



Kuwaiba in Detail

An Open-Source, Enterprise-Grade Network Inventory System



Kuwaiba

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Why Choose Kuwaiba?

Kuwaiba is the first and only open source inventory system focused on telecommunications infrastructure.

Kuwaiba is able to manage hundreds of thousands of elements and support a high transactional load while ensuring the data availability, integrity and confidentiality.

Kuwaiba provides an extensive and flexible set of interfaces that makes integration and modeling easier than ever.

Kuwaiba is significantly more cost-effective than any comparable solution in the market.

Commercial Support

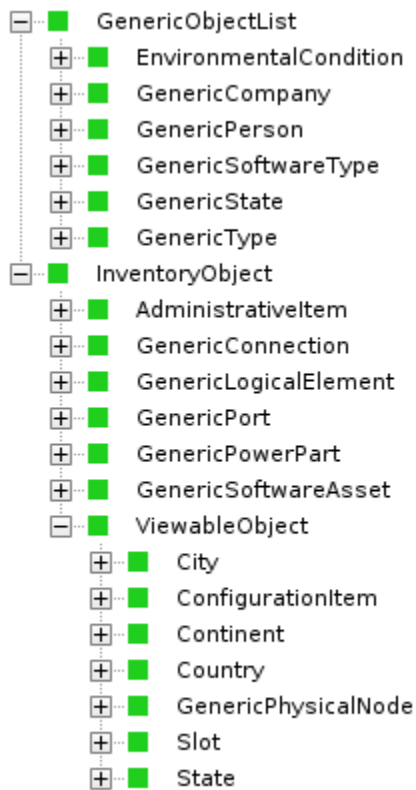
Neotropic provides consultancy, customization, setup, deployment and integration, platform administration, around-the-clock support and training services.

No Hidden Fees

Neotropic is totally transparent in terms of costs. Know from the beginning of the project how much it's going to cost you. No more expensive consultants, integration fees or costly support contract renewals. With **Kuwaiba**, you always stay on budget.

Not sure if **Kuwaiba** fits your needs?

Just download and use it! At kuwaiba.org you will find full-featured versions and virtual machines ready to use.



Smart Architecture and High Scalability

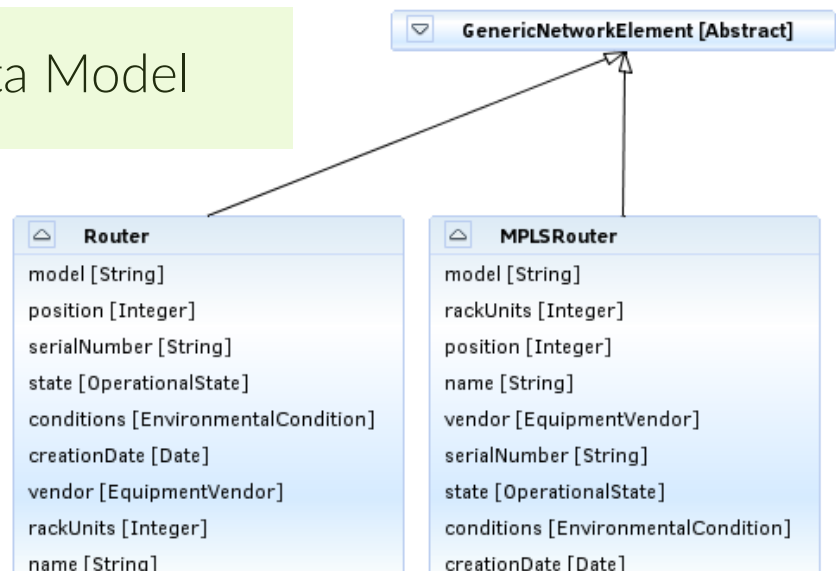
Kuwaiba sees an inventory system as a living entity, not growing only in terms of size, but also in structure and intelligence. Business requirements change constantly and therefore, the application must be ready to adapt to new scenarios. One of the key concepts that can help you unlock the potential of Kuwaiba is the data model. It provides a simplified representation of the network and the business from an operational point of view. It can be seen as the skeleton that supports the application, but a skeleton from which you can add, remove and change elements as you go.

Customize or Extend your Data Model

One of the key features of Kuwaiba is that it is completely object-oriented. It means that every business (Router, City, Port) and application (users, types) element is represented by an Object in the application and these objects are in turn product of an reality abstraction called Class. Likewise, every attribute is a Field in a Class. The set of classes, attributes and relationships between them is called *data model*. There's a default data model, but you can customize it depending on your needs by adding, removing and modifying classes.

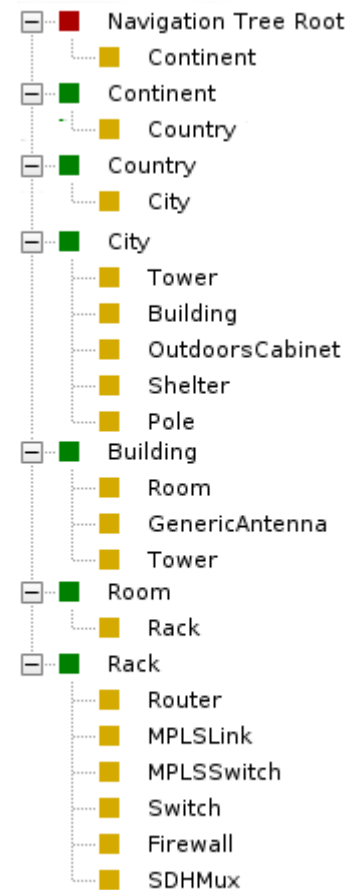
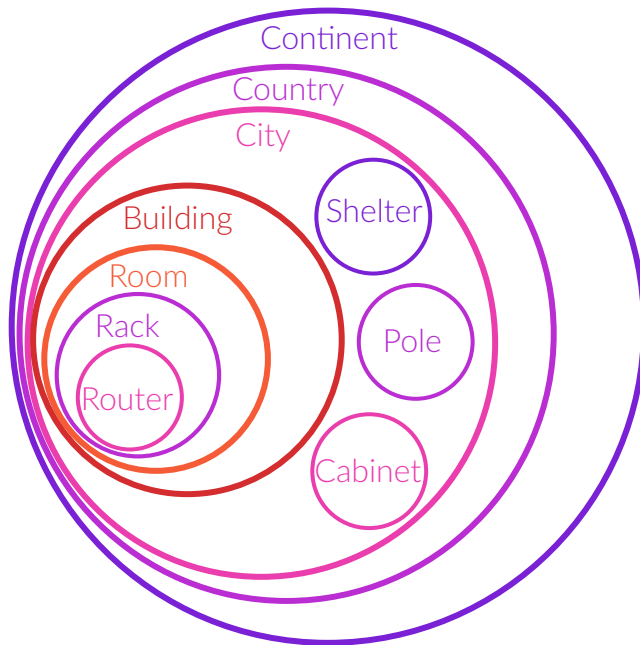
Explore and Share your Data Model

Navigate, review and modify your data model using graphical tools and migrate it from your staging servers to production in only a few steps.



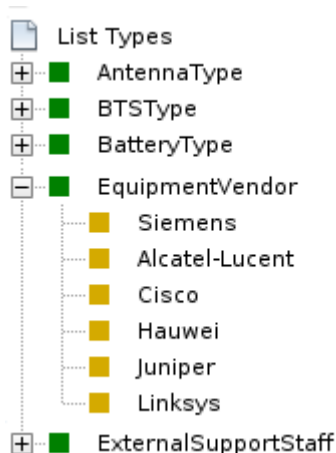
Define Your Containment Hierarchy

Another key concept in **Kuwaiba** is Containment. You can easily define what kind of objects can be created within others. For example, a Country can be inside a Continent, but can't be inside a Rack. A Port is usually within a Board, and not inside a City. These business rules can be defined using the Containment Manager.

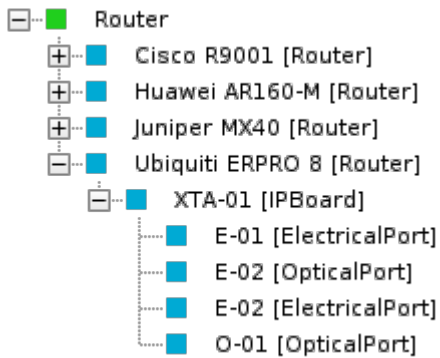


List Type Manager

Most of the attributes are primitive types (String, Integer, Booleans, etc), however, there are some more complex that point to another object in the database. This is the case of attributes such as *vendor*, which points to an object holding the information about the vendor of that equipment (technical contacts, account manager, etc) or *state*, that refers to the current operational state of the equipment (working, not working, decommissioned, etc). Many objects in the database will have the same vendor, and many other will have the same state. You can see them as many-to-one relationships.



| R4-BRCR-9001 [Router] - Properties | |
|------------------------------------|----------------|
| General | |
| name | R4-BRCR-9001 |
| conditions | None |
| vendor | Cisco |
| creationDate | None |
| rackUnits | Juniper |
| serialNumber | Linksys |
| state | Huawei |
| | Alcatel-Lucent |
| | Siemens |
| | Cisco |



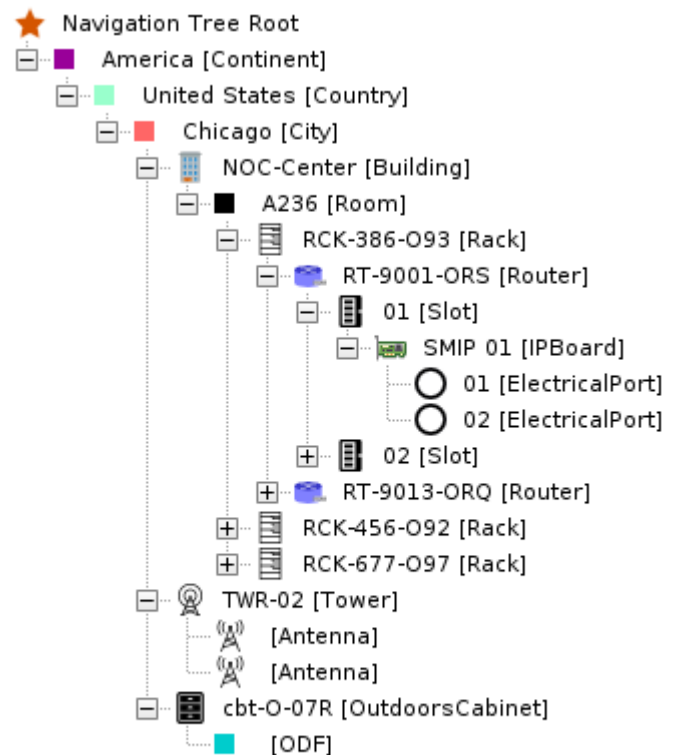
Template Manager

In many scenarios there are some containment structures that are created on a regular basis, for example, all routers or switches of certain model: The vendor, number of rack units, slots, etc will be always the same.

Creating them from scratch every time is a tedious task. For this reason, **Kuwaiba** provides a module that allows you to create template of objects which actual inventory elements can be created from.

Navigation Tree

This module presents in a tree fashion the physical objects of your inventory organized according to the containment hierarchy defined. The Properties window will display the attributes of the selected object. These attributes match the visible attributes defined in the Data Model.



| R4-BRCR-9001 [Router] - Properties | | |
|------------------------------------|----------------|-----|
| General | | |
| name | R4-BRCR-9001 | ... |
| conditions | Indoors | ▼ |
| vendor | Cisco | ▼ |
| creationDate | April 12, 2017 | |
| rackUnits | 2 | |
| serialNumber | ASR-RK10092881 | ... |
| state | working | ▼ |

Audit Trail

Kuwaiba is capable of tracking the changes performed by the users in the database for audit purposes.

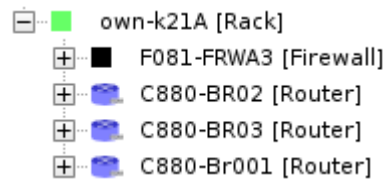
| Timestamp | Type | User | Property | Old ... | New value | Notes |
|------------------------------|---------------------------|-------|----------------------|---------|---------------------|-------|
| Tue Jul 26 01:43:36 COT 2016 | Update Application Object | admin | name | | Cisco | 1395 |
| Tue Jul 26 01:44:40 COT 2016 | Update Application Object | admin | name | | Quest Manufacturing | 1397 |
| Tue Jul 26 01:47:55 COT 2016 | Update Application Object | admin | name | | Phasing Out | 1403 |
| Tue Jul 26 01:49:56 COT 2016 | Update Application Object | admin | name | | Data Center Level | 1405 |
| Tue Jul 26 23:40:46 COT 2016 | Update Application Object | admin | name | | CAT-5 | 1425 |
| Wed Jul 27 01:16:30 COT 2016 | Update Application Object | admin | name | | Pipe | 1506 |
| Wed Jul 27 16:50:42 COT 2016 | Update Application Object | admin | name | | Huawei | 1488 |
| Wed Jul 27 16:51:05 COT 2016 | Update Application Object | admin | name | | My Own List Type 1 | 1490 |
| Wed Jul 27 16:51:16 COT 2016 | Update Application Object | admin | name | | My Own List Type 2 | 1492 |
| Wed Jul 27 00:53:04 COT 2016 | View Update | admin | structure background | | | |
| Wed Jul 27 01:29:58 COT 2016 | View Update | admin | structure background | | | |
| Wed Jul 27 01:31:51 COT 2016 | View Update | admin | structure background | | | |
| Wed Jul 27 00:19:56 COT 2016 | View Update | admin | structure | | | |

Physical View

A view is a graphical representation of an object. There are many types of views, because different objects in the inventory can have different perspectives, for example:



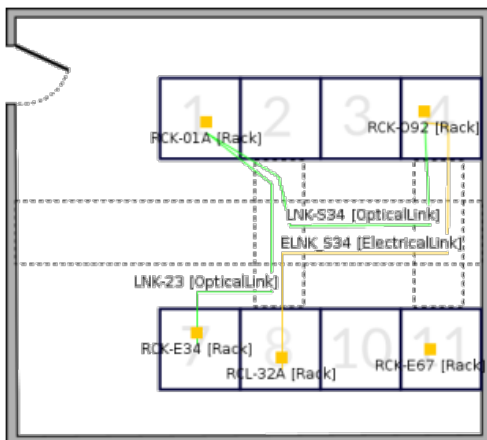
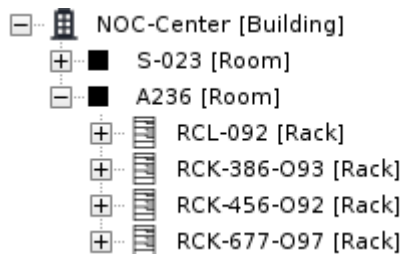
Rack Views



Usage Percentage: 67% (4U/6U)

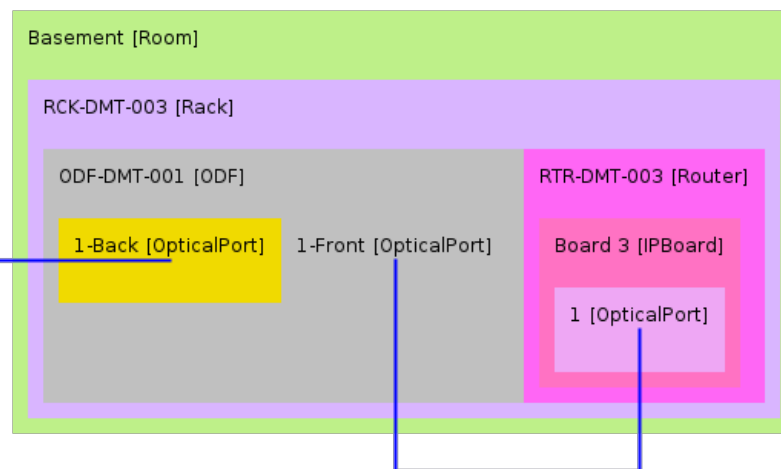
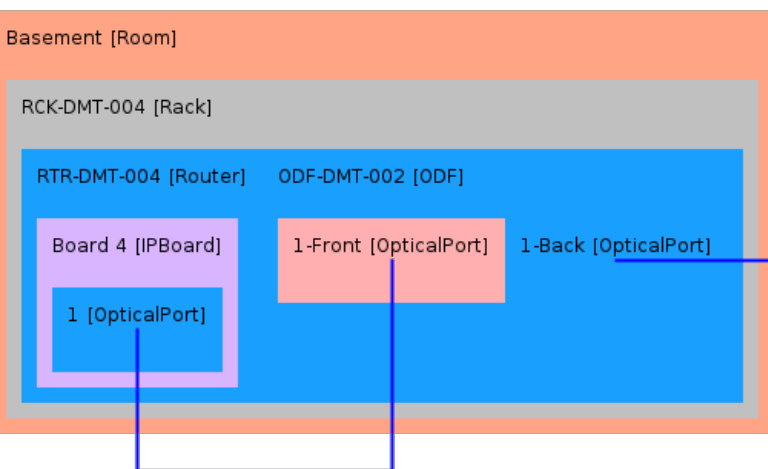
In the Physical View, you can move and connect the nodes, add a background and export the view. It is particularly useful at Room and City levels, because it will allow you to see how the children elements are located geographically (e.g. buildings) or in an enclosed space.

Object View



Physical Path

A nice feature in [Kuwaiba](#) is the ability to see the path of a physical connection as long as there is continuity.



Search

Service-02 [FTTHService]
CHB-Link-01 [ELANService]
SERV-Home-001 [SONETService]
Ethernet over SDH Service-TA101 [EoSDHService]
Ethernet over SDH Service-TA202 [EoSDHService]
HCB-Link-01 [SDHService]
HCB-Link-02 [SDHService]

Create Relationship

Close

Contract Manager

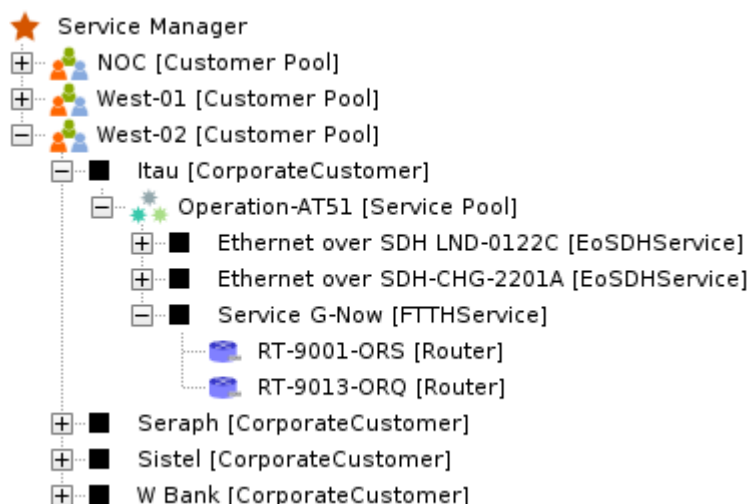
This module allows you to organize your contracts in pools and keep track of the expiration dates and service providers.

Painless Integration and Customization

Thanks to its open source nature, no matter how your business evolve, **Kuwaiba** offers you full flexibility to integrate it with other applications such as fault management systems, CRMs, ERPs, SOA ESBs or EMS/NMS. **Kuwaiba** can be easily tailored to different domains: no matter if you are a mobile operator, a satellite communications provider, an ISP, an infrastructure contractor or just a company with a large IT infrastructure.

Service Manager

The Service Manager allows you to easily organize and tag all your customers, the services associated to them and the resources in your inventory necessary to provide such services.



Contract Manager

- Backup Agreements [Pool of SLA]
- Operational Level Agreements [Pool of SLA]
- Support Agreements [Pool of SupportContract]
 - Workstations [SupportContract]
 - Itack VPServers [SupportContract]**
 - South Coast [SupportContract]
- Utilities & Others [Pool of SLA]

Itack VPServers [SupportContract] - Properties

General Attributes

| | |
|-----------------|-----------------|
| creationDate | July 26, 2017 |
| expirationDate | |
| serviceProvider | None |
| description | <null value> |
| name | Itack VPServers |
| startDate | |

July 2017

| | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|----|-----|-----|-----|-----|-----|-----|-----|
| 26 | | | | | | | 1 |
| 27 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 28 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 29 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 30 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 31 | 30 | 31 | | | | | |

startDate

SDH Networks

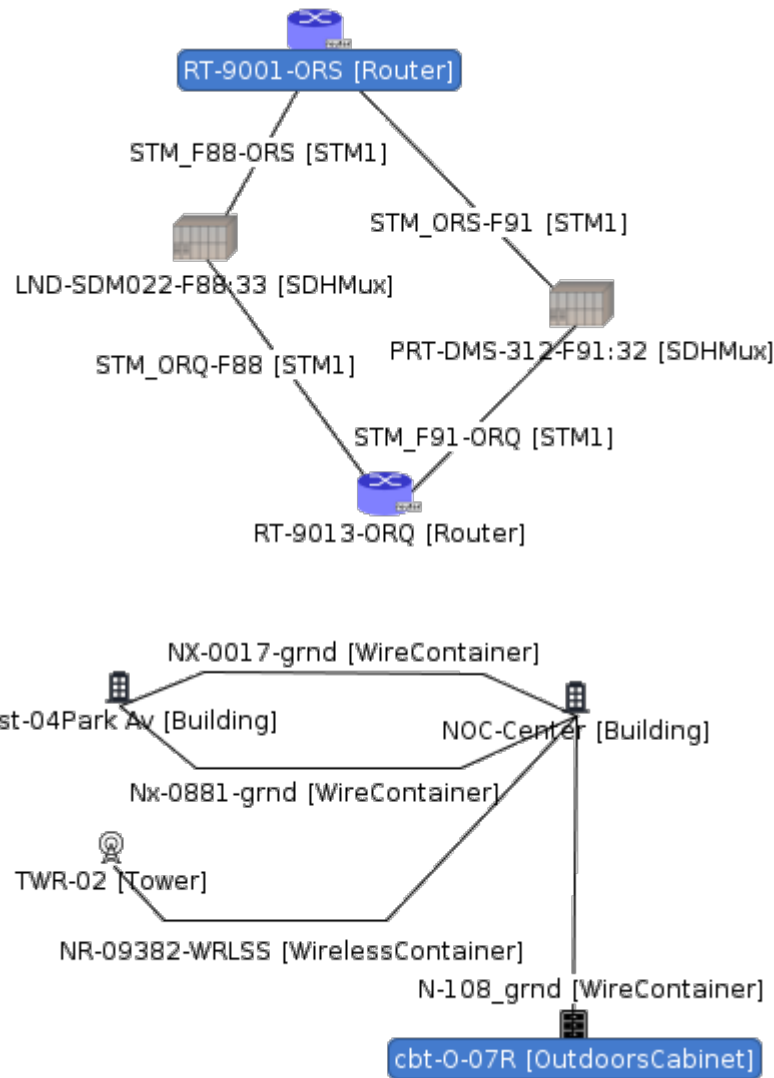
This module allows to create end-to-end virtual circuits and all logical entities required by the SDH protocol relevant to the inventory.

Physical Connections

The Physical Connections toolkit is tightly integrated to the Physical View module. With **Kuwaiba** you can create physical layer connections using cables, fiber optics or radio links very easily, navigate through the connections and inspect the resources in use.

Edit Physical Connections

Change the endpoints of a connection at any time.



West-04Park Av [Building]

A236 [Room]

OWN-RCK-F001 [Rack]

RT-13002-FO001 [Router]

RT-13002-FO002 [Router]

01 [Slot]

SMIP 01 [IPBoard]

01 [OpticalPort]

01 [ElectricalPort]

02 [OpticalPort]

02 [ElectricalPort]

02 [Slot]

OWN-RCK-F002 [Rack]

OWN-RCK-F003 [Rack]

RCL-092 [Rack]

S-023 [Room]

NX-A007-grnd [WireContainer]

01 [OpticalLink]

02 [OpticalLink]

03 [OpticalLink]

04 [OpticalLink]

05 [OpticalLink]

06 [OpticalLink]

07 [OpticalLink]

NOC-Center [Building]

A236 [Room]

RCK-386-093 [Rack]

RT-9001-ORS [Router]

01 [Slot]

SMIP 01 [IPBoard]

01 [OpticalPort]

01 [ElectricalPort]

02 [OpticalPort]

02 [ElectricalPort]

02 [Slot]

RT-9013-ORQ [Router]

RCK-456-092 [Rack]

RCK-677-097 [Rack]

RCL-092 [Rack]

23 [Room]

Connect Selected Endpoints

Disconnect Both Sides

01 [OpticalPort] / SMIP 01 [IPBoard] / 01 [Slot] / RT-13002-FO002 [Router] / OWN-RCK-F001 [Rack]

01 [OpticalPort] / SMIP 01 [IPBoard] / 01 [Slot] / RT-9001-ORS [Router] / RCK-386-093 [Rack]

Disconnect A Side

Disconnect B Side

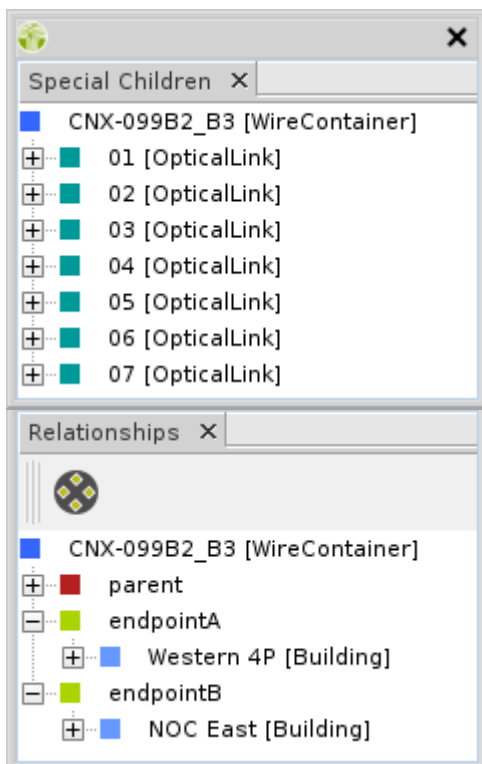
Projects

This module allows you to keep track of your projects, resources, and activities in one place.



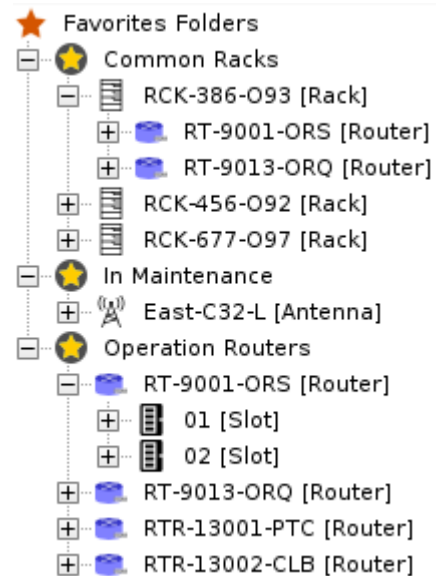
Relationship Explorer

The Relationship Explorer allows you to transparently navigate through the relationships between objects in the inventory. With this module, you can easily jump from ports to VLANs to services and then to SLAs in a single window



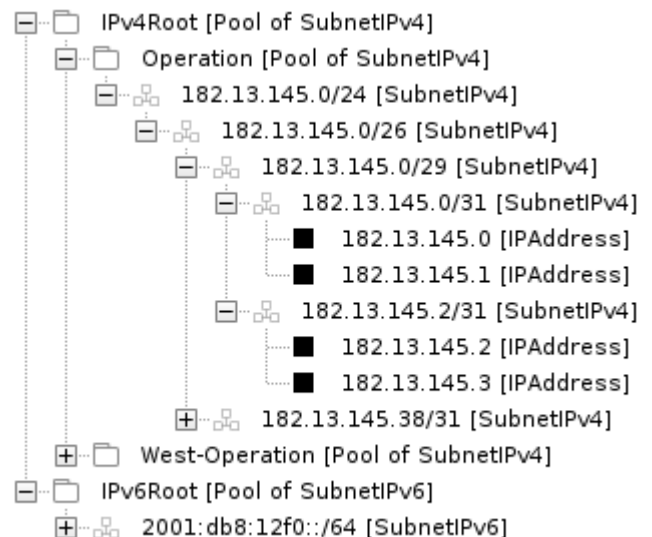
Favorites Module

This module makes easy to find the most frequently used objects in your inventory.



IP Address Manager

Manage your IPv4/IPv6-related assets, such as subnets and IP addresses. Integrate other assets like VPNs, VLANs, physical and virtual interfaces, condiguration elements like ACLs, routing policies, etc.



Reports

Build rich reports using *Groovy* scripts and the extensive reporting API provided by *Kuwaiba*.

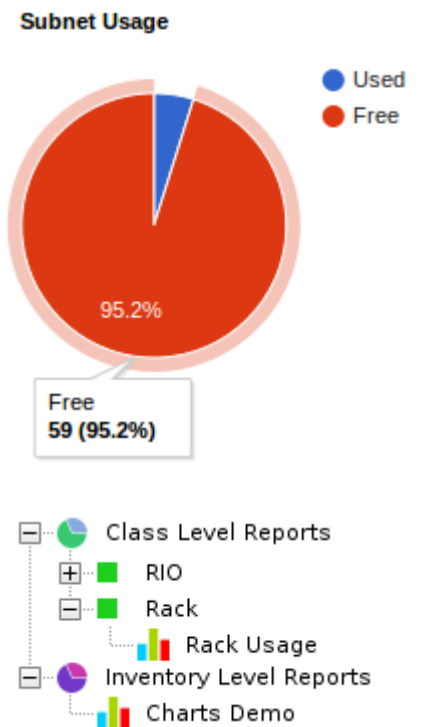
There are reports tied to instances of a particular class. An example is "Rack Usage". All instances of class Rack will have this report available when right-clicking on them.

There are also general purpose reports, not related to particular objects in the inventory. For example, "All support contracts about to expire" or "All inventory objects whose operational state is Defective". You can also define custom parameters for this kind of reports.

| | |
|------------------|---|
| Name | RCK-TMB07WA-01 |
| Serial Number | 834-312-09 |
| Location | Room A [Room] Building A [Building] Washington [City] USA [Country] |
| Total Rack Units | 20 |
| Used Rack Units | 15 |
| Use Percentage | 75.0% |

| Name | Serial Number | Rack Units | Operational State |
|----------------------|---------------|------------|-------------------|
| ODF-TMB10FL-01 [ODF] | 673-421-11 | 2 | Defective |
| ODF-TEL01NY-20 [ODF] | 285-481-23 | 3 | Working |
| ODF-TSP55TX-10 [ODF] | 934-892-37 | 3 | Decommissioned |

The Task Manager is a complete automation and notification solution. You can create tasks and scripts and schedule their execution or link them to widgets that will be displayed in the Dashboard of the client application.



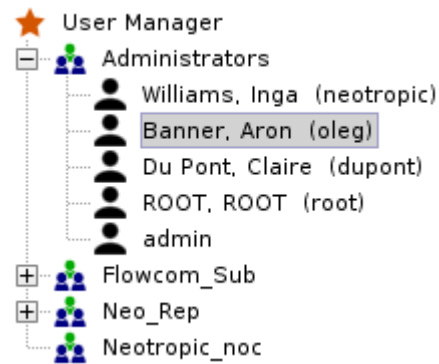
Task Manager

- ★ Available Tasks
- Contract Expiration
 - Rack Usage

| Rack Usage | |
|------------|--|
| ● | The rack RCK-VER07AZ-01 with serial number <NOT SET> and id 13314 has a 100% occupation |
| ● | The rack RCK-ATT07MI-01 with serial number 542-789-12 and id 13296 has a 100% occupation |
| ● | The rack RCK-TMB07WA-01 with serial number 834-312-09 and id 11642 has a 75% occupation |

User Management

Define users and groups and assign fine-grained privileges.



Special Children X

- Server 1 [Server]
 - Granola [SoftwareLicense]
 - Oracle 10g [SoftwareLicense]
 - SAP ECC 2.1 [SoftwareLicense]
 - Windows 2013 Server [SoftwareLicense]

Windows 2013 Server [SoftwareLicense]...

General

| | |
|----------------|-------------------------------------|
| price | 10000 |
| name | Windows 2013 Server |
| creationDate | August 03, 2016 |
| vendor | Microsoft |
| type | Operating System |
| constraints | 1 pc |
| active | <input checked="" type="checkbox"/> |
| purchaseDate | |
| expirationDate | |
| version | v 1.0.3.4 |

version

Banner, Aron (oleg) - Prop...

Properties

| | |
|------------|--------|
| Username | oleg |
| Password | ***** |
| First Name | Aron |
| Last Name | Banner |

Banner, Aron (oleg) - Privileges

| Module Name | Read Access | Write Access |
|---------------------|-------------------------------------|-------------------------------------|
| Navigation Tree | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Object Properties | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Special Explorers | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical View | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Topology Designer | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Data Model Manager | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| List Type Manager | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Containment Manager | <input type="checkbox"/> | <input type="checkbox"/> |
| Favorites | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Projects | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SDH Module | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Software Asset Manager

With Kuwaiba is possible create software licenses and associate them to existing elements or to keep them in a temporary location until they are actually used.

Bulk Upload

Kuwaiba provides a module to import objects and list types from CSV text files with a format easy to build either programmatically or using a spreadsheet.

Load Objects Load List Types

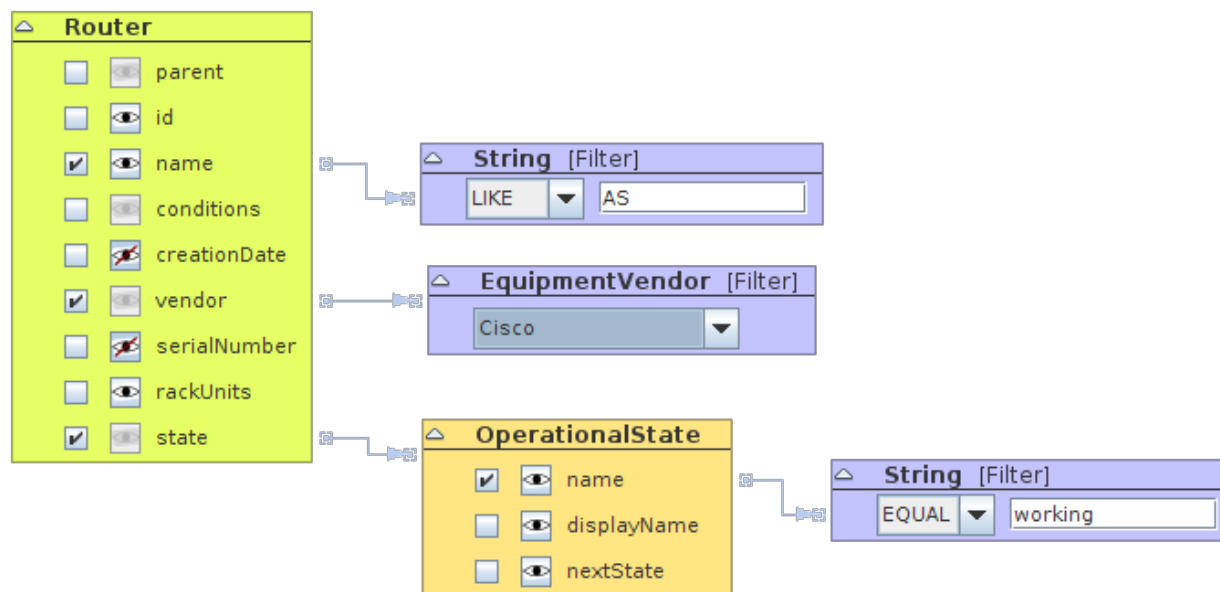
Select a .csv file with the objects to import

Select file Process file

```
Country~t~root~t~name~c~root~t~name~c~United States~t~acronym~c~US
Building~t~Country~t~name~c~United States~t~name~c~Empire State~t~owner~c~John Doe
Router~t~Building~t~name~c~Empire State~t~serialNumber~c~123456
Building~t~Country~t~name~c~United States~t~name~c~One World Trade Center~t~owner~c~George Aldrin
```

Graphical Query Editor

Easily create and save queries with Kuwaiba's innovative query editor



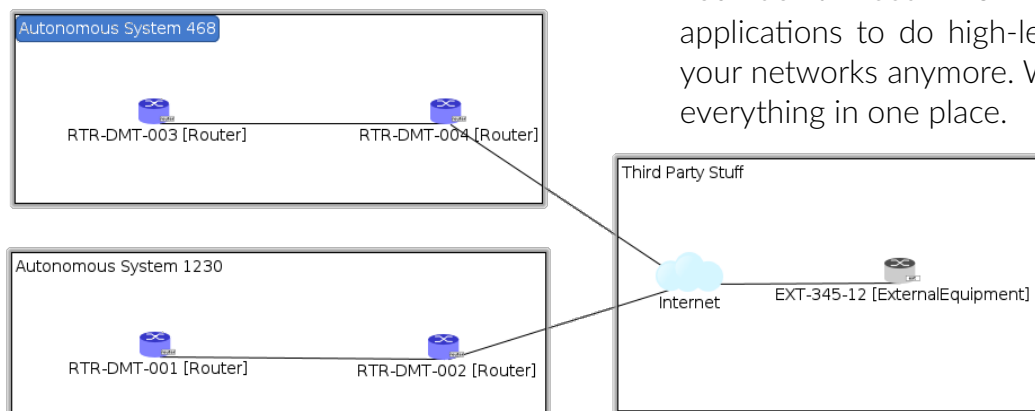
| Graphical Query Builder x | | Query Results x | | | | | |
|---------------------------|------|-----------------|-----------|----------------|---------|---------|---------|
| | id | name | rackUnits | serialNumber | name | name | name |
| R3-BRCR-1009 [Router] | 1460 | R3-BRCR-1009 | 3 | ASR0-02k10109 | Indoors | Linksys | working |
| R4-BRCR-9001 [Router] | 1473 | R4-BRCR-9001 | 2 | ASR-RK10092881 | Indoors | Cisco | working |

A New Way to Store Your Data

Kuwaiba uses a graph database¹ to store your data. This allows the application to transparently store the elements of your network, which is a graph itself. It's natural for Kuwaiba to find routes, paths and perform multi-directional searches.

Topology Designer

You don't need MS Power Point™ or costly CAD applications to do high-level design and documentation of your networks anymore. With the Topology Designer keep everything in one place.



¹Graph databases on Wikipedia: https://en.wikipedia.org/wiki/Graph_database

For more information about **Kuwaiba**

www.kuwaiba.org

For commercial support

contact@neotropic.co

www.neotropic.co

