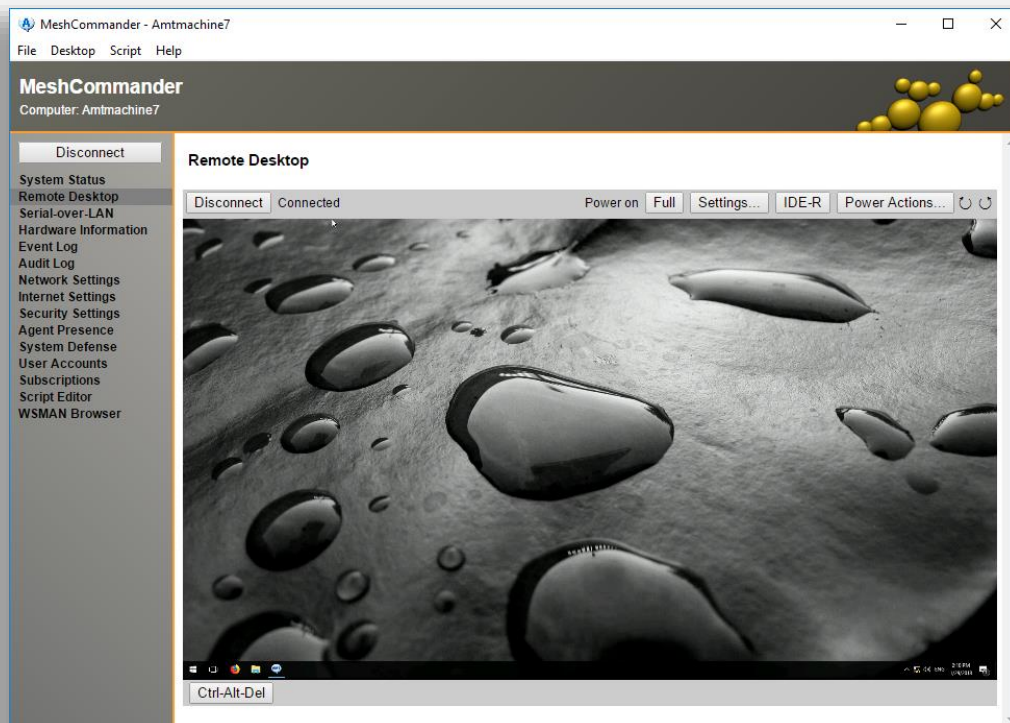


MeshCommander

User's Guide



Version 0.0.1

January 29, 2018

Ylian Saint-Hilaire

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Document Changes

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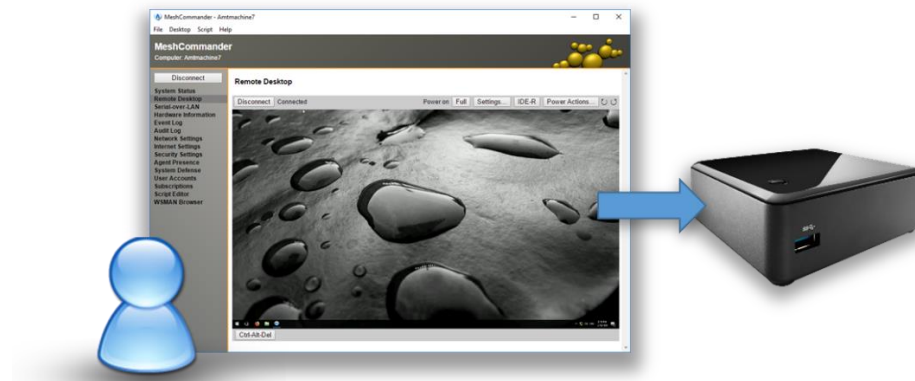
1. Abstract

This user guide contains all essential information for the user to make full use of MeshCommander, a free open source web-based console for Intel® Active Management Technology (Intel® AMT). The guide provides quick steps to that your Intel AMT for remote out-of-band management of client computer. The reader is expected to already have some of the basic understanding on computer networking, operating system and network security.

2. Introduction

MeshCommander is a free open source web-based remote computer management software, it can only be used along with computer that have Intel® Active Management Technology (Intel® AMT). All computers that have the Intel® vPro sticker will also have Intel AMT built-in. This guide does not explain Intel AMT in much detail. MeshCommander works on enabled and already activated Intel AMT computers. Activation of Intel AMT is out of scope for this document, but plenty of documentation on how to get started with Intel AMT already exists only.

MeshCommander is an Intel AMT console, that is, it can connect to Intel AMT and allow the user to perform use most of the features that Intel AMT is capable of. Depending on the version of Intel AMT you are connecting to and what access privileges you have, MeshCommander may present different features on the screen.



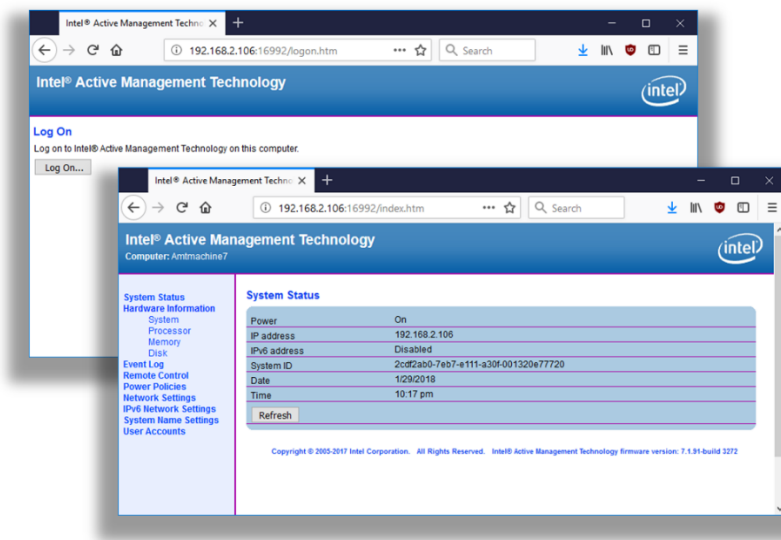
Before we even get started with MeshCommander, we want to make sure we have a properly working Intel AMT computer.

3. Getting Intel AMT ready

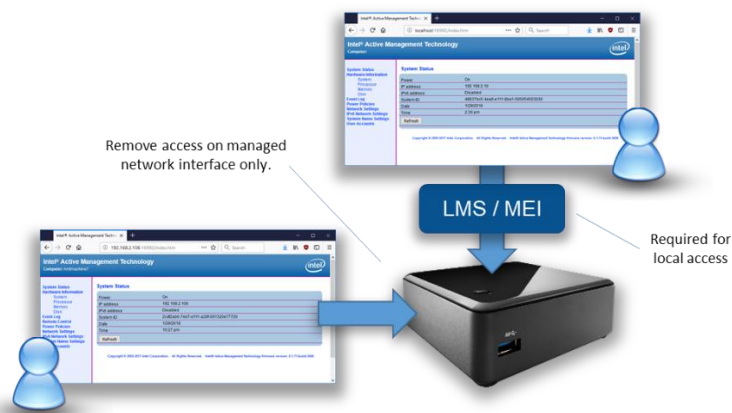
To get started, you will need an Intel AMT computer that is already activated. Intel AMT works by presenting a HTTP on port 16992 and/or HTTPS server on port 16993. Before starting to use MeshCommander, make sure you can browser to one of these two ports using a regular web browser. Try or of these two combination in a browser:

```
http://mycomputer:16992
https://mycomputer:16993
```

You must replace “mycomputer” above with a proper computer name or IP address. If it works you should see the Intel AMT default web page show up.



Make sure you can also login to the web page confirming that not only Intel AMT is activated, but that you know the username and password to authenticate. This will be needed when connecting MeshCommander to Intel AMT. If you want to connect to Intel AMT on the same computer, within the operating system that is on top of Intel AMT, you will need to have the Intel MEI driver and a LMS service installed. These can be obtained from your computer's manufacturer's support web site.



If you are accessing Intel AMT remotely, make sure the Intel AMT computer is connected to the network using a managed network interface, preferably the built-in Ethernet adapter if you are just getting started.

4. Different Versions of MeshCommander

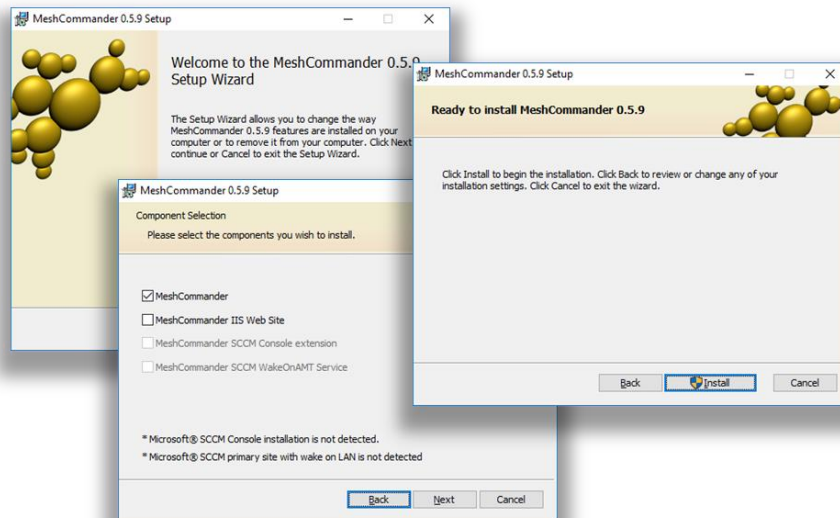
There are no less than five different versions of MeshCommander. In this section, we review each of them and what is unique to each. These five versions allow MeshCommander to be used in very different situations, making this tool extremely flexible. The five versions are:

- MeshCommander .MSI for Windows
- MeshCommander for Intel AMT 11.6+ firmware
- MeshCommander HTTP server on NPM
- MeshCommander for MicroLMS
- MeshCommander for MeshCentral

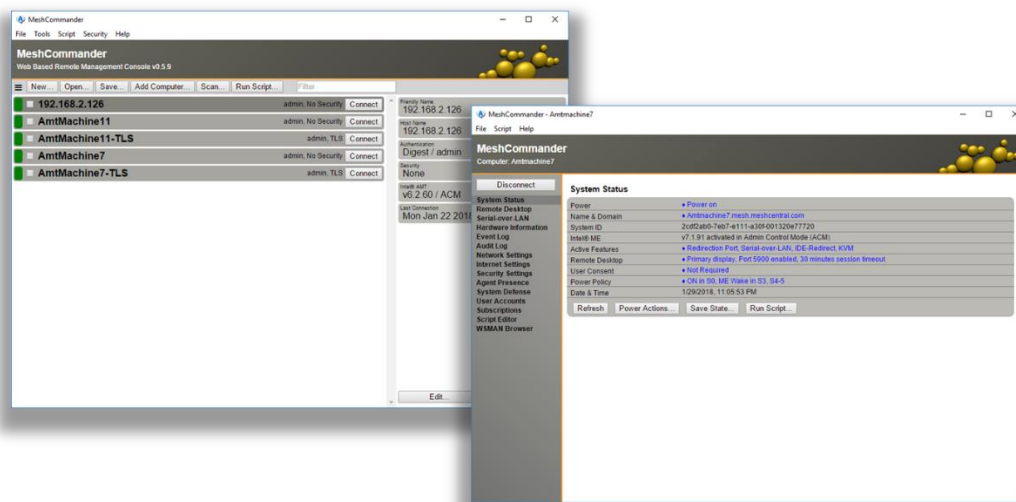
All of these different versions run quite differently, but are all generated from the same source code so that updates and fixes are all common among all versions. Let's take a look at each version now.

4.1 MeshCommander .MSI for Windows

This is the most commonly used version of MeshCommander. It is a simple Windows Installer you can download at <http://www.meshcommander.com/meshcommander>. This version only works on Microsoft Windows and is fairly straight forward. Just download and install.



The installer will prompt for installation of IIS or SCCM. If you are just getting started, we recommend just installing the basic mesh commander. Afterwards, you will have a new icon to launch MeshCommander just like any other Windows application.



We will take a look at how to use MeshCommander in more detail in the next section.

4.2 MeshCommander for Intel AMT 11.6+ Firmware

Starting with Intel AMT 11.6 and beyond, you can load MeshCommander directly into the Intel AMT firmware flash, replacing the default web page with MeshCommander. This can be quite practical since once done, you can manage an Intel AMT computer using any browser on the network.

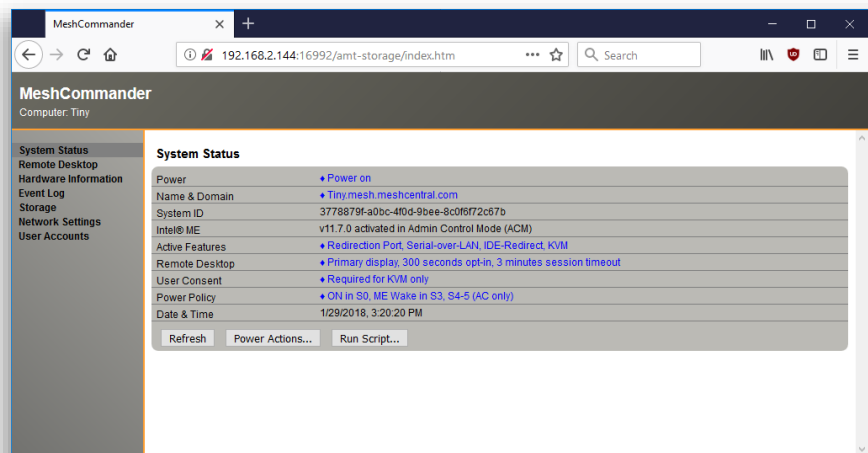
If you are running Windows, you can get the firmware loader tool at:

<http://www.meshcommander.com/meshcommander/firmware>

The tool is fairly simple and allows you to upload MeshCommander locally or to a different computer on the network. It's a simple step-by-step wizard.

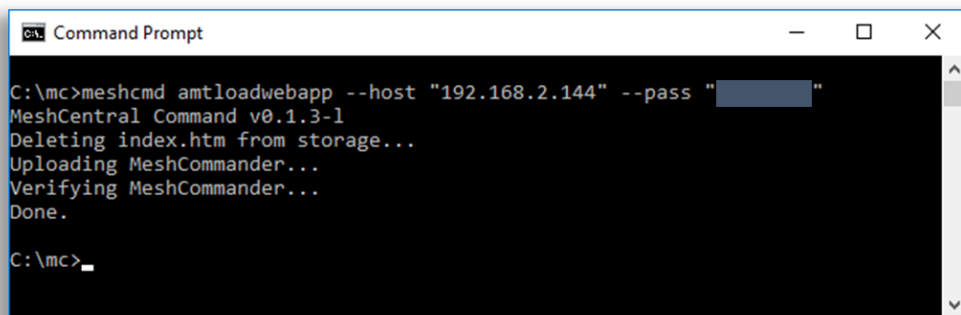


Once MeshCommander is uploaded in the firmware, you can try to login to Intel AMT using your browser, this time MeshCommander will show up.



An alternative to the MeshCommander firmware loader for Windows is the command line tool “MeshCmd”, this tool is available for Windows, many variants of Linux and OSX.

Right now, MeshCmd is available to users that installed MeshCentral2, but we will be making it available as a standalone tool you can download separately at some point in the future.



MeshCmd has a command called “amtloadwebapp” that can be used to upload MeshCommander firmware into the local or remote computer. The default host is “localhost” unless specified, the default username is “admin” and the password will need to be specified.

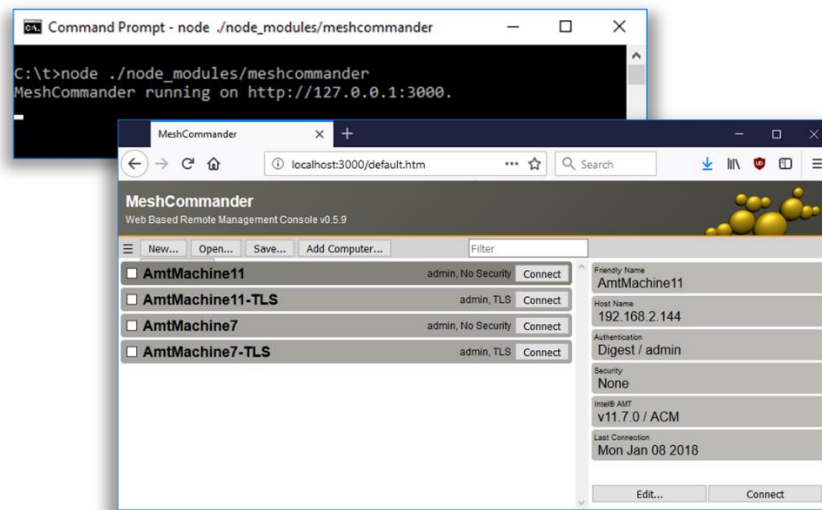
With both the Windows firmware loader and MeshCmd, you can always delete the web application and go back to the default Intel AMT web pages. Uploading MeshCommander does not delete the default pages.

4.3 MeshCommander HTTP server on NPM

Another interesting option is to run MeshCommander as a tiny web server that can then be used within a browser. This option is interesting because it work on Windows, Linux and OSX. For this version to work, you first need to make sure NodeJS and NPM are installed on your system both are available at <https://nodejs.org/en/>. Once installed, you can simply install the MeshCommander package from NPM. All you need to do is create an empty folder and type:

```
npm install meshcommander
node ./node_modules/meshcommander
```

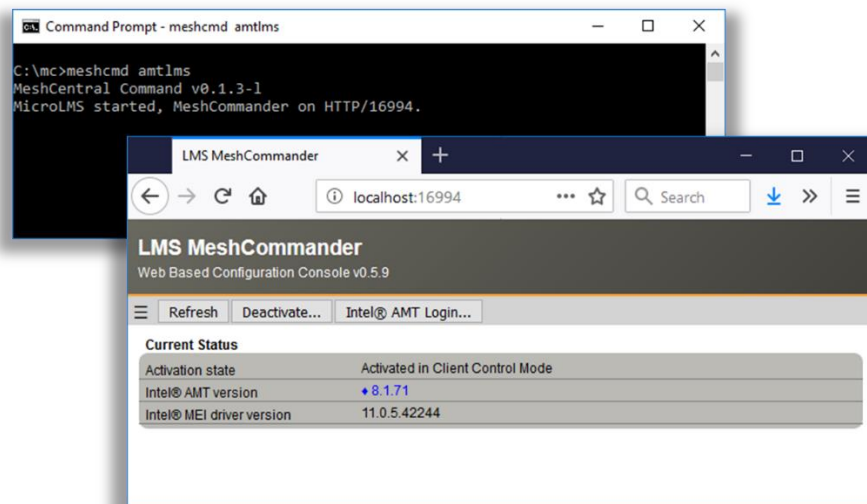

Once running, a small HTTP server will start. By default, it will use port 3000. Point your browser to <http://localhost:3000> to see the MeshCommander user interface.



When running in this mode, the computers you add will be stored in your browser's cache. However, you can use the "Open..." and "Save..." buttons to import and export a list of Intel AMT computers.

4.4 MeshCommander for MicroLMS

Instead of using the official Intel LMS, you have the option to use MicroLMS, a lightweight version of LMS that is built-into MeshCmd. That version of LMS is called MicroLMS and is often useful as a backup when the official Intel LMS is not available. Just run "meshcmd amtlms" to get it started.

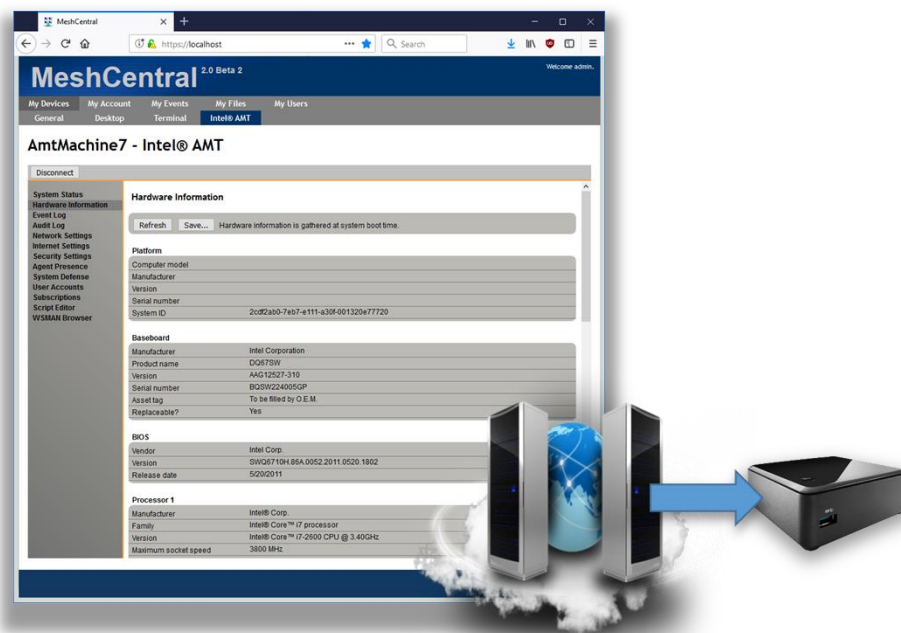


Once running, MicroLMS will forward local TCP ports 16992 and 16993 to Intel AMT, but it will also host a small web server of HTTP port 16994. This small server will make the LMS version of MeshCommander available to browsers.

The LMS version of MeshCommander does not have remove desktop or terminal, but it does work even when Intel AMT is not activated enabling you to activate Intel AMT from the web page. It is useful for taking a look at and configuring Intel AMT.

4.5 MeshCommander for MeshCentral

Probably the most powerful version of MeshCommander is the cloud version that comes built-into MeshCentral. MeshCentral is an open source, more robust remote management server that can be setup to manage computers on a local network or over the Internet. You can download it at: <http://www.meshcommander.com/meshcentral2>. MeshCentral comes with its own version of MeshCommander built-in. When Intel AMT is available, you will see an additional “Intel AMT” tab at the top of MeshCentral. Click on that tab to use MeshCommander.

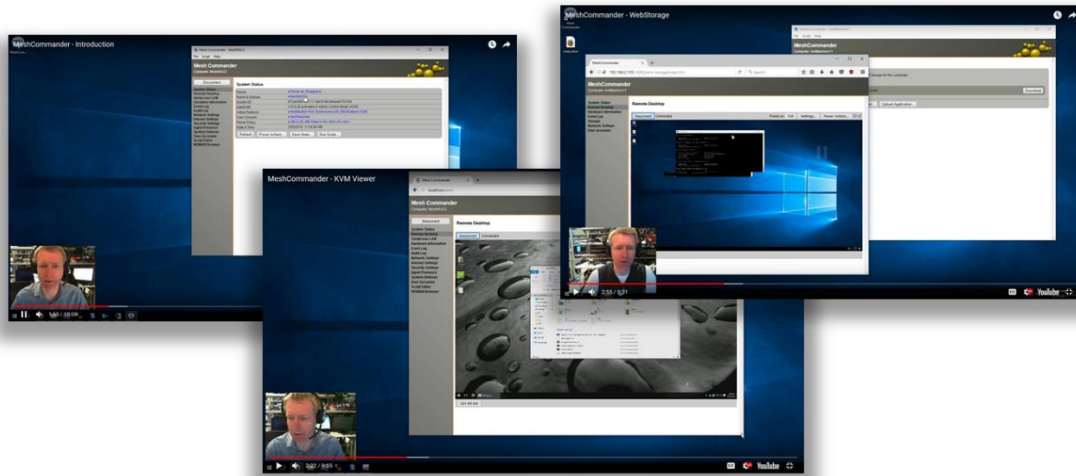


MeshCentral supports Intel AMT Client Initiated Remote Access (CIRA) connections, so that Intel AMT can connect to the server from anywhere on the Internet making this solution usable for managing computers over the Internet. MeshCentral offers many other benefits including that it can manage computers that don't support Intel AMT using its own OS agent. To get started with MeshCentral, take a look at the MeshCentral user's guide at: <http://www.meshcommander.com/meshcentral2>.

5. Additional Resources

In addition to this document, there are a growing set of MeshCommander tutorial videos available on YouTube which covers all of the basic at

<http://www.meshcommander.com/meshcommander/tutorials>. The tutorial includes videos go over all of the basic features and cover some of the more advanced usages of Intel AMT.



6. Conclusion

MeshCommander is a powerful, free and open source remote management console to Intel AMT. In this document, we have covered in detail on how to install and start using MeshCommander. MeshCommander comes in many variants making it very useful for a wide range of usages. From configuring Intel AMT, to managing a computer on the local network to remote management over the internet, MeshCommander can do it. If you use MeshCommander a lot, we encourage you to take a look at MeshCentral. The latest version of MeshCentral is easy to install and offers a great way to have many users manage computer on a local network or over the internet. You can find more information on MeshCentral at: <http://www.meshcommander.com/meshcentral2>

7. License

MeshCommander and this document are both opens source and licensed using Apache 2.0, the full license can be found at <https://www.apache.org/licenses/LICENSE-2.0>.