

stocks

COLLABORATORS

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Chapter 1

stocks

1.1 Stocks V3.04a Help

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Stocks is a powerful technical analysis tool used for charting stock price and volume data. Numerous mathematical formulas can be applied to the data in the form of

Studies

. These studies are plotted with the stock price/volume data to allow you to forecast future price movements from previous actions.

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1.2 Stocks: Copyright, License and Disclaimer

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1993, 1994 Bug Free Development All rights reserved.

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Registration

1.3 Stocks: Features

The Stocks program is extremely fast while supporting an extensive feature list:

- * Displays Multiple Studies in a Single Window
 - * Daily, Weekly, and Monthly period ranges
 - * Traditional Bar Charts using High, Low, and Close
 - * Japanese Candlesticks using High, Low, Open, and Close
 - * Point & Figure Three-box Reversal Charts with Customizable Range Selections for Box Definitions
 - * Configurable Trading Rules that Generate Buy/Sell Signals
 - * Compare Historical Data with Trading Rules to Evaluate Effectiveness
 - * Plots Company Earnings
 - * Arithmetic and Log Scales for Price and Volume
 - * Automatically Scales Price and Volume Legend to Fit Window
 - * Support for Displays on Workbench and a Custom Public Screen
 - * Prints Numerous Studies on a Single Page
 - * Stock Lists
 - * Configurable Display and Print Options
 - * Support for HP LaserJet, Postscript Printers, and AmigaDOS PrintGfx Device Drivers
 - * On-Line HyperText Help with Context Sensitive Menu Help
 - * ASCII Data Files for Easy Maintenance
-

- * Data Price Values Support Both Fractional and Decimal Representation for US and International Currencies
- * ARexx Macro Support
- * Configurable commission formulas using ARexx script

1.4 Stocks: Introduction

The Stocks program processes historical stock data formatted as ASCII text files. The use of ASCII representation of data allows you to easily enter or correct your price/volume data. In addition to price/volume data, the Stocks program supports stock split, trailing four quarter earnings plots and allows you to customize your environment using both an ASCII configuration file for system defaults and configuration changes on a per stock basis. See the section on

Configuration File

for more information on configuring your system. Data can be charted using periods of a single day, weekly summaries and monthly summaries.

The stocks program may be invoked from the WorkBench or by using the CLI by specifying an operation and a stock data file.

For example:

```
stocks -d cbm
```

would instruct the Stocks program to display the price/volume data for the stock located in file CBM in the directory pointed to by

Default Path

. See the section

Command Line Options

for a complete

description of all the command line options.

1.5 Stocks: Installation

To use the Stocks program your system must have the following minimum system requirements:

an Amiga 500,600,1200,2000,2500,3000,4000 with a color display.

AmigaDos 2.0+

512 Kilobytes Memory

1 Floppy Disk

Installation instructions:

copy stocks program to C:

copy the default configuration file stocks.config to the S: directory.

copy #?.rexx to the REXX: directory.

copy #?.guide#? help texts to a directory specified by the environmental variable AmigaGuide/Path.

After you have copied the program and help file, edit the stocks.config for your machine and preferences. See the Section on

Configuration File

for a complete description of configuration options.

1.6 Stocks: Command Line Options

If the stocks program is executed from the CLI. The format ↔
for the

command is:

STOCKS [operation] [options] [stock file]

or

STOCKS [operation] [options] -L

An operation and stock filename or the filename of a list of stocks must be specified when the Stocks program is invoked. The options are well optional.

The following values are supported:

Operation Description

- | | |
|----|--|
| -C | Check the current period's stock price/volume against buy/sell conditions. |
| -D | Display stock price/volume/studies in a window. |
| -F | Generate a Point-and-Figure chart for the specified stock file. |
| -P | Plot the stock chart to the printer. |
| -T | Trade based on buy/sell conditions against all historical |
-

data in the stock file.

Option Description

```
-L      Plot all the stocks specified in a
        list file
        .

-M      Plot a monthly summary of the stock price/volume/studies.

-W      Plot a weekly summary of the stock price/volume/studies.
```

The default period for charting data is days. To chart using weekly or monthly summary specify -W or -M command options or use the

Weekly

or

Monthly

menu options.

1.7 Stocks: List File

A list file is an ASCII file containing a set of stock files that are to be displayed. Each stock data filename is contained on a separate line. If no list filename is specified on the command line, the default list file (STOCKS.LIST) located in the directory specified by the default directory is used.

The command syntax for specifying a list file other than the default is:

```
-L=filename
```

where

filename is the name of a file containing a list of stock filenames to display, print or process.

An example of a list file is:

```
aapl dec cbm ibm msft
```

where aapl, dec, cbm, ibm, and msft are the names of stock data files.

1.8 Stocks: Menus

The Stocks program sports a standard Amiga menu interface. ←

Holding the

right mouse button while the pointer is in the Stocks display window changes the title bar to a menu strip.

The following table describes the menu structure for the Stocks program:

Program

- About...
- Open...
- Close
- Preferences...
- Printer Setup...
- Print
- Quit
- Chart
 - Daily
 - Weekly
 - Monthly
 - Point & Figure
 - Candlesticks
 - Earnings
 - Trading
 - Price Scale
 - Volume Scale
- Studies
 - AVG A
 - AVG B
 - AVG C
 - GANN
 - MACD
 - PTPS
 - PERCENT R
 - RSI
 - STOCHASTICS

```
TREND LINE  
  
VPT  
  
AVG VOLUME  
ARexx  
  
Edit Function Keys...  
  
Execute Script...
```

1.9 Stocks: Menu/ Program/ About...

Selecting the About menu choice brings up a dialog box ← containing the version of the Stocks program, a copyright notice and registration information.

If you are using the evaluation version of the program, that fact is stated in the dialog box along with the following gadgets: AGREE, REGISTRATION, and CANCEL. If you don't agree to the

license and warranty information outlined in this document, press CANCEL and don't use the program. If you do agree with the license and warranty press AGREE to continue.

If you have registered and need to enter the registration information, select REGISTRATION. This will open another dialog box containing a form to enter the registration information. Registration requires that you agree to the license and warranty and that you pay a software license fee. See the section on Registration for more information on how to register.

If you are a registered user, the dialog box registration information contains your name and serial number.

1.10 Stocks: Menu/ Program/ Open...

Selecting the Open menu choice brings up a file requester dialog box. Select the directory and stock filename to be displayed.

The keyboard shortcut key for OPEN is to press right-Amiga-0.

1.11 Stocks: Menu/ Program/ Close

Selecting the Close menu performs the same action as \leftrightarrow pressing the Close-Window-Gadget, that is it closes the currently displayed stock chart. If you are displaying a single stock, the Stocks program will exit when you close the display window.

If you are displaying a list of stocks, the next stock file in the list is displayed. To exit the program while displaying a list of stocks, select

Quit
from the Program menu.

The keyboard shortcut key for CLOSE is to press 'C' or right-Amiga-C.

1.12 Stocks: Menu/ Program/ Preferences

The Preferences menu choice has a number of sub-menu choices \leftrightarrow . Each sub-menu brings up a dialog box allowing you to configure the default operating parameters for the sub-menu topic. This is a convenient way to modify the configuration information found in the

Configuration File
using a graphical interface.

The sub-menu items are:

```

-----
Program...
Chart...
-----
Moving Average A...
Moving Average B...
Moving Average C...
-----
Gann...
MACD...
Parabolic...
Percent R...
RSI...
Stochastics...
Trend Lines...
-----
Average Volume...
Volume Price Trend...
-----

```

The Program... sub-menu selection allows you to configure information about the

Default Path
,
Screen Colors
,

```

Interlace
,
Resolution
,
Type
,
Window Size
,
Trading Rules
.

```

The Chart... sub-menu item selection allows you to configure information about

```

Candlesticks
,
Earnings
,
Trading
,
Price Scale
, and

```

```

Volume Scale

```

The other sub-menu selections allows you to configure ←
information
about the various

```

Studies
.

```

Each dialog box contains gadgets for SAVE, USE, or CANCEL. Selecting SAVE causes the configuration to be written to the STOCKS.CONFIG file. The USE selection allows you to use the current configuration without modifying the permanent configuration stored in STOCKS.CONFIG. Selecting CANCEL causes any changes made to be ignored.

1.13 Stocks: Menu/ Program/ Printer Setup

The Printer Setup menu choice opens a dialog box ←
containing the
printer destination and a print driver. You can select whether chart printouts go directly to the PAR: device or to a file. Selecting File allows you to enter a filename. The default filename is 'T:stocks.plot'.

If the print driver choice is "SYSTEM DEFAULT DRIVER", additional configuration parameters can be selected. These additional choice include

```

Aspect
,
Center
, and
Density
.

```

You can also setup the printer page size. In the dialog box are entries for the number of dots per inch in both X and Y directions and page width and height allow you complete control over the print output. The page width and height is specified in 1/100ths of an inch.

The dialog box also contains gadgets for SAVE, USE, or CANCEL. Selecting SAVE causes the configuration to be written to the STOCKS.CONFIG file. The USE selection allows you to use the current configuration without modifying the permanent configuration stored in STOCKS.CONFIG. Selecting CANCEL causes any changes made to be ignored.

1.14 Stocks: Menu/ Program/ Print

Choosing the Print menu selection causes the currently displayed stock and selected studies to be printed to the PAR: device or a file.

When the Stocks program is printing a file, a progress window is displayed. You can terminate a printout by pressing the Close-Window-Gadget on the progress display.

The keyboard shortcut key for PRINT is to press 'P' or right-Amiga-P.

1.15 Stocks: Menu/ Program/ Quit

Selecting the Quit menu choice causes the Stocks program to exit. Quit will terminate the display of a list file.

The keyboard shortcut key for QUIT is to press 'Q' or right-Amiga-Q.

1.16 Stocks: Menu/ Chart/ Daily

Selecting Daily causes the Stocks program to chart stock data using a period of one day. If the data file contains weekly or monthly summary data, it is ignored. Only daily data is displayed.

The keyboard shortcut key for DAILY is to press 'D' or right-Amiga-D.

1.17 Stocks: Menu/ Chart/ Weekly

Selecting Weekly causes the Stocks program to chart stock data using a period of one week. If the data file contains monthly summary data, it is ignored. Daily data included in the file is tallied by week and is combined with the weekly information when displayed.

The keyboard shortcut key for WEEKLY is to press 'W' or right-Amiga-W.

1.18 Stocks: Menu/ Chart/ Monthly

Selecting Monthly causes the Stocks program to chart stock data using a period of one month. Daily and weekly data included in the file are tallied by month and are combined with the monthly information when displayed.

The keyboard shortcut key for MONTHLY is to press 'M' or right-Amiga-M.

1.19 Stocks: Menu/ Chart/ Point & Figure

The Point and Figure menu selection allows you to plot P&F studies. This type of study is among the oldest forms of charting used. It is also called the three-box reversal system. X's are plotted while the stock is making upward price progress and O's are used during a down trend. See the studies section on Point and Figure for more information.

The keyboard shortcut key for POINT & FIGURE is to press 'F'.

1.20 Stocks: Menu/ Chart/ Candlesticks

The Candlesticks menu option toggles between traditional bar charting and Japanese Candlesticks. If the Candlestick menu option is checked, Japanese Candlestick charting is enabled. To enable traditional bar charting, click on the Candlestick menu option to deselect Candlesticks.

Candlesticks

1.21 Stocks: Menu/ Chart/ Earnings

The Earnings menu selection allows you to choose whether the stock earnings data is plotted with price information. If enabled, the Stocks program will calculate the average price to earnings ratio (PE) for all the entered earnings data using a weighted average formula. The Stocks program scales earnings by multiplying the earnings per share value by the average PE. These values are plotted as dots with a line connecting them. The actual earnings per share is printed at the bottom of the price window. Losses are represented by plotting the dot at the bottom of the window. Under some circumstances, the range of earnings is greater than the size of the price scale. Under that case, the highest or lowest earnings are plotted at the upper or lower boundary of the price window.

1.22 Stocks: Menu/ Chart/ Trading

The Trading menu option allows you to graphically represent buy/sell signals based on rules you configured using the

Customized Trading Rules

. A line connecting two dots shows the buy and sell period. Above the sell dot is the percent gained or lost on the trade.

The Stocks program assumes an average of the high and low price on period after the buy/sell signal as an approximate purchase/sale price when figuring the percent gain or loss. If a sell signal has not yet been generated, the sell dot is placed on the last period charted and the current profit or loss percentage is displayed.

1.23 Stocks: Menu/ Chart/ Price Scale

The Price Scale menu choice contains a sub-menu option allowing you to select either an arithmetic or logarithmic scale. The default scale is arithmetic. An arithmetic scale consists of values that increase at a constant rate. For example each label is one dollar apart. A logarithmic scale consists of values that increase at a logarithmic rate. That is to say the distance from one to two is the same as from two to four or three to six.

1.24 Stocks: Menu/ Chart/ Volume Scale

The Volume Scale menu choice contains a sub-menu option allowing you to select either an arithmetic or logarithmic scale. The default scale is arithmetic. An arithmetic scale consists of values that increase at a constant rate. For example each label is one thousand shares apart.

A logarithmic scale consists of values that increase at a logarithmic rate. That is to say the distance from one to two is the same as from two to four or three to six.

1.25 Stocks: Menu/ Studies

The Stocks program supports a number of studies to graph relationships between historical price and volume data. The Studies menu allows you to enable or disable the display of these studies. Your analysis of these

The following is a list of studies supported by the Stocks program:

- Moving Average A
- Moving Average B
- Moving Average C
- Gann Charts
- MACD
- Parabolic Time Price
- Percent R
- Relative Strength Index
- Stochastics
- Trend Lines
- Volume Price Trend
- Average Volume

Select the menu item to enable or disable each study.

1.26 Stocks: Menu/ ARexx/ Edit Function Keys...

This menu selection brings up a fill-in form that allows you to configure function keys F1 thorough F9 to execute ARexx Scripts when pressed. There is a file requester gadget next to each function key label that allows you to use a requester screen to select the name of your script.

Also on the fill-in form is a selection that allows you to change the name of the default commission script. This selection also sports a file requester gadget.

1.27 Stocks: Menu/ ARexx/ Execute Script...

This menu choice brings up a file requester. If an ARexx script is selected, it will be immediately be executed. More information is available on ARexx Scripts.

1.28 Stocks: Window Format

The Stocks program displays and prints stock charts using a segmented page. The page is broken into a number of sections. In the top section price data, moving averages, Gann lines, trend lines, and earnings data are displayed. If enabled the moving average convergence/divergence study is then charted. The next section contains the Relative Strength and Stochastics studies. The final section contains volume data, as well as volume price trend and average volume studies.

 |*| Chart Title and Date Range

P	
R	Price Data
I	
C	
E	Price Moving Averages
S	
C	Gann Lines
A	
L	
E	Trend Lines

 Moving Average Convergence/Divergence

MACD

90	
70	Relative Strength Index
50	
30	Stochastics
10	
	RSI & Stochastics

```
V
O
L           Volume Data
U
M
E           Volume Price Trends

S
C           Volume Moving Average
A
L
E
```

1.29 Stocks: Configuration File

The configuration file (STOCKS.CONFIG) must be located in the S: directory and contains the default settings for the Stocks program. When the Stocks program is first run, it loads the configuration information from this file.

The following is a list of options which may be configured:

- Chart Period
- Chart Candlestick
- Chart P&F Ranges
- Chart Earnings
- Chart Trading
- Chart Price Scale
- Chart Volume Scale
- Default Path
- Printer Type
- Printer Aspect
- Printer Density
- Printer Center
- Printer Page X Dpi
- Printer Page Y Dpi

Printer Page Width
Printer Page Height
Screen Colors
Screen Interlace
Screen Resolution
Screen Type
Window Size
Studies
Trading Rules

Commission Script

Any line beginning with a ';' in the configuration file is ←
considered
a comment and is ignored by the Stocks program.

Example

1.30 Stocks: STOCKS.CONFIG Example

The following is an example a stocks.config file:

```
;
; Stocks - Version 03.02a
;
Screen = 640 X 400
Window = 640 X 384
HiRes = On
Interlace = On
;
Color 1 = 10, 10, 10
Color 2 = 0, 0, 0
Color 3 = 15, 15, 15
Color 4 = 6, 7, 12
Color 5 = 0, 14, 0
Color 6 = 15, 3, 3
Color 7 = 15, 0, 15
Color 8 = 15, 15, 4
;
Path = ""
Printer "LASERJET"
Printer Aspect = LANDSCAPE
Printer Center = On
Printer Density = 2
Printer Page X Dpi = 150
Printer Page Y Dpi = 150
```

```

Printer Page Width = 800
Printer Page Height = 1000
;
Study Avg A = On, Color 8, P1 = 5, P2 = 0
Study Avg B = On, Color 7, P1 = 20, P2 = 0
Study Avg C = On, Color 6, P1 = 50, P2 = 0
Study Avg Volume = On, Color 4, P1 = 20, P2 = 0
Study Gann = Off, Color 4
Study MACD = On, Color 8
Study Percent R = On, Color 4
Study PTPS = Off, Color 5
Study RSI = On, Color 3
Study Stochastics = On, Color 4
Study Trend Line = On, Color 4
Study VPT = On, Color 3
;
Chart Candlesticks = On
Chart Earnings = On, Color 3
Chart Trading = Off, Color 5
Chart Price Scale = Arithmetic
Chart Volume Scale = Arithmetic
;
Chart PAF Range 1 = 0.0000, 0.2500
Chart PAF Range 2 = 5.0000, 0.5000
Chart PAF Range 3 = 20.0000, 1.0000
Chart PAF Range 4 = 100.0000, 5.0000
;
Commission Script = "REXX:CalcCommission.rexx"
ARexx Script 1 = "REXX:DisplayStocks.rexx"

```

1.31 Stocks: Configuration/Chart Period

This allows you to configure the default period to display. The default value is DAILY. ↔

Command Syntax:

CHART PERIOD = DAILY/WEEKLY/MONTHLY

For more information about this topic see the sections on

```

Menus/ Chart/ Daily
,
Menus/ Chart/ Weekly
,
Menus/ Chart/ Monthly
.

```

1.32 Stocks: Configuration/Chart Candlesticks

This allows you to configure the default mode for formatting price. If ON (enabled) the price high, low, open, and close values are displayed using Japanese Candlestick format. If this characteristic is OFF, traditional price high, low, and close values are displayed. The default value is ON.

Command Syntax:

```
CHART CANDLESTICKS = ON/OFF
```

For more information about this topic see the section on Menus/ Chart/ Candlesticks

1.33 Stocks: Configuration/Chart P&F Range

This allows you to configure the resolution of each Point & Figure square. Up to ten (10) ranges can be configured. Each range is bounded by the base price value (number2) in one line and the base price value of the next range. The last range base price value is used as the base for all higher values.

Command Syntax:

```
CHART PAF RANGE number1 = number2 , number3
```

where

number1	The range number (1 - 10).
number2	The base price value of the range.
number3	The price represented by each square in the range.

The following is the default scale is used for P&F charts:

\$0.00 - \$4.75	each X or O represents \$0.25
\$5.00 - \$20.50	each X or O represents \$0.50
\$21.00 - \$99.00	each X or O represents \$1.00
\$100.00 +	each X or O represents \$2.50

It would be represented in the configuration file as:

```
Chart PAF Range 1 = 0.0000, 0.2500
Chart PAF Range 2 = 5.0000, 0.5000
Chart PAF Range 3 = 20.0000, 1.0000
Chart PAF Range 4 = 100.0000, 2.5000
```


For more information about this topic see the section on
Point and Figure
.

1.34 Stocks: Configuration/Chart Earnings

This allows you to configure default characteristics for the ↔
Earnings
display. Configuration information include the default selection, ON
or OFF as well as the color to display the data in.

CHART EARNINGS = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when
the Stocks program is executed.

COLOR Allows you to configure the color that is used to
display the earnings data.

For more information about this topic see the section on
Earnings Data
and
Menus/ Chart/ Earnings
.

1.35 Stocks: Configuration/Chart Trading

This allows you to configure default characteristics for the ↔
Trading
display. Configuration information include the default selection, ON
or OFF as well as the color to display the data in.

CHART TRADING = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when
the Stocks program is executed.

COLOR Allows you to configure the color that is used to
display the trading points.

For more information about this topic see the section on
Trading Rules
and
Menus/ Chart/ Trading
.

1.36 Stocks: Configuration/Chart Price Scale

This allows you to configure the default Price Scale. ↔
Configuration
options include arithmetic or log. The default setting is Arithmetic.

CHART PRICE SCALE = ARITHMETIC/LOG

where

ARITHMETIC/LOG Allows you to configure the default price scale

For more information about this topic see the section on

Menus/ Chart/ Price Scale

.

1.37 Stocks: Configuration/Chart Volume Scale

This allows you to configure the default Volume Scale. ↔
Configuration
options include arithmetic or log. The default setting is Arithmetic.

CHART VOLUME SCALE = ARITHMETIC/LOG

where

ARITHMETIC/LOG Allows you to configure the default price scale

For more information about this topic see the section on

Menus/ Chart/ Volume Scale

.

1.38 Stocks: Configuration/Default Path

This allows you to configure the default directory path to prepend to stock filename or stock list filename before attempting to open the file.

Command Syntax:

PATH = "path"

For example:

PATH = "Work:Files/Stocks/"

1.39 Stocks: Configuration/Printer Type

This allows you to specify what format printer you are using. The current version of the Stocks program supports a number of printer types. The default value is "DEFAULT SYSTEM DRIVER".

Command Syntax:

```
PRINTER = "printer type"
```

where printer type is:

LASERJET	HP LaserJet and compatible printers.
OKIDATA	Okidata Microline 92/3 dot matrix printer.
POSTSCRIPT	Postscript printer.
DEFAULT SYSTEM DRIVER	Use graphics driver specified by PrintGfx preferences program.

1.40 Stocks: Configuration/Printer Aspect

This allows you to specify the print orientation. This command only applies when the Printer Type is "DEFAULT SYSTEM DRIVER". The default value is LANDSCAPE.

Command Syntax:

```
PRINTER ASPECT = PORTRAIT/LANDSCAPE
```

PORTRAIT	Output is displayed vertically (lengthwise) on the output page. Prices are printed along the long edge of the paper and time is printed along the short edge.
LANDSCAPE	output is displayed horizontally (widthwise) on the output page. Prices are printed along the short edge of the paper and time is printed along the long edge.

1.41 Stocks: Configuration/Printer Density

This allows you to configure the print density. Print density is the number of dots per inch printed. Its value is specific to the printer being used. A value of one (1) represents the least resolution possible and eight (8) represents the finest possible resolution (e.g. an HP LaserJet uses 1=75 dpi, 2=100 dpi, 3=150 dpi and 4=300 dpi). Print density only applies when the Printer Type is "DEFAULT SYSTEM DRIVER". The default value is 3.

Command Syntax:

```
PRINTER DENSITY = number
```

where number is:

a decimal value between 1 and 8.

1.42 Stocks: Configuration/Printer Center

This allows you to specify whether the print output is to be centered on the page. This command is only valid when the Printer Type is "DEFAULT SYSTEM DRIVER" The default is OFF. ↔

Command Syntax:

```
PRINTER CENTER = ON/OFF
```

1.43 Stocks: Configuration/Printer Page X Dpi

This allows you to specify the number of dots per inch across the page widthwise. You should refer to your printer manual for exact values used by each print density. The default is 150 dpi.

Command Syntax:

```
PRINTER PAGE X DPI = number
```

1.44 Stocks: Configuration/Printer Page Y Dpi

This allows you to specify the number of dots per inch down the page lengthwise. You should refer to your printer manual for exact values used by each print density. The default is 150 dpi.

Command Syntax:

```
PRINTER PAGE Y DPI = number
```

1.45 Stocks: Configuration/Printer Page Width

This allows you to specify the page width in 100ths of an inch. The default is 800 (8.00 inches).

Command Syntax:

```
PRINTER PAGE WIDTH = number
```

1.46 Stocks: Configuration/Printer Page Height

This allows you to specify the page height in 100ths of an inch. The default is 1000 (10.00 inches).

Command Syntax:

```
PRINTER PAGE HEIGHT = number
```

1.47 Stocks: Configuration/Screen Type and Size

This allows you to display your stock data on a customized public screen or the Workbench screen. If you specify a custom public screen, you can its define the number of colors, the color palette and the screen size.

Selecting WORKBENCH causes the Stocks program to display its data on the Workbench screen. If you choose a custom public screen, you must specify the type and size of the screen. To display two or more stock charts on the same screen, run the stocks program two or more times. Each invocation will result in another window displayed on either the Workbench or your custom public screen.

Command Syntax:

```
SCREEN = WORKBENCH  
      or  
SCREEN = MODE , number1 X number2
```

In the second case, a custom public screen number1 pixels wide and number2 pixels tall is used.

MODE is defined as:

CLONE	Clones the Workbench screen mode
NTSC	NTSC screen mode
PAL	PAL screen mode
VGA	VGA screen mode
A2024	A2024 screen mode

The default setting for SCREEN is a custom public screen named 'Stocks' with a MODE of CLONE and a display size of 640 x 400 pixels (i.e SCREEN = CLONE, 640 X 400).

1.48 Stocks: Configuration/Screen Interlace

This allows you to configure the interlace mode on your custom screen. Interlaced screens offer twice the number of pixel rows but may cause some screens to flicker. The default value is ON.

Command Syntax:

```
INTERLACE = ON/OFF
```

This characteristic does not apply if the default screen type is Workbench.

1.49 Stocks: Configuration/Screen Resolution

This allows you to configure whether a high resolution custom display is enabled. The default is ON.

Command Syntax:

```
HIRES = ON/OFF
```

This characteristic does not apply if the default screen type is Workbench.

1.50 Stocks: Configuration/Screen Colors

The number of colors currently used by the Stocks program for a custom screen is eight. You can change the color palette of the custom screen by specifying the red, green, and blue levels for each of the eight colors displayed on the screen.

Command Syntax:

```
COLOR N1 = N2, N3, N4
```

where

N1 = the color number

N2 = red level

N3 = green level

N4 = blue level.

The following are the default color mappings and uses for each color:

Color	R	G	B	Description	Uses
1	10	10	10	Gray	Background
2	0	0	0	White	Relative Strength On Balance Volume Earnings

3	15 15 15	Black	Price Volume
4	6 7 12	Blue	Gann Percent R Stochastics Avg Volume
5	0 14 0	Green	Parabolic Time Price Trading Buy/Sell Points
6	15 3 3	Red	Moving Average C
7	15 0 15	Purple	Moving Average B
8	15 15 4	Yellow	Moving Average A

Note: This characteristic does not apply if the default screen type is Workbench.

1.51 Stocks: Configuration/Window Size

This allows you to customize the size of the display window within the screen. ↔

Command Syntax:

WINDOW = number1 X number2

The format specifies a window sized number1 pixels in width and number2 pixels in height. Windows are opened if the -D

Command Line Option
is used.

1.52 Stocks: Configuration/Studies

You can customize the studies you wish to see and the colors to graph the studies with. ↔

Command Syntax:

STUDY study-name = ON/OFF [, COLOR N][, optional parameters]

The information in brackets is optional (DO NOT INCLUDE BRACKETS) in your command syntax.

study-name refers to the following studies:

AVG A

AVG B

AVG C

GANN

MACD

PTPS

PERCENT R

RSI

STOCHASTICS

TREND LINE

VPT

AVG VOLUME

ON/OFF indicates whether the study is to be displayed or ←
printed by

default. When you are operating the Stocks program in display mode (interactively), you can enable or disable studies through the

Studies Menu

.

Adding ', COLOR N' to your configuration command, changes the color used to graph the study to the color you specified. You may use the

Screen Colors

option to change the palette choice for the color.

Additional parameters maybe configured for the different studies. Refer to the individual study sections for a description of the additional configuration options.

1.53 Stocks: Configuration/Trading Rules

The Stocks program allows you to define buy and sell rules ←
. This

allows you to create your own computerized trading system by telling the Stocks program what conditions you require to buy a stock and what conditions need to exist before you will sell the stock. The Stocks program graphs the purchase and sell points based on your rules and includes the percent gained or lost on that trade.

The Stocks program is currently limited to 'Long' trades. Short selling is not currently supported.

To enter buy rules enter a configuration record:

BUY WHEN trade-condition [FOLLOWED BY trade-condition ...]

where

trade-condition is defined as a mathematical expression using math operators:

(,), +, -, *, /, % (modulo divide)

relational operations:

<, <=, =, >=, >, <> (not equal to)

conditional operations:

AND, OR, NOT

and study elements:

PRICE HIGH
PRICE LOW
PRICE CLOSE
PRICE OPEN
PRICE AVG
VOLUME

AVG A

AVG B

AVG C

AVG VOLUME

MACD

PTPS

PERCENT R

RSI

STOCHASTICS

VPT

To specify the value for the current period follow the study ↔
element

with '[0]'. To specify the value for the previous period use [1], to indicate two periods ago use [2], etc.

It generally makes sense to compare values which have the same scale. That is comparing PRICE CLOSE to AVG A, RSI to STOCHASTICS (both are on a scale of 0 - 100), or VOLUME to AVG VOLUME. Trying to compare

PRICE to STOCHASTICS or PRICE to VOLUME is allowed but doesn't make tremendous sense since these studies are based on different scales.

for example:

```
BUY WHEN (AVG C[0] > (AVG C[1] + AVG C[2] + AVG C[3])/3)
```

would instruct the Stocks program to indicate a buy condition when today's moving average C is greater than the last three moving average Cs combined.

The FOLLOWED BY operator allows multi-period events to be monitored. You can specify you are interested in a stock if the first event occurs, but that you desire to wait until the confirming event happens.

for example:

```
BUY WHEN PRICE CLOSE[0] > PRICE HIGH[1] FOLLOWED BY STOCHASTICS[0] < 10
```

would instruct the Stocks program to get ready to issue a buy signal when today's closing price is greater than yesterday's high price. But to wait until the stochastics indicator is less than 10. The stocks program will wait indefinitely for the FOLLOWED BY event to occur.

A similar syntax is used to customize sell rules. Just substitute SELL WHEN for BUY WHEN in the previous syntax definition.

1.54 Stocks: Configuration/Commission Script

This allows you to configure the ARExx script used to calculate commissions when the Stocks program performs a trade.

Command Syntax:

```
COMMISSION SCRIPT = "filename"
```

Example:

```
COMMISSION SCRIPT = "REXX:CalcCommission.rexx"
```

1.55 Stocks: Data File Format

The format used by the Stocks program for data files is a simple ↔ ASCII file. These data files contain a number of stock record types:

Comments

Configuration

Price Data

Earnings Data

Stock Splits

1.56 Stocks: Data File/Comments

Any line that can not be interpreted as one of the other known record types is considered a comment and is ignored by the Stocks program.

1.57 Stocks: Data File/Price & Volume

Stock data records are recognized as lines which have a '/' in the third position in the row. This is interpreted as the date the shares traded using the form mm/dd/yy. Following the date is one or more spaces or tabs the volume of total number of shares traded for that period. After the volume one or more spaces or tabs and the high price for the period. Then the low price, closing price and optionally the opening price. The format is as follows:

```
MM/DD/YY VOLUME HIGH-PRICE LOW-PRICE CLOSE-PRICE OPEN-PRICE
```

Commas in the volume number are ignored.

Fractions of shares can be represented as true fractions or decimal values. The Stocks program recognizes fractions in halves, fourths, eighths, sixteenths, thirty-seconds, and sixty-fourths. These fractions of a dollar MUST FOLLOW the whole dollar value after a single space.

for example:

```
04/26/91  2,270,100 16 1/4    15          15 3/8
04/29/91  593000    15 3/4    14 3/4    15
04/30/91  263800    15 1/4    14 1/4    14 1/4    14 1/2
```

or

```
04/26/91  2270100  16.25    15          15.375
04/29/91  593,000  15.75    14.75       15
04/30/91  263800  15.25    14.25       14.25     14.5
```

The Stocks program calculates the period represented by each stock price record by the number of days between records. Any records which are greater than seven days apart are assumed to be an entire month. Records greater than five days apart are assumed to be week summaries.

1.58 Stocks: Data File/Company Earnings

Earnings data is entered using an earnings record. Earnings records are denoted by a line beginning with 'E=' and a the trailing four quarters earnings value. If enabled, the Stocks program will calculate the average price to earnings ratio (PE) for the entered earnings using a weighted average formula. The Stocks program will also plot the earnings data in the price window by multiplying the earnings per share value by the average PE.

1.59 Stocks: Data File/Stock Splits

Sometimes, companies adjust the price and number of shares of stock outstanding by implementing a split. To record such an event in the stocks data file, a stock split record is entered prior to the first day of the new price.

When this is done, the value of the company stays the same, each stock owner holds more or less shares of less or greater value.

When a stock split record is encountered by the Stocks program, all prior price and volume values are adjusted by the split information. Volumes are multiplied by the number of equivalent new shares then divided by the number of shares prior to the split. Prices and Earnings are multiplied by the old number of shares and then divided by new number of shares.

Stock splits are specified by a data record beginning with 'S' and having the form:

`Sn=o`

where

n is the new number of shares owned

o is the previous number of shares prior to the split.

For example,

`S2=1`

indicates the stock has just split two for one. Each old share is now two new shares. A if a stock closed at \$10 per share and 1000 shares traded during the day prior to the split, after the split the same day would graphed as a \$5 close with 2000 shares traded. The total dollar volume is the same \$10,000 worth of shares traded.

`S1=3`

is the format to use to configure a three for one reverse split where three old shares are now equal to one new share. A if a stock closed at \$3 per share and 3000 shares traded during the day prior to the split, after the split the same day would graphed as a \$9 close with 1000 shares traded. The total dollar volume is the same \$9,000 worth of shares traded.

1.60 Stocks: Data File/Custom Study Configuration

Records in a stock data file that begin with ':' are considered configuration records and are processed by the configuration interpreter in the same manner as the Configuration File. This allows you to further customize the display and chart preferences for a particular stock.

For example, you may want to display the volume data on an arithmetic scale for most stocks but use logarithmic scale for a particular stock. Another example where this feature is useful is to tune the study parameters for each stock.

Some configuration options are not allowed on an individual stock basis. These options are generally screen, window, and printer settings.

Allowable options include:

- Chart Period
- Chart Candlestick
- Chart P&F Ranges
- Chart Earnings
- Chart Trading
- Chart Price Scale
- Chart Volume Scale
- Studies
- Trading Rules

Invalid options are:

- Default Path
- Printer Type
- Printer Type
- Printer Aspect
- Printer Density
- Printer Center
- Printer Page X Dpi

Printer Page Y Dpi
Printer Page Width
Printer Page Height
Screen Colors
Screen Interlace
Screen Resolution
Screen Type
Window Size

1.61 Stocks: Studies (Formulas Applied to Stock Data)

The Stocks program supports a number of studies to graph relationships between historical price and volume data. Your analysis of these changes in the stock prices could help you forecast the future direction of the stock. Each study uses a default set of graph criteria located in the configuration file . These default setting can be customized for each individual stock by including Custom Configuration Records in the individual stock data file .

The following is a list of studies supported by the Stocks program:

Moving Averages
Gann Charts
MACD
Parabolic Time Price
Percent R
Relative Strength Index
Stochastics
Trend Lines
Volume Price Trend

Average Volume

Point and Figure

All studies are displayed or printed in conjunction with the price and volume data. Many of the studies are overlaid in window panes right on top of the price/volume data allowing you to see the actual detailed information about price and volume while interpreting the studies.

Changing the period (daily, weekly, or monthly), changes the data used to calculate the studies.

1.62 Stocks: Studies/Moving Averages

The Stocks program supports three moving averages labeled A, B, and C.

You can configure the period of each average and can display all three moving averages at once. Moving averages A and B are also used to calculate

MACD

.

Avg A is the first moving average. The default period for the average is 5 days. You can modify this by specifying a different period after the color.

The

configuration file
and
ARexx Command
format is:

STUDY AVG A = ON/OFF, COLOR n1, P1 = n2, P2 = n3

where

n1 is the new color
n2 is the new period
n3 represents the type of moving average formula.

Avg B is the second moving average. The default period for the average is 20 days. You can modify this by specifying a different period after the color.

The

configuration file
and
ARexx Command
format is:

STUDY AVG B = ON/OFF, COLOR n1, P1 = n2, P2 = n3

where

n1 is the new color
 n2 is the new period
 n3 represents the type of moving average formula.

Avg C is the third moving average. The default period for the average is 50 days. You can modify this by specifying a different period after the color.

The

configuration file
 and
 ARexx Command
 format is:

STUDY AVG C = ON/OFF, COLOR n1, P1 = n2, P2 = n3

where

n1 is the new color
 n2 is the new period
 n3 represents the type of moving average formula.

n3 is calculated using a formula. The formula is AVERAGE_TYPE + DATA_TYPES. AVERAGE_TYPE is equal to 0 for simple, 1 for weighted, 2 for exponential moving averages. DATA_TYPES are 16 for price close, 32 for price open, 64 for price high, 128 for price low.

For example:

n3 = 16 instructs the Stocks program to calculate a simple moving average based on the closing prices.

n3 = 192 instructs the Stocks program to calculate a simple moving average based on an average of the high and low prices.

n3 = 17 instructs the Stocks program to calculate a weighted moving average based on the closing prices.

n3 = 194 instructs the Stocks program to calculate an exponential moving average based on an average of the high and low prices.

The Stocks program calculates and plots the moving averages as a line charts in a window pane shared the price data and other studies graphed on the price scale.

1.63 Stocks: Studies/GANN

A Gann chart utilizes Gann's theory that stock and commodity prices tend to move in trends which follow certain ratios. Those ratios relate price and time. Common ratios are formed by taking one unit of price and increasing the unit of time such as one day, two days, four

days, etc. Also, ratios can be formed by two, four, eight units of price for a single period of time.

The Stocks program attempts to calculate meaningful dates in a stock's history and plots the Gann Trend Lines from those key dates. Key dates are generally the highest and lowest points that the stock reached as well as days where Moving Average B changes direction.

The Stocks program calculates and plots the Gann Trend Lines as a line chart in a window pane shared the price data and other studies graphed on the price scale.

The

```
configuration file
and
ARexx Command
format is:
```

```
STUDY GANN = ON/OFF, COLOR number
```

where

```
ON/OFF      Allows you to configure the default selection when
            the Stocks program is executed.

COLOR      Allows you to configure the color that is used to
            display the Gann study data.
```

1.64 Stocks: Studies/MACD

```
The MACD study is constructed by taking the difference ←
between
```

```
Moving Average A
and
Moving Average B
. The Moving Average
```

Convergence-Divergence (MACD) study was developed by George Appel and is determined as follows:

$$\text{MACD} = \text{MA.A} - \text{MA.B}$$

where

```
MACD = MACD Line
MA.A = Moving Average A
MA.B = Moving Average B
```

The Stocks program calculates and plots the MACD study as a histogram chart in a window pane below the price pane. The scale for the window pane is adjusted so the distance from the tallest MACD bar to the lowest MACD bar fits within the window pane.

The

configuration file
and
ARexx Command
format is:

STUDY MACD = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when
the Stocks program is executed.

COLOR Allows you to configure the color that is used to
display the MACD study data.

1.65 Stocks: Studies/Percent R

The Percent R study (%R) was developed by Larry Williams and ←
is used

to display the closing price of a stock relative to the range of
prices from lowest to highest during a given period. The default range
for the period is 14 days. The Williams %R indicator was first
introduced by Larry Williams in the mid-1970's and is very similar to
Wilder's

RSI
and Lane's
Stochastics
.

It is calculated as follows:

$$\%R = 100 \times (H - C) / (H - L)$$

where

%R = Williams %R indicator
H = Highest price within a time period
L = Lowest price within a time period
C = The latest closing price

The Stocks program calculates and plots the %R study as a solid blue
line in a small window pane below the price window.

The

configuration file
and
ARexx Command
format is:

STUDY PERCENT R = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when
the Stocks program is executed.

COLOR Allows you to configure the color that is used to display the %R study data.

1.66 Stocks: Studies/PTPS

PTPS stands for Parabolic Time Price System. It is based on the assumption that a stock follows a trend that forms a parabola as the stock gains or loses momentum. Price acceleration is assumed to take place as the trend continues. The PTPS provides an excellent mechanism for setting stop-loss price levels. The formula used to calculate PTPS is:

Long Trades:

$$\text{SAR} = \text{SAR}_y + \text{AF} \times (\text{H} - \text{SAR}_y)$$

Short Sales:

$$\text{SAR} = \text{SAR}_y - \text{AF} \times (\text{L} - \text{SAR}_y)$$

where

SAR = Stop and Reverse Point
 SAR_y = Yesterday's SAR
 AF = Acceleration factor (0 < AF ≤ 0.02)
 H = Highest price since opening the long position
 L = Lowest price since opening the short position

The Stocks program calculates and plots the PTPS study as a line chart in a window pane shared the price data and other studies graphed on the price scale.

The

configuration file
 and
 ARexx Command
 format is:

STUDY PTPS = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when the Stocks program is executed.

COLOR Allows you to configure the color that is used to display the Parabolic Time Price study data.

1.67 Stocks: Studies/RSI

RSI stands for Relative Strength Index. It is an ↔ oscillator that measures the stocks closing price relative to the range of prices during a given period. It was developed by J. Welles Wilder and is used to indicate the strength left in a price trend. It is very similar to Williams's %R and Lane's Stochastics .

It is calculated as follows:

$$RSI = 100 - (100 / (1 + RS))$$

$$RS = \frac{\text{Average of 14 day closes Above previous day}}{\text{Average of 14 day closes Below previous day}}$$

The value for RSI is always between 0 and 100 with the oscillator considered 'Bullish' if the RSI is below 30 and 'Bearish' if RSI is above 70.

The Stocks program calculates and plots the RSI study as a solid white line in a window pane shared with the Stochastics study. This window pane is located below the MACD and price panes. The scale for the RSI and Stochastics window pane is 0 to 100.

The configuration file and ARexx Command format is:

STUDY RSI = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when the Stocks program is executed.

COLOR Allows you to configure the color that is used to display the RSI study data.

1.68 Stocks: Studies/Stochastics

Stochastics is an other oscillator similar to Williams's %R and Wilder's RSI in that it relates the stock's closing price to the price range for a given period. The Stochastics study was invented by Dr. George Lane and is calculated as follows:

$$\%K = 100 \times (C - L) / (H - L)$$

$$\%D = (\%K + \%K1 + \%K2) / 3$$

where

$\%D$ = $\%K$ Smoothed by simple moving average of 3 to 5 days

$\%K$ = Raw K

$\%K1$ = $\%K$ from previous day

$\%K2$ = $\%K$ from two days ago

C = The current closing price

H = Highest price in a time period

L = Lowest price in a time period

The default period for the $\%K$ in the Stochastics study is five days. $\%D$ should be smoothed by a moving average of three to five days.

The value for $\%K$ & $\%D$ is always between 0 and 100 with the oscillator considered 'Bullish' if it is below 20 and 'Bearish' if it is above 80.

The Stocks program calculates and plots the Stochastics study as two lines charted in a window pane shared with the RSI study. The window pane is located below the MACD and price panes. $\%K$ is plotted as a dashed blue line and $\%D$ is represented by a solid blue line. The scale for the RSI and Stochastics window pane is 0 to 100.

The

configuration file
and
ARexx Command
format is:

STUDY STOCHASTICS = ON/OFF, COLOR number

where

ON/OFF Allows you to configure the default selection when the Stocks program is executed.

COLOR Allows you to configure the color that is used to display the Stochastics study data.

1.69 Stocks: Studies/Trend Lines

Trend lines are used to represent the limit that a stock ↔ movement will

reach. The rate of ascent or descent of a stock price is used to calculate the slope of the trend line and the stock should stay above the trend line if the price is rising and below a falling trend line. If the stock price breaks the line, the trend of future prices may be reversing.

The Stocks program attempts to calculate meaningful dates in a stock's

history and plots the trend lines from those key dates. Key dates are generally the highest and lowest points that the stock reached as well as days where Moving Average B changes direction.

Additionally, you may display your own trend lines by pressing the left-mouse-button at the starting-point where you wish to display the trend and press the left-mouse-button again at the end-point. The stocks program will draw a line between those two mouse click points.

The Stocks program calculates and plots the Trend Lines as a blue lines in a window pane shared the price data and other studies graphed on the price scale.

The
 configuration file
 and
 ARexx Command
 format is:

STUDY TREND LINE = ON/OFF, COLOR number

where

ON/OFF	Allows you to configure the default selection when the Stocks program is executed.
COLOR	Allows you to configure the color that is used to display the trend line study data.

1.70 Stocks: Studies/Volume Price Trend

VPT stands for Volume Price Trend. The VPT study attempts to display whether money is flowing into or out of an equity. If heavy trading occurs on days where the price is higher than the previous day, it is generally assumed that money is flowing into the stock. If heavy trading occurs and the stock closes down, money is leaving.

A variation on VPT is On-Balance Volume or OBV. The idea behind OBV is to weight the volume by the change in price. The assumption is the greater the difference in price from one day to the next, the more impact this change should have on the running volume balance being maintained.

To calculate VPT, the Stocks program maintains a running balance of volume. If the stock price is above the previous day's price, the volume is added to the running balance. If the price is lower, the volume is subtracted from the balance. The running balance is then scaled to fit in the volume window pane and is displayed as a dashed white line.

The
 configuration file
 and
 ARexx Command

format is:

STUDY VPT = ON/OFF, COLOR number

where

ON/OFF	Allows you to configure the default selection when the Stocks program is executed.
COLOR	Allows you to configure the color that is used to display the volume price trend study data.

1.71 Stocks: Studies/Average Volume

Average volume is used to smooth out minor variations in volume. The default period is 10 days. ↔

The Average Volume study is plotted as a solid blue line in the same window as regular volume.

The

configuration file
and
ARexx Command
format is:

STUDY AVERAGE VOLUME = ON/OFF, COLOR n1, P1 = n2, P2 = n3

where

ON/OFF	Allows you to configure the default selection when the Stocks program is executed.
COLOR	Allows you to configure the color that is used to display the average volume study data.
n1	is the new color
n2	is the new period
n3	represents the type of moving average formula. 0 for simple 1 for weighted 2 for exponential moving averages.

1.72 Stocks: Studies/Point & Figure

This type of study is among the oldest forms of charting used. ↔
It is also called the three-box reversal system. Only price movements are plotted in P&F charts, volume and time are ignored. With Point and Figure charts, minor fluctuations in price are ignored and long term trends become more apparent.

P&F charts consist of columns of X's and O's. X's are plotted while the stock is making upward price progress and O's are used during a down trend. Originally, P&F charts were plotted on graph paper using a fixed scale. The Stocks program preserves the fixed scale but does not generate graph paper lines.

The following default scale is used for P&F charts:

\$0.00 -	\$4.75	each X or O represents	\$0.25
\$5.00 -	\$20.50	each X or O represents	\$0.50
\$21.00 -	\$99.00	each X or O represents	\$1.00
\$100.00 +		each X or O represents	\$2.50

To change the ranges for P&F charts see the P&F Range section of the configuration file. Like most configuration file parameter, P&F Ranges can be customized for each stock by entering :CHART PAF RANGE commands in the stock data file.

See the section on Data File/Custom Study Configuration for more information about customizing stock displays.

As long as the price is increasing, only the high price for the day is used. If the high price mapped to the P&F scale yields an empty box, the space at the top of the current column is filled with an 'X'. Only when a new high is resulting in a new 'X' is NOT plotted, is the low price is evaluated.

If the low price when mapped to the P&F scale yields a square three boxes below the highest 'X' in the current column, a three-box reversal is signaled and a new column filled with O's is started. The 'O' column starts one square below the previous column's highest X and filled with O's up to the current low. At this point the trend is down and only price lows are examined. As long as lower lows results in more O's being drawn, only the lows are examined. If a new 'O' is not drawn, the high price is examined.

If the high price when mapped to the P&F scale yields a square three boxes above the lowest 'O' in the current column, a three-box reversal is signaled and a new column filled with X's is started.

This process repeats indefinitely plotting X's during up trends and O's during down trends.

1.73 Stocks: Candlesticks

Japanese Candlesticks plot more information than traditional bar charts. In addition to price high, low and close, Candlesticks provide price open. Candlesticks are broken into three parts, the main body, a

skinny line above the body and a skinny line below the body.

Price High:

The top of the skinny line above the body represents the high price for the period. If there is NO skinny line above the main body, the top of the main body is the high price for the period.

Price Low:

The bottom of the skinny line below the body represents the low price for the period. If there is NO skinny line below the main body, the bottom of the main body is the low price for the period.

Open and Close Prices:

The main body is either dark, white or a straight horizontal line. A dark body indicates the stock opened higher than the close. In this case, the open is the top of the main body and the close is the bottom of the main body. If the body is white, the stock opened low and closed up. The top of the main body is the close and the bottom of the body is the open. If there is a single horizontal line with no dark or white body, the open and close prices are the same.

If there is no opening price data in the
stock data file
, it will be

charted with the assumption that the open price equaled the close price. Weekly displays from data files that do include daily data use Monday's close price as the open price for the week. Also, monthly displays use the first of the month as the open price.

The following examples are given to interpret the candlestick symbols.

White Bodied Candlestick

```

*   <- Highest Price for period
*
*
***  <- Closing Price for period
* *
* *
* *
* *
***  <- Opening Price for period
*
*
*   <- Low Price for period

```

Dark Bodied Candlestick

```
*   <- Highest price for period
*
*
***  <- Opening Price for period
***
***
***
***
***
***  <- Closing Price for period
*
*
*   <- Low Price for period
```

High and Close are the Same

```
***  <- High & Closing Price for period
* *
* *
* *
* *
* *
***  <- Opening Price for period
*
*
*   <- Low Price for period
```

Open and Low are the Same

```
*   <- Highest price for period
*
*
***  <- Closing Price for period
```

```

* *
* *
* *
* *
* *
***  <- Low and Opening Price for period

```

```
=====
```

```

Open and Close are the Same
-----

```

```

*  <- Highest price for period
*
*
***  <- Opening and Closing Price for period
*
*
*  <- Low Price for period

```

1.74 Stocks: ARexx Scripts

The `Stocks` program supports an ARexx command interface to allow you to automate the execution of the program. These scripts can be executed when function keys are pressed or immediately through the Execute Script menu pick. The syntax used for most ARexx commands is the same as the `stocks.config` format. Additional commands duplicating functionality on the Program Menu are also provided. The ARexx Port name is `Stocks.1` through `Stocks.9`. Depending on how many times the program is being run concurrently.

The following is a list of functions that may be controlled:

```

Open

Close

Print

Quit

Redisplay

```

Wait

Chart Period

Chart Candlestick

Chart P&F Ranges

Chart Earnings

Chart Trading

Chart Price Scale

Chart Volume Scale

Moving Averages

Gann Charts

MACD

Parabolic Time Price

Percent R

Relative Strength Index

Stochastics

Trend Lines

Volume Price Trend

Average Volume

Point and Figure

1.75 Stocks: ARexx Open

The ARexx command syntax to open and display stock data is:

```
OPEN stock-name
```

e.g. OPEN CBU will instruct the Stocks program to open and chart the data for Commodore stock.

1.76 Stocks: ARexx Close

Executing the Close command performs the same action as pressing the `↵` Close-Window-Gadget, that is it closes the currently displayed stock chart. If you are displaying a single stock, the Stocks program will exit when you close the display window.

If you are displaying a list of stocks, the next stock file in the list is displayed. To exit the program while displaying a list of stocks, execute the `Quit` command.

The ARexx command syntax to close the currently display stock data is:

```
CLOSE
```

1.77 Stocks: ARexx Print

Executing a Print command causes the currently displayed stock and selected studies to be printed to the `PAR:` device or a file.

When the Stocks program is printing a file, a progress window is displayed. You can terminate a printout by pressing the Close-Window-Gadget on the progress display.

The ARexx command syntax to print the currently display stock data is:

```
PRINT
```

1.78 Stocks: ARexx Quit

Executing a Quit command causes the Stocks program to exit. Quit will terminate the display of a list file.

The ARexx command syntax to quit the stocks program:

```
QUIT
```

1.79 Stocks: ARexx Redisplay

The Stocks program does not immediately update the display when a study or chart command is executed. This allows a number of changes to be specified prior to repainting the display, thereby speeding the overall execution of the command. To instruct the Stocks program to refresh the display invoke the `REDISPLAY` command.

The ARexx command syntax to update the display is:

```
REDISPLAY
```

1.80 Stocks: ARexx Wait

A delay command has been provided to allow time to view data before the next command is executed.

The ARexx command syntax to delay is:

```
WAIT number
```

where

number is the number of seconds to delay.

1.81 Stocks: Registration

Upon registering the Stocks program you will receive a `←` key that unlocks the features of the Stocks program. You will also receive a program

`RS` to aid in the automation of the process of updating stock data. You will also receive

`SP`, a portfolio management program that is integrated with the stock database. As a registered user, you will receive the latest version of the Stocks program and will be notified when new versions are available.

To register the Stocks program send \$40 to
Bug Free Development

Include the following information:

Your Name
Address
Phone Number

Any electronic mailing addresses.

What version of the Stocks program you have been evaluating.

What type of computer you are using to run Stocks.

Please include:

Model
Memory Configuration
Drives (include size)
Monitor
Other interesting characteristics

Your name will be added to our registration database and you will be sent a registration serial number. When you receive the registration information, enter it into the Stocks program by clicking on the Registration gadget. The registration fill-in form is pretty self explanatory. You must be exact when entering the information (even

upper/lower case).

When you register, you agree to all terms involved in licensing the Stocks program. This includes agreeing with the copyright notice. Breaking a copyright IS a felony in the eyes of the law.

1.82 Stocks: Support

Support for the Stocks Program is available through CompuServe, the Internet, and US Mail. ←

For the purposes of supporting the Stocks program, communications via CompuServe and Internet Mail are encouraged. Should there be a need to communicate with me (Jim) or Bug Free Development via telephone, please send mail to me at

Bug Free Development
stating your phone number, the nature, and need to speak voice. If it is felt that a telephone conversation is warranted I will call you.

1.83 Stocks: Bug Free Development

Bug Free Development is a New Hampshire Business. It was formed as a means of marketing and supporting the Stocks program and other computer related business interests.

The US Mail address for Bug Free Development is ...

Bug Free Development
P.O. Box 7042
Nashua, NH 03060

The CompuServe Mail address for Bug Free Development is ...

71171,3015

The BIX Mail address for Bug Free Development is ...

jim_bugfree

The Internet Mail address for Bug Free Development is ...

71171.3015@CompuServe.com

Correspondence should be addressed to Jim.

1.84 Stocks: References

The following is a list of reference books that do an excellent job discussing technical analysis and Rexx programming:

"Technical Analysis of the Futures Markets"

Author: John J. Murphy
Publisher: Prentice-Hall
ISBN: 0-13-898008-X

Describes: A Comprehensive Guide to Trading Methods and Applications.

"New Concepts in Technical Trading Systems".

Author: J. Welles Wilder, Jr.
Publisher: Hunter Publishing Company
ISBN: 0-89459-027-8

Describes: The Parabolic Time/Price System and The Relative Strength Index.

"How to Use the Three-Point Reversal Method of Point & Figure"

Author: A. W. Cohen
Publisher: Chartcraft, Inc.

Describes: The Point & Figure Method

"A Practical Approach to Programming the Rexx Language".

Author: M.F. Cowlshaw
Publisher: Prentice Hall
ISBN: 0-13-780651-5

Describes: Programming in Rexx. It is not specific to the Amiga but is an excellent description of Rexx in general.

1.85 Stocks: Portfolio Management Program

The portfolio management program provides a mechanism for monitoring the value of your stock portfolio. It is integrated with the stock database and allows you to see in an instant what your portfolio is worth and when stock options are going to expire.

It also provides you with a transaction detail of your stock investments including cash deposits, withdrawals, purchases and sales of stocks and options. There are totals for your current cash position, equity position, and option value.

The program automatically adjusts quantities and prices based on stock splits recorded in the stock database.

The transaction list is an ASCII file. Here is a sample of a portfolio transaction database.

D) 01/01/93 20000
 B) 01/04/93 MSFT 100 @89.375
 B) 02/11/93 C Mar 35 CBU 100 @1.9375
 S) 03/19/93 C Mar 35 CBU 100 @3.75
 S) 06/01/93 MSFT 100 @96.25
 B) 09/11/93 C Dec 35 IBM 400 @1.25
 B) 10/04/93 AAPL 200 @23.25

Here is a sample of the output of the portfolio management program.

SP - Version 2.01a - Date: 22 Jan 94

T R A N S A C T I O N D E T A I L

Date	Description	Value	Commisson	Profit	Balance
01/01/1993	Deposit 20000.00	20000.00			20000.00
01/04/1993	Buy 100 of MSFT @89.38	8937.50	33.50		11029.00
02/11/1993	Buy 100 of CBU @1.94 Mar Call @35.00	193.70	20.00		10815.30
03/19/1993	Sell 100 of CBU @3.75 Mar Call @35.00	375.00	20.00	141.30	11170.30
06/01/1993	Sell 100 of MSFT @96.25	9625.00	33.50	620.50	20761.80
09/11/1993	Buy 400 of IBM @1.25 Feb Call @35.00	500.00	20.00		20241.80
10/04/1993	Buy 200 of AAPL @23.25	4650.00	42.00		15549.80
			169.00	761.80	15549.80
	YTD Deposits	20000.00			
	YTD Withdrawals	0.00			

E Q U I T Y S U M M A R Y

Stock	Quantity	Price	Change	Current	Value	Commisson	Profit
AAPL	200	23.25	10.13	33.38	6675.00	84.00	1941.00
					6675.00	84.00	1941.00

O P T I O N S S U M M A R Y

Expires	Stock	Quantity	Price	Change	Current	Value	Commisson	Profit
02/18	27 IBM	400 C	35.00	19.00	55.25	8100.00	158.00	7442.00
						-----	-----	-----
						8100.00	158.00	7442.00

1.86 Stocks: Update Database Program

More information about the RS program will be provided to registered users.

1.87 Stocks: Index

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