from the daily input data. The current version of cpFinder **will not** work using weekly or monthly data as input. It also currently **cannot** process intra-day data.

Appendix 3

System Limits

System Limits

Minimum bars (records) per security	100	
Maximum bars displayable per security	500	(Note 1)
Minimum bars displayable per security	10	
Maximum periods before last bar charted that patterns are displayed	40	(Note 2)

Note 1

Although your data file may contain more records (or bars) than this limit, only this maximum number of records bars can be displayed in any chart. You can use the date range limits to process different (up to) 500 bar “windows” of your data. (See “Display Options” for details)

Note 2

Although earlier patterns may exist, cpFinder only processes and displays patterns that are found within this limit calculated from the end (last or latest bar) of the chart.

Appendix 4

Installing cpFinder

- From CD ROM
- From Web Download

IMPORTANT

If Norton Utilities Speed Disk is installed and used on your computer, it is possible that your license files may be moved which will prevent cpFinder running. To ensure this does not occur, before installing cpFinder, open Speed Disk and choose File, Options, Customise and Unmovable Files (or the path appropriate to your version of Speed Disk); then specify that the \-*.ENT, \-*.RST, \-*.KEY and \-*.41S files cannot be moved.

Installing cpFinder from CD ROM

Close all currently running or open programs.

Insert the CD containing the cpFinder software into your computer system's CD ROM drive. The installation procedure should begin automatically. If not, then use the Windows Start button and choose the Run option. Then enter D:\Setup.exe in the prompt (where D is your CD ROM drive; change this to the appropriate drive if not).

Follow the on-screen installation instructions.

Installing cpFinder from Web Download

Close all currently running or open programs.

Use Windows Explorer to go to and open the directory containing the file you've downloaded (Setup.exe). This is a self-extracting archive. Double-click on it.

(Note: If you downloaded a zipped version of Setup.exe, you will need to firstly unzip the downloaded file [for example, using WinZip] and then proceed as just described).

Follow the on-screen installation instructions.

NOTE

Please consult the Readme text file distributed with cpFinder for further and/or updated installation information. The cpFinder installation files have been created using InstallShield® Express.

Appendix 5

cpFinder is protected using Cryptkey[®]
Instant Technology

NOTE

The License Configuration dialog is also displayed if you press the Enter key immediately after launching cpFinder (when the small window titled **CrypKey[®] Instant 32** is briefly displayed).

Authorising cpFinder

You will probably start by using the fully functional Ready-to-Try, 30-day trial version of cpFinder. At the end of this trial period, a License Configuration dialog is displayed when you next run cpFinder which contains:

- information about the authorisation process in the main window (including the email address of the supplier);
- a Help entry in the menu bar which you can consult for further information about using the dialog and the authorisation process.

Authorisation involves providing a Site Key to “unlock” your copy of cpFinder. This occurs once your payment has been successfully processed. You can either use the automatic payment processing facility (which is the recommended method) by clicking the “Electronic Purchase...” button on the License Configuration dialog and by then following the on-screen instructions; or you can proceed manually as outlined below.

1. Click on the **Display Site Code** button.
This displays the License Agreement message.
2. Click on the **View License** button to obtain the Site Code. Copy this code to the clipboard.
You can close this dialog now.
3. Email the Site Code to the supplier, together with your payment details.
4. Once payment details have been successfully processed the supplier will email back your authorisation code (Site Key).
5. When you next execute cpFinder, you can copy (or type) your Site Key into the box provided.
6. Your copy of cpFinder is now authorised.

NOTE

Note that cpFinder is authorised for a given computer and for the particular directory in which it was installed. If you wish to move your License to a different directory or computer, follow the instructions given in the License Configuration dialog Help (see the note opposite for how to display this dialog).

Please see the Readme text file installed with cpFinder for additional and/or updated information about the authorisation procedure.

License Agreement

License Agreement

Copyright 2024

END USER LICENCE AGREEMENT

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You acknowledge that to use the Software you must:

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- (b) provide and use existing share data in a format readable by cpFinder;
- (c) arrange for the Software to be properly and appropriately installed on your hardware, and integrated with your own software;
- (d) keep your computer software and hardware in good working order;

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The terms "GST", "taxable supply" and "tax invoice" have the same meaning ascribed by A New Tax System (Goods and Services Tax) Act 1999 (as amended from time to time).

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