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 possibility of internally developed software. More specifically we will compare our option of developing code internally with using the alternatives of Device42, ITDB, RackMonkey, and RackTables. Aspects of these that we consider important are general usability, price, searchability, long-run maintenance costs, and quality of any GUIs.

Our first piece of software is Device42. Device42 is a professional and industry recognized software product that comes with user-friendly GUIs for both cable and rack organization. It also comes with capabilities for IP address, temperature, and password management as well. There is also a comprehensive search capability that lets the user easily pare down their options. All of these features come at a cost though, quite literally. A license which allows 1,001 to 2,500 devices costs an annual fee of $7,499 with a maximum allowed usage of 25 thousand IP addresses. To have access to an unlimited number of devices and addresses cost an annual total of $19,999. 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.” Additionally to the data that we wish to store, ITDB also stores invoices, software per machine, buyers, and contractors. ITDB also comes with a usable interface, search functionality, and an easy way to create and restore backups. ITDB does not however store in-depth information about connections or MTP connections. ITDB can still be useful though because of two reasons. First of all it supports the ability to add custom flags, and also it is published under a GNU Public License which means that its source code is freely available online. The only difficulties then would be learning a new codebase and learning a new language, JavaScript.

Another piece of open source software available for our use is Rack Monkey. RackMonkey focuses on simplicity and a straightforward approach to managing racks. RackMonkey stores useful information about devices, their locations, and their specifications, but it does not provide much more information besides that. It is also possible for different applications to be associated with certain devices. The search system is simple and direct. A representation of individual racks is viewable in a user-friendly way, with clear information about where each device is located on the rack. The rack layout allows for easy editing in adding or removing equipment. There is no direct support provided, and in fact it is no longer in continued development. Screenshots of this product’s features can be found here, [RackMonkey](https://flux.org.uk/projects/rackmonkey/features/).

Finally we have RackTables, another piece of open-source software that focuses on server hosting as opposed to lab management. RackTables stores information about all devices, their locations, and the connections between them. It also stores IP addresses which can be assigned directly to devices or grouped into different networks. RackTables comes with the capabilities of configuring load balancing across the network. RackTables also supports user accounts with both individual and group permissions. This software is free and licensed under GNU Public License v2.0. Also, although MTP connections are not stored separately, it would be possible to modify the source code to accomplish this; RackTables is written in PHP and MySQL which our team has experience with. RackTables is under regular development; it receives an update about once every four months. There is active user support via a mailing list service.

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| --- | --- | --- | --- | --- | --- | --- |
|  | Device42 | | ITDB | RackMonkey | RackTables | In House |
| Price: | 20k Annual | | Open Source | Open Source | Open Source | ~14k Flat |
| Search GUI: | 8 | | 7 | 6 | 7 | 7\* |
| Rack GUI: | 10 | | 6 | 7 | 7 | 7\* |
| Room GUI: | 6 | | 10 | --- | --- | 10\* |
| Connection GUI: | 6 | | --- | --- | 6 | 6\* |
| Usability: | 8 | | 7 | 8 | 7 | 8\* |
| Stores Connections | Yes | | No | No | Yes | Yes |
| Stores MTP | ? | | No | No | Yes | Yes |
| Can Own Connections | Yes | | No | No | Yes | Yes |
| Connection Requests | Yes\* | | No | No | No\* | Yes |
| Has all desired features | 7 | | 5 | 4 | 6 | 7 |
| \* Indicates uncertain | |

In conclusion our two main choices are Device42 or in house development. The ultimate deciding factors between these two are the level of control and price. The main advantages of Device42 are that it is a complete and is functional immediately with support. On the other hand, the benefits of in house development are the greater levels of control over the final product’s interface and capabilities.