



Polycom Converged Management Application™ (CMA™) Desktop

Help Book

Version 5.2.0

Copyright © 2011 Polycom, Inc.

Polycom and the Polycom logo are registered trademarks and Polycom CMA Desktop™ is a trademark of Polycom, Inc.

3725-26792-003/A

October 2011

Table of Contents

Getting Started with Polycom CMA Desktop	1
Welcome to Polycom CMA Desktop	1
Starting Polycom CMA Desktop	1
First Steps with Polycom CMA Desktop	1
Calling and Answering	3
Placing a Call.....	3
Ending a Call	4
Seeing Who's Available	4
Availability for calls	4
Availability to chat.....	5
Examples.....	5
Participating in a Multipoint Call.....	5
Entering a Virtual Meeting Room Password, Extension, or Meeting Number	6
Controlling the Far-End Camera.....	6
Using the Contacts, Directory, and Recent Calls Lists	8
Managing Your Contacts	8
Using Groups to Organize Contacts	9
Using the Directory	10
Viewing Your Recent Calls	11
About your Recent Calls	11
Searching for a Contact	12
Seeing Details About a Contact.....	12
Working with Content	14
Showing the Desktop.....	14
Viewing Content	14
Customizing Your Polycom CMA Desktop Environment	16
Showing Others Your Availability.....	16
Customizing Chat and Call Windows.....	16
Showing and Hiding the PIP	16
Viewing Full-Screen Video	17
Hiding and Showing Your Video Preview Window.....	17
Customizing the Enter Key	18
Setting Up Your Camera, Audio, and Network.....	19
Choosing a Camera.....	19
Specifying Camera Preferences	19
Specifying Audio Preferences.....	20
Specifying Your Network Preferences	20
Solving Problems	22

Solving Audio and Video Problems	22
Testing Audio Devices	24
Troubleshooting Notifications	24
Saving Logs	25
Copyrights and Legal Notices	27
Third Party Software	27
Open Source Licenses	27
ares	27
as3crypto	27
as3httpclientlib	28
CyrusSASL	28
Expat	28
FZip	29
JpegLib	29
Libxml2	33
log4cxx	33
OpenLDAP	35
OpenSSL	36
XIFF	37

Getting Started with Polycom CMA Desktop

Welcome to Polycom CMA Desktop

Polycom CMA Desktop is an easy-to-use video conferencing application that lets you see and hear the people you call. With Polycom CMA Desktop, you can connect to anyone else who is using Polycom CMA Desktop or other types of video conferencing systems. You can show presentations and other content to participants in video calls, and you can also chat with Polycom CMA Desktop users who share presence with you. Polycom CMA Desktop Contacts who don't have cameras can still chat and participate in calls.

Related Topics

[Starting Polycom CMA Desktop](#)


[Signing In and Out](#)

[Placing a Call](#)



Starting Polycom CMA Desktop

You can start Polycom CMA Desktop manually when you want to make a call, or you can configure it to start automatically when you start your system. Once Polycom CMA Desktop is running, you can place or receive calls.


To start Polycom CMA Desktop manually:

>> On your Windows desktop, double-click  to start Polycom CMA Desktop.

To exit from Polycom CMA Desktop:

1. In the Windows system tray, right-click  (if you're signed in) or  (if you're signed out).
2. Choose **Exit**.

To configure Polycom CMA Desktop to start and sign you in automatically:

1. Do one of the following:
 - If you're signed in to Polycom CMA Desktop, right-click  in the Windows system tray, and choose **Sign Out**.
 - Start Polycom CMA Desktop.
2. From the main window, click **Menu > Preferences > Sign In**.
3. Select **Automatically start Polycom CMA Desktop when system starts**.
4. Select **Automatically sign in when Polycom CMA Desktop starts**.
5. Click **Apply**, then click **OK**.
6. Enter your Polycom CMA Desktop user name and password.
7. Select **Remember my password**, and then click **Sign In**.

Tip: These settings take effect the next time you restart.

Related Topics

[Signing In and Out](#)

[Placing a Call](#)


[Answering a Call](#)


[Using Chat](#)

First Steps with Polycom CMA Desktop

To get started, try these Polycom CMA Desktop tasks. To get more detailed information, use the links to related topics at the bottom of this topic.

Add People to Your Contacts List

1. Click  to open the Directory.
2. Type a name in the **Search Text** field. For example, if you type **and**, your search may find Contacts such as Andrew Jones, Christine Anderson, or Andover Conference Room.





Tip: For faster searches in large Directories, click ▼ and choose the Group that contains the person you're looking for, if you know it.
3. From the list of names, click the name of the person you want to add.
4. Click **Add to Contacts**.
5. Polycom CMA Desktop sends an invitation to be on your Contacts list to the person you select, and  appears next to the name on your Contacts list.

Tip: The Directory includes current Polycom CMA Desktop users whom you can call, as well as people whose accounts are not active. A Polycom CMA Desktop account is activated when the person signs in for the first time. If you want to call a person whose account is not activated, tell him or her to activate the account by signing in. You can then locate the user in the Directory and place a call.


Check the Icons

When the Contact accepts your invitation, the icons beside the name show the Contact's availability.

•

Icon	Description
	Available for chat or a call.
	In a video call and able to accept an additional video call. No chat is available.
	In a video call. Available to chat.
	Unavailable for a call. Available to chat, but currently idle.

Call Someone

1. Do one of the following:
 - Click a name in your Contacts list, your Recent Calls, or the Directory.
 - Type a system name or number.
2. Click  **Call** to start the call.

Related Topics

[About Your Contact List, the Directory, and Your Recent Calls](#)

[Placing a Call](#)

[Answering a Call](#)

[Seeing Who's Available](#)



Calling and Answering

Placing a Call


You can place a call by choosing a name from your Contacts list, the Directory, or your Recent Calls. You can also call by entering the calling information yourself. Depending on the type of system you're using and the type of system you're calling, you can place a video call, place an audio call, or chat.

To place a call by choosing a name from your Contacts list:


>> Do one of the following:

- Double-click a Contact to place a video call. If the Contact's system does not support video, an audio call starts. If the Contact's system supports neither video nor audio, the chat window opens.
- Select a Contact, and then click  to place a video call or click  to chat.
- Right-click a Contact and choose **Place a Call**.




To place a call from the Directory:

1. Click  to open the Directory.
2. Type a name in the **Search Text** field. For example, if you type **and**, your search may find Contacts such as Andrew Jones, Christine Anderson, or Andover Conference Room.


Tip: For faster searches in large Directories, click  and choose the Group that contains the person you're looking for, if you know it.

3. Click a name and then click  **Call** to start the call.
4. If the person is registered with Polycom CMA Desktop as well as another Polycom video conferencing system, you are prompted to choose which system to call.

To place a call from your Recent Calls:

1. From the main window, do one of the following:
 - If your system is configured to include Recent Calls as a Contacts list group, click  to open the Recent Calls group, and select a name.
 - Click in the manual dial box at the bottom of the main window and start typing. If the Polycom CMA Desktop finds the name you want, you can click to select it.
 - In the manual dial box at the bottom of the main window, click , then select a name.
 - Right click on one of the Recent Calls items.
2. Click  **Call** to start the call.

To place a call by entering the calling information:

1. Type the calling information in the field at the bottom of the main window. As you type, the system finds matching Contacts from your Recent Calls. If Polycom CMA Desktop finds the name you want, you can click to select it.
2. Click  **Call** to start the call.

To call a virtual meeting room on a bridge:



1. Do one of the following:

-

- If Polycom CMA Desktop and the virtual meeting room are registered to the same gatekeeper, enter the extension (E.164 address).
- For SIP calls, enter the address in this format: RoomNumber@IP_Address. For example, 1000@11.12.13.14.
- For H.323 calls, enter the address in this format: IP_Address##Extension. For example: 11.12.13.14##1000.
- Double-click a Callto: link in a meeting invitation.

2. Click  **Call** to start the call.

Tips for great calls

- While you are in a call, you can open a chat window and exchange messages with the other participant without affecting the call. You may want to do this if you are troubleshooting a problem, for example.
- Your administrator may have set a maximum time for calls. After the specified time limit, you are prompted to confirm that you want to stay in the call.
- Your administrator may have configured Polycom CMA Desktop to encrypt calls with systems that support encryption. When you see  at the bottom of the screen, the call is encrypted. When you see  at the bottom of the screen, the call is not encrypted.

Related Topics

[Searching for a Contact](#)

[Participating in a Multipoint Call](#)

[Seeing Who's Available](#)


[Answering a Call](#)

[Ending a Call](#)

Ending a Call

Either participant can end a call. When the call ends, the call window closes automatically.

To end a call:

1. If your video is full screen, move your mouse to display the toolbar.
2. Click  **Hang up** on the toolbar.

Related Topics

[Placing a Call](#)


[Answering a Call](#)

Seeing Who's Available

You can view details about your Contacts, including the availability and system capability of the Contacts with whom you share presence. Contacts registered with the CMA presence service have icons beside their names indicating whether they are online and able to chat or to receive a call.

Availability for calls

Icons indicate a Contact's availability for a call, as shown in the following table.

Icon	Description
	Available for a video call.

	Available for a video call, but currently idle.
	No presence is available for this video system, but the system can be called.
	In a video call and able to accept an additional video call.
	In a video call or not accepting calls (Do Not Disturb).
	Offline or no video is available.

Availability to chat

Icons indicate a Contact's availability to chat, as shown in the following table.

Icon	Description
	Available to chat.
	Available to chat, but currently idle.
	Invited to join your Contacts list. No presence is yet available.
	Not accepting messages (Do Not Disturb).

Examples

The following table gives examples of the icons you might see in your Contacts list.

Icon	Description
	Available for chat or a call.
	In a video call and able to accept an additional video call. No chat is available.
	In a video call. Available to chat.
	Unavailable for a call. Available to chat, but currently idle.
	Unavailable for chat or a call (Do Not Disturb)
	Available for a call, but currently idle. No chat is available.
	Invited to join your Contacts list. No presence is yet available.

Related Topics

[Managing Your Contacts](#)

[Placing a Call](#)

Participating in a Multipoint Call

You can participate in multipoint calls that are hosted by a virtual meeting room or by a video conferencing system that can host multipoint calls. During a multipoint call, multiple sites can hear each other. Participants using video can also see each other.

For most multipoint calls, you choose someone from your Contacts list or the Directory or enter the calling information, just as you do for any other call. Some types of virtual meeting rooms require you to supply a password, extension, or meeting number after the call connects. You can get this information from the meeting organizer.

Some virtual meeting rooms allow the meeting organizer to specify calling information for all participants before the call starts. In this type of multipoint call, you simply answer the incoming call.

To join a multipoint call:

>> Choose the virtual meeting room number from your Contacts list, the Directory, or your Recent Calls.

You can also click a link in a meeting invitation or manually dial the number supplied to you by the meeting organizer.

To enter a virtual meeting room password, extension, or meeting number:

>> When you hear the prompt, click  **Tone Pad** on the toolbar and enter the required number.

To hang up from a multipoint call:

>> Click  **Hang up** on the toolbar.

Related Topics

[Placing a Call](#)

[Answering a Call](#)

[Entering a Virtual Meeting Room Password, Extension, or Meeting Number](#)

Entering a Virtual Meeting Room Password, Extension, or Meeting Number

Some types of virtual meeting rooms require you to supply a password, extension, or meeting number after the call connects. You can get this information from the meeting organizer.

To enter a password, extension, or meeting number:

>> When you hear the prompt, click  **Tone Pad** on the toolbar and enter the required number.

Related Topics


[Participating in a Multipoint Call](#)

[Placing a Call](#)

Controlling the Far-End Camera

When you are in a call and the far-end camera supports pan, tilt, and zoom movement, it might be configured to allow you to control it.

To adjust the far-end camera:

1. Click  on the toolbar.
2. Click the arrow buttons to move the camera up, down, left, or right:
3. Click **Zoom +** or **Zoom -** to zoom in or out.

Related Topic

[Placing a Call](#)

Using the Contacts, Directory, and Recent Calls Lists


Managing Your Contacts

Your Contacts list is your personal space for storing information about the people and systems you communicate with most frequently. You can add people to your Contacts list by copying them from the Directory or from your Recent Calls. When you add people whose systems support sharing presence, they receive an invitation to be on your Contacts list. You can also add people and systems outside the network by entering the information manually.

From your Contacts list, you can place calls and chat with just a click. Sharing presence lets you each quickly see whether the other is available and what type of call is possible.

Contacts who are available for calls are displayed at the top of your Contacts list.

To add a person or system in the Directory to your Contacts list:

1. Click  to open the Directory.
2. Type a name in the **Search Text** field. For example, if you type **and**, your search may find Contacts such as Andrew Jones, Christine Anderson, or Andover Conference Room.

Tip: For faster searches in large Directories, click ▼ and choose the Group that contains the person you're looking for, if you know it.

3. Click a name, then click **Add to Contacts**.
4. Change the display name (optional).
5. Click **OK**.

If the person is registered with one or more video conferencing systems as well as with Polycom CMA Desktop, all systems are added to your Contacts list.

To add a recent caller to your Contacts list:

1. From the Recent Calls list, find the person or system to add.
2. Right-click and choose **Add to Contacts** to add the person or system to your Contacts list.
3. Change the display name (optional).
4. Click **OK**.

To create a new Contact:

1. From the main window, right-click on the Contacts list or a group, then choose **Create Contact**.
2. Enter the display name and address, then click **OK**.

To delete a Contact:

>> Right-click the Contact and choose **Delete Contact**.

When you delete an entry for a Contact who has multiple systems that share presence, all of the Contact's entries are deleted. Systems that do not share presence must be deleted individually.

To change a Contact's display name:

1. Right-click the Contact, and choose **Edit Contact**.
2. In the **New Display Name** field, type the new name using uppercase and lowercase letters, numbers 0 - 9, and the special characters space, dot, hyphen, backslash, and underscore.

The display name appears only on your computer, so it can be any name that's meaningful to you. For example, you might add your friend, whose address is mypresenceID. You might then choose "Christine" as a display name to help you more easily identify her in your Contacts list.

Related Topics

[Searching for a Contact](#)

[Using Groups to Organize Contacts](#)

[Seeing Details About a Contact](#)

[Seeing Who's Available](#)

Using Groups to Organize Contacts

Your private groups allow you to organize your Contacts however you like so that you can find the people and systems you call more quickly and easily. You can create as many groups as you need. Since your private groups are visible only to you, you can give them any names that are helpful to you. You can add someone to as many groups as you like.

Your Contacts list always includes the **All Contacts** group, which include all of your Contacts. Your Contacts list may also be configured to include your Recent Calls as a group.

To show groups in your Contacts list:

>> Right-click a Contact or a group, and choose **Show Groups**.

To create a group in your Contacts list:

1. Right-click a Contact or group and choose **Create Group**.
2. Enter a name for the group using uppercase and lowercase letters, numbers, and the symbols space, dot, hyphen, and underscore.
3. Click **Create**.

To add a Contact to a group:

>>Do one of the following:



- Add an existing Contact to a group by dragging it into the group or by right-clicking the name and choosing **Move Contact to Group**.
- Create a new Contact by right-clicking the group name and choosing **Create Contact**.
- Copy a Contact to another group by right-clicking the Contact and choosing **Copy Contact to Group**.
- Specify a group when you add someone from the Directory to your Contacts.

To remove a Contact from a group:

>> Right-click a Contact and choose **Remove Contact From Group**.

The Contact is removed from the selected group.

To show or hide Contacts in a group:

>> Click  to expand a group or click  to collapse a group.

To rename a group:

1. Right-click a group name, and choose **Rename Group**.
2. In the **Enter new group name** field, type the new name using uppercase and lowercase letters, numbers, and the symbols space, dot, hyphen, and underscore.
3. Click **OK**.

To delete a group:

1. Remove Contacts from a group by dragging them into another group or by deleting them.
2. Right-click the group name and choose **Delete Group**.
3. Click **OK**.

To copy a group to another group:

1. Right-click a group name, and choose **Copy Group**.
2. Select the target group, and click **OK**.

To sort the groups:

>> Do one of the following:

- Sort the groups in alphabetical order by right-click a group name, and choose **Sort Groups**.
- Move up a created group by right-clicking a group name, and choose **Move up in order**.
- Move down a created group by right-clicking a group name, and choose **Move down in order**.

Tip: You cannot move a group if you have selected **Sort Groups** option. Neither you cannot move **All Contacts** group and **Recent Calls** group.



Related Topic

[Managing Your Contacts](#)

[Viewing Your Recent Calls](#)


Using the Directory


The Directory allows you to search for people and systems in your organization. You can call the people you find from the Directory, or you can add them to your Contacts list. When someone accepts, you can see presence information about one another.

The Directory contains information about individual people or systems () , as well as groups of people (). Your organization may also have organized the Directory into groups. These Directory groups allow you to find someone faster by limiting the search to just one group.

To return your search to the top level of the Directory, click .

To find a person or system in the Directory:

- 1.
2. Click  to open the Directory.
3. Type a name in the **Search Text** field. For example, if you type **and**, your search may find Contacts such as Andrew Jones, Christine Anderson, or Andover Conference Room.



Tip: For faster searches in large Directories, click  and choose the Group that contains the person you're looking for, if you know it.

To view people in a group:

>> Double-click the group (identified with .

To return to the top Directory level:

>> Do one of the following:

- Click .
- Click  repeatedly until you reach the top.

Related Topics

[Managing Your Contacts](#)

[Searching for a Contact](#)

[About Your Contacts List, the Directory, and Your Recent Calls](#)




Viewing Your Recent Calls

Polycom CMA Desktop gives you several ways to view your recent calls:




- Your Recent Calls list lets you see the people and systems you've called and those who have called you. You can use this list to place calls and invite people to be on your Contacts list. To make it easier to find a Contact, each Contact is listed once, even if you have participated in multiple calls together.
- Each Contact's Details window shows you a list of your recent calls with that Contact.
- The Call Log gives you another view of the calls you've placed and received. Each call is listed, along with information about each call. You can also view your call history for a single Contact.

About your Recent Calls

Your Recent Calls list shows you whether you placed or received the call and whether the call connected.

Icon	Description
	Outgoing completed call
	Incoming completed call
	Incoming missed call

To place a call from your Recent Calls list:



1. From the main window, do one of the following:
 - If your system is configured to include Recent Calls as a Contacts list group, click  to open the Recent Calls group, and select a name.
 - Click in the manual dial box at the bottom of the main window and start typing. If the Polycom CMA Desktop finds the name you want, you can click to select it.
 - In the manual dial box at the bottom of the main window, click , then select a name.
 - Right click on one of the Recent Calls items.
2. Click  **Call** to start the call.

To display your Recent Calls as a group in your Contacts list:

1. From the main window, click **Menu > Preferences > General**.
2. Specify whether to show recent calls in the Contacts list.

To view your Call Log:

>> From the main window, click **Menu > Call Log**.

Log entries appear in the list in the order the calls were placed to or received from the person or system. To find a recent call in the call log, click a column heading to sort or scroll through the names. Calls that connected successfully are marked with  and calls that did not connect are marked with .

To delete entries from your Call Log:

1. From the main window, click **Menu > Call Log**.
2. Select one or more entries to delete.
3. Right-click the entries and choose **Delete Selected Entries**.

To view your call history for a Contact:

>> Right-click a Contact, and choose **Show Details**. The call history is listed in the order in which you placed calls to or received from this Contact.

Related Topics

[Placing a Call](#)

[Seeing Details About a Contact](#)

[Managing Your Contacts](#)


[Searching for a Contact](#)

Searching for a Contact



You can quickly find someone in your Contacts list, the Directory, or your Recent Calls, even when these lists contain many names. Once you find the person you want, click the name to place a call or chat.

Each person listed in the Directory can be registered with a Polycom CMA Desktop account and one or more video conferencing systems. When you place a call from the Directory, you are prompted to choose which system to call. When you invite a person to your Contacts list and they accept, you see separate entries in your Contacts list for each of the person's systems.

To search for a name in your Recent Calls lists:

1. Type the calling information in the manual dial box at the bottom of the main window. As you type, the system finds matching Contacts from your Recent Calls. If the system finds the Contact, you can click to select it.
2. Click  **Call** to start the call.

To search for a name in the Directory:

1. Click  to open the Directory.
2. Type a name in the **Search Text** field. For example, if you type **and**, your search may find Contacts such as Andrew Jones, Christine Anderson, or Andover Conference Room.
Tip: For faster searches in large Directories, click  and choose the Group that contains the person you're looking for, if you know it.
3. Click a name and then do one of the following:
 - Click **Call** to place a video call, if both systems support it. If video is not supported, an audio call starts. If the person is registered with a video conferencing system as well as with Polycom CMA Desktop, you are prompted to choose which system to call.
 - Click **Add to Contacts** to add the person or system to your Contacts list.
4. Optionally, change the display name.
5. Click **Close** to return to the main window.

Related Topics

[Placing a Call](#)

[Using Groups to Organize Contacts](#)

Seeing Details About a Contact

You can see information about each of your Contacts, including display name, call address, status, title, location, phone number, and email address. You can also view your call history with this Contact.

To see details about a contact :

>> Right-click a Contact and choose **Show Details**.

To edit a Contact's details:

>> Right-click a Contact and choose **Edit Contact**.

To close the Details window:

>> Click the **X** in the top right corner of the window.

Related Topics

[Viewing Your Recent Calls](#)

[Managing Your Contacts](#)

[About Your Contacts List, the Directory, and Your Recent Calls](#)

Working with Content


Showing the Desktop

When you show your Windows desktop, all participants see the same content at the same time. You can show slides, spreadsheets, or any other type of file. Everyone sees everything on your Windows desktop, including the cursor. The far end cannot control the cursor or edit the file. Only one participant at a time can show content.




If your computer is running in a dual monitor configuration, you can choose whether to show the content displayed on the right or left (top or bottom) monitor. You can also choose to show just a portion of the content.

Tip: Before you show your Windows desktop, make sure that your content is ready.


To show the Windows desktop to other participants:

1. In a call, click  on the toolbar.
2. Do one of the following:

The other participants see the content the way it appears on your monitor.

- Click  **Send Monitor**. If your computer is running in dual monitor configuration, click  for the monitor you want to show.
- The other participants see the content the way it appears on your monitor.
- Click  **Send Zoom** to display the selection rectangle and adjust it, if necessary.
- The other participants see only the content enclosed by the selection rectangle.

To zoom in on content:



1. Click  to display the selection rectangle.

The other participants see only the content enclosed by the selection rectangle, enlarged to fill their screens.

2. To adjust the area you are showing, move your mouse to a corner or edge of the selection rectangle and do one of the following:
 - When the cursor changes to a bidirectional arrow, click and drag to resize the selection.
 - When the cursor changes to a hand, click and drag to move the selection.

To stop showing the desktop:

>> Do one of the following:

- Click  if you are showing the full desktop.
- Click  if you are zoomed in on content.
- Close the Show Content window.

Related Topics

[Placing a Call](#)

[Showing the eBeam whiteboard](#)

[Viewing Content](#)

Viewing Content

When the far end shows content to you, the content opens in a separate window on your primary monitor. You can move and resize the content window, and you can show the content full screen.

To show the content full screen:

>>Click .

Related Topics

[Showing the Desktop](#)




Customizing Your Polycom CMA Desktop Environment

Showing Others Your Availability

If you will be away from your computer or unavailable to accept calls, you can configure Polycom CMA Desktop to show others that you are not available. You can also configure Polycom CMA Desktop to change your availability icon automatically when your computer is idle for the amount of time you specify.

To change your availability:

>> In the main window, click ▼ below your name, and choose one of the following:

Setting	Presence
Available	 or 
Do Not Disturb	

Tip: When your system is set to Do Not Disturb, you can see presence for others on your Contacts list. You can place calls and send chat messages, but you cannot receive calls or chat messages.

To automatically show others when you are idle:

1. From the main window, click **Menu** and choose **Preferences > Presence**.
2. Select **Show me "Idle" when I'm inactive for:** and specify the number of minutes the system can be idle before others see your name marked as "Idle" in their Contacts lists. The Contact Details window shows your availability as **Idle**.

Related Topics

[Seeing Who's Available](#)

[Placing a Call](#)

Customizing Chat and Call Windows

You can choose how you want to display chat and call windows.

To specify how to display chat and call windows:

1. From the main window, click **Menu** and choose **Preferences > Messages**.
2. Specify what should happen when you press Enter when you are typing a message:
 - **Sends a message** lets you send the message immediately, without clicking the **Send** button.
 - **Inserts a new line** lets you keep typing, just as you press Enter key in a message to move to a new line. Click **Send** to send the message.
3. Specify whether to display the date and time with messages.
4. Specify whether to display a message at the far end when you are typing.

Related Topics

[Placing a Call](#)

[Using Chat](#)

Showing and Hiding the PIP

During a call, you can verify the video you're sending to the far end by turning on the Picture-in-Picture window (the PIP). The PIP appears in the right lower corner of the main video window. You can turn it on or off any time during a call.

Tip: The toolbar is automatically hidden when you choose full-screen video. To display the toolbar temporarily, move your mouse.

To show or hide the PIP:

>> Click  on the toolbar.

Related Topics

[Viewing Full-Screen Video](#)

[Customizing Chat and Call Windows](#)

[Hiding and Showing Your Preview Video Window](#)

Viewing Full-Screen Video


When you are in a video call, you can see the video full screen. This gives you a better view of the person you're talking to. You may decide to use a smaller video window when you want to refer to content on your computer during a call or when you're chatting during the call. You can also switch back and forth between the two views during a call.

To view full-screen video:

>> Click  on the toolbar.

To return to a smaller video window:

>> Do one of the following:

- Click  on the toolbar.
- Press **Esc**.

Related Topics

[Placing a Call](#)

[Showing and Hiding the PIP](#)

[Ending a Call](#)

[Adding a Call to a Chat Session](#)

Hiding and Showing Your Video Preview Window

When you're not in a call, the video from your camera is displayed in a window above your Contacts list. You can hide this window, if you prefer.

You can also verify your local video before you place a call, and adjust your camera if necessary.

To hide your video preview window:

>> Click .

To show your video preview window:

>> Click .

To configure the system to show video preview before placing a call:

1. From the main window, click **Menu > Preferences > General**.
2. Enable **Preview my video before placing a call**.

Related Topics

[Showing and Hiding the PIP](#)

[Viewing Full-Screen Video](#)

[Customizing Chat and Call Windows](#)

Customizing the Enter Key

You can configure use of the Enter key when you type messages to work the way you prefer.

To specify how the Enter key works when you chat:

1. From the main window, click **Menu** and choose **Preferences > Messages**.
2. Specify whether pressing the Enter key should send the message or insert a line break.

Related Topics

[Customizing Chat and Call Windows](#)

[Using Chat](#)

[Placing a Call](#)

Setting Up Your Camera, Audio, and Network


Choosing a Camera

You may need to use different cameras in different environments. For example, you may use a webcam with your laptop when you work from your office, but you need to use the laptop's built-in camera when you work from home. Instead of reconfiguring your video preferences, you can choose the camera to use before or during the call.

For information about choosing a webcam or video device for use with Polycom CMA Desktop, refer to the *Release Notes for Systems*, available at support.polycom.com.

For information about installing your webcam, refer to the documentation that came with your webcam.

To choose a camera for a call:

>> Click  on the toolbar and choose the camera to use.

>> Do the following steps:

1. From the main window, click **Menu > Preferences > Video**.
2. Select the camera to use.

Related Topics

[Placing a Call](#)

[Specifying Camera Preferences](#)

[Adjusting the Camera](#)

[Adjusting the Volume](#)

Specifying Camera Preferences

Setting camera preferences lets you specify the camera to use and how it works with your system.

To specify camera preferences:

1. From the main window, click **Menu** and choose **Preferences > Video**.
2. Select the camera to use:

Setting	Description
None	Use no camera.
Automatic	Let the system automatically select a camera.
Specify	Choose the camera from a list of installed cameras. Click Configure to set the properties of the camera you specified.

- 3.
4. To adjust the video you see, click **Configure** to go to the camera controls provided by the camera's manufacturer.
5. Specify whether to allow video calls when no camera is connected to your computer.

This setting lets you place and receive video calls even when your camera is not connected or when the camera selection is set to None. In this type of call, you see the far-end video, and the far end sees the Polycom CMA Desktop logo.

Related Topics

[Choosing a Camera](#)

[Adjusting the Camera](#)

[Preferences: Video](#)

Specifying Audio Preferences

Setting audio preferences lets you specify how your system handles audio.

To specify audio preferences:

1. From the main window, click **Menu > Preferences > Audio**.
2. Choose the audio input device to use. Typically, the audio input device is a microphone or headset. Choose **Auto** to use the Windows default audio device.
3. Choose the audio output device to use for video calls. Typically, the audio output device is speakers or a headset. Choose **Auto** to use the Windows default audio device.
4. Choose the audio output device to use for playing alerts. Choose **Auto** to use the default audio device.

Related Topics

[Testing Audio Devices](#)

[Adjusting the Volume](#)

[Specifying Camera Preferences](#)

[Configuring Alerts](#)

[Preferences: Audio](#)

Specifying Your Network Preferences

Polycom CMA Desktop automatically adjusts to give you the best call quality for your connection type. You can specify your network connection yourself. If your administrator has set a call rate limit, this rate determines the rate used for calls.

Note: You cannot change your network settings during a call.

To specify your network type:

1. From the main window, click **Menu > Preferences > Network**.
2. Select the type of network connection you have:

Network Type	Network Limit (all traffic)	Call Rate Limit	Video	Content	Audio	Chat
Enterprise Network	10 Mbps	1920kbps	yes	yes	yes	yes
Premium Broadband	768 kbps	512kbps	yes	yes	yes	yes
Fast Broadband	512 kbps	384kbps	yes	yes	yes	yes
Standard Broadband	384 kbps	256kbps	yes	yes	yes	yes
Basic Broadband	256 kbps	192 kbps	yes	yes	yes	yes
Minimum Broadband	128 kbps	64kbps	no	no	yes	yes

Related Topic



[Troubleshooting Notifications](#)

[Preferences: Network](#)

Solving Problems

Solving Audio and Video Problems

Symptom	Corrective Action
Video	
My camera is not listed in the device selection list.	<p>Ensure that the camera is not in use by another application. Restart Polycom CMA Desktop.</p> <p>Reinstall your video device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p>
Others don't see my video.	<p>Ensure that your camera cable is connected securely. Restart Polycom CMA Desktop.</p> <p>Reinstall your video device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p> <p>Verify your camera settings. To do this, click Menu, and then choose Preferences > Video.</p> <p>Check your firewall settings. You may need to add Polycom CMA Desktop to your Windows firewall exception list. To do this:</p> <ol style="list-style-type: none"> 1. From the Windows desktop, click Start and choose Control Panel > Windows Firewall. 2. On the Exceptions tab, click Add Program. 3. Browse to c:\Program Files\Polycom\Polycom CMA Desktop\Polycom CMA Desktop.exe and click Open. 4. Browse to c:\Program Files\Polycom\Polycom CMA Desktop\CallControl.exe and click Open. 5. Browse to c:\Program Files\Polycom\Polycom CMA Desktop\MediaProcessor.exe and click Open. 6. Browse to c:\Program Files\Polycom\Polycom CMA Desktop\LoggingServer.exe and click Open. <p>If you are using a third party personal firewall on your computer, you may need to add Polycom CMA Desktop to the firewall's exception list. Consult your firewall documentation for more information.</p>
My video preview window shows blue video.	<p>Ensure that the camera is not in use by another application. Ensure that your camera cable is connected securely. Restart Polycom CMA Desktop.</p> <p>Reinstall your video device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p>
My video preview window shows the Polycom CMA Desktop logo.	<p>This is normal for systems that are configured to allow calls without a camera. A logo is shown in place of local video when the camera is not available.</p> <p>If you have a camera connected to your computer, ensure that your camera cable is connected securely.</p>
My local video looks grainy.	<p>To make sure you send the best quality video, try the following:</p> <ul style="list-style-type: none"> • Try turning on more lights in the room, and use natural or

	<p>incandescent lighting instead of fluorescent lights.</p> <ul style="list-style-type: none"> • Ensure that your camera is configured correctly. For more information, see Choosing a Camera.
Call quality is not good on my laptop.	<p>Ensure that your laptop is connected to a power source. Running on battery power can reduce the laptop's performance.</p> <p>Adjust your Windows power management setting to High Performance (on Windows Vista) or Maximum Performance (on Windows XP).</p>
It takes a long time to display video after the call starts.	<p>Network problems can slow down the call connection. You may want to try the call again later</p>
Sometimes no video preview on the main window, especially after the system wakes up.	<p>Hide my video preview window and show it again.</p>
The far site can't receive video or receives poor video from Polycom CMA Desktop in wireless, VPN, or ADSL environment.	<p>Check the packet lost and call rate in Call Statistics page.</p> <p>Go to Preference > Network, set the Internet connection to a lower bandwidth, then call again.</p>
When both video and audio are blocked for 15 seconds after the call setup, a firewall notification pops up.	<p>Contact the network administrator.</p>
The audio and the video cannot be transmitted under VPN connection.	<p>Go to Preference -> Network, select Never use QoS.</p>
Audio	
My microphone is not listed in the device selection list.	<p>Reinstall your audio device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p>
Others don't hear my audio.	<p>Ensure that your audio is not muted. If your audio is muted, you see  on the screen and  is highlighted on the toolbar.</p> <p>Ensure your microphone cable is connected securely.</p> <p>Reinstall your audio device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p> <p>Verify your audio settings. To do this, click Menu, and then choose Preferences > Audio. After you make a change, click Test Audio Devices to test the audio devices.</p>
Far-end participants hear an echo.	<p>Reduce the volume on your system.</p> <p>Place the microphone and speakers as far apart as possible.</p> <p>Use earphones instead of speakers.</p> <p>Use a headset instead of microphone and speakers.</p> <p>If you use a laptop's integrated speakers with the laptop's integrated microphone or with a webcam's microphone, the structure of the laptop computer and the quality of the laptop speakers may cause problems that the Windows echo canceller cannot correct. Connect external speakers and use them instead of the integrated speakers.</p>
Far-end participants hear poor audio	<p>Place the microphone farther from the person speaking. Speaking</p>

	too close to the microphone can cause poor audio quality.
I don't hear audio from others.	<p>Ensure that the far-end audio is not muted.</p> <p>Ensure that your volume is set to an audible level.</p> <p>Ensure that your speaker cable is connected securely.</p> <p>Reinstall your audio device using the installation CD provided by the device's manufacturer, and then restart Polycom CMA Desktop.</p>
Online Help	
My online help doesn't display correctly.	Ensure that your computer's web browser is configured to allow active content. Refer to your browser's documentation for information about how to adjust this setting.

Related Topics

[Testing Audio Devices](#)

[Troubleshooting Notifications](#)

Testing Audio Devices

To ensure that your audio devices are functioning correctly, you can test the audio devices used for making video calls and playing alerts.

To test audio devices:

1. From the main window, click **Menu > Preferences > Audio**.
2. Click **Test Audio Devices**.
3. Speak into your microphone in a normal voice.

When you speak, the indicator shows that the microphone is picking up your voice. For best results, try to speak so that the color bar shows green most of the time. You may need to move the microphone farther away to do this.


4. To test the device used for audio in a call, click **Start**, and then click **Stop** to finish.
5. To test the device used for alerts, click **Start**, and then click **Stop** to finish.

Related Topics

[Specifying Audio Preferences](#)

[Adjusting the Volume](#)

Troubleshooting Notifications

Polycom CMA Desktop displays notifications in the bottom right corner of the window. To get more information about solving problems, click  .

Message	Corrective Action
No network connection.	<p>Ensure that your network cable is securely connected to your system.</p> <p>Ensure that your network adapter is installed and configured correctly.</p>
Unable to connect to the provisioning server.	Ensure that the provisioning server address is entered correctly. To do this, go to Preferences > Sign In.

	If you continue to see this message, contact your Polycom CMA Desktop administrator.
Polycom CMA Desktop license not available.	The maximum numbers of users are in use. Try signing in again later. If you continue to see this message, contact your Polycom CMA Desktop administrator.
Unable to download user information.	Check the network connection to the LDAP server. If you continue to see this message, contact your Polycom CMA Desktop administrator.
Unable to connect to the media server.	An internal error occurred. Please restart the Polycom CMA Desktop.
Unable to connect to the presence server.	The presence service may be unavailable or there may be a problem with the server address or with your account. Polycom CMA Desktop will continue trying to connect. If you continue to see this message, contact your Polycom CMA Desktop administrator.
Unable to connect to LDAP server.	Check the network connection to the LDAP server. contact your Polycom CMA Desktop administrator.
Unable to register to the gatekeeper.	Check the network connection to the gatekeeper. contact your Polycom CMA Desktop administrator.
Unable to Register SIP Server.	Check the network connection to the SIP server. contact your Polycom CMA Desktop administrator.
Unable to connect to call control.	An internal error occurred. Please restart the Polycom CMA Desktop.
Current user is logged in from another location.	Sign out from another location and sign in again.
The selected camera is not available.	Ensure that your camera is securely connected to your system. Close other applications that are using the camera, or release the camera from within the other application. If more than one camera is installed, go to Preferences > Video, and select a different camera.
You have missed a call from ____.	If your system is configured to show Recent Calls as a group in your Contacts list, you can return the call by double clicking it.

Related Topics[Solving Audio and Video Problems](#)[Saving Logs](#)**Saving Logs**

If you need to report a problem, you may be asked to supply information about your system. The Save Log Utility automatically creates a zipped file containing information about the system and the Polycom CMA Desktop log file. You can choose to save the file directly from the Notification Log utility.

To collect Polycom CMA Desktop Diagnostics:

1. From the main window, click **Menu** and choose **Preferences > Statistics > Log**.
2. Click **Save Log**.
3. Specify where you want to save the zipped file.

Related Topics

[Preferences: Notification Log](#)

[Troubleshooting Notifications](#)

Copyrights and Legal Notices

Copyright © 2011 All rights reserved.

Polycom® and the Polycom logo are registered trademarks of Polycom, Inc., and Polycom CMA Desktop™ is a trademark of Polycom, Inc.

All other product and company names are the trademarks or registered trademarks of their respective owners.

Third Party Software

This software is based in part on the work of the Independent JPEG Group.

Portions of this SOFTWARE PRODUCT are © 2011 RADVISION Ltd. All rights reserved.

Open Source Licenses

ares

Copyright 1998 by the Massachusetts Institute of Technology.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

M.I.T. makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

as3crypto

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL TOM WU BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Address all questions regarding this license to:

- Henri Torgemane
- henri_torgemane@yahoo.com

Additionally, the MD5 algorithm is covered by the following notice:

Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All rights reserved.

License to copy and use this software is granted provided that it is identified as the "RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing this software or this function.

License is also granted to make and use derivative works provided that such works are identified as "derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either the merchantability of this software or the suitability of this software for any particular purpose. It is provided "as is" without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this documentation and/or software.

as3httpclientlib

Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

CyrusSASL

Copyright (c) 1994-2003 Carnegie Mellon University. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name "Carnegie Mellon University" must not be used to endorse or promote products derived from this software without prior written permission. For permission or any legal details, please contact Office of Technology Transfer Carnegie Mellon University

5000 Forbes Avenue

Pittsburgh, PA 15213-3890

(412) 268-4387, fax: (412) 268-7395

tech-transfer@andrew.cmu.edu

4. Redistributions of any form whatsoever must retain the following acknowledgment:

"This product includes software developed by Computing Services at Carnegie Mellon University (<http://www.cmu.edu/computing/>)."

CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Expat

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper

Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

FZip

Copyright (c) 2006 Claus Wahlers and Max Herkender

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

JpegLib

The Independent JPEG Group's JPEG software README for release 8b of 16-May-2010

This distribution contains the eighth public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

This software is the work of Tom Lane, Guido Vollbeding, Philip Gladstone, Bill Allombert, Jim Boucher, Lee Crocker, Bob Friesenhahn, Ben Jackson, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION ROADMAP

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.

LEGAL ISSUES Copyright, lack of warranty, terms of distribution.

REFERENCES Where to learn more about JPEG.

ARCHIVE LOCATIONS Where to find newer versions of this software.

ACKNOWLEDGMENTS Special thanks.

FILE FORMAT WARS Software *not* to get.

TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.txt How to configure and install the IJG software.

usage.txt Usage instructions for cjpeg, djpeg, jpegtran,

rdjpgcom, and wrjpgcom.

*.1 Unix-style man pages for programs (same info as usage.txt).

wizard.txt Advanced usage instructions for JPEG wizards only.

change.log Version-to-version change highlights.

Programmer and internal documentation:

libjpeg.txt How to use the JPEG library in your own programs.

example.c Sample code for calling the JPEG library.

structure.txt Overview of the JPEG library's internal structure.

filelist.txt Road map of IJG files.

coderrules.txt Coding style rules --- please read if you contribute code.

Please read at least the files install.txt and usage.txt. Some information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image encoding, decoding, and transcoding. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats.

The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application.

We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products. No royalty is required, but we do ask for an acknowledgement in product documentation, as described under LEGAL ISSUES.

LEGAL ISSUES

In plain English:

1. We don't promise that this software works. (But if you find any bugs, please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a program, you must acknowledge somewhere in your documentation that you've used the IJG code.

In legalese:

The authors make NO WARRANTY or representation, either express or implied, with respect to this software, its quality, accuracy, merchantability, or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-2010, Thomas G. Lane, Guido Vollbeding.

All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this software (or portions thereof) for any purpose, without fee, subject to these conditions:

1. If any part of the source code for this software is distributed, then this README file must be included, with this copyright and no-warranty notice unaltered; and any additions, deletions, or changes to the original files must be clearly indicated in accompanying documentation.
2. If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".
3. Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code, not just to the unmodified library. If you use our work, you ought to acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name in advertising or publicity relating to this software or products derived from it. This software may be referred to only as "the Independent JPEG Group's software".

We specifically permit and encourage the use of this software as the basis of commercial products, provided that all warranty or liability claims are assumed by the product vendor.

ansi2knr.c is included in this distribution by permission of L. Peter Deutsch, sole proprietor of its copyright holder, Aladdin Enterprises of Menlo Park, CA.ansi2knr.c is NOT covered by the above copyright and conditions, but instead by the usual distribution terms of the Free Software Foundation; principally, that you must include source code if you redistribute it. (See the file ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part of any program generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltmain.sh). Another support script, install-sh, is copyright by X Consortium but is also freely distributable.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

We are required to state that "The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

REFERENCES

We recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44. (Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <http://www.ijg.org/files/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here.

The best currently available description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2).

Although this is by far the most detailed and comprehensive exposition of JPEG publicly available, we point out that it is still missing an explanation of the most essential properties and algorithms of the underlying DCT technology. If you think that you know about DCT-based JPEG after reading this book, then you are in delusion. The real fundamentals and corresponding potential of DCT-based JPEG are not publicly known so far, and that is the reason for all the mistaken developments taking place in the image coding domain.

The original JPEG standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

IJG JPEG 8 introduces an implementation of the JPEG SmartScale extension which is specified in a contributed document at ITU and ISO with title "ITU-T JPEG-Plus Proposal for Extending ITU-T T.81 for Advanced Image Coding", April 2006, Geneva, Switzerland. The latest version of the document is Revision 3.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. JFIF 1.02 has been adopted as an Ecma International Technical Report and thus received a formal publication status. It is available as a free download in PDF format from <http://www.ecma-international.org/publications/techreports/E-TR-098.htm>.

A PostScript version of the JFIF document is available at

<http://www.ijg.org/files/jfif.ps.gz>. There is also a plain text version at <http://www.ijg.org/files/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems.

IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from <http://www.ijg.org/files/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note.

ARCHIVE LOCATIONS

The "official" archive site for this software is www.ijg.org. The most recent released version can always be found there in directory "files". This particular version will be archived as <http://www.ijg.org/files/jpegsr.v8b.tar.gz>, and in Windows-compatible "zip" archive format as <http://www.ijg.org/files/jpegsr8b.zip>.

The JPEG FAQ (Frequently Asked Questions) article is a source of some general information about JPEG.

It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other news.answers archive sites, including the official news.answers archive at [rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/](ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/).

If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

send usenet/news.answers/jpeg-faq/part1

send usenet/news.answers/jpeg-faq/part2

ACKNOWLEDGMENTS

Thank to Juergen Bruder for providing me with a copy of the common DCT algorithm article, only to find out that I had come to the same result in a more direct and comprehensible way with a more generative approach.

Thank to Istvan Sebestyen and Joan L. Mitchell for inviting me to the ITU JPEG (Study Group 16) meeting in Geneva, Switzerland.

Thank to Thomas Wiegand and Gary Sullivan for inviting me to the Joint Video Team (MPEG & ITU) meeting in Geneva, Switzerland.

Thank to John Korejwa and Massimo Ballerini for inviting me to fruitful consultations in Boston, MA and Milan, Italy.

Thank to Hendrik Elstner, Roland Fassauer, Simone Zuck, Guenther Maier-Gerber, Walter Stoeber, and Fred Schmitz for corresponding business development.

Thank to Nico Zschach and Dirk Stelling of the technical support team at the Digital Images company in Halle for providing me with extra equipment for configuration tests.

Thank to Richard F. Lyon (then of Foveon Inc.) for fruitful communication about JPEG configuration in Sigma Photo Pro software.

Thank to Andrew Finkenstadt for hosting the ijg.org site.

Last but not least special thank to Thomas G. Lane for the original design and development of this singular software package.

FILE FORMAT WARS

The ISO JPEG standards committee actually promotes different formats like "JPEG 2000" or "JPEG XR" which are incompatible with original DCT-based JPEG and which are based on faulty technologies. IJG therefore does not and will not support such momentary mistakes (see REFERENCES).

We have little or no sympathy for the promotion of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, interoperable format standards for JPEG files.

Don't use an incompatible file format!

(In any case, our decoder will remain capable of reading existing JPEG image files indefinitely.)

TO DO

Version 8 is the first release of a new generation JPEG standard to overcome the limitations of the original JPEG specification.

More features are being prepared for coming releases.

Please send bug reports, offers of help, etc. to jpeg-info@uc.ag.

Libxml2

Except where otherwise noted in the source code (e.g. the files `hash.c`, `list.c` and the trio files, which are covered by a similar licence but with different Copyright notices) all the files are:

Copyright (C) 1998-2003 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE DANIEL VEILLARD BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

log4cxx

Apache License

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. **Definitions.** "License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document. "Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License. "Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity. "You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License. "Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files. "Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types. "Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below). "Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof. "Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution." "Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.
2. **Grant of Copyright License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. **Grant of Patent License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. **Redistribution.** You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
 2. You must cause any modified files to carry prominent notices stating that You changed the files; and
 3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the

Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

OpenLDAP

The OpenLDAP Public License

Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source form must retain copyright statements and notices,
2. Redistributions in binary form must reproduce applicable copyright statements and notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution, and
3. Redistributions must contain a verbatim copy of this document. The OpenLDAP Foundation may revise this license from time to time. Each revision is distinguished by a version number. You may use this Software under terms of this license revision or under the terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS CONTRIBUTORS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S) OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in advertising or otherwise to promote the sale, use or other dealing in this Software without specific, written prior permission. Title to copyright in this Software shall at all times remain with copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA. All Rights Reserved. Permission to copy and distribute verbatim copies of this document is granted.

OpenSSL

License

This is a copy of the current LICENSE file inside the CVS repository.

LICENSE ISSUES

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License

Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License

Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)

All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com).

The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)" The word 'cryptographic' can be left out if the rouines from the library being used are not cryptographic related :-).
4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement: "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

XIFF

Copyright (C) 2003-2009 Igniterealtime Community Contributors

Daniel Henninger

Derrick Grigg <dgrigg@rogers.com>

Juga Paazmaya <olavic@gmail.com>

Nick Velloff <nick.velloff@gmail.com>

Sean Treadway <seant@oncotype.dk>

Sean Voisen <sean@voisen.org>

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

- You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy. This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

- You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange. If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.
- A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License. However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables. When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law. If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.
- As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:
 1. Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
 2. Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
 3. Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

4. If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
 5. Verify that the user has already received a copy of these materials or that you have already sent this user a copy. For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
- You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:
 1. Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
 2. Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
 - You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
 - You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
 - Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
 - If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.
 - If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

- The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
- If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.
- Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
- Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
- Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
- Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.
- You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices. Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy. This option is useful when you wish to copy part of the code of the Library into a program that is not a library.
- You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange. If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

- A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License. However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables. When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law. If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

- As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

1. Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
2. Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
3. Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
4. If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
5. Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

- You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

1. Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

2. Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
 - You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
 - Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
 - If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.
 - If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
 - The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
 - If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.
 - Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
 - Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section)

patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

- **Redistribution.** You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- **Grant of Copyright License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

- **Grant of Patent License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

- **Redistribution.** You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
2. You must cause any modified files to carry prominent notices stating that You changed the files; and
3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

- **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

- **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

- **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR

CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

- **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
- **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.
- **Grant of Copyright License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
- **Grant of Patent License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
- **Redistribution.** You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
 2. You must cause any modified files to carry prominent notices stating that You changed the files; and
 3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
- **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any

additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

- Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
- Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
- Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.
- You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things: a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above. b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
- Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
- If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to

induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

- If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
- The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
- If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.