Data Center Management Tools: A Trade Study

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It will be the goal of this paper to present a trade study on what software is available for managing and visualizing lab/server rooms. The possibilities which are considered will be compared and contrasted with the alternate option of internally developed software. More specifically we will compare developing code internally with alternatives of Device42, ITDB, RackMonkey, and RackTables. Aspects of these that we consider important are general usability, price, scalability (?), the quality of any GUIs, searchability, and [Other features here]. I currently consider this paper to be a working first draft.

Let us then consider our first piece of software, Device42. Device42 is a professional and industry recognized software package that comes with user-friendly GUIs for both cable and rack organization. It also comes with IP address, temperature, and password management as well as a comprehensive search capability. All of these features come at a cost though, and quite literally at that. To be able to use 1,001 to 2,500 devices costs an annual subscription fee of $7,499 with a maximum allowed usage of 25 thousand IP addresses. For unlimited devices and addresses is $19,999. The above limit on IP addresses is on those addresses which are marked as not available in the Device42 software. Further information or a first-hand look at any Device42 visuals can be found on their website, [device42.com](http://www.device42.com/).

Next we have ITDB, an “asset inventory management tool used to store information about assets found in office environments, with a focus -but not limited to- IT assets.” Besides the data that we wish to store, ITDB also stores Invoices, Software, and Agents. Agents include vendors, manufactures of hardware or software, buyers, and contractors. ITDB also comes with a usable interface, search functionality, as well as an easy way to create and restore backups. What ITDB does not come with, is in-depth information about connections, MTP or otherwise. ITDB can still be useful though because it is published under a GNU Public License and its source code is freely available on Github. The only difficulty then, besides learning a new codebase, would be in having to learning a new language. Roughly half of ITDB is written in JavaScript, a language which our team would have to learn.

Another piece of open source software is, Rack Monkey. It is very straightforward in its approach to lab management. It stores useful information about devices regarding location, and its specifications. Also, different applications can be associated with devices. The search system is very simple and can be filtered to work with certain groups of devices. A representation of individual racks is viewable in a user-friendly way with information about where each device is located in the rack. The rack layout can be edited by adding or removing devices. To get support you must submit a ticket through Sourceforge. There is no direct support provided by the original developers. Screenshots of this product’s features can be found here, [RackMonkey](https://flux.org.uk/projects/rackmonkey/features/).

Finally there is RackTables, a piece of open-source software that focuses on simplifying and centralizing all lab information. It stores data about all of the pieces of equipment, their locations, the connections between them, and their IP addresses. You can assign IP addresses directly to the devices and group them into different networks. You can also configure load balancing options across networks. RackTables supports user accounts and both individual permissions or group permissions which means that two users of the same level can have different individual permissions. \*\*\*Files can be assigned to different objects.\*\*\* There is also a tagging system in which you can label anything in the system. This software is free and licensed under GPL v2.0 which means that we have complete freedom to access, use, and modify its source code. \*\*\*The tagging and file system may be a flexible way to group connections to individuals, groups, or projects.\*\*\* Also, although RackTables does not store MTP connections separately it would be possible to easily modify the source code to accomplish this; RackTables is written in PHP and MySQL which we have experience with. RackTables is updated frequently (\*\*\*how frequently\*\*\*), and has active user support via freelists (\*\*\*what is a freelist\*\*\*).

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|  | Price: | GUI: | Search: | Usability: |  |  |  | Total: |
| Device42 | 20k Annual |  |  |  |  |  |  |  |
| ITDB | Open Source |  |  |  |  |  |  |  |
| RackMonkey | Open Source |  |  |  |  |  |  |  |
| RackTables | Open Source |  |  |  |  |  |  |  |
| In House |  |  |  |  |  |  |  |  |

Compare and contrast the above options with the alternative of writing new software in-house. Open source means that we can shoulder some load, but it also means more maintenance and sifting through what other people have written.

Conclusions -