

Network Clipboard

Version 1.1
RB Whitaker
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Overview

Network Clipboard is a utility that allows you to share a clipboard with everyone on the network, and it's free for anyone to use. I've also included the source code so that potential employers can view my work. **If you would like to modify the code, or include it in your own projects, you must contact me first, at rbwhitaker83@sisna.com.**

Network Clipboard was created because of a significant hole in team software development, but the hole also appears quite commonly elsewhere. In any environment where multiple people are working collaboratively on multiple computers, there is a great need for rapid information exchange. Frequently, this can be done verbally. However, this information exchange often needs to be done (or is just plain easier) via the computer network that is in use.

This is when Network Clipboard can be utilized. Network Clipboard allows you to copy and paste data to a network-shared clipboard, in a way that is familiar and comfortable. The data then appears on others' clipboards across the network, where they can copy and paste it into their work.

To help you see exactly how Network Clipboard can be of use, imaging the following scenario. Your cubicle neighbor, Bob, asks you if you know how to create a multicast UDP socket in Java. Not only do you know how to, but you have the code right in front of you! Rather than trying to explain how to do it, you select the code that does this, shown below:

```
// Create a new multicast socket on port 3030
MulticastSocket socket = new MulticastSocket(3030);
```

After it is selected, you just copy it, then go over to the Network Clipboard, and paste it there. Now the text appears in Bob's Network Clipboard, where he copies it from the network clipboard and pastes it into his code, so he can continue on with his work. On top of that, Al and Hillary, who overheard this whole conversation, can also take a look at it.

You can see that this is much faster than trying to explain it to Bob, going over to Bob's computer and looking at his code as he writes it, or creating a text file and email it to him. This is the reason why NetworkClipboard was created.

What's New in Version 1.1

Network Clipboard version 1.1 has a number of new and exciting features that make it much easier to use. The biggest addition is the ability to use Drag and Drop. You can now drop text onto the Network Clipboard instead of having to copy it to the system clipboard, as well as dragging items from the Network Clipboard.

There is also a new main menu, as well as a right-click menu, which let you copy and paste to and from the Network Clipboard without having to know the keyboard shortcuts. This reflects the way many people use the computer's copy and paste features.

Also available on the Network Clipboard main menu and right-click menu is an option for clearing out everything on the clipboard.

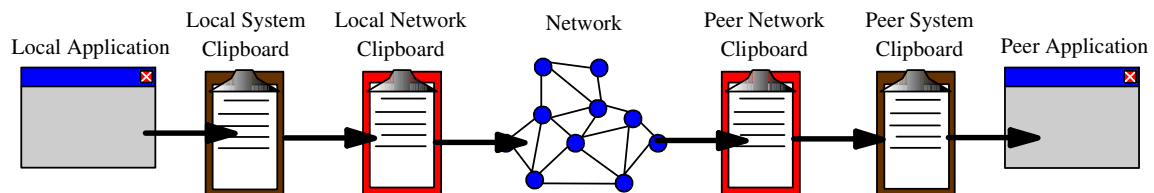
Also new in version 1.1 are buttons next to each clipboard item which allow you to resend an item across the network, as well as delete an item from the clipboard.

How to Open Network Clipboard

Network Clipboard was written in Java, and so it is deployable on any system with a Java Virtual Machine, including computers running Windows, Linux, and Macintosh. Usually, you can just double click NetworkClipboard.jar, and the program will start up.

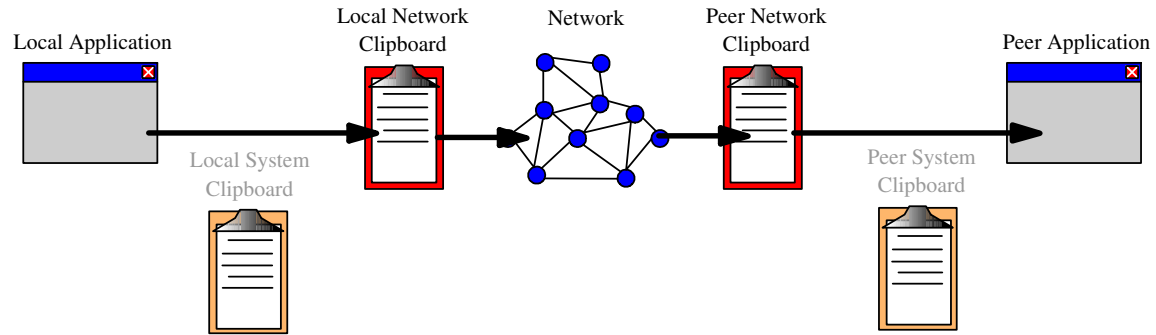
How to Use Network Clipboard

Network Clipboard is very easy to use. Below is a diagram of how the program works.



The first step is to copy the information from your application to the system clipboard, usually by pressing Ctrl-C, or using the copy function in the program. Then in your Network Clipboard application, you can paste the information in a number of ways. You can select Paste from the Clipboard menu or the right click menu, or by using the keyboard shortcut, Ctrl-V. The data is automatically sent out to everyone else, and will appear in the other Network Clipboards across the network. When it arrives, you can click on the item you want in the network clipboard, and copy it to the system clipboard in any of the following ways: Select Copy from the Clipboard menu, select Copy from the right-click menu, or use the Ctrl-C keyboard shortcut. You can then paste the data into your application, usually by pressing Ctrl-V, or by using the paste function in the program.

Version 1.1 also supports the ability to Drag and Drop text to and from the Network Clipboard. Data transfer with Drag and Drop works much like data transfer before, except that the system clipboard is not used, as shown below.



To perform a Drag and Drop operation, your application must first support dragging. Select the text that you want and then drag it to the Network Clipboard application. Release the mouse button to drop the text. Be aware of the fact that most applications *move* text in Drag and Drop operations by default, rather than copy. You may need to press the Control key when you are ready to drop the text in order to ensure that the text is copied rather than moved to the clipboard. At this point, the data is sent out across the network as before, and arrives at the peer Network Clipboard for use. To drag from the Network Clipboard, select an item and begin dragging it. Drop it into the destination application. Network Clipboard does not *cut* the item, so the item will remain in the Network Clipboard.

The Future of Network Clipboard

There have been a lot of good comments about the Network Clipboard utility, so there are future versions in the works. Version 1.2 of Network Clipboard will likely contain smaller updates than version 1.1 did. The following features will likely make it into version 1.2:

- Specify an IP Address and port on the command line
- Auto propagation from system to network clipboard and back if it is configured to do so
- Help/About sections
- Ignoring duplicates
- Scrolling to the newest item when it arrives

The following features are being considered for version 1.2:

- Saving/Loading the contents of the clipboard to a file
- A Cut option to allow you to remove from the clipboard, but place in the system clipboard
- Support for URLs, allowing you to simply click on the URL in the network clipboard and having the URL displayed automatically.

Other features are also in the works, but will probably not be included in version 1.2.

These features include:

- Support for non-text data types (files, images, MIME types)
- Configuring your port and IP address in the GUI

- Ability to be in multiple groups
- Encrypted data transfer for security purposes

Also, future versions of the Network Clipboard utility may have a different name.

Known Issues and Bugs

1. The version accessible on the internet requires the JDK of Java (as opposed to the JRE) because it requires the **jar** utility. As a temporary workaround, you can download the JDK from Sun's website. Starting with Network Clipboard 1.2, it will also be deployed in a way that does not require the **jar** utility.
2. The Linux JVM does its drawing in a slightly different manner than the Windows JVM. As a result, the 'resend' button does not look quite like it should. This does not affect the performance of Network Clipboard, only the appearance.
3. Not all programs accept drops from the Network Clipboard. The list of all known programs that do not accept drops is below:
 - Microsoft XNA Game Studio Express

If you find others, please email them to rbwhitaker83@sisna.com. These programs, however, support dragging *to* the Network Clipboard, as well as using the copy and paste methods established in version 1.1. Most other programs appear to accept drops from the Network Clipboard.

Answers to Common Questions

What port is Network Clipboard running on?

Port 5565

What UDP group address does NetworkClipboard use?

224.1.1.6

What programming language was used?

Java

Why was Java used?

Three reasons: it is platform independent, it is powerful enough to do everything needed, and it was easy enough to do the development rapidly.

How many lines of code were there?

2181 (597 more than version 1.0)

Is version 1.1 compatible with version 1.0?

Yes, the two versions are completely compatible.

Is it worth upgrading to version 1.1?

Considering that it is free, and considering all of the new features, it would be well worth it to upgrade to version 1.1, if you have been using version 1.0.

When will version 1.2 be released?

Version 1.2 only contains smaller upgrades, and so it should probably be completed before too long, probably around or before the middle of November 2007.