Jade 2

Noise Monitoring Software

Advanced Topics

PTOLEMY SERVICES

Contents

Changing the Numeric Display Colors

You can change the colors used by the numeric display if you wish.

Note: You can only change the colors by editing the **jade.ini** configuration file. There is no way of changing the colors from within Jade.

To change the colors used by the numeric display name:

1. Exit from Jade if necessary.
2. Take a backup of the **jade.ini** file in the Jade directory (for example, **c:\jade2**).
3. Run a suitable editor, such as Notepad.
4. In Notepad, open the **jade.ini** file to be found in the Jade directory.
5. Search for the section called **[Options]**.
6. Change the lines beginning with one of the following keywords to specify one of the color indexes listed in the following table:

Display Background	Changes the background color.
Display Digits	Changes the color of the large numbers.
Display Bar	Changes the color of the solid part of the horizontal level gauge.
Display Empty Bar	Changes the color of the empty part of the horizontal level gauge.
Display Borders	Changes the color of the borders (lines).
Display Labels	Changes the color of the labels (small text).

    If the appropriate keyword does not exist in the file already, you will have to add the complete line.

    For example:

    Display Background=0

    changes the background color to black.

7. Save and close the **jade.ini** file.
8. Rerun Jade for the changes to take effect.

Color Indices

Index	Description
0	Black
1	Dark red
2	Dark green
3	Dark yellow
4	Dark blue
5	Dark magenta
6	Dark cyan
7	Gray

Index	Description
8	Dark gray
9	Bright red
10	Bright green
11	Yellow
12	Bright blue
13	Bright magenta
14	Bright cyan
15	White
16	The standard window background color as defined in the Control Panel.
17	The standard window text color as defined in the Control Panel.
18	The standard color used for the background of selected items as defined in the Control Panel.
19	The standard color used for the text of selected items as defined in the Control Panel.
20	The standard color used for grayed (dimmed) text.
21	The standard color used for 3D objects. In Windows 95/98/NT4 this is defined in the Control Panel. In Windows 3.1x this is always gray.

Changing the Display Colors

You can use the Windows Control Panel to change in the colors of the display. You may need to do this if you are running Jade on a portable computer with an LCD display.

To change the display colors:

1.   From the Start bar choose the Start button followed by Settings|Control Panel.

2.   Double-click on the Display icon.

3.   Select the Appearance tab.

4.   Either select a totally new color scheme or change the color of individual items as desired.

Changing the Help Window Colors

If you are running Jade on a portable computer with an LCD display, you may need to change the colors used by the Windows help. For example, you may have difficulty seeing the hot spots (jumps) in the text.

Note: You can only change the colors by editing the **win.ini** file. If you are unsure about doing this, ask for help from the person who set your computer up.

To change the colors used by Windows help:

1.   Before you start, take a backup of the **win.ini** file in case you make a mistake. If you corrupt the file, you may not be able to run Windows again. This file is to be found in the Windows directory (for example, **c:\windows**).

2.   Run a suitable editor, such as Notepad.

3. In Notepad, open the **win.ini** file to be found in the Windows directory.

4. Search for the section called **[Windows Help]**.

5. Add the following extra lines to this section (or edit them if they already exist):

    JumpColor=0,0,0
    PopupColor=0,0,0
    IFJumpColor=0,0,0
    IFPopupColor=0,0,0
    MacroColor=0,0,0

    These lines will change the hot spots to display as black text. The numbers are groups of red, green, blue values so you can use other values if you wish. A value of 0 means no color and a value of 255 means the maximum color. For example, 64,0,0 is dark red and 0,0,255 is bright blue).

6. Save and close the **win.ini** file.

7. Rerun Windows for the changes to take effect.

Running Jade in Demonstration Mode

Jade allows you to perform data capture in a special demonstration mode so that you can try out Jade before you register your copy. In demonstration mode, all the hardware is simulated so you do not need a sound card, cable or sound level meter. Of course, the data will not be real data, but it will show you how Jade captures data.

If your copy of Jade is unregistered, you do not need to do anything to run in demonstration mode, just choose the interface called "Demonstration Card" for data capture.

If your copy of Jade is a registered copy, you can still run in demonstration mode. Edit the command line for the Windows 3.1x icon or Windows 95/98/NT4 shortcut that runs Jade and add a **/d** switch on the end.

Setting up Statistics

Creating a New Statistic

Jade is provided with a comprehensive set of statistics from which you can choose the statistics to be used (see setting up the statistics options). However, you may wish to add further statistics (for example if your national noise standards change). Jade therefore lets you add new statistics to the list of available statistics.

Note: This facility is available only in certain versions of Jade. If this facility is available the Statistics Options dialog has a Setup Statistics button. If this button is not present, please contact your supplier or Ptolemy Services for help.

To create a new statistic:

1. Choose Options|Statistics... or choose the button from the speed bar.

2. In the Statistics Options dialog, choose the Setup Statistics button.

3. In the Exposure Statistics dialog, set up the details for the new statistic (choose Help for more information).

4. If necessary choose the Time Modifiers button to set up the time modifiers (choose the Help button in the Time Modifiers dialog for more information).

5. Choose the Add button to add the statistic to the list of statistics. The new statistic will appear in the Exposure Statistics list box.

6. When you have finished creating new statistics, choose OK.

7. The new statistics will now be listed in the Available Statistics list box in the Statistics Options dialog.

Choosing the Alternative Ln Calculation

Most national noise standards define an Ln (percentile) value as the value that is *exceeded* for the specified percentage of the time, and Jade normally uses this definition as the basis for Ln calculations. However, some standards define Ln values as the value that is *equalled or exceeded* for the specified percentage of the time. Jade therefore lets you specify that you wish to use this alternative definition for the calculations.

To use the alternative Ln calculation:

1. Exit from Jade if necessary.

2. Take a backup of the **jade.ini** file in the Jade directory (for example, **c:\jade2**).

3. Run a suitable editor, such as Notepad.

4. In Notepad, open the **jade.ini** file to be found in the Jade directory.

5. Search for the section called **[Statistics]**.

6. Change the line beginning **Alternative Lns=** to the following:

   Alternative Lns=1

   If this line does not exist in the file already, you will have to add the complete line.

7. Save and close the **jade.ini** file.

8. Rerun Jade for the changes to take effect.

Note: You can change back to the normal Ln calculation by removing the line from the **jade.ini** file or by changing the line to read:

Alternative Lns=0

JADE.INI File Entries

This section describes the entries in the **jade.ini** file.

The **jade.ini** file is used to set the program defaults and other settings and is located in the program directory. This section gives details of the entries in the **jade.ini** file. Note that, in addition to the settings for the standard sections, the **jade.ini** file contains special sections for each export script file. To edit the **jade.ini** file you will need to use an ASCII text editor, such as Notepad. If a keyword is not already present in the appropriate section, just add it to the end of the section.

[Calibration] Section

This section contains the calibration settings for Jade. Valid keywords are:

Keyword	Type	Description
Amplitude Tolerance	Number	This is the maximum percentage difference in amplitude between successive calibration samples for them to be considered identical. Valid values are from 1 to 99. The default is 10% (approximately ±0.9dB).
Buffers	Number	The number of buffers allocated to the sound card during data capture. The default is 4. Increase this number if you experience data loss.

Keyword	Type	Description
Buffer Size	Number	The size in samples of each sound card buffers during data capture. The default is 8000 and the value must not exceed 16000. Increase this number if you experience data loss.
Force Execute App	Number	If set to 0, Jade does not insist on executing the volume utility for manual calibration. By setting this to 0, you can run the utility yourself if you are experiencing problems. The default is 1 (force execution of the volume utility). If you set this keyword to 0, you might also want to remove, or comment out by a semicolon (;), all volume utilities in the [Links] section of the jade.ini file (see below).
Frequency Tolerance	Number	This is the maximum percentage difference in frequency between the calibration samples and the user entered calibration frequency for the calibrator for them to be considered identical. Valid values are from 1 to 99. The default is 10%.
IdealVarDiffPercent	Number	For dual level calibration, the ideal difference between the first and second calibration levels. This is specified as a percentage of the difference between the first and second levels of the calibrator. Valid values are 1 to 50. The default is 13.
Max Callbacks	Number	The maximum number of callbacks (program calls) that can occur in calibration before calibration fails. This controls how long you have to wait for a calibration to fail. The length of time is also controlled by the size of the buffer (see "Buffer size"). The default is 8. If you experience problems, you may wish to increase this value.
Max Gain Steps	Number	The number of volume steps that will be tried during automatic calibration. The default is 64. Increasing this value may result in automatic calibration taking longer.
MaxVarDiffPercent	Number	For dual level calibration, the maximum difference between the first and second calibration levels. This is specified as a percentage of the difference between the first and second levels of the calibrator. The default is 42.
MinSame	Number	The number of consecutive matching samples that are required for calibration to be successful.
Min TOR **Ideal Min TOR** **Ideal Max TOR**	Number	These represent the acceptable bands for Top of Range in sound card units between 1 and 31650. These figures are used in calibration and determine the feedback given in the gauge during calibration. The following relationship must hold true: 1 <= min TOR < ideal min TOR < ideal max TOR < 31650

[Defaults] Section

This section is updated by Jade to record the default values for use in dialogs, for example the last meter or calibrator used. If you are experiencing any problems it is perfectly safe to delete all keywords in this section and Jade will use its own default settings.

[Events] Section

This section sets the event options for Jade. Some of these are set through the Data Capture Options dialog, but others can only be set in the **jade.ini** file directly.

Keyword	Type	Description
Auto Event	Number	This is the level in dB at which the auto event is turned on. This keyword is set up by the Data Capture Options dialog.
Auto Hysteresis	Number	This is the level in dB below the auto event threshold at which the auto event is turned off. This prevents the auto event oscillating. By default this is 3dB.
Nested Events	Boolean	Set to 1 if nested events are permitted. This keyword is set up by the Data Capture Options dialog.

[Export Scripts] Section

This section lists the descriptions for the Jade export formats, together with their order of priority which determines the order in which the descriptions appear in the Export As drop-down list box on the Export Measurement Data dialog. Each export format also has its own section.

Export Script Sections

Each export format listed in the [Export Scripts] section of the jade.ini file has its own corresponding section in the jade.ini file. The keywords in these sections are given in the table below.

Keyword	Type	Description
Extension	Text	Extension for the resulting export file(s).
File	Text	Name of the script file (without an extension) used to generate the export format.
Options	List	Options (parameters) to be passed to the script when it is read by Jade's script reader.
Size	Number	Specifies the number of data samples that contribute to each export file. Specifying this keyword prevents the user from choosing a size in the Export Measurement Data dialog.

[Links] Section

This section provides information on the sound card devices. Valid keywords are:

Keyword	Type	Description
card name (depends on the sound card)	Text	Indicates the volume utility to be run for manual calibration.

[Options] Section

This section sets the options. Some of these are set through the Data Capture Options or Calibration Options dialog, but others can only be set in the jade.ini file directly. Valid keywords are:

Keyword	Type	Description
After Calibration	Number	This keyword is set up by the Calibration Options dialog.
Archive Drive	Letter	Archive drive letter (must be a removable drive).
Auto Fix Files	Number	Specifies that Jade should always attempt to fix corrupt files. By default, Jade does not attempt to fix corrupt measurement files, as in some circumstances fixing a Jade measurement file may result in losing data that could have been reconstructed with a more thorough approach. You should therefore use this option with caution and (as a precaution) archive all Jade measurement files before you set this option. The values for this option are: 0 = Do not fix files (default). 1 = Do a partial scan for errors and fix any corrupt measurement files found. 2 = Do a more thorough scan for errors and fix any corrupt measurement files found. **Note:** Using options 1 and 2 will cause a delay when you run load Jade while the program checks the measurement files.
AutoSoundCard	Number	This is a bitmap with one bit per sound card device. Each bit controls use of the mixer capability of the sound card. Setting the bit to zero disables use of the mixer for that device, effectively converting it into a manual sound card. Bit 0 corresponds to the first sound card device, bit 1 to the second, and so on. The default is -1 (that is, all mixers are enabled).
Before Calibration	Number	This keyword is set up by the Calibration Options dialog.
Block Size	Number	This keyword is set up by the Data Capture Options dialog.
Buffers	Number	The number of buffers allocated to the sound card during data capture. The default is 4. Increase this number if you experience data loss.

Keyword	Type	Description
Buffer Size	Number	The size in samples of each sound card buffer during data capture. The default is 8000 and the value must not exceed 16000. Increase this number if you experience data loss.
Cap Offset Div	Number	This is the time weighting factor for the time weighting algorithm (see "Use Cap Offset". This must be no greater than "Cap Offset Mul". Valid values are powers of 2 between 1 and 16384.
Cap Offset Mul	Number	This is a scale factor for the time weighting algorithm (see "Use Cap Offset". This must be at least as great as "Cap Offset Div". Valid values are powers of 2 between 1 and 16384.
Default Export Tab Size	Number	The default tab stop size used when exporting data. 0 = Tabs are converted to spaces except for ^t0 characters in the export script (this is the default). 1 = Tab stop size
Default Note Tab Size	Number	The default tab stop size used when creating notes. 0 = Tabs are converted to spaces except for ^t0 characters in the note script (this is the default). 1 = Tab stop size **Note:** Because the default Measurement Details script generates RTF, this option has no effect unless the script is replaced by an alternative non-RTF script.
Event Multiplier	Number	A multiplier that gives an estimate on the maximum number of events per period compared to a typical period. By default 10. However, a higher value may be required if a period has an unusually high number of events recorded. Conversely, if memory is in short supply and there are not many events, it may be helpful to reduce the value.
Export Large	Number	Specifies the number of data samples exported in a data file when the user chooses the Large File Size option in the Export Measurement Data dialog. If not specified, the default is 9000. A value of 0 (zero) means that there is no limit and the file will be as large as necessary.
Export Medium	Number	Specifies the number of data samples exported in a data file when the user chooses the Medium File Size option in the Export Measurement Data dialog. If not specified, the default is 6000.
Export Small	Number	Specifies the number of data samples exported in a data file when the user chooses the Small File Size option in the Export Measurement Data dialog. If not specified, the default is 3000.

Keyword	Type	Description
FontName	Text	The name of the default font to be used when an editable note is created or a user note created during capture is opened. The font must be present on your system. **Note:** This does not affect the font used by the Measurement Details note.
FontSize	Number	The default font size to be used when an editable note is created or a user note created during capture is opened. Note: This does not affect the font size used by the Measurement Details note.
FastLnUpdatePercent	Number	This keyword controls the minimum number of samples per point needed to use the fast algorithm to update global Ln statistics. It can be set to one of the following: -1 = Disable the fast algorithm 0.. 100 = The minimum percentage The default value is 50. This value can be reduced if you are experiencing data loss.
Graph Period	Relative Time	This keyword is set up by the Data Capture Options dialog.
Graph Retain	Number	This keyword is set up by the Data Capture Options dialog.
Interface Fast	Number	If set to 1, this keyword indicates that the fastest compatible base sampling frequency (48KHz, 44KHz, 22KHZ or 11kHz) should be used if possible. Otherwise, the slowest compatible base sampling frequency is used (the default).
Max Calibration Time	Relative Time	This keyword is set up by the Calibration Options dialog.
Max File Handles	Number	Specifies the maximum number of file handles used by Jade. Increasing this value means that details of more measurement files are kept open at one time, reducing disk activity. The default is 10 and the maximum is 240.
Max Period Memory	Percentage	The maximum amount of available memory that can be used by a single measurement period. Smaller values will force more periods to be generated in the Measurements dialog and larger values will reduce the number of periods. **Note:** Large values will reduce the number of charts and notes that can be opened simultaneously.
Max Periods	Number	The maximum number of measurement periods that can be listed in a Data folder in the Measurements dialog. A value of 0 (zero) implies no limit is required.

Keyword	Type	Description
Max Timer Interval	Number	The maximum period between timer ticks used for data capture. Specified in milliseconds. By default 30000.
Min Timer Interval	Number	The minimum period between timer ticks used for data capture. Specified in milliseconds. By default 350.
Print X Mul **Print X Div**	Numbers	The ratio of "Print X Mul" to "Print X Div" is used to determine the horizontal scaling factor when printing charts. By default, Print X Mul is 120 and Print X Div is 100, giving a scale factor of 1.2:1.
Print Y Mul **Print Y Div**	Numbers	The ratio of "Print Y Mul" to "Print Y Div" is used to determine the vertical scaling factor when printing charts. By default, Print Y Mul is 120 and Print Y Div is 100, giving a scale factor of 1.2:1.
Quick Calibration	Number	This keyword is set up by the Calibration Options dialog.
SPL Time	Number	Either the time in milliseconds (if negative) or the number of time constants (if positive) that events continue for Lp data. By default -2000 (2 seconds).
Statistics Setup	Number	If set to 1, enables use of the Setup Statistics button in the Statistics Options dialog. Otherwise, set to 0. The default is 0.
Update Time	Number	The time in milliseconds between updates of the chart. Must be between 500 and 5000. By default 2000.
Use Cal Offset	Number	If set to 1, enables use of the DC offset calculated during calibration. Otherwise, set to 0. The default is 1.
Use Cap Offset	Number	If set to 1, enables use of the DC offset calculated during capture. Otherwise, set to 0. The default is 1. During data capture, Jade continuously calculates a running DC offset using a time weighting algorithm. This algorithm is designed to removed spurious background electrical noise from the readings. You might want to turn this setting off if your sound card is of sufficient quality that it does not generate spurious readings when no meter is plugged in.
User	Boolean number	If set to 1, forces capture operation mode irrespective of the command line setting.

Keyword	Type	Description
Warn Print Pages	Number	Specifies the number of pages that are considered to be a large printout when printing a chart. If the number of pages required to print the chart is equal or greater than this number, a warning message is displayed before printing. This prevents the user from inadvertently printing too many pages. The minimum value for this option is 2 and the default is 10.

[Paths] Section

This section tells Jade where to find various files.

Keyword	Type	Description
DataPath	Text	Location of Jade measurement files.
ExportPath	Text	Default export directory
LibPath	Text	Location of library files
ScriptPath	Text	Location of script files

[Registration] Section

This section contains the registration details for Jade.

Keyword	Type	Description
Organization	Text	Specifies the organization name.
Menu	Number	Specifies the conditions for displaying the Registration menu. Useful values for this keyword are: 0 = Never display the Registration menu 1 = Always display the Registration menu 2 = Only display the Registration menu if Jade is not yet registered

[Statistics] Section

This section sets the statistics options for Jade. Some of these are set through the Statistics Options dialog, but the following options can only be set in the **jade.ini** file directly.

Keyword	Type	Description
Alternative Lns	Number	If set to 1, the alternative definition for Lns is used in statistical calculations. If set to 0 (zero) the normal definition is used. See **Choosing the Alternative Ln Calculation** for more information on using this keyword.
Projected Min	Number	Specifies the minimum percentage for the projected exposure statistics. The percentage must be specified multiplied by 100. The default is 104, that is 1.04% (or approximately 5 minutes in an 8-hour period).

Cable Details

Jade 2 requires a simple cable to connect a sound level meter to the PC sound card. Essentially, this is similar to a standard audio cable, but in some circumstances you may need to add attenuation resistors to the cable.

Some meters generate 0.7V RMS FS on the AC output. If this is the case with your meter, you may be able to avoid using any attenuation and so a simple audio cable will be sufficient. The worst that can happen is that you will lose the top 2dB or so of the meter range. However, for best results, you should consider adding attenuation on any level above 0.5V RMS.

If your meter generates more than 0.7V RMS (ideally 0.5V RMS) for full scale, you should add suitable attenuation to the cable. Sound cards usually have a maximum input level in the range 1V to 2V RMS. Therefore, an ordinary audio cable may not be sufficient as the higher voltage level may damage the sound card.

Ptolemy Services offers a range of cables that are suitable for most of the common meters. These are available from your supplier or Ptolemy Services. In particular, if your meter requires a simple audio cable with no attenuation, you should find that Ptolemy Services can supply a cable.

Cable Connections

The following diagram shows the cable connections if attenuation is required:

Sound Level Meter end   PC Sound Card end

Mono shielded audio cable

3.5mm (1/8") stereo audio jack (plug) all-metal body

Cable shield

AC Ground

R1

R2

AC Out

Cable inner Conductor
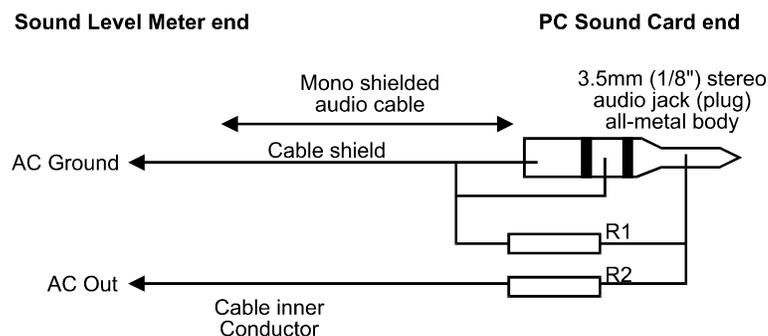
Note: If using identical connectors, e.g. 3.5mm (1/8") jacks, make sure you identify the ends

How to Work Out R1 and R2

The general principle is that the maximum RMS voltage to the sound card should not be greater than about 0.5V RMS when the sound level meter is displaying top of range. The minimum values of R1 and R2 are determined by the minimum load impedance specified by the sound level meter manufacturer (typically between 10K Ohms and 50K Ohms). In addition, sound cards have input impedances that are typically in the 50K Ohm to 100K Ohm range.

The ratio of R1 to R1+R2 theoretically determines the attenuation factor. However, in practice R1 is paralleled by the sound card's input impedance, reducing the effective value slightly. Values of R1 between 1K and 5K usually result in negligible errors in the attenuation factor.

As an example, for the CEL-231/254 meters, CEL specify a minimum load impedance of 39K and a maximum RMS voltage of 7.25V. If we use a value of 39K for R2 (satisfying the minimum load impedance), we can work out an approximate value for R1 as follows:

R1 = (39 x 0.5) / 7.25 = 2.69K

The nearest standard value resistor is 2K7, giving a maximum voltage seen by the sound card as:

V = (2.7 x 7.25) / (2.7 + 39) = 0.47V

As mentioned earlier, the actual maximum voltage seen by the sound card will be slightly less due to the loading effect of the sound card itself.

In general, you should not try to be too precise with these calculations. Answers within 5 or 10 percent are usually adequate (given the number of unknowns anyway). If you are particularly unfortunate, you may find that you need to adjust R1 in your cable to the next available standard value once you have tried calibrating your meter in Jade (depending on whether the results are too high or too low).

If you need any help, please contact your supplier or Ptolemy Services.