



## **Platform Documentation**

### **ProVision**

Application Version 4.0.x

### **Peering Manager**

Application Version 2.0.x

#### **Covering:**

- **Resource Manager**
- **IP Address Manager**
- **DNS Manager**
- **DHCP Manager**
- **Peering Manager**

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# 6connect ProVision

6connect - ProVision

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- [Getting Started](#)
- [Tutorials](#)
- [FAQ](#)
- [Previous Versions](#)

## Installation & System Requirements

### 6connect Cloud Hosted Instance

6connect makes every effort to maintain broad compatibility across browser vendors and versions.

Web Browsers Supported:

- Firefox 6+
- Safari 4+
- Chrome 11+
- Internet Explorer 9+(IE 8 works, but there may be some display issues)

### 6connect Virtual Machine

The Virtual Machine has a console with additional information to assist with initial setup.

#### Host Environment:

The optimum resource mix will be based on page views/refreshes. A larger concurrent user base with constant editing may benefit from additional RAM.

The minimum recommended virtual environment is:

- Two processor cores
- 2GB RAM (4GB Recommended)
- 20GB Local storage (local SAS/SSD or iSCSI/FC LUN optional)
- VM format support for VMDK, OVF, OVA (Support for vSphere 5.x)

#### Software Environment:

Operating System: FreeBSD

#### Port Requirements:

Open outbound ports 443 and port 80

- cloud.6connect.com is used for license check
- checkip.dyndns.org validates the IP address of the machine to communicate with the licensing server

### 6connect Locally Hosted Instance

Initial application installation is included with the purchase of a license from 6connect. If modifications need to be made, we recommend contacting 6connect prior to any changes to ensure there is no negative impact to production systems or product functionality.

#### Hardware Requirements:

The optimum resource mix will be based on page views/refreshes. A larger concurrent user base with constant editing may benefit from additional RAM.

The minimum recommended hardware is:

- Dual-core Xeon class processor or equivalent (Quad-core Xeon Recommended)
- 2GB RAM (4GB Recommended)
- Local SATA storage (local SAS/SSD or iSCSI/FC LUN optional)
- Rack mount server chassis with redundant power supplies

\*Virtual instances are also acceptable. We have confirmed functionality with Citrix Xen Essentials, VMware, KVM, etc.

#### Software Requirements:

Operating System: Linux/BSD/OSX

Base Software Needed:

- Apache 2.x: <http://httpd.apache.org/>
- php 5.3.x: <http://php.net/downloads.php>
  - Plugin: Download Source Guardian extension from <http://www.sourceguardian.com/ixeds/> and install to php extensions directory.
- MySQL 5.1.x: <http://www.mysql.com/downloads/>



#### MySQL Triggers

6connect does not support custom MySQL triggers at this time - please email [support@6connect.com](mailto:support@6connect.com) if you have any questions.

#### Port Requirements:

Open outbound ports 443 and port 80

- cloud.6connect.com is used for license check
- checkip.dyndns.org validates the IP address of the machine to communicate with the licensing server

## Backup and Redundancy

### Backup and Redundancy

You have several options for backup and redundancy depending on your implementation of your 6connect platform.

#### 6connect Hosted Instance

##### Backup Schedule

6connect backs up your data every hour with a 1 month retention policy. Backups are replicated post transaction flush to a local secondary server.

##### Restoration

Is a phone call or email away. We can spin up a new instance with your preferred data set.

#### Local/VM Instance

##### Backup Schedule

6connect backs up your local data to our cloud server every 48 hours with a 1 month retention policy. The backend of the application is MySQL, so it can be replicated to another server/instance or even tied into your own backup storage infrastructure.

##### Restoration

Is a phone or email away. We can spin up a new instance with your preferred data set, or send you a link to download your database. Optionally, we can even help you set it up and import your data to your new instance or assist with redundant configuration options depending on your RPO/RTO guidelines.

## CentOS Configuration Guide

### Install and Configure MySQL

MySQL is included with most CentOS installs, check for it with:

```
yum list installed | grep mysql
```

If its not installed:

```
yum install mysql-server
```



#### Service Startup

Please ensure that the MySQL service has been started after you have installed it!

Set the mysql root password.

```
mysql
\u mysql
SET PASSWORD FOR 'root'@'%' = PASSWORD('newpass');
CREATE USER 'ipam'@'localhost' IDENTIFIED BY 'somesolongpassword';
FLUSH PRIVILEGES;
```

Make sure to set both passwords to a minimum of 12 characters with some numbers and punctuation. The default my.cnf is fine for most clients. For large datasets through, the my.cnf will need to be tuned. [Insert tuning guide]

## Install and Configure PHP

PHP is usually included with most CentOS installs too, check for it with:

```
yum list installed | grep php
```

You should see something like php53.x86\_64, php53-mysql.x86\_64, php53-cli.x86\_64 listed. If not:

```
yum install php php-mysql
```



#### PLEASE INSTALL

Depending on your installation - you also need to confirm that **expect** and **unzip** are installed and enabled.

## Install PCNTL

```
yum install php-pcntl
```

## Install and Configure Apache and SSL



#### mod\_rewrite REQUIRED

Please note that mod\_rewrite is required! If it is not enabled in Apache, key elements will not work as expected.

If SSL support is not already installed, install it:

```
yum install mod_ssl openssl
```

Generate private key, CSR, and temporary key if one hasn't been provided.

```
openssl genrsa -out ca.key 1024
openssl req -new -key ca.key -out ca.csr
openssl x509 -req -days 365 -in ca.csr -signkey ca.key -out ca.crt
```

Copy the files to the correct locations

```
cp ca.crt /etc/pki/tls/certs
cp ca.key /etc/pki/tls/private/ca.key
cp ca.csr /etc/pki/tls/private/ca.csr
```



Make sure that you copy the files and do not move them if SELinux is enabled (which it is by default)

Edit the apache ssl config and put in the appropriate options:

```
vi /etc/httpd/conf.d/ssl.conf
```

Change - SSLCertificateFile /etc/pki/tls/certs/ca.crt

Change - SSLCertificateKeyFile /etc/pki/tls/private/ca.key

```
/etc/init.d/httpd restart
```

Add 443 virtual hosts as needed in httpd.conf.

## Install and Configure Source Guardian

Download the extensions from <http://www.sourceguardian.com/ixeds/>. Choose either Linux 32 or Linux 64 .tar.gz depending on architecture.

```
tar -xvzf ixedX.xxx.tar.gz /tmp
```



In the new ixed dir in /tmp, there will be many different files. The naming convention is as follows:

```
ixed.5.3.lin - for all PHP 5.3.x versions
ixed-5.0.1.lin - for PHP 5.0.1 only
ixed.5.3ts.lin - the thread safe version for all PHP 4.3.x versions
```

Create an extension directory somewhere if there isn't one (/var/www/ext).

```
vi /etc/php.ini
```

Add - extension=/var/www/ext/ixed.5.3.lin

```
/etc/rc.d/init.d/httpd restart
```

## Configure SELinux



### RE-IP WARNING

Please remember - if you change the IP address of the your server, then you will need to update SELinux functions accordingly

Most CentOS install have SELinux enabled by default. One of its protections is to not allow httpd daemon to make network connections, we need to disable this for license checks.

To view the SELinux configuration for http:

```
/usr/sbin/getsebool -a | grep httpd
```

To turn protection off for the httpd daemon for creating network connections:

```
/usr/sbin/setsebool -P httpd_can_network_connect 1
```

## Configure IPTables

IPTables is enabled by default on CentOS. Add a new rule to allow 443 from anywhere. Make sure that this rule is in the chain BEFORE any blanket reject rule:

To list all current IPTable rules:

```
/etc/rc.d/init.d/iptables status
```

To add a rule for 443:



```
/sbin/iptables RH-Firewall-1-INPUT -I 5 -m state --state NEW -m tcp -p tcp --dport 443 -j ACCEPT
```



The -I 5 is what adds the rule to the 5th chain position. You might need to change this depending on existing rules. Look at what rules are there before running.

To save the new config:

```
/etc/rc.d/init.d/iptables save
```

OR (some versions of CentOS have different iptables names, so the above won't work)

```
vi /etc/sysconfig/iptables
```

With the file open for editing, add:

```
-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 443 -j ACCEPT
```

Once complete - restart the iptables service:

```
/etc/init.d/iptables restart
```



Customers can alter this post install to allow only their IP space, plus the 6connect management space.

## Install Radius

This section only needs to be followed if the customer will be using Radius for authentication. **If pear is not installed, install pear first.** Otherwise, just install the radius extensions:

```
yum install php-pear
pecl install radius
vi /etc/php.ini
Add - extension=radius.so
```

## Install 6connect

Get the latest build (or specific versioned build) from the repository and copy it to the destination. All local installs with -local (full version), or local-free (free version).

```
tar -xvf 6connectSP-xxx-local.tar /var/www/html
```

Will place all files in /var/www/html/IPAM.

Follow the instructions for 6connect installation.

Suggested follow up items for all customers

Tune IPTables rules to allow only your IP space and 67.221.240.0/24 and 2607:FAEO::/36 on ports 22 and 443.

Follow the CIS hardening guide to remove unused applications and their listening ports.

Use a valid SSL certificate if a self signed certificate was generated.

## General 6connect Installation Instructions

### Apache Configuration Requirements

mod\_rewrite and mod\_ssl are required.

ProVision must be run over SSL. Self signed certificates are fine.

The web root directory for ProVision must be configured with the following directives:

```
<Directory /<ProVision webroot>>
Options FollowSymLinks
AllowOverride All
Order deny,allow
Deny from all
</Directory>
```

### MySQL Configuration

```
SET GLOBAL sql_mode='STRICT_TRANS_TABLES,NO_ENGINE_SUBSTITUTION' ;
SET SESSION sql_mode='STRICT_TRANS_TABLES,NO_ENGINE_SUBSTITUTION' ;
```

### PHP Configuration

```
display_errors = Off
session.save_handler = files
session.save_path = "/tmp"
```

The session save path can be configured for alternate directories, however, you might need to manually add the folder "imports" and chown/chmod it to be readable and writeable by the web user. The software will try to do this automatically, but permissions could prevent it from being added correctly. This must be configured to import data.

On new versions of PHP, the following may need to be added:

```
session.bug_compat_warn=0
```

SMTP = localhost

smtp\_port = 25



Depending on the OS, the following may need to be added after various php extensions are added:

extension=radius.so

extension=ssh2.so

## Source Guardian

php extension - download from <http://www.sourceguardian.com/ixeds/>

extension=ixed.5.x.xxx

PHP cli binary path must be set in the software Admin section if different from default. By default it is /usr/bin/php.

## Additional PHP Extensions

See configTest.php located in the 6connect tar file for an updated list

## Additional System Packages

memcache

memcached

openssl

cURL

nmap

sendmail (Or any mail software. The correct binary should be specified in php.ini)

## DNS Tools and Packages

named-checkzone

rndc

zonesigner

dnssec-dsfromkey

## NEW INSTALLATION

-----

1. Install all the packages, extensions, and perform configuration listed above and the Source Guardian extension. To install the Source Guardian extension:

Download the correct Source Guardian loader for your OS from: <http://www.sourceguardian.com/ixeds/>

Place the file in your php extension directory as specified in your php.ini

Add extension=ixed.x.x.y.y to your php.ini

2. Move the tar file in 6connect web root.

tar -xof productionBuild-4.0.3.tar

This will place all the new files into your web root directory.

3. Go to <http://<web root>/configTest.php>. If there are any configuration errors listed in red, other than in the Database and Configuration Files section, they must be corrected.

4. Click on Setup Wizard or go to <http://<web root>/configBootstrap.php>. Fill in the requested information. Permissions on your web directory may cause the automatic setup of directories to fail. If there are still permissions issues, run configDir.sh from the command line. If there are any other errors listed, follow the instructions to complete these items manually.

5. Carefully note the login credentials provided before continuing.

6. Log in and use!

# Getting Started

## Getting Started

You have got 6connect ProVision and now it's time to set it up! For setup assistance or additional information, you can contact our [Support](#) team at [support@6connect.com](mailto:support@6connect.com).

We have broken down our [Getting Started](#) documents into the following steps and will have video tutorials where possible. You can also browse the Tutorials on the [Tutorials](#) page.

[Step 1 - Resources Overview](#)

[Step 2 - Admin Preferences](#)

[Step 3 - User & Group Permissions](#)

[Step 4 - IPAM Administration](#)

[Step 5 - DNS Administration](#)

[Step 6 - DHCP Administration](#)

[Step 7 - Importing Data](#)

## Working with Resources

### What is a Resource?

The "Resource" system is tied to the Permissions structure. What this means is that you get granular control on a resource level and can create groups around a single resource or even groups of resources. Since Resources can inherit permissions from others - it can be an easy way to categorize generic objects.



#### **WARNING!**

There are key Resources that are used by the System that should not be deleted. We have put in some safeguards in the UI, but the API can delete these resources if prompted. The resources that you should not remove are "Holding" and "Reverse". The "Available" Resource can be renamed - simply not deleted.

### How to Work with Resources?

The Resource is an entity that users can assign Network Resources to (IP blocks, hosts, DNS zones, etc.). You can also create hierarchies between resources which allows you to leverage permissions to control who can view and interact with any given resource and its assigned elements. Please note that you can also have Resources that do NOT have anything assigned to them regarding Network Resources. The result of this flexible architecture is that you can work with Resources in three ways:

- **Resource Entries:** These are the actual Resource names. When you click the "Add Entry" button you can customize various elements of the entry and assign the Parent Resource, Type and Category from their respective dropdown menus. This will pull up the field set for the Type and allow you to enter the data for the given Entry.

**Resources / Entries / Add Entry**

**Fundamentals**

Name (required)

Parent

Type

[Contact](#)  
[Firewall](#)  
[LIR](#)  
[Migrated Asset Data](#)  
[Migrated Device Data](#)  
[Physical Interface](#)  
[Rack](#)  
[Resource Holder](#)  
[Router](#)  
[Scanlet Result](#)  
[Server](#)

- **Resource Types:** These can be anything from "customers" to "firewalls" to "cross-connects". Since you can customize the fields for these elements, and assign them to a Parent Type, you have flexibility in organizing the data. Check out [Customizing Resource Types](#) and [Customizing Fields](#) for more details on how to fit these elements to your business.

**Resources / Type**

[Add Type](#)

Search Resources...

Name	Entries	Category
<a href="#">Contact</a>	81	<a href="#">Uncategorized</a>
<a href="#">Firewall</a>	2	<a href="#">Uncategorized</a>
<a href="#">LIR</a>	4	<a href="#">Uncategorized</a>
<a href="#">Physical Interface</a>	0	<a href="#">Uncategorized</a>
<a href="#">Rack</a>	2	<a href="#">Uncategorized</a>
<a href="#">Resource Holder</a>	831	<a href="#">Customer</a>
<a href="#">Router</a>	3	<a href="#">Uncategorized</a>
<a href="#">Scanlet Result</a>	0	<a href="#">Uncategorized</a>
<a href="#">Server</a>	7	<a href="#">Uncategorized</a>
<a href="#">Storage Array</a>	2	<a href="#">Storage</a>
<a href="#">Storage Controller</a>	2	<a href="#">Storage</a>
<a href="#">Switch</a>	1	<a href="#">Uncategorized</a>
<a href="#">Virtual Interface</a>	0	<a href="#">Uncategorized</a>
<a href="#">Virtual Machine</a>	3	<a href="#">Uncategorized</a>

- **Resource Categories:** Categories can be used to create some filtered views for given Resources and Types. For example, you can create a Resource of Type "Resource Holder" and then assign a Category "Customer". Then you can view a list of Resources that have been assigned to Category "Customer". In the same way, you could also assign a Resource of Type "Router" under the Parent Resource "Corporate Datacenter" and then assign a Category "Infrastructure".

**Resources / Category**

[Add Category](#)

Search Resources...

Name	Type
<a href="#">Corporate IT</a>	category
<a href="#">Customer</a>	category
<a href="#">Infrastructure</a>	category
<a href="#">Storage</a>	category
<a href="#">VM Infrastructure</a>	category

**Want customize Resource Types?** Check out [Customizing Resource Types](#) and [Customizing Fields](#) for more details!

**Some examples:**

- 1) Service Provider
- 2) Managed Service Provider

3) Datacenter/Colocation Provider

4) Enterprise

## Customizing Resource Types

video overview

Yes! You can create as many Resource Types as you wish (Firewall, Server, VM, Virtual Interface, etc.) and customize the fields that you care about for each Type. For example, you may not need to track the console port for your virtual firewall, so you would simply not use that field for the "Virtual Firewall" Resource Type. This way you can still track the console port for your physical firewalls like normal.

### Step 1:

Create a new **Resource Type** from the **Types** sub-tab under the **Resources** Tab

The screenshot shows the 'Fundamentals' section of a form for creating a new Resource Type. It includes a 'Name (required)' field with the value 'My Custom Resource Type', a 'Parent' dropdown menu set to 'TLR', and a 'Category' dropdown menu set to 'Infrastructure'. A green 'Create' button is located at the bottom right of the section.

### Step 2:

Customize the [Customizing Fields](#) for your **Resource Type**. Now you can add New [Customizing Fields](#) of different types (text, dropdown, text area) and also use any existing fields that are available. See the [Customizing Fields](#) page for more details.

The screenshot shows the 'Customizing Fields' section of the form. It includes a 'Name (required)' field with 'My Custom Resource Type' and a 'Slug' field with 'my-custom-resource-type'. Below these are 'Parent' and 'Category' dropdowns. The 'Fields' section has a dashed box for adding new fields. The 'Add Fields' section has a dropdown for 'Existing Fields' and a dropdown for 'New Field' (set to 'Text'). The 'Manage Gadgets' section has a 'Gadgets' dropdown (set to 'Contact Info') and an 'Add' button. At the bottom, there are 'Delete', 'View', and 'Save' buttons.

### Step 3:

You will notice on this customization screen, you also have an area for [Gadgets](#). Gadgets are areas of additional functionality that can be added to the UI of a given Resource.

**Manage Gadgets**  
Gadgets are mini applications that can add extra features to your resources.

Delete

**Gadgets**  
Contact Info (selected)  
DNS  
IPAM  
Resource View  
Tech Info  
Test

Add

Save

## Customizing Fields

### Creating Fields

To add a Field to a Resource Type, simple select the Field Type from the dropdown menu and click on the "Add Field" button.

**Add Fields**  
Create a new field or add an existing one

Existing Fields

New Field

Text (selected)  
Textarea  
Choicebox

Add field

Add field

**Text and Textarea Fields:** When you select to add them, the UI will prompt you to provide a Name/label for the new field.

Untitled Field text

Remove field

Name (required)

**Choicebox Fields:** When you select a Choicebox field, you will prompted to enter the Options that should appear in the dropdown menu. You can continue adding options using the "Add Option" button.

Untitled Field choicebox

Remove field

Name (required)

ChoiceBox Options

Add Option

### Editing/Removing Fields

Once fields are added to a Resource Type, you can use the "Edit" and "Remove" links for each field to make any additional changes to the fields.

**Fields**  
Click to expand or collapse a field.  
Double click to expand or collapse all fields.

<b>Serial Number</b> text	Edit Remove
<b>Asset Tag</b> text	Edit Remove
<b>Make</b> choicebox	Edit Remove
<b>Model</b> choicebox	Edit Remove
<b>Hostname</b> text	Edit Remove
<b>Console Server</b> text	Edit Remove
<b>Console Port</b> number	Edit Remove
<b>ACL Path List</b> text	Edit Remove
<b>Operation Notes</b> textarea	Edit Remove
<b>Firewall ACL Source</b> choicebox	Edit Remove

**Add Fields**  
Create a new field or add an existing one

Existing Fields  
 Add field

New Field  
Text  Add field

## Gadgets

### Gadgets



- [What are Gadgets](#)
- [Available Gadgets](#)
  - [Resource View](#)
  - [Contact Info](#)
  - [Tech Info](#)
  - [IPAM](#)
  - [DNS](#)

### What are Gadgets

Our gadget system is similar to the Atlassian Gadget system (and Google Gadgets). When creating or editing a Resource type, gadgets can be added to the type in a way similar to how you would add or remove a field. Gadgets are best described as self contained webapps; widgets but with more power. Gadgets can have their own fields, HTML templates, and even accompanying scripts and stylesheets. They can interface with the API to display simple information such as the Type of the Resource, or they can perform much more complex functions as demonstrated with the IPAM gadget in the following section.

The only gadgets currently available are the ones provided with Provision, but it is our hope to provide a simple way for you to create and add your own gadgets in the future.

### Available Gadgets

#### Resource View

This visual element is used on the Resource Holder record Type.

**Some Customer (cust1)**  
Type: **Resource Holder**  
Category: **Customer**

#### Contact Info

This visual element is used on the Resource Holder record Type.



Contact Info

edit

Phone:

Fax:

Mailing Address

123 Fake St.  
Santa Clara, CA 95053  
US

Billing Address

423 Really Fake St.  
Suite 120  
San Jose, CA 95001  
US

## Tech Info

This visual element is used on the Resource Holder record Type.

Tech Info

edit

DNS Servers

ns1: ns1.domain.com      ns2: ns2.domain.com  
ns3: ns3.domain.com      ns4: ns4.domain.com  
ns5: ns5.domain.com      ns6: ns6.domain.com

ARIN Info

Org ID:      ARIN-ORGNAME      Org POC:      ARIN-POC1  
Net POC:      ARIN-POC2      Abuse  
POC:  
Origin AS:      23456

Residential Customer Privacy: Disabled

## IPAM

This visual element is used on the Resource Holder record Type.

IPAM

IPv4 IPv6

Assign Block:

Browse To Assign

List available blocks: +

Direct Assign

x.x.x.x/yy +

Smart Assign

RIR Region Size Tags... +

Filter:

Notes/CIDR... RIR Region Size Some Customer Tags... Filter Clear

Address	Hosts	RIR/LIR	Region	Notes	Tags	Assigned	Updated
10.0.1.0/29	8	1918	CHI		Customer	2013-08-05 01:01:02	2013-08-05 01:01:02

## DNS

This visual element is used on the Resource Holder record Type.

DNS

New DNS Zone

Create Zone

Zone Delegation

Delegated Zone

Slave IP

Customer

Zone name

IPv4 or IPv6

84

Add Slave

Zone Records

Tags

Entries

test-domain.com

5

## XML Specifications

## XML Specifications

### THIS IS AN EXPERIMENTAL FEATURE

User created gadgets are not supported at this time. We recommend waiting until a more user friendly system is implemented before attempting to make custom gadgets.

- [XML Specification](#)
  - [Implemented Tags](#)
  - [Example](#)
  - [Fields](#)

### [XML Specification](#)

The XML gadget specification is based on the Atlassian Gadgets.

### [Implemented Tags](#)

The implemented tags and corresponding attributes are:

- **ModulePrefs**
  - Description
    - title
    - width - "full" or "half" are the only options for now
- **ContentSources**
  - type - "file" uses the file given in src, "html" uses the content in the tag (eg. `<Content type="html">This is the content</Content>`)
  - src - relative filename or url
- **Source**
  - Fields
    - type - "css" or "javascript"
    - src - relative filename or url
- **Field**
  - slug

### [Example](#)

```
<?xml version="1.0" encoding="UTF-8" ?>
<Module>
  <ModulePrefs title="Contact Info" width="half" />
  <Description>This gadget adds a field editor for fields related to contact info
(phone, address, ect).</Description>
  <Content type="file" src="template.html" />
  <Sources>
    <Source type="javascript" src="script.js" />
  </Sources>
  <Fields>
    <Field slug="6c-resourceholder-phone-main" />
    <Field slug="6c-resourceholder-phone-fax" />
  </Fields>
</Module>
```

### [Fields](#)

If a gadget uses fields, you can optionally add the slug of the field in this section to hide it from the main field list.

This can be very useful and make your Resource Types easier to work with. If the fields are not hidden, this can lead to long lists of redundant data in multiple places and can cause confusion. However, all viewing and editing of the field will have to be done through the gadget. If your gadget uses a field in a read-only manner, then you should **not** add it to the gadget's manifest because that would prevent users from editing the field data through the standard edit page.

# Admin Preferences

## Overview



## Details

### License Info

This section provides basic information on your 6connect license including the option to view the *EULA* and check your license status.

### Application Settings

**Time Zone:** Supported Time zones are listed here: [\(+\)](http://www.php.net/manual/en/timezones.php)<http://www.php.net/manual/en/timezones.php>. Default value is ('America/Los\_Angeles') and can be modified at any time via the drop down menu

**Company Name:** Enter the preferred name for your company to be used.

**Generic Name:** This "short" name is used in abbreviated location for the "Customer" tab label, "Customer" and "Site" are common entries.

### IPAM Configuration

**Available ID :** This is the ID Label that owns all unassigned IP resources. This is not user changeable.

**Reverse ID:** This is the ID Label that owns all assigned IP resources and zones not owned by a specific alternate ID. This is not user changeable.

**Holding Tank ID:** This is the ID Label that the Holding Tank. Upon reclaiming an IP block, the block will be assigned to the "Holding Tank ID" user for X(holding\_days) time. This is not user changeable.

**Holding Tank Days:** This is the number of days that a block will be held in "Holding" status before being available to be moved to the Available pool, and thus ready to be assigned. By default this is initially set to 30 days.

**IPv4 Block Scanner Enable:** This is a beta feature that allows a user to scan a block of IPv4 space and show host counts of responding addresses.

**Regions Enable:** Check the box to enable "Region" tags for IP blocks. This will add an additional column to the default IPAM screen. It is treated similarly to a standard tag. You can set the values from the "Edit Tags" function and modify the values list in the IPAM Admin screen "Edit Regions".

**Generic Code Per Block Enable:** Check this box to enable this function. This will enable an additional field per IP Block.

**Generic Code Per Block Display:** Check this box to display this field.

**Generic Code Per Block Name:** This is the label for the Generic Code to be displayed.

**Enable VLAN per Block:** This toggle allows users to specify VLANs via the "Edit Tag" function. With this feature enabled, you can filter by VLAN tag in the primary IPAM interface.

### Peering Parameters

**ASN :** Enter the ASN that will be used

### Backup Parameters (local install only)

**Enable mysql offsite backup :** This is enabled by default. Go to the [Backup](#) section for details on this feature.

**Location of mysqldump:** This is the location of the mysqldump directory.

### Logging Options

**Log table size:** This is the maximum number of records to store in the log table. Default value is 50,000,000.

**Rows to remove at limit:** When the value for log\_table\_max is reached, the number of rows to be cut from the table is the number assigned to this variable. Default value is 10,000 rows.

**Local Syslog Enable:** Check the box to enable syslog functionality or for local logging to the database only

**Remote Log IP:** Target IP address that we will send log information to

**Remote Log Port:** Port number for the syslog server you will send log information to

**Remote Log Method:** Select TCP, UDP, SSL from the dropdown for the log delivery method

**Remote Log Backup IP:** Target IP address for the Backup syslog server you will send log information to

**Remote Log Backup Port:** Port number for the Backup syslog server you will send log information to

**Remote Log Backup Method:** Select TCP, UDP, SSL from the dropdown for the log delivery method

**Remote Log Type:** Select SysLog format or JSON output

**Remote Log Facility:** Select the Facility - applies to syslog only

## DNS Configuration

**Default TTL:** in seconds, default value is 3600

**Default Refresh:** in seconds, default value is 14400

**Default Retry:** in seconds, default value is 3600

**Default Expire:** in seconds, default value is 604800

**Default Minimum:** in seconds, default value is 3600

**Default SOA:** Server Of Authority and hostmaster contact. E.g. ns1.domain.com. hostmaster.domain.com.

**Master nameservers:** Set to IP Address(es) of master DNS server(s) to be added as masters {} in named.conf (IPv4 or IPv6) or Mix of IPv4 and IPv6 addresses.

**\$GENERATE IPv4 by default:** Set to '1' to generate reverse IPv4 DNS hostnames for non specific PTRs. This is similar to \$GENERATE in standard bind.

**\$GENERATE IPv4 Suffix:** Set to forward suffix to append to PTR for \$GENERATE Example: .available.domain.com.

**DNS Server for DNSSEC validation:** required to be a non-authoritative name server.

## Authentication Options

**Maximum Session Idle:** This setting (minutes) controls how long a session can stay idle before being forced to log in again.

### ***RADIUS authentication options (local install only) - for implementation details, [go here](#)***

**Radius Enable:** Check this box to enable RADIUS functionality.

**Radius Server Address:** Set to the IP address of your radius server. If this is specified, it will force authentication over radius.

**Radius Authentication Port:** Set to the port for authentication. Default port is 1812

**Radius Accounting Port:** Set to the port for radius accounting. Default port is 1813

**Radius Key:** Set to the shared key of your radius server

### ***LDAP authentication - for implementation details, [go here](#)***

**LDAP Enable:** check the box to enable LDAP functionality.

**LDAP Server Address:** Set the IP address of your LDAP server.

**LDAP Port:** Set the port for your LDAP server

**LDAP Security:** Select the security method of your LDAP server - SSL, TLS or None

**LDAP Auth DN/Fetch DN:** These strings are used to first authentication the 6connect user and then to retrieve their permissions. The string '%LOGIN%' should be inserted in place of the user's common name both strings. (ex: cn=%LOGIN%,ou=people,dc=6connect,dc=com)

**Mapping Permissions to 6connect schema:** To integrate 6connect permissions with your existing directory structure then you will need the 6connect schema. It should snap in with any existing LDAP structure and allow you to assign 6connect permissions to your existing users. You can download a copy of the schema from this section.

## Templates

This is where you can edit outgoing email templates for IP block assignments

## Authentication Options



Depending on the authentication method chosen by your organization, there may be a separate authentication to login or logout of the application via the drop down menu.

By default, credentials are managed via the local authentication mechanism provided by 6connect. See the [Permissions Overview](#) section for more detail on the local authentication configuration.

- [LDAP Authentication](#)
- [RADIUS Authentication](#)

## LDAP Authentication

### *LDAP Authentication*

Starting in 3.6, ProVision supports LDAP authentication. To an LDAP server for authentication, you must perform the following three procedures:

- [Configure the LDAP Server](#)
- [Test the LDAP Server](#)
- [Configure ProVision for LDAP Authentication](#)

### **Configure the LDAP Server**

SSH into your openLDAP server and create a new 'ldif' file. Example:

```
dn: cn=JoeSmith,ou=people,dc=6connect,dc=com
cn: JoeSmith
sn: JoeSmith
objectclass: top
objectclass: person
objectclass: sixConnectPermissionsV2
sixConnGroup: "Global Admins"
```

```
sixConnGroup: "bonk"
sixConnGroup: "poof"
sixConnGroup: "grood"
userPassword: testpass
```

To create a new user, make a new ldif file and change all instances of "JoeSmith" to whatever username you wish to create and update the password. Keep all of the object class definitions as listed above. Add a sixConnGroup declaration for each ProVision user group a user is in.

After the file is created, run the following command to add the new user to LDAP server:

```
ldapadd -h [SERVER] -x -f [LDIF FILE] -D [ROOTDN] -w [ROOT PW] -v
```

Example:

```
ldapadd -h localhost -x -f 6connect.ldif -D "cn=Manager,dc=6connect,dc=com" -w secret -v
```

The user will now be active in openLDAP and can be used to login to ProVision.

### Test the LDAP Server

To query the LDAP server, run the following command on any server which has openLDAP enabled:

```
ldapsearch -h [IPADDRESS] -D [DOMAIN] -w [PASSWORD] [USER]
```

*Note: We have not been able to use a v6 address at with this tool, even though multiple sources say it should work.*

At the end of the command where [USER] is specified, user or groups can be used (in LDAP format) to query.

Example:

```
ldapsearch -h 50.240.195.129 -D "cn=JoeSmith,ou=people,dc=6connect,dc=com" -w testpass "cn=JoeSmith"
```

### Configure ProVision for LDAP Authentication

To configure the use of LDAP authentication with ProVision, follow the steps below.

- Log into 6connect ProVision
- Go to Admin -> General Settings -> Authentication
- Click the LDAP Enable checkbox.
- Fill in the hostname or ip address, authentication port, LDAP Security, Auth DN, and Fetch DN. An example is below:

LDAP Server Address: 52.240.195.12

LDAP Port: 389 ( or SSL/TLS port is 636)

LDAP Security: None

LDAP Auth DN: cn=%LOGIN%,ou=people,dc=6connect,dc=com

LDAP Fetch DN: cn=%LOGIN%



#### Setting default login authentication options

In the login screen, you would select the authentication method from the dropdown. If you like, you can set the default login option in the following way:

Go to the /data/globals.php and open in vi (or other editor). Add in the following text as the last line of the file (before the closing ?>)

```
define('DEFAULT_LOGIN_TYPE', 'radius');
```

Acceptable values are "local", "radius" and "ldap". If this line is not present in globals.php, the default option is "local".

## RADIUS Authentication

## RADIUS Authentication

- [Add the 6connect VSA to the Radius Installation](#)
- [Configure Radius Accounts](#)
- [Test Radius Accounts](#)
- [Configure ProVision for Radius Authentication](#)

Starting in 3.0, ProVision supports 6connect vendor-specific attributes (VSAs) for use with RADIUS authentication. To use these attributes, you must perform the following procedures:

- Add the 6connect VSA to the Radius installation
- Configure Radius accounts
- Test the Radius account
- Configure ProVision for Radius Authentication

### **Add the 6connect VSA to the Radius Installation**

To use the 6connect VSA, the attributes must be defined on the RADIUS server. Add the following RADIUS dictionary file to your RADIUS server and name it dictionary.6connect:

*Important Note: Between version 3.9.3 and 4.0, the permissions structure for ProVision was significantly changed. Make sure you following the version specific instructions below.*

### **ProVision 3.9.3 and prior:**

▼ [Click here to expand...](#)

### 3.9.3 VSA text file

```
VENDOR          6connect          36009

BEGIN-VENDOR     6connect

ATTRIBUTE        priv_admin          10      integer
#This is used to give a user administrative access to the application

ATTRIBUTE        priv_ipam_c          20      integer
#This allows a user to create IP blocks
ATTRIBUTE        priv_ipam_d          21      integer
#This allows a user to delete IP blocks
ATTRIBUTE        priv_ipam_m          22      integer
#This allows a user to modify IP blocks
ATTRIBUTE        priv_swip            23      integer
#This allows a user to SWIP IP blocks
ATTRIBUTE        priv_email           24      integer
#This allows a user to email IP block information
ATTRIBUTE        priv_ipam_v          25      integer
#This allows a user to view IP block information

ATTRIBUTE        priv_dns_c           30      integer
#This allows a user to create DNS Zones
ATTRIBUTE        priv_dns_d           31      integer
#This allows a user to delete DNS Zones
ATTRIBUTE        priv_dns_m           32      integer
#This allows a user to modify DNS Zones
ATTRIBUTE        priv_dns_v           33      integer
#This allows a user to view DNS Zones

ATTRIBUTE        priv_cust_c          40      integer
#This allows a user to create Customer records
ATTRIBUTE        priv_cust_d          41      integer
#This allows a user to delete Customer records
ATTRIBUTE        priv_cust_m          42      integer
#This allows a user to modify Customer records
ATTRIBUTE        priv_cust_v          43      integer
#This allows a user to view Customer records

ATTRIBUTE        priv_peer_c          50      integer
#This allows a user to create peering sessions
ATTRIBUTE        priv_peer_d          51      integer
#This allows a user to delete peering sessions
ATTRIBUTE        priv_peer_m          52      integer
#This allows a user to modify peering sessions
ATTRIBUTE        priv_peer_v          53      integer
#This allows a user to view peering sessions

ATTRIBUTE        priv_logs            60      integer
#This allows a user to have access to the logs tab in the application

END-VENDOR       6connect
```

**ProVision 4.0 and greater:**

▼ [Click here to expand...](#)



VENDOR	6connect	36009	
BEGIN-VENDOR	6connect		
ATTRIBUTE	6connect_user_group	10	string
#A 6connect User Group to which this user belongs.			
END-VENDOR	6connect		



Make sure to add the following to the primary dictionary file: \$INCLUDE dictionary.6connect

### Configure Radius Accounts

On the Radius server, configure the user accounts that will have access to the ProVision system.

An example of a ProVision account configuration for the user file on a Freeradius system for version 3.9.3 and prior:

```
#A user with full IPAM privileges and view only DNS privs

joe Cleartext-Password := "testing128"
  priv_admin = 1,
  priv_ipam_v = 1,
  priv_ipam_c = 1,
  priv_ipam_d = 1,
  priv_ipam_m = 1,
  priv_swip = 1,
  priv_email = 1,
  priv_dns_v = 1
```

An example of a ProVision account configuration for the user file on a Freeradius system for version 4.0 and greater:

**Example:** To add a new radius user, edit the 'users' file found at /etc/raddb/users and add a block like:

#### Setting up a RADIUS account

```
bobber Cleartext-Password := "hello"
      6connect_user_group = "Global Admins,Group 2,Group 1,Group Nonexistent"
```



#### Note on RADIUS attributes

There are many Radius attributes, but '6connect\_user\_group' is the one used by 6connect ProVision and it is just a comma-separated list of all the group names that the user belongs to.

### Test Radius Accounts

For 3.9.3 and prior, test and response should look like the following:

```
#>radtest test test 50.23.215.162 6connect
  Sending Access-Request of id 179 to 50.23.215.162 port 1812
  User-Name = "test"
  User-Password = "test"
  NAS-IP-Address = 10.124.47.6
  NAS-Port = 0
  Message-Authenticator = 0x00000000000000000000000000000000
rad_recv: Access-Accept packet from host 50.23.215.162 port 1812, id=179, length=68
  priv_admin = 1
  priv_ipam_c = 1
  priv_ipam_m = 1
  priv_ipam_d = 1
```

For 4.0 and higher, test and response should look like the following:

<insert example>

### Configure ProVision for Radius Authentication

To configure the use of Radius authentication with ProVision, follow the steps below.

- Log into 6connect ProVision
- Go to Admin -> General Settings -> Authentication
- Ensure that Radius functions are marked as available. Radius functions are always available on 6connect cloud instances. Radius functions are available on VM Images and Local Installations only if the relevant PHP Pear Radius Libraries have been installed.
- Click the Radius Enable checkbox.
- Fill in the hostname or ip address, authentication ports, accounting port, and shared Radius key as specified.



#### Setting default login options

In the login screen, you would select the authentication method from the dropdown. If you like, you can set the default login option in the following way:

Go to the /data/globals.php and open in vi (or other editor). Add in the following text as the last line of the file (before the closing ?>)

```
define('DEFAULT_LOGIN_TYPE', 'radius');
```

Acceptable values are "local", "radius" and "ldap". If this line is not present in globals.php, the default option is "local".

## Permissions Overview

### Overview

The Permissions structure in ProVision is designed to give you as much flexibility as you need to accommodate most use cases. When mapping out the permissions structure for your organization, keep in mind who you want to access to application:

- Internal Users and Roles (Admins, Read Only, etc.)
- Partners related to multiple specific Resources/Accounts
- Customers/Departments with limited view to only their respective Resources/Accounts



### Permission Levels

#### Global Permissions

When you see a reference to a "TLR" - that is a "Top Level Resource". This Is the primary Resource under which all other resources fall under. ProVision currently only allows a single level of administrator permissions: Global Administrator.

Users with "Admin" access can assign/modify permissions for other users.

See [Global Permissions](#) for more details on configuring these elements.

Resource Permissions

An administrator can also set respective permissions for a given Resource (single or multiple). These permissions fall under Groups. So a Group is configured for the given group of Resource permissions, and then the User account is added.

See [Users and Groups](#) to learn how Resource Permissions are assigned.

See [Resource Permissions](#) for more details on configuring these elements.

Global Permissions

Global Permissions apply to the "TLR" or "Top Level Resource" within ProVision.

Administration of these permissions require Administrative privileges. As an Admin, the user can then assign global permissions to groups and users. Depending on the requirement, the user can also have Resource specific permissions depending on how their group is configured.

Global Permission Details

Global Head-Only

Yes

Group Information

Name

test group 1

Enabled

☒

Group Users

test@6connect.com

test mcTest

Resource Permissions (Hide Details)

Resource	IPAM				DNS				Peer				Resource				User				SWIP	Admin	
	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D			
Some Customer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Top-Level (Global Access)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add More Group Permissions

Save

Global Permission	Description
Create	Ability to create records of a certain type
Read	Ability to read records of a certain type
Update	Ability to update existing records of a certain type
Delete	Ability to delete records of a certain type

Functional Area	Description
IPAM	IP Address Management functionality - this covers the IPAM Tab in addition to the IPAM "Gadget" that can be present in Resources.
DNS	DNS Zone/Zone Record Management functionality - this covers the DNS Tab in addition to the DNS "Gadget" that can be present in Resources.
Peering	Peering functionality - covers the Peering Tab, both the Communication Manager and the Session Manager.

Resources	Resource functionality - this controls access for Resources depending on either the TLR or the individual Resource.
User	User/Group management - this controls access for User and Group functions within the administrative area for ProVision.
SWIP*	This affects the SWIP/RPSL integration for ARIN/RIPE. This way a user can either be enabled to have this capability or not.
Admin*	This controls whether a user is a administrator for the global ProVision application.



\*

SWIP and Admin functions are only visible when [Show Details](#) is selected

## Resource Permissions

Resource Permissions apply to designated Resources within ProVision.

Administration of these permissions require Administrative privileges. As an Admin, the user can then assign resource permissions to groups and users.

### Resource Permission Details

Group Information

Name

Enabled☒

Group Users

Resource Permissions (Hide Details)

Resource	IPAM				DNS				Peer				Resource				User				SWIP	Admin
	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D		
Some Customer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Top-Level (Global Access)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[Add More Group Permissions](#)

Resource Permission	Description
Create	Ability to create records of a certain type
Read	Ability to read records of a certain type
Update	Ability to update existing records of a certain type
Delete	Ability to delete records of a certain type

Functional Area	Description
IPAM	IP Address Management functionality - this covers the IPAM Tab in addition to the IPAM "Gadget" that can be present in Resources.
DNS	DNS Zone/Zone Record Management functionality - this covers the DNS Tab in addition to the DNS "Gadget" that can be present in Resources.
Peering	Peering functionality - covers the Peering Tab, both the Communication Manager and the Session Manager.

Resources	Resource functionality - this controls access for Resources depending on either the TLR or the individual Resource.
User	User/Group management - this controls access for User and Group functions within the administrative area for ProVision.
SWIP*	This affects the SWIP/RPSL integration for ARIN/RIPE. This way a user can either be enabled to have this capability or not.
Admin*	This controls whether a user is a administrator for the global ProVision application.



\*

SWIP and Admin functions are only visible when [Show Details](#) is selected

## Users and Groups

### User Accounts

A User is defined as a single login account that accesses ProVision.

New Users can be created from the "Manage Users" Tab under the Admin area by clicking the green "Add User" button.

Users			
Username	Name	Groups	
admin	Admin User	Global Admins	
alina@6connect.com	Alina Fry	AAA Group	
annac@6connect.com	Anna Claiborne	Global Admins	
brenner@6connect.com	Bill Renner	Global Read-Only	
colin@6connect.com	Colin Robinson	Global Read-Only	
fr@6connect.com	Fru Chen	AAA Group	
<a href="#">Add User</a>			

### Creating/Editing Accounts

When creating or editing User accounts, you will be presented with the following options. Note that membership in multiple permission groups is allowed.

Username

First Name

Last Name

Groups

☒ Disable help bubbles?

☐ AAA Group  
☐ test resource  
☐ PJ Test  
☒ test group 1

## Setting/Resetting User Passwords

When you click on the padlock icon, you will be presented with options to set a new password and/or send a password reset email to the intended user account.

YES

## Reset Password

New Password:

Send email? ☒

From:

To:

Subject:

Message: 

Dear test mcTest,

6connect Support <ops@6connect.com> has requested your credentials be reset for 6connect IPAM at <https://ops.6connect.com/qa-4.0>.

Your username is: test@6connect.com  
Your new password is: xSEXiHVu

Login at: <https://ops.6connect.com/qa-4.0>  
Go to the "gear" icon in the upper right to reset your password at any time after you have logged in successfully.

Regards,  
6connect Automated Admin

Send

## User Groups

ProVision administrators can also create permission groups to assign users to. This allows more control over user roles. The two default groups are:

- Global Admin
- Global Read-Only

New Groups can be created by ProVision administrators by pressing the green "Add Group" button.

Groups			
Name	Enabled	Users	
Global Admins	Yes	6	
Global Read-Only	Yes	5	
Global Group 2	Yes	3	
Global Group 3	Yes	4	
Global Group 4	Yes	1	
Global Group 5	Yes	3	
<a href="#">Add Group</a>			

### Overlapping group and user permissions

Permissions are inherited based on the hierarchy of the objects, unless you specify a different permission!

## Verifying Permissions

To verify the permissions of a certain user who is a member of a group, simply select their user account from the dropdown menu and click on the green "Query" button. The resulting output will display the Resources the user has access to along with the specific permissions for each one.

### Check User Permissions

User:  Resource:

Query

IPAM				DNS				Peer				Resource				User					
C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D	SWIP	Admin
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Groups effecting this user on this resource: test group 1

## IPAM Administration

### Overview

Intro Video

**IPAM Lists Management:**

- [Edit IPAM Tags](#)
- [Edit IPAM Regions](#)
- [Edit Contact Roles](#)
- [Edit IPv4 Subnets Dropdown](#)
- [Edit IPv6 Subnets Dropdown](#)
- [Edit RIR List](#)
- [Edit IPv4 Exact Filter](#)
- [Edit IPv6 Exact Filter](#)

**Holding Tank Management:**

- [Process Holding Tank now \(Set to 60 days\)](#)

**DHCP Management:**

- [DHCP Admin Home](#)

**LIR Management:**

- [Add/Edit/Update LIRs](#)

### IPAM Parameters

These links are to the respective [IPAM Parameters](#) that are available for customization. Everything from Tags to RIRs - this is where to start. Go to the [IPAM Parameters](#) page for more details and examples for customization.

### Holding Tank Management

When IPv4/IPv6 resources are reclaimed, they are placed into the "Holding Tank". This feature allows for a block to stay out of the available address pools until the administrator approves it. Go to the [Holding Tank Management](#) page for more details.

### LIR Management and Use


ProVision supports multiple LIRs from the UI. This allows users to select from various LIRs when they want to update SWIP/RPSL information for a subnet allocation. Go to the [LIR Management and Use](#) page for more details.


## Working with IP Blocks

### Adding IP Address Aggregates

In the standard IPAM page - you should have an option to "Add Aggregate"

6connect ProVision – Copyright © 2013 v – (CDW)

 Dashboard Resources ▾ DNS ▾ IPAM ▾ Peering ▾ Log Reporting

 Add Aggregate

☐ All ☒ IPv4 ☐ IPv6

Once clicked, you should get a more detailed screen to add an aggregate block

When a block is added, you will be able to see it on the IPAM page

## Architecting IP Address Blocks

### *Splitting/Aggregating blocks manually*

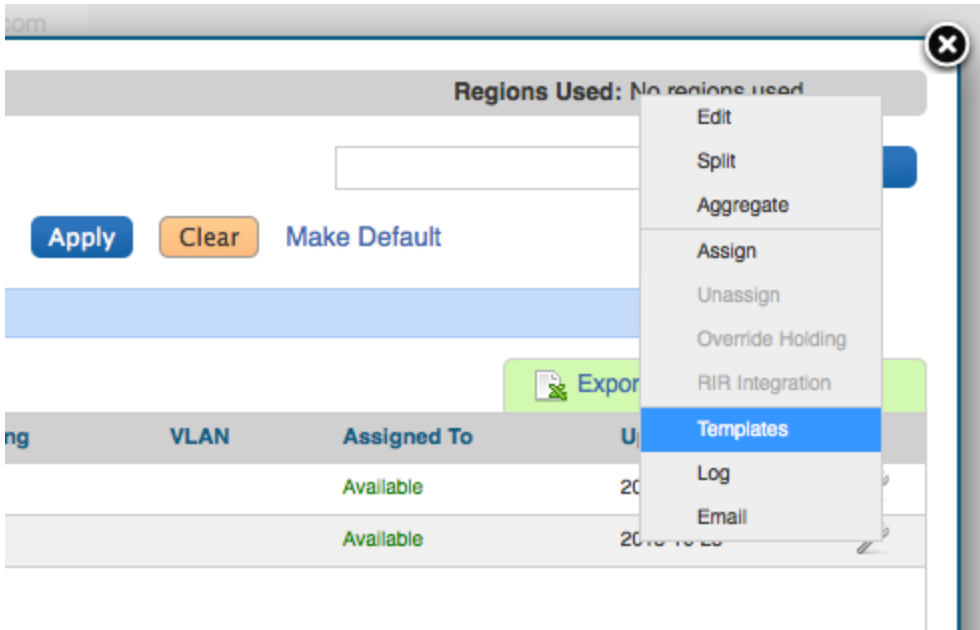
To split a block manually - you can use the functions from the Manage screen for any aggregate

### *Splitting/Aggregating blocks with Templates*

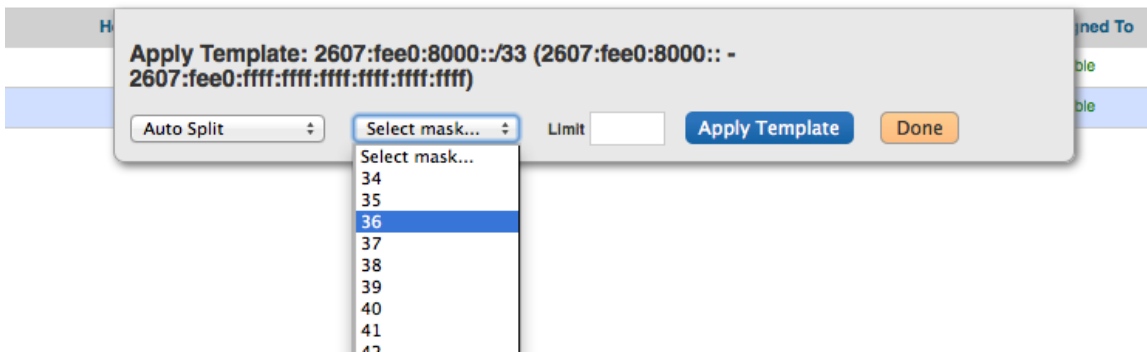
When you first import a block, you can select to use the Auto Splitting function from the main IPAM page

or you can also use the "Templates" on the IPAM Manage screen for the specific block



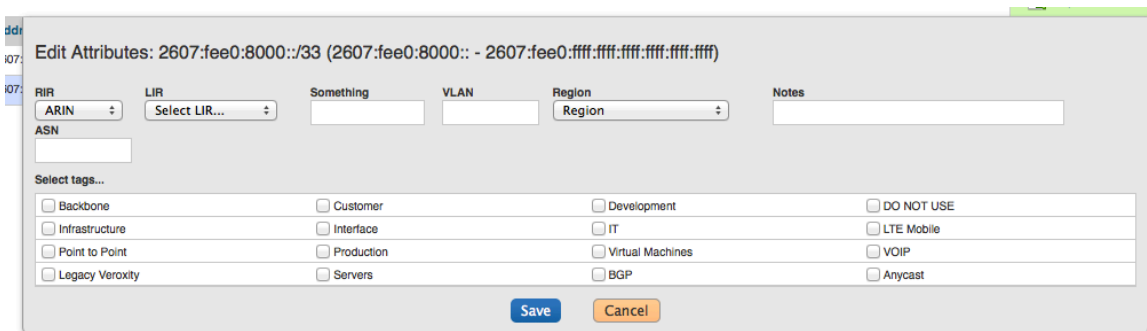


and then select the auto split parameters from there



### ***IP Block parameters***

When you have your IP blocks laid out, you can then modify their attributes, split them further, assign them, etc. Select the "Edit" option for a given block to get the following menu



From here you can set a variety of attributes for a given block. All of these values are also customizable from the Admin screen - IPAM Admin.

## IPAM Lists Management:

- Edit IPAM Tags
- Edit IPAM Regions
- Edit Contact Roles
- Edit IPv4 Subnets Dropdown
- Edit IPv6 Subnets Dropdown
- Edit RIR List
- Edit IPv4 Exact Filter
- Edit IPv6 Exact Filter

## Assigning IP Space

To assign space, you do it using the IPAM Gadget

**IPAM**

IPv4IPv6

**Assign Block:**

**Browse To Assign**

List available blocks:

Direct Assign

x.x.x.x/yy

**Smart Assign**

RIRRegionSizeTags...

**Filter:**

Notes/CIDR...RIRRegionSizeAcer WorldwideTags...FilterClear

Address	Hosts	RIR/LIR	Region	Notes	Tags	Assigned	Updated
10.0.0.0/30	4	1918	ATL		Anycast,BB	2013-09-20 13:38:10	2013-09-20 13:38:10
10.0.0.4/30	4	1918	ATL		Anycast,BB	2013-09-24 11:34:15	2013-09-24 11:34:15
10.0.0.16/30	4	1918	ATL		Anycast,BB	2013-10-11 13:50:03	2013-10-11 13:50:03
10.1.0.0/32	1	1918	ATL		Cable,Customer	2013-09-20 13:38:30	2013-09-20 13:38:30
10.1.0.8/29	8	1918	ATL		Cable,Customer	2013-09-20 13:38:40	2013-09-20 13:38:40
67.21.0.0/29	8	ARIN	ASH		Anycast,BB	2013-09-16 18:14:32	2013-09-16 18:14:32
67.21.0.8/29	8	ARIN	ASH		Anycast,BB	2013-09-17 23:13:17	2013-09-17 23:13:17
67.21.0.16/28	16	ARIN	ASH		Anycast,BB	2013-09-17 23:14:36	2013-09-17 23:14:36

Or you can assign blocks manually using the "Assign" function

Assign block

Filter by type: All Types

007 Manufacturing (Resource Holder)

44 Magnum Beats (Resource Holder)

6c-033 (Resource Holder)

A + Technology Solutions (Resource Holder)

Acceleron Pharma, Inc. (Resource Holder)

ADA Investment Management (Resource Holder)

Advanced Instruments (Resource Holder)

Firewall (Resource Holder)

LIR (Resource Holder)

Rack (Resource Holder)

Resource Holder (Resource Holder)

Router (Resource Holder)

Server (Resource Holder)

Storage Array (Resource Holder)

Storage Controller (Resource Holder)

Switch (Resource Holder)

Virtual Machine (Resource Holder)

Reverse DNS for HVDN Prefixes (Resource Holder)

123 Enterprises (Resource Holder)

6c-009 (Resource Holder)

9-All Nine's (Resource Holder)

ABCAM (Resource Holder)

Acronis, Inc. (Resource Holder)

Adelphi University (Resource Holder)

Aer Lingus (Resource Holder)

33rd St. Bistro (Resource Holder)

6c-026 (Resource Holder)

92ND STREET YOUNG MENS AND YOUNG (Resource Holder)

Acadian Asset Management LLC (Resource Holder)

ACS Consultant Company (Resource Holder)

ADTRAN, Inc. (Resource Holder)

Affiliated Pathology Service (Resource Holder)

Assign BlockCancel

Please note that once a block is assigned, you will also have other options available, including reverse DNS, and IP subassignments

**Edit Attributes: 2607:fee0:8000::/33 (2607:fee0:8000:: - 2607:fee0:ffff:ffff:ffff:ffff:ffff:ffff)**

**Assigned To:** [Some Customer](#)

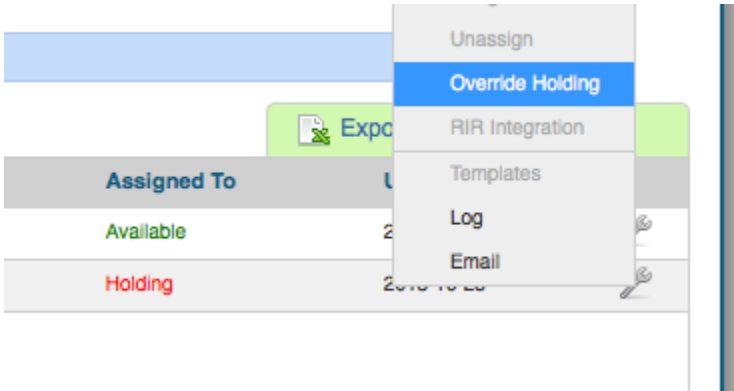
[Edit Reverse DNS](#)

☐ Allow sub assignments for this block

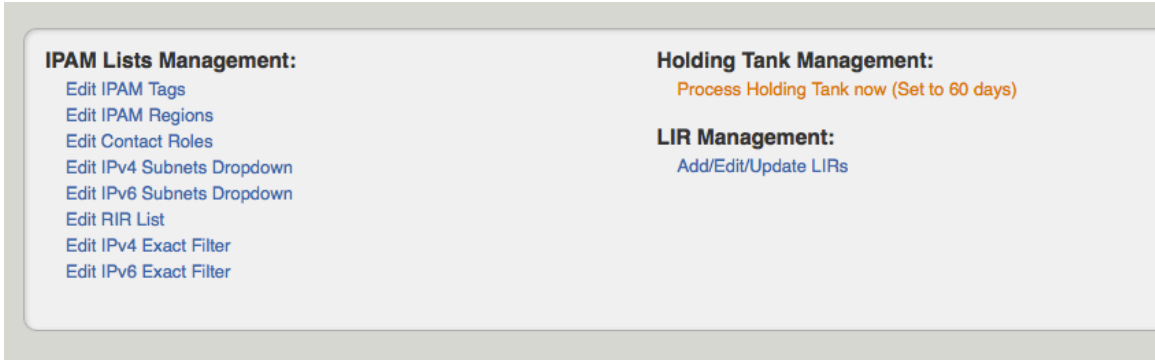
## Unassigning IP Space

When a block is assigned, you will then have the option of unassigning the block from the resource and returning it to the Holding Tank. To return IP space in the Holding Tank to the Available Pool - there are two methods:

1) Manually override the holding tank



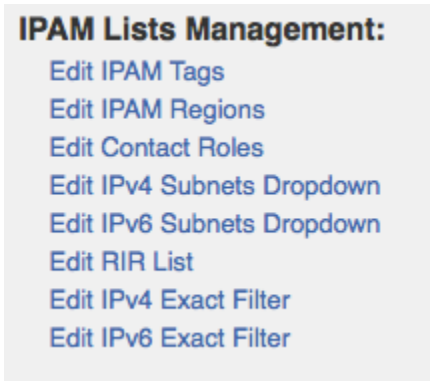
2) Process the Holding Tank via the Admin screen (this will only process blocks that were present for the specified number of days



## IPAM Parameters

### Overview

The elements



### Editing Tags

When you are applying properties to IP blocks, you have the option to edit tags. Tags are used in a number of ways and can be edited from this screen. You can specify tag values along with sorting options to make it simpler to use. Regions are used by the [IPAM Gadget](#) and the IPAM Management UI).


### Editing Regions

If enabled, Regions can function as a way to further define your network segments (regional tie-downs, etc.). This simply gives you flexibility for

allocations and assignments beyond simply using Tags. Regions are used by the [IPAM Gadget](#) and the IPAM Management UI).


**Editing Subnet Dropdowns (used by the [IPAM Gadget](#))**


When assigning blocks using the "Smart Assign" function in the [IPAM Gadget](#), the user has an option to assign an IP resource by allocation size. ProVision supports assignments down to a single host level (/32 for IPv4, /128 for IPv6).

**Note on Editing the Subnet Dropdown**  
Keep in mind that this is a global edit. If the values in the dropdown are changed, it will affect ALL users of the ProVision application

**Edit RIR List (used by the [IPAM Gadget](#) and the IPAM Management UI)**

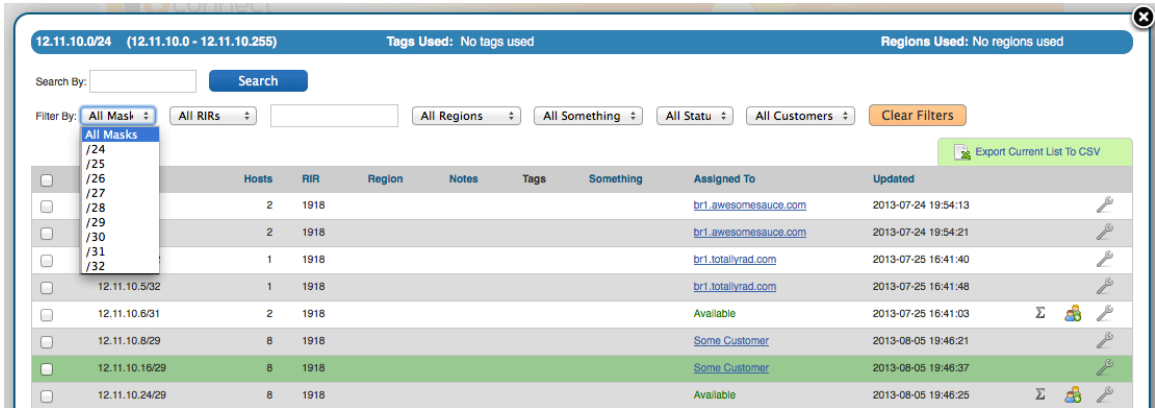
When working with IP aggregates, an editable element is "RIR". The RIR can be assigned on an aggregate level, via the Bulk Editing function, or when editing via the standard "Edit Details" menu.

**Tracking Overlapping IP Space**  
This can be used to better track overlapping IP blocks (VRFs, IP space from a merger or acquisition, etc.). For example, you could have an RIR entry of "1918-Corp HQ" and "1918-Company-X". This would allow for an overlapping /8 of IP space, but allocation and assignment tracking would function normally.

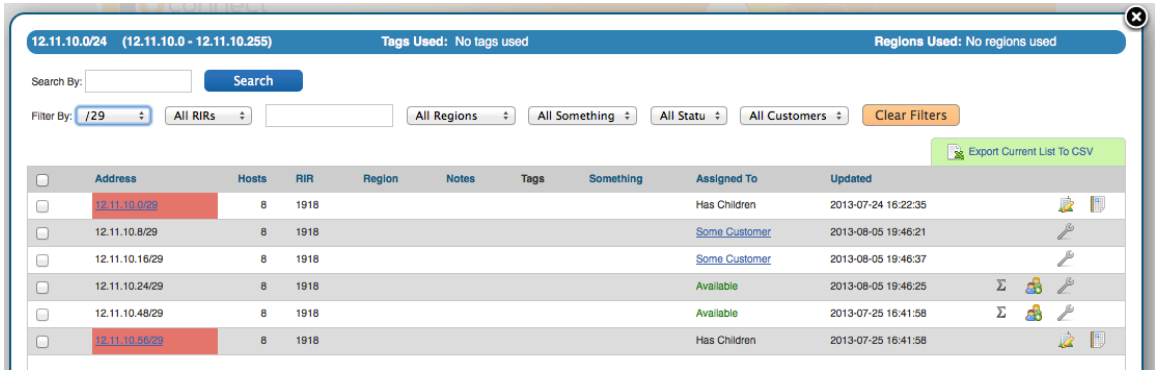
**RIR and SWIP/RPSL functions**  
ProVision uses the RIR associated with an IP block for SWIP/RPSL functions. As long as the RIR entry starts with "ARIN" - ProVision will know to use the ARIN SWIP functions for those blocks. The same for RIPE blocks. As other RIR API support is added, they will function the same way.

**Edit Exact Filter Dropdowns for Filter by Netmask**

On the IPAM Manage screen, you have an option to Filter the view by selected Subnet Mask (dropdown).



With the Filter By view enabled, the user then gets a simpler view. The user can then click on the red block, and view the additional assignments/allocations underneath it.



Here is the view after clicking on the block. The user can also see the SWIP/RPSL status for a given allocation/assignment if applicable.

12.11.10.0/24 (12.11.10.0 - 12.11.10.255)Tags Used: No tags usedRegions Used: No regions used

Search By:  Search

Filter By: /29 All RIRs  All Regions All Something All Status All Customers Clear Filters

Export Current List To CSV

<input type="checkbox"/>	Address	Hosts	RIR	Region	Notes	Tags	Something	Assigned To	Updated	
<input type="checkbox"/>	12.11.10.0/29	8	1918					Has Children	2013-07-24 16:22:35	
12.11.10.0/30										
12.11.10.0/31 - Assigned to bri.awesomesauce.com										
12.11.10.2/31 - Assigned to bri.awesomesauce.com										
12.11.10.4/30										
12.11.10.4/31										
12.11.10.4/32 - Assigned to bri.tota.lyrad.com										
12.11.10.5/32 - Assigned to bri.tota.lyrad.com										
12.11.10.6/31										
<input type="checkbox"/>	12.11.10.8/29	8	1918					Some Customer	2013-08-05 19:46:21	
<input type="checkbox"/>	12.11.10.16/29	8	1918					Some Customer	2013-08-05 19:46:37	
<input type="checkbox"/>	12.11.10.24/29	8	1918					Available	2013-08-05 19:46:25	
<input type="checkbox"/>	12.11.10.48/29	8	1918					Available	2013-07-25 16:41:58	
<input type="checkbox"/>	12.11.10.56/29	8	1918					Has Children	2013-07-25 16:41:58	

## Holding Tank Management

### How it Works

The "Process Holding Tank now" link will move any block assigned to "Holding" to its relevant "Available" pool. This command will process **ALL** addresses assigned to "Holding" depending on their age. The default time for release to "Available" is 30 days. If a block has not been in the holding tank for that specified length of time, it will not be released using this feature (it can be released manually per record at any time) . The threshold for the number of days in the Holding Tank is set in the main Admin Preferences page and is customizable.

Process Holding Tank

38 IPv4 blocks to process.  
1 IPv6 blocks to process.  
Processed 36 IP blocks total.  
Assigned all blocks to 81

Back to IPAM Admin

When an administrator elects to process the Holding Tank, it will show the information above.

Pro-Tip!

If you need to do a bulk "empty" of the holding tank. Set the time for release to "0" days. This will allow you to process the holding tank for all blocks that are in the Holding Tank.

## LIR Management and Use

### Overview

ProVision supports multiple LIRs (Local Internet Registries) in a single instance. This means that you have the ability to update SWIP/RPSL functions for a given allocation with the LIR information that you wish. When you select the "SWIP" function for a given IP block, you will be presented with a menu where you can select the data that you want to use to update the block.

Intro video

### LIR Setup and Use

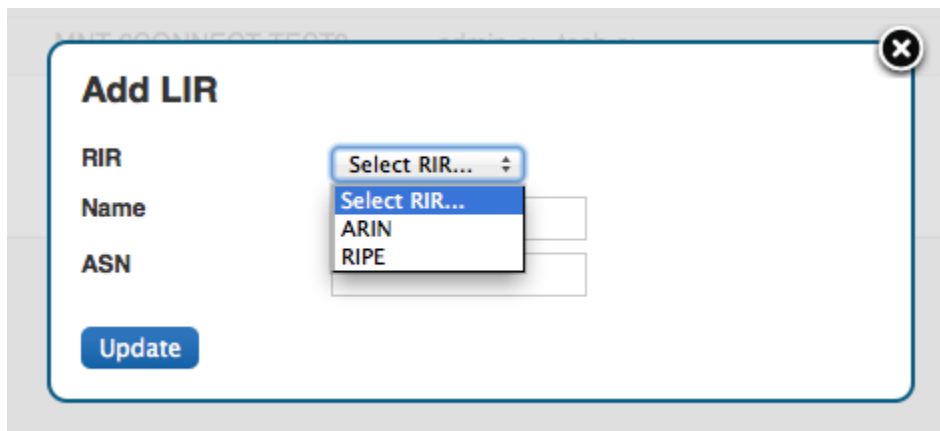
ARIN

RIPE

## ARIN LIR Setup and Use

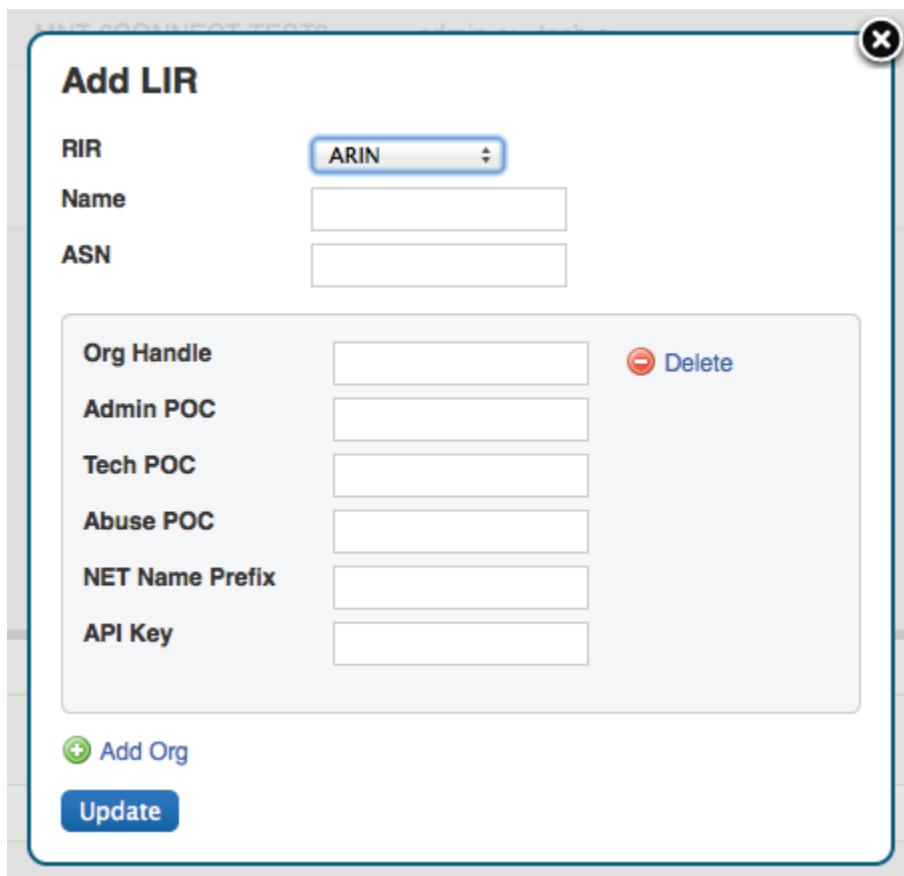
### Step 1: Setup the LIR information via the LIR Manager

You will be prompted to select the RIR



The screenshot shows a dialog box titled "Add LIR" with a close button in the top right corner. Inside the dialog, there are three input fields: "RIR", "Name", and "ASN". The "RIR" field has a dropdown menu open, showing the options "Select RIR...", "ARIN", and "RIPE". Below the input fields is a blue "Update" button.

Add in the requisite Org and POC information



The screenshot shows the "Add LIR" dialog box with the "RIR" dropdown menu set to "ARIN". Below the "Name" and "ASN" fields, there is a section for "Org Handle" and "Admin POC", "Tech POC", "Abuse POC", "NET Name Prefix", and "API Key". Each of these fields has a corresponding input box. To the right of the "Org Handle" input box is a red minus icon and the text "Delete". At the bottom of the dialog, there is a green plus icon and the text "Add Org", and a blue "Update" button.



#### Multiple Org Support

Note that we support multiple Org Handles per ARIN entry. Simply click on the [Add Org](#) link at the bottom of the Add LIR dialog box.

**Step 2: Assign an IP block to a Resource using the *IPAM Gadget* or the Assign function from the *IPAM Manage* screen.**

### **Step 3: Update SWIP information**

Functions supported:

#### **Simple Re-assign**

From [ARIN.net](#):

Used to subdelegate IP addresses to a customer that does not need to:

- subdelegate the addresses to their own customers
- maintain their own in-addr.arpa delegation
- display their own point of contact (POC) information.

It can also be used to change the customer name and address information (but not the range) on an existing simple reassignment and to remove simple reassignments. It is submitted by an ARIN Online user account linked to the parent organization's Admin or Tech POC, or the Tech POC for the resource.

#### **Detailed Re-assign**

From [ARIN.net](#):

Used to subdelegate IP addresses to a downstream organization that does not need to further subdelegate the IP addresses, but does need to maintain its own reverse name servers and/or display separate point of contact (POC) information. It is submitted by an ARIN Online user account linked to the parent organization's Admin or Tech POC, or the Tech POC for the resource.

#### **Re-allocate**

From [ARIN.net](#):

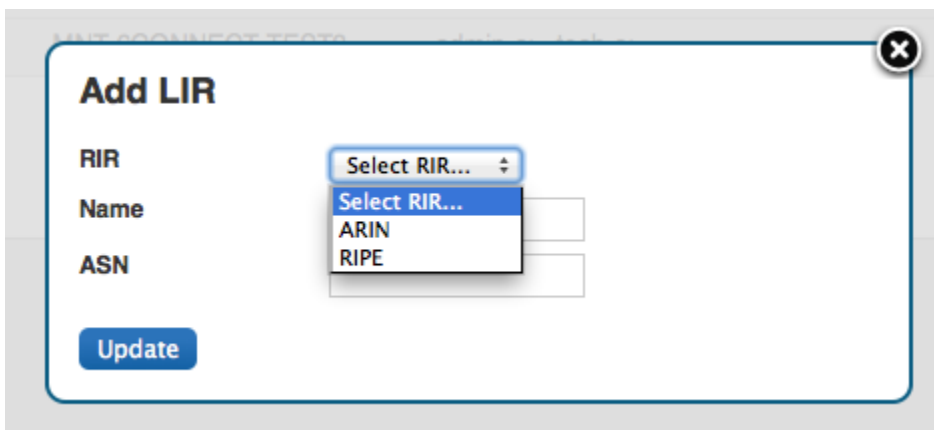
Used to subdelegate IP addresses to a downstream organization that will further subdelegate the IP addresses to their own customers. These requests must be submitted by an ARIN Online user account linked to the parent organization's Admin or Tech POC, or the Tech POC for the resource.

Once completed successfully you will see a confirmation icon with the SWIP details.

## **RIPE LIR Setup and Use**

### **Step 1: Setup the LIR information via the LIR Manager**

You will be prompted to select the RIR:



The screenshot shows a web form titled "Add LIR". It contains three input fields: "RIR", "Name", and "ASN". The "RIR" field has a dropdown menu open, showing "Select RIR..." with two options: "ARIN" and "RIPE". Below the fields is a blue "Update" button. The form is enclosed in a blue border with a close button (X) in the top right corner.

Then add in the requisite Maintainer Object related information:

## Add LIR

RIR

RIPE

Name

ASN

Maintainer

⊖

Delete

Password

Admin Contact

Tech Contact

⊕

Add Maintainer

Update



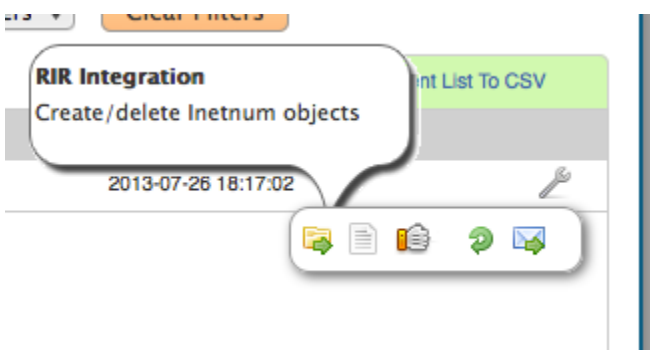
### Multiple Maintainer Object Support

Note that we support multiple maintainer objects per LIR entry. Simply click on the [Add Maintainer](#) link at the bottom of the Add LIR dialog box.

**Step 2: Assign an IP block to a Resource using the [IPAM Gadget](#) or the Assign function from the IPAM Manage screen.**

### Step 3: Update RPSL information

When a block is assigned, the user (if they have permissions) can then update the block's maintainer object.



Identify which LIR data you want to use for the netnum update:



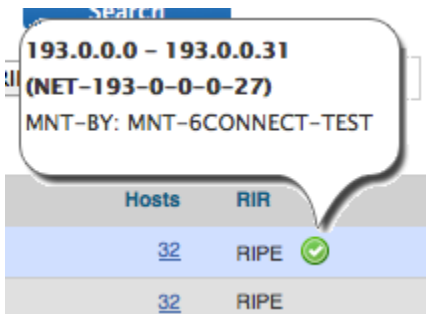
RIPE Integration: 192.162.1.0/24 (192.162.1.0 - 192.162.1.255)

RIPE Test LIR

mnt-by	admin-c	tech-c	API Key
MNT-6CONNECT-TEST	SIXC1000-TEST	SIXC1000-TEST	

Create Inetnum Cancel

Once the RPSL update is complete, a green checkmark badge will appear next to the RIR field. When you hover over it, you will get a detailed update of the block status.



## DNS Administration

### DNS Admin

The DNS Admin tab contains 5 different functional areas: managing DNS server, performing bulk zone assignments to a resource, performing bulk record changes over all zones, managing default name server, transferring zones, and a collection of links for other useful DNS functions.

#### DNS Functions

##### Edit DNS Record Types

- The "Edit DNS Record Types" will allow you to manage what types of DNS records can be added in the system. The default values are:
  - A, AAAA, MX, PTR, CNAME, NS, DIRECTIVE, DNAME, DNSKEY, DS, INCLUDE, IPSECKEY, COMMENT, TXT, KEY, SOA, and SRV
  - The complete list of valid record types can be found the RFCs. Wikipedia provides a nice reference: [http://en.wikipedia.org/wiki/List\\_of\\_DNS\\_record\\_types](http://en.wikipedia.org/wiki/List_of_DNS_record_types)

##### Edit DNS Delegations

##### Generate all DS records for DNSSEC

- This link will generate and output all DS records in the database. This is provided to easily bulk upload all DS keys to your domain registrar.

##### Generate zip file of all zones

- This link generates a single .zip file containing all zones for download. Once a zip file has been generated, a quick link is provided at the bottom of this section with datestamp to be downloaded later if needed.

##### Increment All Serials

- Increment all zone serial numbers by one. All zone serials are automatically incremented on a zone push, but if there is ever any other requirement for an increment, it can be performed here.

##### DynECT Zone Import

- Imports and syncs ALL zones on the system with those in your DynECT instance. This means any zones in ProVision not present in your DynECT instance will be removed and any changes lost.

##### PowerDNS Zone Import

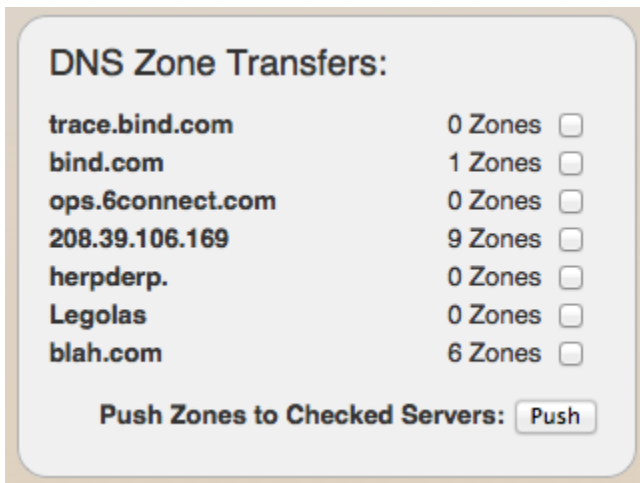
Coming soon! Import zones from a PowerDNS MySQL database.

## DNS Zone Transfers

This section lists every server configured in the platform, along with how many zones are assigned to the server.

How to transfer zones:

- Check the boxes and click the Push the button to transfer zones to the target server.



**DNS Zone Transfers:**

trace.bind.com	0 Zones	<input type="checkbox"/>
bind.com	1 Zones	<input type="checkbox"/>
ops.6connect.com	0 Zones	<input type="checkbox"/>
208.39.106.169	9 Zones	<input type="checkbox"/>
herpderp.	0 Zones	<input type="checkbox"/>
Legolas	0 Zones	<input type="checkbox"/>
blah.com	6 Zones	<input type="checkbox"/>

**Push Zones to Checked Servers:**

## Manage DNS Servers

This is where you configure DNS servers to transfer zones to from the ProVision platform. ProVision currently supports the following DNS server types: BIND, PowerDNS (using a bind backend), DynECT, and Secure64. The fields available for configuring servers are as follows:

- Server - The FQDN or ip address of the DNS server.
- Default - Specify if the server should be added to new zones by default or not.
- Transfer Type - SCP, Secure64, Secure64 Signer, and DynECT. Note that the SCP method should be used for PowerDNS with a Bind backend.
- Server Type - Specify if the server is a master or slave. Different configuration files are created master vs. slave on the Bind, PowerDNS/Bind, and Secure64 platforms.
- SOA - Start of Authority, should be in the format "SRI-NIC.ARPA. HOSTMASTER.SRI-NIC.ARPA.". For more information, see the RFC: <http://tools.ietf.org/html/rfc1033>
- Username - Login/username for the target DNS server. The specified account needs to be valid, and have write permission to the remote directory and execute permission for any pre/post commans.
- Password - Password for the target account. All passwords are stored encrypted in the database.
- Port - Port to contact the target server on. This is port used for SSH on Bind and Secure64 server types.
- Remote Directory - The target directory to transfer zone files to on the DNS system.
- Named Conf Path - The path to other zones on the Bind systems.
- Pre Command - Any valid system command on the target DNS system. This command will be run before any files are transferred.
- Post Command - Any valid system command on the target DNS system. This command will be run after any files are transferred. For example, on a Bind system you would need to run "rndc reload" to reload the zones.

The "Test Config" button will attempt to login to the target system and write to the target directory. If any failures are encountered, an error will be written with some detail. If the test is successful, the word "Success!" will show verifying that files can be transferred. This does not test if the user can execute pre/post commands. This needs to be checked manually.

### Manage DNS Servers

Server:

Default:

Transfer Type:

Username:

Password:

Port:

Remote Directory:

Named Conf Path:

Pre Command:

Post Command:

## Views

Enable Views - Select Yes to enable views on a particular server. You must click "Update Server" to show the view options.

To enable your Bind server to use zones transferred from 6connect, you must add the following to your named.conf.

```
include "/var/named/zones/6connect_named.conf";
```

When views are enabled on a server, all zones/records attached to a server are immediately put into the default view 6connectGeneric that contains a match any rule. For example, here is a sample of the named.conf include generated by ProVision:

```
view "6connectGeneric" in {
    match-clients { any; };
    zone ...
    zone ...
};
```

All views attached to a server are displayed under the "Views" label. **When you enable views on a Bind server, you must wrap all other zones in named.conf or any includes in view statements.** The include line for the 6connect conf file should also be move above any other view statements. An example is below:

```
include "/var/named/zones/6connect_named.conf";

view "hints" {
    match-clients { any; };
    zone "." {type hint; file "named.root";};
};

view "zones-outside-of-6connect" {
    match-clients { some-acl; };
    zone ....
};
```

## Adding a View

To add a view just type in the view name, and a description (for reference only). The config files transferred to the server will automatically be built according to the server type.

<insert image>

### Adding Options to a View

### Adding ACLs to Views

You can select an existing [IP List](#) to create a view ACL. For a Bind server, this creates a corresponding line in the config: `match-clients { 6connect_Internal; };` The 6connect\_ is prefixed to all IP lists inserted by ProVision.

### Bulk Zone Assignments

The Bulk Zone Assignment function allows you to assign multiple zones to a resource in one step. The system will perform a wild card style match for any text in the search box and return all matching zones and display them in a list. You can then assign all the zones found to a resource as either a master or slave.

### Bulk DNS Changes

The Bulk DNS Editor allows an Admin to perform "find and replace" functions across all DNS zones. It will match the host and/or record type and/or record value across the entire zone database. Unless the "Strict Comparison" box is checked, it will use wildcard style matches for the host and record values.

### Bulk DNS changes

**WARNING. This is a power user tool.**

Record Host

Record Type

Record Value

☒ Strict Comparison

A

÷

Search Records

Zone Name	Host	Type	Value
stacy.net	www2	A	2.2.2.2
gtt.com	www2	A	1.2.3.9
gravy.com	www2	A	8.0.16.1
google.com	www2	A	1.2.3.10
mark.com	www2	A	4.3.2.1
foop.com	www2	A	1.2.5.1
one.com	www2	A	2.3.4.5
jamien.com	www2	A	1.2.3.5
jamien.com	www2	A	1.2.3.6
bind.com	www2	A	1.2.3.5

**Update ALL of the above with new data:**

Record Host

Record Type

Record Value

Replace Records

### Nameserver Management

This function controls the list of DNS servers used for pre populating DNS records with NS records.

## Nameserver Management

Server	Default	Uses	
▼ corp.goomba.com	<input type="checkbox"/>	0	⊖
▲ ▼ ns2.dns.6connect.net	<input checked="" type="checkbox"/>	45	
▲ ▼ ns3.dns.6connect.net	<input checked="" type="checkbox"/>	45	
▲ ▼ ns1.dns.6connect.net	<input type="checkbox"/>	33	
▲ ▼ ns4.dns.6connect.net	<input checked="" type="checkbox"/>	12	
▲ ▼ 1.2.3.4	<input type="checkbox"/>	0	⊖
▲ ns1.dns.6connect.com	<input type="checkbox"/>	0	⊖

Newly-created zones are automatically added to Default Nameservers.

### Add a New Nameserver

#### Notes

General DNS configuration information is located under the main Admin tab in the DNS section. That is where you can set defaults for other SOA options, generated reverse DNS information, and a DNSSEC validation server.

#### System Information for Local Installations

Zones are stored in the 6connect web root under /zones.

DS keys are stored in the 6connect web root under /keys.

## Working with DNS Zones

jhgjhg

## Configuring ISC BIND Support

### Getting Started

You will need a user who can log in to the DNS server and make changes to the directory in which the zones are being stored. Additionally, it is often useful for this user to have the ability to restart the DNS server. The login and password for this user will be required to configure this server on the DNS Admin page.

6connect Zone files are written out in the following format:

```
/path/to/zone/directory/viewName/zoneFirstLetter/zonefile.zone
```

If no views are configured, or if views are expressly disabled, then the default viewName "6connectGeneric" is used. The zoneFirstLetter is the first letter of the zone name, so the subdirectory 'microsoft.com.zone' is placed in would be /m/.

All 6connect-managed Zones are managed by a dedicated 6connect configuration file named 6connect\_named.conf. This file is created to act a supplementary conf file to work in concert with any existing named.conf which might exist. To include the 6connect configuration file, edit named.conf and append the following line:

```
include "/path/to/conf/directory/6connect_named.conf";
```

You must remember to include the 6connect configuration file or none of the changes managed by 6connect ProVision will take effect!

It is also important to note that if your existing named.conf file contains zones within Split Horizon views, then the 6connect-managed zones must also be view-enabled. Likewise, if existing zones are not grouped into views, then views must be disabled on ProVision.

## Configuring DynECT Support

To use ProVision with DynECT support, first enter your Dyn username, password, and customer name into the New Server dialogue on the DNS Admin page.

Additionally, if you are deploying any DNSSEC-enabled zones, you will also need to provide a valid DynECT DNSSEC contact. See Dyn documentation for details on DNSSEC contacts.

Once ProVision begins managing DynECT zones, only the ProVision tool should be used to make and manage changes to zones. If zone changes are made to DynECT directly they will be overwritten the next time ProVision syncs, causing errors. Only edit zones using ProVision.

## Configuring PowerDNS Support

### Environments supported

PowerDNS version 3.0 or above on the target server(s)

Either BIND or MySQL backend

### Overview

#### Step 1: Setup your PowerDNS Server

### Manage DNS Servers

Server:	<input type="text" value="208.39.104.106"/>	<input type="button" value="New Server"/>
Default:	<input type="text" value="Add to New Zones"/>	
Transfer Type:	<input type="text" value="PowerDNS"/>	
Server Type:	<input type="text" value="Master"/>	
Backend Type:	<input type="text" value="MySQL"/>	
SOA:	<input type="text" value="ns1.dns.6connect.net. hostmaster.6connect.net."/> ex: ns1.dns.6connect.net. hostmaster.6connect.net.	
Username:	<input type="text" value="6connect"/>	
Password:	<input type="password" value="....."/>	
DB Username:	<input type="text" value="pdns"/>	
DB Password:	<input type="password" value="....."/>	
DB Port:	<input type="text" value="3306"/>	
DB Name:	<input type="text" value="powerdns"/>	
	<input type="button" value="Update Server"/>	<input type="button" value="Delete Server"/>

### Manage DNS Servers

Server:  **New Server**  
 Default:   
 Transfer Type:   
 Server Type:   
 Backend Type:   
 SOA:  ex: ns1.dns.6connect.net. hostmaster.6connect.net.  
 Username:   
 Password:   
 Port:   
 Remote Directory:   
 Named Conf Path:   
 Pre Command:   
 Post Command:   
**Update Server** **Delete Server**

#### Step 2: Import your PowerDNS zones

This operation will pull all zones on the target server.  
 This operation may take quite some time.  
 Choose a server:

#### Step 3: Edit/Push your zones to PowerDNS

### DNS Zone Transfers:

trace.bind.com	4 Zones	<input type="checkbox"/>
208.39.104.106	34 Zones	<input checked="" type="checkbox"/>

Push Zones to Checked Servers:

#### BIND Backend



#### Note on SSH

The integration does not require a remote database connection, but it does require an SSH account and a writable directory. The SSH account must have access to the server. This account will also be used for DNSSEC functionality within PowerDNS.

#### MySQL Backend

**Note on SSH**

The integration requires a remote database connection, so will need a mysql user with permissions for remote administration. We highly recommend using ACLs to ensure that configuration only occurs from intended sources.

For DNSSEC functionality, you will need a standard SSH user account withing your PowerDNS user group

Please note that Views are not supported with the MySQL backend

**Database**

The integration supports MySQL Backend with Postgres Backend and GenericDB coming soon

## Configuring Secure64 Support

**A note on Ports**

6connect uses port 22 to communicate with Secure64 infrastructure - please ensure that this is addressed in any ACLs/firewalls

The initial setup of the Secure64 Authoritive server is as follows:

### Step 1: Create an nsd.conf file under the root directory / of your S64 Auth server

**DO THIS**

Make sure to add the line include: 6connect\_nsd.conf to the nsd.conf file

**Output/Input**

```
[authdnsadmin@Secure64DNS]# cat nsd.conf
server:
ip-address: 50.198.192.138

axfr-logfile: /axfr_log/axfr.log
axfr-logfile-flush-count: 1
axfr-logfile-max-size: 100000
axfr-logfile-max-size: 10

request-logfile: /request_log/request.log
request-logfile-flush-count: 10
request-logfile-max-size: 1000000
request-logfile-max-files: 10

include: 6connect_nsd.conf
```

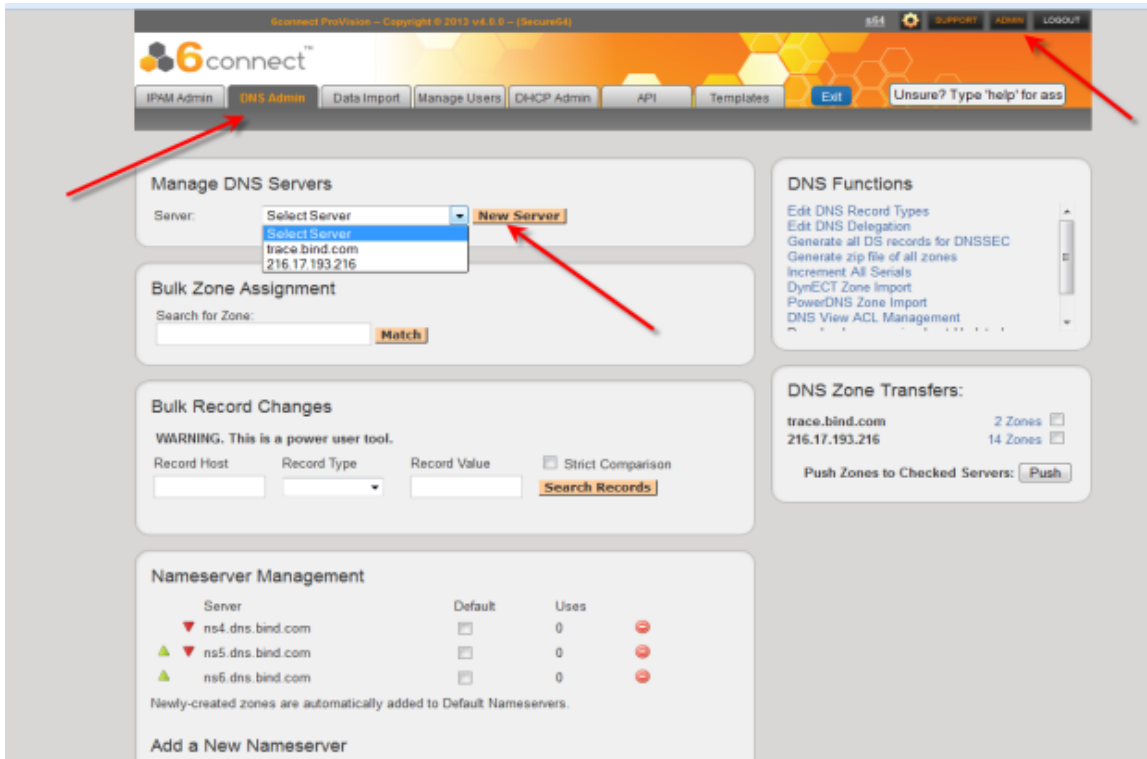
### Step 2: Make a directory for 6connect ProVision to push zone files to on the Secure64 DNS Server

```
[authdnsadmin@Secure64DNS]# mkdir test12
[authdnsadmin@Secure64DNS]# ls
/:
322 2013-08-19 06:07:42 nsd.conf
<DIR> 1024 2013-08-16 17:30:12 test12
```

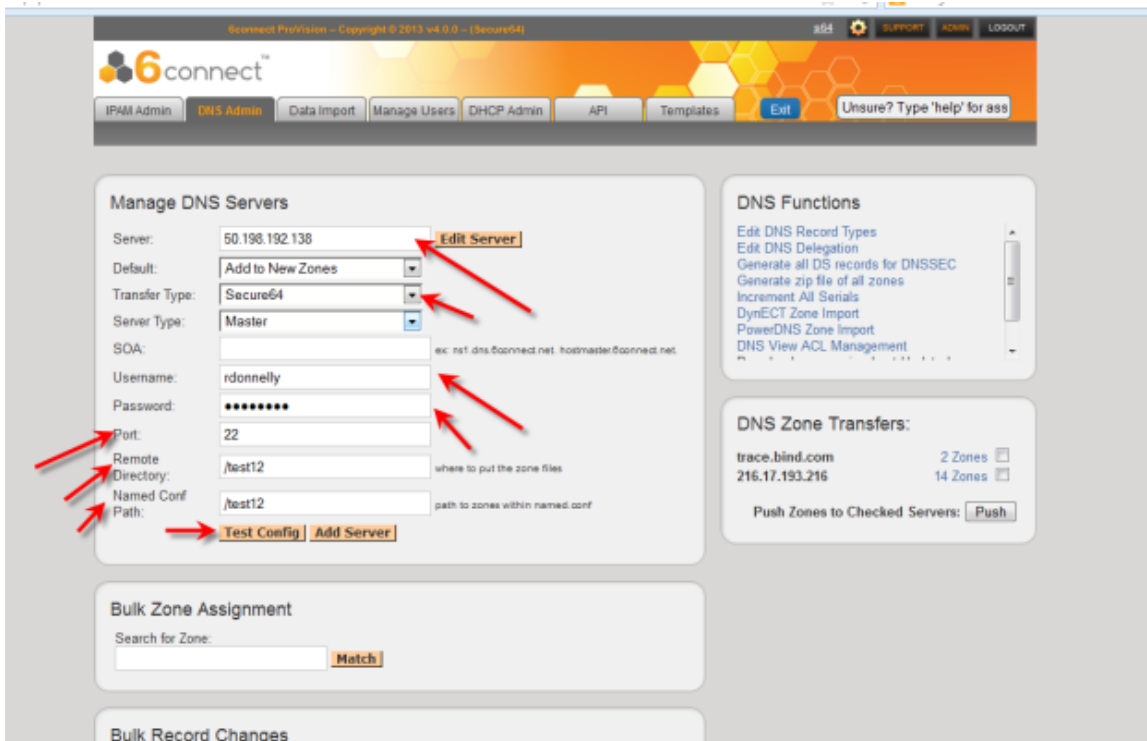


### Step 3: Setup and Configure 6connect ProVision for your Secure64 DNS Server

Go to the 6connect Admin area and click on the **DNS Admin** Tab. Click on the **New Server** button.



Then fill in the information as follows (including any relevant SOA information):



### Step 4: Test the Secure64 DNS Server configuration

Press the **Test Config** button for the DNS Server you setup.

6connect ProVision - Copyright © 2013 v4.0.0 - (Secure64)

864 SUPPORT ADMIN LOGOUT

IPAM Admin **DNS Admin** Data Import Manage Users DHCP Admin API Templates Exit Unsure? Type 'help' for ass

### Manage DNS Servers

Server: 50.198.192.138 **Edit Server**

Default: Add to New Zones

Transfer Type: Secure64

Server Type: Master

SOA: ex: ns1.dns.6connect.net, hostmaster.6connect.net

Username: rdonnelly

Password: masked

Port: 22

Remote Directory: /test12 where to put the zone files

Named Conf Path: /test12 path to zones within named.conf

**Test Config Add Server**

Success!

### DNS Functions

- Edit DNS Record Types
- Edit DNS Delegation
- Generate all DS records for DNSSEC
- Generate zip file of all zones
- Increment All Serials
- DynECT Zone Import
- PowerDNS Zone Import
- DNS View ACL Management

### DNS Zone Transfers:

trace.blind.com	2 Zones	<input type="checkbox"/>
216.17.193.216	14 Zones	<input type="checkbox"/>

Push Zones to Checked Servers: **Push**

Success! Will show as depicted above.

Click **Add Server** to add this server as a permanent entry in the dropdown menu. This server will now be available for assigning DNS zones to.

### Step 5: Assign any imported/existing zones to your Secure64 DNS Server(s)

Search for all available zones or enter in a value to find specific existing zones in the system.

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864 SUPPORT ADMIN LOGOUT

IPAM Admin **DNS Admin** Data Import Manage Users DHCP Admin API Templates Exit Unsure? Type 'help' for ass

### Manage DNS Servers

Server: Select Server **New Server**

### Bulk Zone Assignment

Search for Zone: **Match**

Matched Zones:

- epc.mnc016.mcc502.3gppnetwork.org
- mnc0016.mcc502.gprs.name4
- mnc016.mcc502.gprs.APN

Assign to: Select Server as Master **Assign**

### Bulk Record Changes

WARNING. This is a power user tool.

Record Host	Record Type	Record Value	Strict Comparison
			<input type="checkbox"/>

**Search Records**

### DNS Functions

- Edit DNS Record Types
- Edit DNS Delegation
- Generate all DS records for DNSSEC
- Generate zip file of all zones
- Increment All Serials
- DynECT Zone Import
- PowerDNS Zone Import
- DNS View ACL Management

### DNS Zone Transfers:

trace.blind.com	0 Zones	<input type="checkbox"/>
216.17.193.216	0 Zones	<input type="checkbox"/>
50.198.192.138	3 Zones	<input checked="" type="checkbox"/>

Push Zones to Checked Servers: **Push**



#### Search Tip

No character in the search area indicates a search for all zones as shown below

6connect™

IPAM Admin | **DNS Admin** | Data Import | Manage Users | DHCP Admin | API | Templates | Exit | Unsure? Type 'help' for ass

### Manage DNS Servers

Server:  **New Server**

### Bulk Zone Assignment

Search for Zone:  **Match**

Matched Zones:

- epc.mnc016.mcc502.3gppnetwork.org
- mnc0016.mcc502.gprs.name4
- mnc016.mcc502.gprs.APN

Assign to:  as  **Assign**

### Bulk Record Changes

WARNING. This is a power user tool.

Record Host:  Record Type:  Record Value:  ☐ Strict Comparison **Search Records**

### DNS Functions

- Edit DNS Record Types
- Edit DNS Delegation
- Generate all DS records for DNSSEC
- Generate zip file of all zones
- Increment All Serials
- DynECT Zone Import
- PowerDNS Zone Import
- DNS View ACL Management

### DNS Zone Transfers:

trace.bind.com	0 Zones	<input type="checkbox"/>
216.17.193.216	0 Zones	<input type="checkbox"/>
50.198.192.138	3 Zones	<input checked="" type="checkbox"/>

Push Zones to Checked Servers: **Push**

Select the **Select Server** and as **Master** dropdowns and **Assign** the above zones to this server.  
Verify the DNS Zones Tranfers area indicates your server and the # of zones to transfer.

#### Step 6: Push Zones to Secure64 Server(s)

Check the 3 Zones box and click on the Push button to transfer zones to this server.

6connect™

IPAM Admin | **DNS Admin** | Data Import | Manage Users | DHCP Admin | API | Templates | Exit | Unsure? Type 'help' for ass

### Manage DNS Servers

Server:  **New Server**

### Bulk Zone Assignment

Search for Zone:  **Match**

Matched Zones:

- epc.mnc016.mcc502.3gppnetwork.org
- mnc0016.mcc502.gprs.name4
- mnc016.mcc502.gprs.APN

Assign to:  as  **Assign**

### Bulk Record Changes

WARNING. This is a power user tool.

Record Host:  Record Type:  Record Value:  ☐ Strict Comparison **Search Records**

### DNS Functions

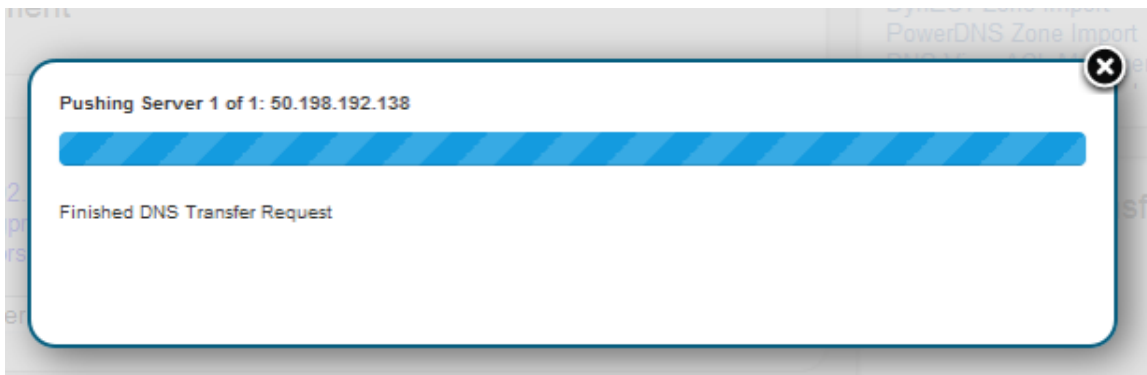
- Edit DNS Record Types
- Edit DNS Delegation
- Generate all DS records for DNSSEC
- Generate zip file of all zones
- Increment All Serials
- DynECT Zone Import
- PowerDNS Zone Import
- DNS View ACL Management

### DNS Zone Transfers:

trace.bind.com	0 Zones	<input type="checkbox"/>
216.17.193.216	0 Zones	<input type="checkbox"/>
50.198.192.138	3 Zones	<input checked="" type="checkbox"/>

Push Zones to Checked Servers: **Push**

The system will present the following live progress bar and show as follows when it is finished without errors.



Towards the bottom of the progress status will be the final indication of success or errors to correct.

### Step 7: Verify DNS Zone push on Secure64 Server(s)

The result of the Push can be checked/verified by checking the Secure64 server as follows:



#### Verifying Zone pushes

ssh to 50.198.192.138  
Login using the designated login account and password  
Enable cachednsadmin  
ls

Now, verify that the "788 2013-08-21 12:35:04" 6connect\_nsd.conf file now exists.

```
[authdnsadmin@eval138.secure64.com]# ls
/:
6728 2013-08-13 00:15:30 nsd.conf
8416071 2013-08-21 12:35:07 nsd.db
788 2013-08-21 12:35:04 6connect_nsd.conf
<DIR> 1024 2013-08-21 12:34:50 test12
```

You can verify the Push contents by doing a cat of the 6connect\_nsd.conf



```
[authdnsadmin@Secure64DNS]# cat 6connect_nsd.conf
```

AutoGenerated by 6connect ProVision. Do not manually edit.

zone:

name: mnc016.mcc502.gprs.APN

zonefile: /test12/6connectGeneric/m/mnc016.mcc502.gprs.APN.zone

zone:

name: mnc0016.mcc502.gprs.name4

zonefile: /test12/6connectGeneric/m/mnc0016.mcc502.gprs.name4.zone

zone:

name: epc.mnc016.mcc502.3gppnetwork.org

zonefile: /test12/6connectGeneric/e/epc.mnc016.mcc502.3gppnetwork.org.zone

In the example above, three Zones have transferred.

To look at the contents of each zone you can cd to the proper directory /test12/6connectGeneric and find the zone files in an alphabetical directory structure as follows:

```
[authdnsadmin@Secure64DNS]# cd 6connectGeneric
[authdnsadmin@Secure64DNS]# cd test12
changed to test12
[authdnsadmin@Secure64DNS]# ls
/test12/:
<DIR> 1024 2013-08-16 19:43:21 6connectGeneric
[authdnsadmin@Secure64DNS]# cd 6connectGeneric
changed to 6connectGeneric
[authdnsadmin@Secure64DNS]# ls
/test12/6connectGeneric/:
<DIR> 1024 2013-08-16 17:30:13 e
<DIR> 1024 2013-08-16 17:30:16 m
<DIR> 1024 2013-08-16 18:49:21 d
<DIR> 1024 2013-08-16 19:43:23 s
[authdnsadmin@Secure64DNS]# cd m
changed to m
[authdnsadmin@Secure64DNS]# ls
/test12/6connectGeneric/m/:
[authdnsadmin@eval138.secure64.com]# ls
5192 2013-08-21 15:35:01 mnc0016.mcc502.gprs.name4.zone
6758 2013-08-21 15:35:02 mnc0016.mcc502.gprs.APN.zone
284 2013-08-21 15:34:11 m2m.mnc0016.mcc502.zone
[authdnsadmin@Secure64DNS]#
```

## Step 8: Validate Zone data in Your Infrastructure

Finally, do a **dig** of the zones to verify the DNS configuration has been successfully deployed.

```
i Using dig to validate your Secure64 Server installation
[authdnsadmin@eval138.secure64.com]# dig @50.198.192.138 mnc0016.mcc502.gprs.name4
; <<>> DiG SourceT 3.x <<>> @50.198.192.138 mnc0016.mcc502.gprs.name4
;; Got answer:
;; >>HEADER<< opcode: QUERY, status: NOERROR, id: 59591
;; flags: qr aa rd; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 0
;; QUESTION SECTION:
;mnc0016.mcc502.gprs.name4. IN A
;; AUTHORITY SECTION:
mnc0016.mcc502.gprs.name4. 3600 IN SOA ns1.dns.6connect.net. hostmaster.6connect.net. (2013082102 10800 3600 604800 38400
)
[authdnsadmin@eval138.secure64.com]#
```

For any questions regarding the integration of Secure64 products into 6connect ProVision, please email 6connect at [support@6connect.com](mailto:support@6connect.com), or Secure64 at [support@secure64.com](mailto:support@secure64.com)

## Configuring DNSSEC

### For BIND

Coming soon

## For DynECT

Coming soon

## For Secure64 and PowerDNS



### DNSSEC Signatures

In this scenario, 6connect ProVision uses the DNSSEC signing functions of the respective environment we write the zones to.

## Configuring Split Horizon/Views

video coming soon



### WARNING

If you see a view named "\_6connectDefault" - DO NOT DELETE IT.

### Create a List in the List manager

In the Admin screen, go to the Data Import Tab and click on the "List Management" button. You will be presented with the options to **Create a New List** and also **Manage Lists**. To create a list, enter in the descriptive information and ensure that the **Code** dropdown is marked "IPLIST".

Name	Code	Description
<input type="text" value="Internal Dev"/>	<input type="text" value="IPLIST"/>	<input type="text" value="Dev ACL - RFC 1918"/>

Press the **Eye** icon and you will be presented with an editing area to populate IP data including an option for the data delimiter (you can also do this from the **Manage Lists** section). Click on the **Pencil** icon to save your changes, the List will then be moved to the **Manage Lists** section below.

Name	Code	Description
<input type="text" value="Internal Dev"/>	<input type="text" value="IPLIST"/>	<input type="text" value="Dev ACL - RFC 1918"/>
<b>Initial Population</b>		
<b>Delimiter:</b> <input type="text" value="[space]"/>		
<input type="text" value="192.168.1.0/24 10.10.1.0/24"/>		

The List will now be available from the **Manage Lists** display area and can now be assigned to a Server View.

Manage Lists			
Name	Code	Description	Actions
Internal Dev	IPLIST	Dev ACL - RFC 1918	
<b>Item Display</b>	<b>Item Value</b>	<b>Actions</b>	
	192.168.1.0/24		
	10.10.1.0/24		
<input type="text"/>	<input type="text"/>		

### Define and Assign a View to the DNS Server

In the Admin screen, go to the DNS Admin Tab.

With a DNS server selected and Enable Views marked "Yes", you will then have the option to define a View.

Enable Views:

**Views:**

**Add a New View**

View Name:

Description:

**Add New View**

**Hide Views** **Test Config** **Update Server** **Delete Server**

Enter identifying information for the View you are creating and click the "Add New View" button.

**Add a New View**

View Name:

Description:

**Add New View**

Once the View is created, you can select the IP List that you want to assign to this View by pressing the "Add" button.

**My View (A view that I am setting)**

Add IP List:  **Add**

Add Key:  **Add**

**Add a New View**

View Name:

Description:

**Add New View**

dev view  
NYC DC  
ASH DC  
PHX DC  
SEA DC  
6connect Internal  
6connect External Comcast

#### Assigning other Directives

With the IP List assigned, you can either assign additional Key/Value pairs or add another IP List to apply to the View.

**My View (A view that I am setting)**

Included IPs: **6connect Internal**

Add IP List:  **Add**

Add Key:  Val:  **Add**



#### A Note on Directives

For example, if you wanted to allow recursion, you would simply enter "allow-recursion" as a Key, with a Value of "on".

#### Assign a View to a DNS Zone Record

When viewing a DNS Zone, ensure that the Zone is linked to a the server with a DNS View enabled. Double-click on the zone record to edit it. Click on the **Glove** icon and it will bring up the DNS Views menu where you can select the View to apply to the zone record. Click on the **Pencil** icon for the View and the **Pencil** icon for the Zone record to make sure all changes are saved.

4 NS awesome.com. maps to ns1.dns.bind.com. TTL 3600 Automatically Added

Type	Record	Value	Description	TTL
A	www	12.12.12.12		

DNS Views: 173.164.182.169

6 A mail maps to 11.11.11.11

All Views  
All Views  
My View

Push the zone out like normal and the View should be applied as expected. You can also preview the zone from the "Show Zone" area of the screen that will be visible once you push the zone out successfully. This will also display the History for the zone if a rollback is necessary.

## Configuring DNS Templates

## DHCP Administration

### DHCP Admin

#### Managing Server Configurations

You have the ability to store and manage multiple DHCP server configurations from this interface. The "Push All Configs" link will push out configurations for all DHCP servers.

Manage DHCP Servers Push All Configs

#### Managing DHCP Servers

This section allows you to manage the specific configuration for each DHCP server specified. We support standard commands as specified by the Server Type dropdown. To save the configuration, you need to press the "Add Server" button.

dhcp2.6connect.com

Server: dhcp2.6connect.com

Username: anotheradmin

Server Type: ISC

Server Config Path: /usr/bin/dhcpd/config

Server Stop Command: dhcpd stop

Max Lease Time: 2678400

Domain Names: 6connect.net

Authoritative: ☒

SSH Port: 22

New Password:

Test Login

Server Start Command: dhcpd start

Default Lease Time: 28800

Name Servers: dns2.6connect.com, dns3.6connect.c

Log Facility:

Use Config File Save Changes

#### Managing DHCP Configurations

Once the DHCP server is saved, you now have options for configuration. We provide a standard "config builder" as well as a "config file" option.

1) The "config builder" builds the ISC configuration file based on the parameters you select - namely the subnets and hosts to be managed by the given DHCP server.

The subnet configuration screen allows for the following parameters:

Subnets on Server +

Address:

Netmask:

Range Start:

Range End:

Add

The host configuration screen allows for the following parameters:



### Hosts on Server

Hostname:   
 MAC Address:   
 Fixed Address:

Example configuration

#### dhcp2.6connect.com

Server:

Username:

Server Type:

Server Config Path:

Server Stop Command:

Max Lease Time:

Domain Names:

Authoritative: ☒

SSH Port:

New Password:



Server Start Command:

Default Lease Time:


Name Servers:



Log Facility:



#### Subnets on Server

192.168.1.0 / 24  


255 IPs Assigned, 1% of Total Available



Options: 

range 192.168.1.0 192.168.1.255  



192.168.2.0 / 24  


255 IPs Assigned, 1% of Total Available



Options: 



range 192.168.2.0 192.168.2.255  



#### Hosts on Server


server1.6connect.com  



Options: 



hardware ethernet 00-AE-32-EE-43-56-FC  

fixed-address 192.168.1.145  

email.6connect.com  

Options: 

hardware ethernet 00-AE-32-AE-33-57-FC  

fixed-address 192.168.1.146  

2) The "config file" option allows you to paste a completely customized DHCP configuration file.

- Please note that the "config file" option will override all entered server information, including subnets and hosts, for the designated server.\*

example config

dhcp.6connect.com

Server: dhcp.6connect.com

Username: 6connectadmin

Server Type: ISC

Server Config Path: /dhcpd/config

Server Stop Command: dhcp stop

Max Lease Time:

Domain Names: dhcp.6connect.com

Authoritative: ☒

SSH Port: 22

New Password:

Test Login

Server Start Command: dhcpd start

Default Lease Time:

Name Servers: dns1.6connect.com

Log Facility:

Use Config Builder

Save Changes

Push

Using a DHCP Config text config file will override all entered server information, including subnets and hosts, for this server.

# 02-Feb-2012 09:02:17

```
server-name "dhcp.6connect.com";
option option-252 code 252 = text; option option-252 "http://dhcp.6connect.com/wpadmin.dat";
option domain-name "6connect.com";
authoritative ;#;
option netbios-name-servers 132.220.21.9, 132.220.21.17;
option space LWAPP ; option LWAPP.controller code 241 = string;
use-host-decl-names off;
boot-unknown-clients on;
default-lease-time 28800;
max-lease-time 2678400;
ddns-update-style interim;
deny client-updates;
ddns-hostname = pick-first-value(config-option host-name, binary-to-ascii(16, 16, "", leased-address));
update-static-leases off;
option option-128 code 128 = text;
```

Save Server

## Configuring ISC dhcpd Support

### Managing DHCP Configuration - ISC dhcpd

Once a DHCP server is saved, you now have options for configuration. We provide a standard "[config builder](#)" as well as a "[config file](#)" option.

1) The "[config builder](#)" builds the ISC configuration file based on the parameters you select - namely the subnets and hosts to be managed by the given DHCP server.

The subnet configuration screen allows for the following parameters:

Subnets on Server

Address:

Netmask:

Range Start:

Range End:

Add

The host configuration screen allows for the following parameters:

Hosts on Server

Hostname:

MAC Address:

Fixed Address:

Add

Example configuration:

dhcp2.6connect.com

Server: dhcp2.6connect.com

Username: anotheradmin

Server Type: ISC

Server Config Path: /usr/bin/dhcpd/config

Server Stop Command: dhcpd stop

Max Lease Time: 2678400

Domain Names: 6connect.net

Authoritative: ☒

SSH Port: 22

New Password:

Test Login

Server Start Command: dhcpd start

Default Lease Time: 28800

Name Servers: dns2.6connect.com, dns3.6connect.c

Log Facility:

Use Config File

Save Changes

Subnets on Server

192.168.1.0 / 24

255 IPs Assigned, 1% of Total Available

Options:

range 192.168.1.0 192.168.1.255

192.168.2.0 / 24

255 IPs Assigned, 1% of Total Available

Options:

range 192.168.2.0 192.168.2.255

Hosts on Server

server1.6connect.com

Options:

hardware ethernet 00-AE-32-EE-43-56-FC

fixed-address 192.168.1.145

email.6connect.com

Options:

hardware ethernet 00-AE-32-AE-33-57-FC

fixed-address 192.168.1.146

Push

2) The "config file" option allows you to paste a completely customized DHCP configuration file.



#### Pro-Tip!

Please note that the "config file" option will override **ALL** entered configuration information, including subnets and hosts, for the designated server.

Example configuration:

dhcp.6connect.com

Server: dhcp.6connect.com

Username: 6connectadmin

Server Type: ISC

Server Config Path: /dhcpd/config

Server Stop Command: dhcp stop

Max Lease Time:

Domain Names: dhcp.6connect.com

Authoritative: ☒

SSH Port: 22

New Password:

Test Login

Server Start Command: dhcpd start

Default Lease Time:

Name Servers: dns1.6connect.com

Log Facility:

Use Config Builder

Save Changes

Using a DHCP Config text config file will override all entered server information, including subnets and hosts, for this server.

# 02-Feb-2012 09:02:17

```
server-name "dhcp.6connect.com";
option option-252 code 252 = text; option option-252 "http://dhcp.6connect.com/wpadmin.datn";
option domain-name "6connect.com";
authoritative ;#;
option netbios-name-servers 132.220.21.9, 132.220.21.17;
option space LWAPP ; option LWAPP.controller code 241 = string;
use-host-decl-names off;
boot-unknown-clients on;
default-lease-time 28800;
max-lease-time 2678400;
ddns-update-style interim;
deny client-updates;
ddns-hostname = pick-first-value(config-option host-name, binary-to-ascii(16, 16, "", leased-address));
update-static-leases off;
option option-128 code 128 = text;
```

Save Server

## Importing Your Data

# Import Your Data

## Step 1 - Normalize your Data

Prior to importing your data, there is a key step of Data Normalization to ensure that information is accurate. If you need assistance with parsing your data prior to importing, 6connect can help with our Data Analyst service. Email us at [support@6connect.com](mailto:support@6connect.com) for more information. You can also use off the shelf tools like Microsoft Excel, MySQL, or [Google Refine](#) if you intend to take on the task of data cleanup in house.



### Data Encoding Format

To ensure correct importing of any special characters, make sure to use UTF-8 encoding for your CSV file!

## Step 2 - Prep your Data

You can download [Data Import](#) templates from the [Dashboard Tab](#) or [Data Import Tab](#). We recommend that you open the CSV import templates and get familiar with the data fields that you can import into the platform.

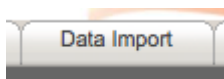
[For Company information](#) you can import relevant data including mailing/billing address information as well as ARIN specific SWIP fields, and specific DNS servers.

[For Contact information](#) you can import contact records assigned to a given **Company**. We support typical fields for this data including Name, multiple email fields, phone numbers as well as Timezone and Role (Roles can be customized from the [IPAM Admin Tab](#)).

[For IPv4 Block information](#) you can import the following fields:

- **ID** - Unique identifier that corresponds with the Unique ID fields for a given "**Company**"
- **IP Block** - standard octets (For example, 10.1.1.5 or 173.169.43.22)
- **Subnet** - the mask of the IP block - we support values of /8 down to /32 (single hosts)
- **Notes** - This open text field is also searchable by our "**Assistant**"
- **RIR** - These values are assigned by you for your particular blocks
- **Region** - These values are assigned by you for your particular blocks
- **Tags** - Use the Tag values that you have already edited via [IPAM Admin](#) to organize your IP blocks by purpose (for example, tag blocks as "Customer" versus "Infrastructure"). You can tag blocks in a variety of ways. **Note:** To assign multiple tags to a block, simply separate the tags with commas.
- **Custom** - you have a custom field per block available - simply use the last entry per line for this data

## Step 3 - Import your Data



Get to the [Data Import Tab](#) from the [Admin button](#) to import your data.

The screenshot shows a web interface for data import. It is divided into four main sections: 'Site Import' with buttons for 'Upload/Import from CSV' and 'Import from Sales Force'; 'DNS Import' with a button for 'BIND Zone Upload/Import'; 'IP Import' with buttons for 'Upload/Import from CSV' and 'Import from RIR'; and 'List Management' with a button for 'List Management'.

For larger data import runs, feel free to [contact](#) 6connect at any time for assistance at [support@6connect.com](mailto:support@6connect.com).

## BETA FEATURE - Salesforce integration

### Salesforce Import Parameters

Salesforce API Username:

Salesforce Password:

Salesforce Security Token:

Salesforce Custom Field Name:

[Start Import](#)

For Salesforce integration, we have also provided a Beta feature for testing. This Import feature allows you to import Account data from Salesforce by matching to your relevant unique identifier field name.

## Import Aggregate Blocks

### Import Aggregates

The Welcome tab allows you to lookup and import your aggregate blocks.

#### Step 1 - Lookup from Source IP

We automatically lookup your ARIN or RIPE information based on the IP address you are connected to:

6connect Service Provider Edition - Copyright © 2012 v3.3.x - (6connect) [SUPPORT](#) [ADMIN](#) [LOGOUT](#)

**6connect™**

Dashboard Customer DNS IPAM Peering Objects Log Reporting [Unsure what to do? Type 'help'](#)

**Welcome to 6connect's Network Automation Platform!**

I believe your organization name is: **Comcast Business Communications, LLC**

I believe your ARIN ORGID is: **CBCI**

[Confirm, this is my organization](#)

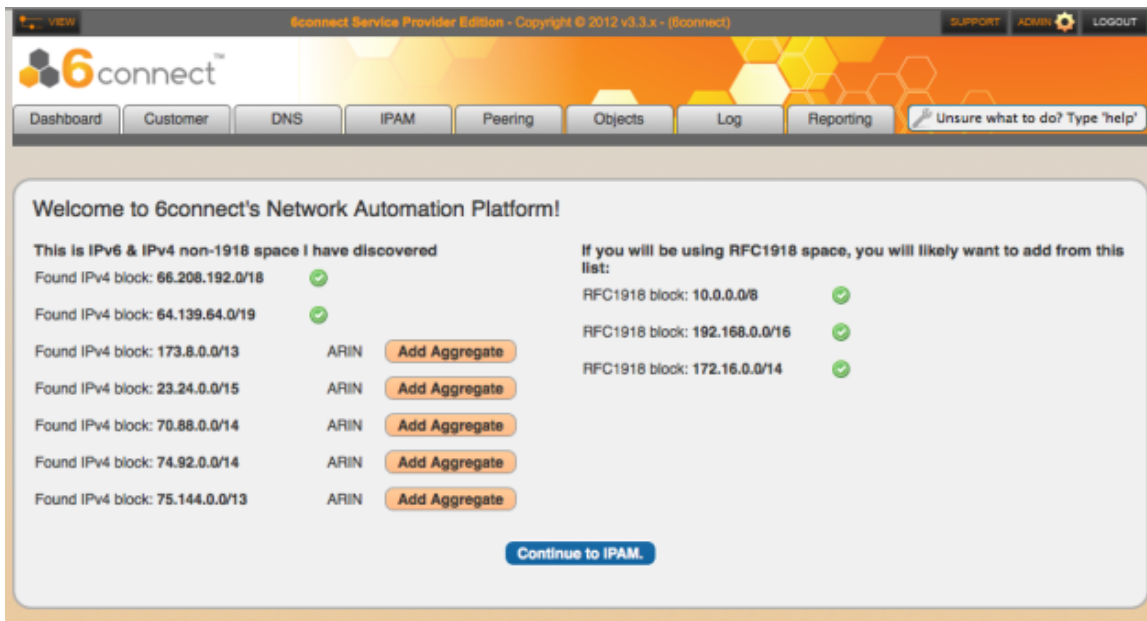
If this is incorrect, please enter an IP address from your network and I will attempt to figure out your aggregates:

[Inquire again](#)

If you have another source IP that you would like to use for the lookup function, you can edit the IP and click on the "[Inquire Again](#)" button. If the organization name and ORGID are correct, then click on the "[Confirm](#)" button to go to the next screen.

#### Step 2 - Import your aggregate blocks

Once we have identified the blocks assigned to your company, you can import the aggregates by pressing the "[Add Aggregate](#)" buttons. This page allows you to add both 1918 aggregates as well as public IP space from ARIN and RIPE.

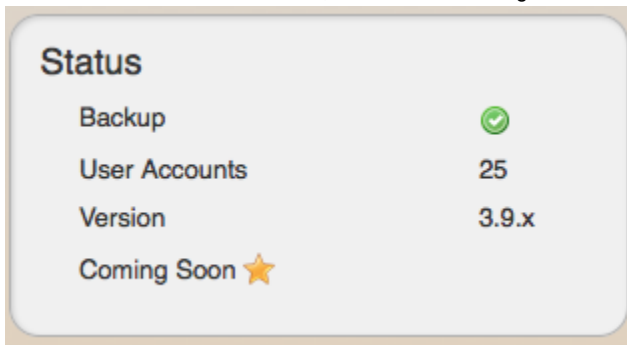


### Step 3 - Customizing the Tool

With your aggregates added, you are now ready to customize the tool and import your data! Go to the [Customizing](#) section for details.

## Feedback and Feature Requests

For information on future releases, click on the "Coming Soon" link on the Dashboard.



You can also submit product feedback and feature requests to [support@6connect.com](mailto:support@6connect.com)

## Tutorials

### Tutorials



Here we have grouped together video tutorials for various tasks and UI components. We link to these in the Getting Started area in the documentation, but you can also browse them individually depending on your needs. If you have suggestions for content - please send them to [support@6connect.com](mailto:support@6connect.com).

## Common Tasks

### UI Tours

- [Common Tasks](#)
- [UI Tours](#)

## Common Tasks

Adding/Editing blocks

Aggregating/Splitting blocks

SWIP configuration and use

RPSL configuration and use

## UI Tours

### Administration

#### Managing Group and User Permissions



## FAQ



#### ✓ [My VM works, but I am getting a "URL Not Found" error when using ProVision](#)

Please make sure that URL rewriting is enabled in your instance (apache mod\_rewrite)

#### ✓ [My DNS zone views aren't working as they should!](#)

In some legacy instances we have seen zone record-view linkages come out of alignment and result in unexpected behavior.



#### **BACKUP YOUR DATABASE**

Please note that the following mysql commands modify your database! Please take a backup copy of your database before performance any database modifications.

First, verify the error with the following mysql commands:

```
SELECT count(*) FROM `zone_server_linkage` as t1
INNER JOIN `records` as t2 ON t1.`zoneid` = t2.`zone_id`
INNER JOIN `dns_views` as t3 ON t1.`serverid` = t3.`server_id` AND
`name` = '_6connectDefault'
LEFT JOIN `dns_view_record_linkage` as t4 ON t2.`id` = t4.`record_id`
AND t3.`id` = t4.`view_id`
WHERE t4.`id` IS NULL;
```

If the reply comes back non-zero, then your database is most likely exhibiting unexpected behavior.

The following mysql commands will re-align all the record-view linkages:

```
INSERT INTO `dns_view_record_linkage` SELECT '', t2.`id` as `record_id`,  
t3.`id` as `view_id` FROM `zone_server_linkage` as t1  
INNER JOIN `records` as t2 ON t1.`zoneid` = t2.`zone_id`  
INNER JOIN `dns_views` as t3 ON t1.`serverid` = t3.`server_id` AND  
`name` = '_6connectDefault'  
LEFT JOIN `dns_view_record_linkage` as t4 ON t2.`id` = t4.`record_id`  
AND t3.`id` = t4.`view_id`  
WHERE t4.`id` IS NULL;
```

Contact support([support@6connect.com](mailto:support@6connect.com)) if you have any additional questions or this does not resolve the issue.

## Previous Versions

Documentation for Previous Versions of 6connect software:

[6connect-Service\\_Provider\\_Edition\\_3.9.pdf](#)

[6C-v3.0-Manual.pdf](#)

[6C-v2.5.13-Manual.pdf](#)

## Additional Information

### Additional Information

For additional information, here are links for insight into:

[Administration](#)

[Authentication Options](#)

[System Requirements](#)

[API \(new window\)](#)

## Administration

- General Settings

### General Settings

#### General Settings

- [License Info](#)
  - This section provides basic information on your 6connect license including the option to view the *EULA* and check your license status..
- [Application Settings](#)
  - Time Zone
    - Supported Time zones are listed here: <http://www.php.net/manual/en/timezones.php>
    - Default value is ('America/Los\_Angeles') and can be modified at any time via the drop down menu
  - Company Name
    - Enter the preferred name for your company to be used.
  - Generic Name
    - This "short" name is used in abbreviated location for the "Customer" tab label, "Customer" and "Site" are common entries.
- [IPAM Configuration](#)



- Available ID
  - This is the ID Label that owns all unassigned IP resources. This is not user changeable.
- Reverse ID
  - This is the ID Label that owns all assigned IP resources and zones not owned by a specific alternate ID. This is not user changeable.
- Holding Tank ID
  - This is the ID Label that the Holding Tank. Upon reclaiming an IP block, the block will be assigned to the "Holding Tank ID" user for X(holding\_days) time. This is not user changeable.
- Holding Tank Days
  - This is the number of days that a block will be held in "Holding" status before being available to be moved to the Available pool, and thus ready to be assigned. By default this is initially set to 30 days.
- Display IPv4 IPAM
  - For admins that want to disable IPv4 IPAM functionality, this toggle allows you to do so.
- IPv4 Block Scanner Enable
  - This is a beta feature that allows a user to scan a block of IPv4 space and show host counts of responding addresses.
- Display IPv6 IPAM
  - For admins that want to disable IPv6 IPAM functionality, this toggle allows you to do so.
- Display Billing Address
  - Check the box to display billing address in detail view as well as allow for editing of billing address information.
- Regions Enable
  - Check the box to enable "Region" tags for IP blocks. This will add an additional column to the default IPAM screen. It is treated similarly to a standard tag. You can set the values from the "Edit Tags" function and modify the values list in the IPAM Admin screen "Edit Regions".
- Generic Code Per ID Enable
  - Check this box to enable this function. This will enable an additional field per ID.
- Generic Code Per ID Display
  - Check this box to display this field.
- Generic Code Per ID Name
  - This is the label for the Generic Code to be displayed.
- Generic Code Per Block Enable
  - Check this box to enable this function. This will enable an additional field per IP Block.
- Generic Code Per Block Display
  - Check this box to display this field.
- Generic Code Per Block Name
  - This is the label for the Generic Code to be displayed.
- Enable VLAN per Block
  - This toggle allows users to specify VLANs via the "Edit Tag" function. With this feature enabled, you can filter by VLAN tag in the primary IPAM interface.
- RIR Specific Information
  - RIPE Origin ASN
  - RIPE Maintainer Object (mnt-by)
  - RIPE Maintainer Password
  - RIPE Tech Contact (tech-c)
  - RIPE Admin Contact (admin-c)
  - ARIN SWIP Origin ASN
  - ARIN SWIP Public Comments
  - ARIN SWIP NET Name Prefix
  - ARIN SWIP ORG POC Handle
  - ARIN SWIP NET POC Handle
  - ARIN SWIP Abuse POC Handle
  - ARIN SWIP API Key
- **Peering Parameters**
  - ASN
    - Enter the ASN that will be used
- **Backup Parameters**
  - Enable mysql offsite backup
    - This is enabled by default. Go to the [Backup](#) section for details on this feature.
  - Location of mysqldump
    - This is the location of the mysqldump directory.
- **Logging Options**

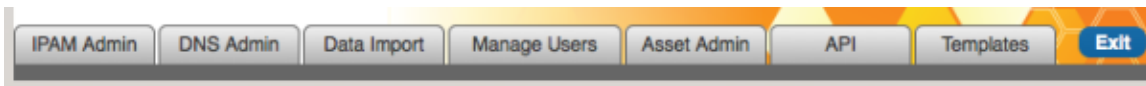
- Log table size
      - This is the maximum number of records to store in the log table. Default value is 50,000,000.
    - Rows to remove at limit
      - When the value for log\_table\_max is reached, the number of rows to be cut from the table is the number assigned to this variable. Default value is 10,000 rows.
    - Local Syslog Enable
      - Check the box to enable syslog functionality or for local logging to the database only
    - Remote Log IP
      - Target IP address that we will send log information to
    - Remote Log Port
      - Port number for the syslog server you will send log information to
    - Remote Log Method
      - Select TCP, UDP, SSL from the dropdown for the log delivery method
    - Remote Log Backup IP
      - Target IP address for the Backup syslog server you will send log information to
    - Remote Log Backup Port
      - Port number for the Backup syslog server you will send log information to
    - Remote Log Backup Method
      - Select TCP, UDP, SSL from the dropdown for the log delivery method
    - Remote Log Type
      - Select SysLog format or JSON output
    - Remote Log Facility
      - Select the Facility - applies to syslog only
  - DNS Configuration**
      - Default TTL – in seconds, default value is 3600
      - Default Refresh – in seconds, default value is 14400
      - Default Retry - in seconds, default value is 3600
      - Default Expire - in seconds, default value is 604800
      - Default Minimum - in seconds, default value is 3600
      - Default SOA
        - Server Of Authority and hostmaster contact. E.g. ns1.domain.com. hostmaster.domain.com.
      - Master nameservers
        - Set to IP Address(es) of master DNS server(s) to be added as masters {} in named.conf (IPv4 or IPv6) or Mix of IPv4 and IPv6 addresses.
      - \$GENERATE IPv4 by default
        - Set to '1' to generate reverse IPv4 DNS hostnames for non specific PTRs. This is similar to \$GENERATE in standard bind.
      - \$GENERATE IPv4 Suffix
        - Set to forward suffix to append to PTR for \$GENERATE Example: .available.domain.com.
      - File to prepend to master named.conf
        - Set this to the name of the file to prepend to named.conf. This is useful if the primary nameserver is on an alternate host or 6connect-SP DNS module contains only a partial DNS zone set. Default file is named.conf.top.txt
      - File to prepend to slave named.conf
        - Same as namedtop for named.conf to be pushed to slave DNS servers. Default file is named-slave.conf.top.txt
      - Named.conf has view
        - Check the box to enable this function – it is used if the named.conf contains a view.
      - Location of checkzone – path default is /var/named/sbin/named-checkzone
        - This option will be have a **RED X** or **GREEN** checkmark when it is configured correctly
      - Location of rndc – path default is /var/named/sbin/rndc
        - This option will be have a **RED X** or **GREEN** checkmark when it is configured correctly
      - Location of dig – no path default specified
        - This option will be have a **RED X** or **GREEN** checkmark when it is configured correctly
      - Location of zonesigner – no path default specified
        - This option will be have a **RED X** or **GREEN** checkmark when it is configured correctly
      - Location of dnssec-dsfromkey – no path default specified

- This option will have a **RED X** or **GREEN** checkmark when it is configured correctly
- DNS Server for DNSSEC validation – required to be a non-authoritative name server.
- **Authentication Options**
  - Maximum Session Idle
    - This setting (minutes) controls how long a session can stay idle before being forced to log in again.
  - **RADIUS authentication options (local install only)**
  - Radius Enable – check this box to enable RADIUS functionality.
  - Radius Server Address
    - Set to the IP address of your radius server. If this is specified, it will force authentication over radius.
  - Radius Authentication Port
    - Set to the port for authentication. Default port is 1812
  - Radius Accounting Port
    - Set to the port for radius accounting. Default port is 1813
  - Radius Key
    - Set to the shared key of your radius server
  - **LDAP authentication**
  - LDAP Enable - check the box to enable LDAP functionality.
  - LDAP Server Address
    - Set the IP address of your LDAP server.
  - LDAP Port
    - Set the port for your LDAP server
  - LDAP Security
    - Select the security method of your LDAP server - SSL, TLS or None
  - LDAP Auth DN/Fetch DN
    - These strings are used to first authenticate the 6connect user and then to retrieve their permissions. The string '%LOGIN%' should be inserted in place of the user's common name both strings.
    - ex: cn=%LOGIN%,ou=people,dc=6connect,dc=com
  - Mapping Permissions to 6connect schema - To integrate 6connect permissions with your existing directory structure then you will need the 6connect schema. It should snap in with any existing LDAP structure and allow you to assign 6connect permissions to your existing users. You can download a copy of the schema from this section.
- **Templates**
  - This is where you can edit outgoing email templates for IP block assignments
    - Customer Notification (new)
    - Customer Notification (existing)

## Administration Walkthrough



- The **Gear Icon** is accessible by all IPAM users. Administrators have access to all functions via this icon. Users can change their password and update application preferences.
- **Changes to Settings are ONLY SAVED by pressing the Update button for the relevant area.**
- The **Admin Tabs** are as follows:



- - **General Settings** (default view) – these are global settings for the application
  - **IPAM Admin** – IPAM specific settings
  - **DHCP Admin** - located under IPAM Admin
  - **DNS Admin** – DNS specific settings
  - **Data Import** – Data Import templates and uploading
  - **Manage Users** – User/login management
  - **Asset Admin** - Asset specific management settings
  - **API** - Dedicated to API key management and API request URL generation
  - **Templates** - Location for setting up and managing Template actions

- [Other Parameters](#)
  - To modify the hostname for the default reverse entries, edit the file in the DocRoot called "[zone-v6-default-bottom.txt](#)".

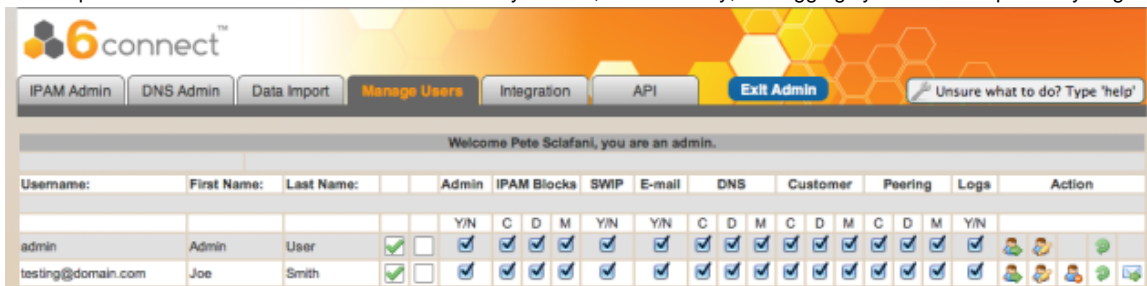
## Application Setup

### Application Setup

- [Step 1 - Manage User Accounts](#)
- [Step 2 - Edit Dropdowns for IPAM](#)
- [Step 4 - Confirm your DHCP server settings](#)
- [Step 5 - Set your Administrative Preferences](#)

#### Step 1 - Manage User Accounts

You are assigned an Admin level account by default to create users. We recommend creating additional user accounts for each person that will use the platform. You can create "shared" accounts if you wish, but obviously, the logging system will not provide you granular details per user.



Get to the "[Manage Users](#)" Tab from the Admin Button and add users from the boxes at the bottom of the screen:

E-Mail Address	First Name	Last Name	Action
<input type="text"/>	<input type="text"/>	<input type="text"/>	

Once a user is added, you can then click on the "[Email](#)" button to send them login credentials to the email address on file.



\*\*\* As you set permissions for your users, be aware that they are activated immediately. They do not require the user to logout for the permissions changes to take effect.

#### Step 2 - Edit Dropdowns for IPAM

Go to the [Admin Button](#) and select the [IPAM Admin Tab](#) to customize your IPAM Settings.

#### IPAM Includes Management:

[Edit IPAM Tags](#)

[Edit IPAM Regions](#)

[Edit Contact Roles](#)

[Edit IPv4 Subnets Dropdown](#)

[Edit IPv6 Subnets Dropdown](#)

[Edit RIR List](#)

[Edit IPv4 Exact Filter](#)

[Edit IPv6 Exact Filter](#)

### Step 3 - Confirm your DNS Settings

DNS Admin

You can also access the [DNS Admin Tab](#) to customize your DNS Settings, add DNS servers for zone pushes, etc.

**First** - add the DNS Server(s) that you intent to use for pushing zones. We support multiple servers, so you can associated zones with specific DNS servers.

#### Manage DNS Servers

Server:

Select Server

New Server

#### DNS Functions

Generate Zone and named.conf files

Check Zones for errors

Increment All Zone Serial Numbers

HUP named

Edit DNS Record Types

Edit DNS Delegation










Generate all DS records for DNSSEC

Generate zip file of all zones

DynECT Zone Import

PowerDNS Zone Import

## Nameserver Management

Server	Default	Uses	
 corp.goomba.com	<input type="checkbox"/>	0	
  ns2.dns.6connect.net	<input checked="" type="checkbox"/>	45	
  ns3.dns.6connect.net	<input checked="" type="checkbox"/>	45	
  ns1.dns.6connect.net	<input type="checkbox"/>	33	
 ns4.dns.6connect.net	<input checked="" type="checkbox"/>	12	

Newly-created zones are automatically added to Default Nameservers.

### Add a New Nameserver

#### Step 4 - Confirm your DHCP server settings

### Add a New DHCP Server

Server: <input type="text"/>	SSH Port: <input type="text"/>
Username: <input type="text"/>	New Password: <input type="password"/>
Server Type: <input type="text" value="ISC"/>	
Server Config Path: <input type="text"/>	
Server Stop Command: <input type="text"/>	Server Start Command: <input type="text"/>
Max Lease Time: <input type="text"/>	Default Lease Time: <input type="text"/>
Domain Names: <input type="text"/>	Name Servers: <input type="text"/>
Authoritative: <input type="checkbox"/>	Log Facility: <input type="text"/>

#### Step 5 - Set your Administrative Preferences



In the **ADMIN** section, you should set any applicable preferences that you require (ARIN/RIPE information, authentication options, logging, etc.). These functions are not necessary to do initial tool setup, but certain functions won't work unless you add your credentials to those areas. Once you have your customizations completed - it's time to import your aggregate blocks and import your data!

## Asset Admin



- Common Tasks:
  - Adding a new Asset Type:
  - Adding a new Custom Field:

#### Common Tasks:

##### Adding a new Asset Type:

This is where you build your preferred "asset types" - for example, server, desktop, router, VM, radio tower, etc.

### Add New Type

- 1) Click on the [Add New Type](#) link in the upper right of the Asset Types area, you will then be given the chance to add a Name and Description (you can edit these at any time).
- 2) You will then be directed to a screen to add any custom fields to the given asset. You do this by dragging the fields from the "Unassigned" column to the "Assigned" column.

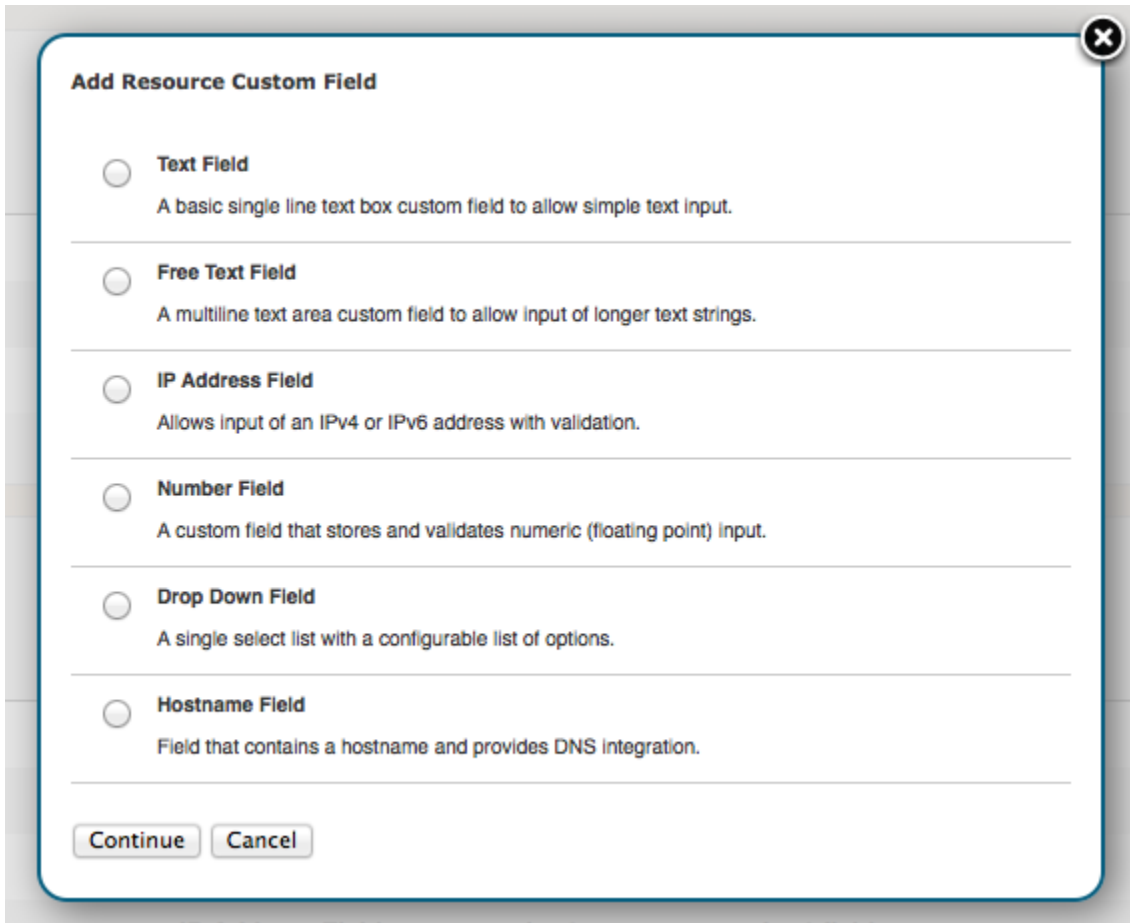
- 3) Click on the " [Update Asset Type](#) " button to save the changes.

### *Adding a new Custom Field:*

This is where you can specify the custom fields that you want to track for any given asset. Fields can be used in any asset, and there are multiple field types.

### Add Custom Field

- 1) Click on the [Add Custom Field](#) link in the upper right of the Custom Fields area.
- 2) You will then be directed to a screen to select the type of custom field you would like to create.

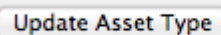



The dialog box titled "Add Resource Custom Field" contains a list of field types with radio buttons and descriptions:

- ☐ **Text Field**  
A basic single line text box custom field to allow simple text input.
- ☐ **Free Text Field**  
A multiline text area custom field to allow input of longer text strings.
- ☐ **IP Address Field**  
Allows input of an IPv4 or IPv6 address with validation.
- ☐ **Number Field**  
A custom field that stores and validates numeric (floating point) input.
- ☐ **Drop Down Field**  
A single select list with a configurable list of options.
- ☐ **Hostname Field**  
Field that contains a hostname and provides DNS integration.

At the bottom are "Continue" and "Cancel" buttons.

You can select from the field types and click on "[Continue](#)" when ready.

- 3) Click on the " [Update Custom Field](#) " button to save the changes.
- 4) You will now see the field listed when editing [Asset Types](#) .

## Entry Type

### Entry

- [Introduction](#)
- [Parts](#)
  - [Fundamentals](#)

- [Fields](#)
- [Gadgets](#)

## Introduction

The **Entry Type** or **Section**, is a type of **Resource** that influences the creation and management of **Entries**.

## Parts

### Fundamentals

Fundamental information about the Entry Type. The only required field is "Name."

### Fields

Here you can create, add, remove, and sort the fields for the entry created from this entry type.

### Gadgets

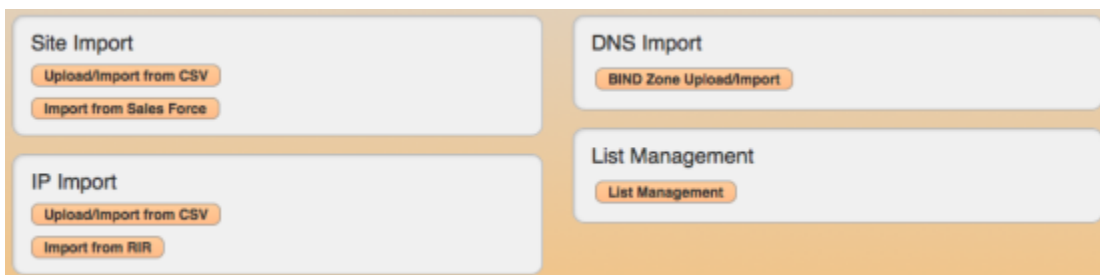
Here you can add and sort the gadgets that will be shown alongside the field when the entry is viewed.

# Data Import

## Data Import

A variety of different data can be imported to ProVision. Customer and IP data can be uploaded via CSV formatted files, customer data can be loaded from Sales Force, and DNS data can be imported from existing zone files. All of these methods are located under the Admin->Data Import tab.

*Note: Import .csv files are limited to 1MB in total size. Larger files should be split into < 1MB chunks.*



Customer Data Import

IP Data Import

DNS Import

- Selecting the data type to import will allow you to download a CSV (.csv) template file to populate with your current data set. Maintain the field labels and then save as CSV. Once you review the file for data accuracy, you can import it via this interface.
- **Import Sites** – These records include a unique identifier and relevant contact information for each record. Note:
- **Import Site Contacts** – These records are matched to a unique identifier and specify specific contacts and types per Site. Note: the display parameters for the **Company\_id** should be limited to 10 characters, while the **Company\_name** should be limited to <40 characters.
- **Import IP Blocks** - These records are the IP block, block size and unique identifier to populate the IPAM database (currently supports IPv4 blocks only).
- **Scan for IP Blocks to import** - this runs the Welcome dialog to look up your IP space from a seed IP address.
- **Import DNS Zones** – These are the forward/reverse DNS zone records, point the tool to your named.conf records and it will normalize and import the data.



# DHCP Admin

## DHCP Admin

### Managing Server Configurations

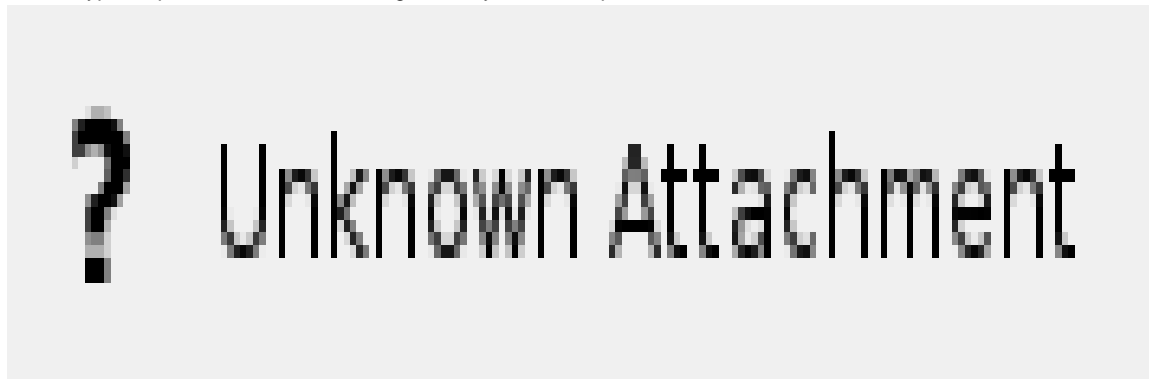
You have the ability to store and manage multiple DHCP server configurations from this interface. The "Push All Configs" link will push out configurations for all DHCP servers.

Manage DHCP Servers

Push All Configs

### Managing DHCP Servers

This section allows you to manage the specific configuration for each DHCP server specified. We support standard commands as specified by the Server Type dropdown. To save the configuration, you need to press the "Add Server" button.



### Managing DHCP Configurations

Once the DHCP server is saved, you now have options for configuration. We provide a standard "**config builder**" as well as a "**config file**" option.

1) The "**config builder**" builds the ISC configuration file based on the parameters you select - namely the subnets and hosts to be managed by the given DHCP server.

The subnet configuration screen allows for the following parameters:

Subnets on Server

Address:

Netmask:

Range Start:

Range End:

Add

The host configuration screen allows for the following parameters:

Hosts on Server

Hostname:

MAC Address:

Fixed Address:

Add

2) The "**config file**" option allows you to paste a completely customized DHCP configuration file.

- Please note that the "config file" option will override all entered server information, including subnets and hosts, for the designated server.\*

## DNS Admin

### DNS Admin

The DNS Admin tab contains 5 different functional areas: managing DNS server, performing bulk zone assignments to a resource, performing bulk record changes over all zones, managing default name server, transferring zones, and a collection of links for other useful DNS functions.

### DNS Functions

#### Edit DNS Record Types

- The "Edit DNS Record Types" will allow you to manage what types of DNS records can be added in the system. The default values are:
  - A, AAAA, MX, PTR, CNAME, NS, DIRECTIVE, DNAME, DNSKEY, DS, INCLUDE, IPSECKEY, COMMENT, TXT, KEY, SOA, and SRV
  - The complete list of valid record types can be found the RFCs. Wikipedia provides a nice reference: [http://en.wikipedia.org/wiki/List\\_of\\_DNS\\_record\\_types](http://en.wikipedia.org/wiki/List_of_DNS_record_types)

#### Edit DNS Delegations

#### Generate all DS records for DNSSEC

- This link will generate and output all DS records in the database. This is provided to easily bulk upload all DS keys to your domain registrar.

#### Generate zip file of all zones

- This link generates a single .zip file containing all zones for download. Once a zip file has been generated, a quick link is provided at the bottom of this section with datestamp to be downloaded later if needed.

#### Increment All Serials

- Increment all zone serial numbers by one. All zone serials are automatically incremented on a zone push, but if there is ever any other requirement for an increment, it can be performed here.

#### DynECT Zone Import

- Imports and syncs ALL zones on the system with those in your DynECT instance. This means any zones in ProVision not present in your DynECT instance will be removed and any changes lost.

#### PowerDNS Zone Import

Coming soon! Import zones from a PowerDNS MySQL database.

#### DNS View ACL Mangement

### DNS Zone Transfers

This section lists every server configured in the platform, along with how many zones are assigned to the server.

How to transfer zones:

- Check the boxes and click the Push the button to transfer zones to the target server.

### DNS Zone Transfers:

trace.bind.com	0 Zones	<input type="checkbox"/>
bind.com	1 Zones	<input type="checkbox"/>
ops.6connect.com	0 Zones	<input type="checkbox"/>
208.39.106.169	9 Zones	<input type="checkbox"/>
herpderp.	0 Zones	<input type="checkbox"/>
Legolas	0 Zones	<input type="checkbox"/>
blah.com	6 Zones	<input type="checkbox"/>

Push Zones to Checked Servers:

## Manage DNS Servers

This is where you configure DNS servers to transfer zones to from the ProVision platform. ProVision currently supports the following DNS server types: BIND, PowerDNS (using a bind backend), DynECT, and Secure64. The fields available for configuring servers are as follows:

- Server - The FQDN or ip address of the DNS server.
- Default - Specify if the server should be added to new zones by default or not.
- Transfer Type - SCP, Secure64, Secure64 Signer, and DynECT. Note that the SCP method should be used for PowerDNS with a Bind backend.
- Server Type - Specify if the server is a master or slave. Different configuration files are created master vs. slave on the Bind, PowerDNS/Bind, and Secure64 platforms.
- SOA - Start of Authority, should be in the format "SRI-NIC.ARPA. HOSTMASTER.SRI-NIC.ARPA.". For more information, see the RFC: <http://tools.ietf.org/html/rfc1033>
- Username - Login/username for the target DNS server. The specified account needs to be valid, and have write permission to the remote directory and execute permission for any pre/post commands.
- Password - Password for the target account. All passwords are stored encrypted in the database.
- Port - Port to contact the target server on. This is port used for SSH on Bind and Secure64 server types.
- Remote Directory - The target directory to transfer zone files to on the DNS system.
- Named Conf Path - The path to other zones on the Bind systems.
- Pre Command - Any valid system command on the target DNS system. This command will be run before any files are transferred.
- Post Command - Any valid system command on the target DNS system. This command will be run after any files are transferred. For example, on a Bind system you would need to run "rndc reload" to reload the zones.

The "Test Config" button will attempt to login to the target system and write to the target directory. If any failures are encountered, an error will be written with some detail. If the test is successful, the word "Success!" will show verifying that files can be transferred. This does not test if the user can execute pre/post commands. This needs to be checked manually.

### Manage DNS Servers

Server:

Default:

Transfer Type:

Username:

Password:

Port:

Remote Directory:

Named Conf Path:

Pre Command:

Post Command:

## Views

Enable Views - Select Yes to enable views on a particular server. You must click "Update Server" to show the view options.

To enable your Bind server to use zones transferred from 6connect, you must add the following to your named.conf.

```
include "/var/named/zones/6connect_named.conf";
```

When views are enabled on a server, all zones/records attached to a server are immediately put into the default view 6connectGeneric that contains a match any rule. For example, here is a sample of the named.conf include generated by ProVision:

```
view "6connectGeneric" in {
    match-clients { any; };
    zone ...
    zone ...
};
```

All views attached to a server are displayed under the "Views" label. **When you enable views on a Bind server, you must wrap all other zones in named.conf or any includes in view statements.** The include line for the 6connect conf file should also be move above any other view statements. An example is below:

```
include "/var/named/zones/6connect_named.conf";

view "hints" {
    match-clients { any; };
    zone "." {type hint; file "named.root";};
};

view "zones-outside-of-6connect" {
    match-clients { some-acl; };
    zone ....
};
```

## Adding a View

To add a view just type in the view name, and a description (for reference only). The config files transferred to the server will automatically be built according to the server type.

<insert image>

### Adding Options to a View

### Adding ACLs to Views

You can select an existing [IP List](#) to create a view ACL. For a Bind server, this creates a corresponding line in the config: `match-clients { 6connect_Internal; }`; The 6connect\_ is prefixed to all IP lists inserted by ProVision.

### Bulk Zone Assignments

The Bulk Zone Assignment function allows you to assign multiple zones to a resource in one step. The system will perform a wild card style match for any text in the search box and return all matching zones and display them in a list. You can then assign all the zones found to a resource as either a master or slave.

### Bulk DNS Changes

The Bulk DNS Editor allows an Admin to perform "find and replace" functions across all DNS zones. It will match the host and/or record type and/or record value across the entire zone database. Unless the "Strict Comparison" box is checked, it will use wildcard style matches for the host and record values.

### Bulk DNS changes

**WARNING. This is a power user tool.**

Record Host

Record Type

Record Value

☒ Strict Comparison

A

÷

Search Records

Zone Name	Host	Type	Value
stacy.net	www2	A	2.2.2.2
gtt.com	www2	A	1.2.3.9
gravy.com	www2	A	8.0.16.1
google.com	www2	A	1.2.3.10
mark.com	www2	A	4.3.2.1
foop.com	www2	A	1.2.5.1
one.com	www2	A	2.3.4.5
jamien.com	www2	A	1.2.3.5
jamien.com	www2	A	1.2.3.6
bind.com	www2	A	1.2.3.5

**Update ALL of the above with new data:**

Record Host

Record Type

Record Value

Replace Records

### Nameserver Management

This function controls the list of DNS servers used for pre populating DNS records with NS records.

### Nameserver Management

Server	Default	Uses	
▼ corp.goomba.com	<input type="checkbox"/>	0	⊖
▲ ▼ ns2.dns.6connect.net	<input checked="" type="checkbox"/>	45	
▲ ▼ ns3.dns.6connect.net	<input checked="" type="checkbox"/>	45	
▲ ▼ ns1.dns.6connect.net	<input type="checkbox"/>	33	
▲ ▼ ns4.dns.6connect.net	<input checked="" type="checkbox"/>	12	
▲ ▼ 1.2.3.4	<input type="checkbox"/>	0	⊖
▲ ns1.dns.6connect.com	<input type="checkbox"/>	0	⊖

Newly-created zones are automatically added to Default Nameservers.

#### Add a New Nameserver

#### Notes

General DNS configuration information is located under the main Admin tab in the DNS section. That is where you can set defaults for other SOA options, generated reverse DNS information, and a DNSSEC validation server.

#### System Information for Local Installations

Zones are stored in the 6connect web root under /zones.

DS keys are stored in the 6connect web root under /keys.

## Interface Walkthrough

### Interface Walkthrough

This application walkthrough gives you a tour of the application interface and how to use it once you have finished the initial administrative setup.

## Assistant

#### Assistant



The Assistant provides more functionality than basic searching. Use the commands below to get more functionality from user interface. You can type "help" into the Assistant at any time to get a brief overview of these commands along with links to documentation and support.

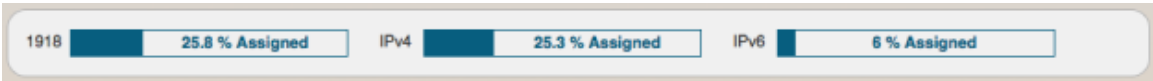
## Dashboard Tab

#### Dashboard Tab

The Dashboard has a variety of functionality and features embedded.

#### IPv4 and IPv6 Reporting

With handy graphs showing real-time utilization, you have an accurate picture of what is happening with your IP addresses. There are also handy links directly to reports for even more output options for your data.



Activity Feed

Shows you the latest activity in your instance so you can see what's going on in real-time.

Activity		
Date	User	Action
02/07 04:57:58	pete@6connect.com	Assistant: "help"
02/07 04:21:09	pete@6connect.com	Changed module to IPAM
02/07 03:04:52	pete@6connect.com	Changed module to Peering
02/07 02:14:41	pete@6connect.net	Changed module to Peering
02/07 02:07:12	pete@6connect.net	IPAM: Inserted new IPv4 block 66.208.192.0/18 (via weclome page)
02/07 02:06:19	pete@6connect.net	IPAM: Inserted new IPv4 block 64.139.64.0/19 (via weclome page)
02/07 02:02:54	pete@6connect.com	Changed module to Peering
02/07 02:00:35		User: Pete Sciafani (pete@6connect.net) logged in via local authentication.
02/07 01:59:30	pete@6connect.com	Created user Pete Sciafani (pete@6connect.net)
02/07 01:52:09	pete@6connect.com	Changed module to Peering
Load more...		

IPAM Shortcuts

Provides simple ways to get to common tasks without having to change interfaces.

**IPAM**

Assign an IP Address

IPv4

Select Company...

+

Browse IP Addresses

IPv4

Filter by Octet, VLAN, Tag, Region

+

Create New Company

Enter Name

+

DNS Tab

DNS Tab

Dashboard

Site

DNS

IPAM

Peering

Objects

Log

Reporting

Bulk Zone Edit

Logging

Reporting

Zone Record Controls

All Zones		Displaying 0 - 21 of 21					
DNSSEC	DS	Action					
DNSSEC	AD						
DNSSEC	AD						
DNSSEC	AD						

This tab lists customers by domain name, site/customer ID, and Company name. Clicking on the domain will produce the zone file, from which

you can "Edit this zone". The customer name of the zone(s) you are editing will appear in the banner under the tabs. Clicking on the Service ID will take you back to the customer information page, likewise Company Name.

DNSSEC Status

The **DNSSEC** column shows the current condition of the zone. If it reads "DNSSEC" in **RED** it has been enabled, but not successfully written. If it reads "DNSSEC" in **GREEN** it has been enabled and written successfully.

The **DS** column shows the current condition of DS records and Authenticated Data for the zone. If it reads "AD" in **RED**, it has been signed locally, but no DS keys have been submitted. If it reads "AD" in **GREEN**, it has been both signed locally and had DS keys successfully submitted to the registrar.

Actions

The "Tag" function lets you customize specific parameters for the zone. Enter your tag, and click "Update Tags". The options are up to your company's naming convention, and again, a consistent one is recommended. You can then enter a tag in **Tag Search** and return all blocks associated with that particular tag.

The "Eyeball" allows you to view the zone file.

The "Cylinder with Pencil" again allows you to **edit** the forward DNS zone file.

The "Stop Sign" deletes a whole zone file. You will be prompted to confirm your action.

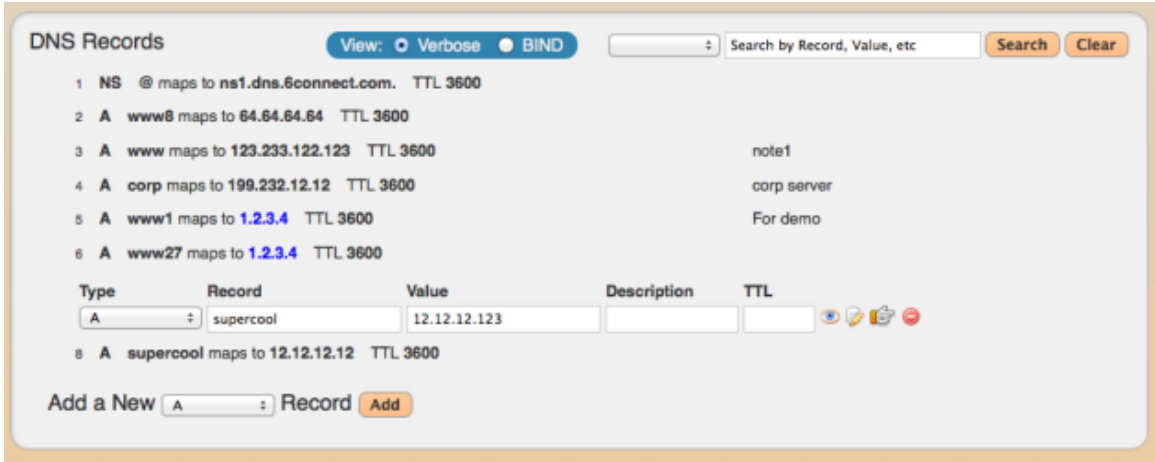
The "Black Arrow" reads in the last import of the zone directory or it replaces the existing zone in the database with a text file you place in the import directory.

The "Glove" assigns a zone to a customer.

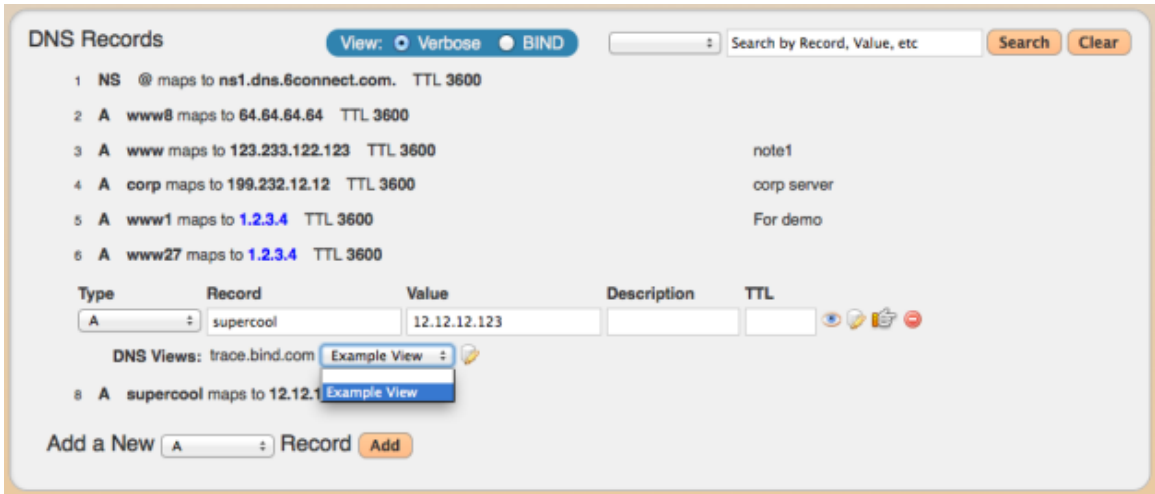
The "Green Arrow" takes you to the logged history of the zone.

Assigning a View to Zone Record

To apply a View to a Zone Record, open up the Zone in the Zone Editor and double-click the record to edit it.



Click on the "Gloved Hand" to bring up the DNS Views option for the record. Select the View from the dropdown menu and click on the pencil icon to save the record.



Once completed, you will the Views applied to the Zone Record on the right side of the screen.



DNS Records
View: ☒ Verbose ☐ BIND
 Search by Record, Value, etc

1	NS	@ maps to ns1.dns.6connect.com.	TTL 3600	
2	A	www8 maps to 64.64.64.64	TTL 3600	
3	A	www maps to 123.233.122.123	TTL 3600	note1
4	A	corp maps to 199.232.12.12	TTL 3600	corp server
5	A	www1 maps to 1.2.3.4	TTL 3600	For demo
6	A	www27 maps to 1.2.3.4	TTL 3600	
7	A	supercool maps to 12.12.12.123	TTL 3600	Views: Example View;
8	A	supercool maps to 12.12.12.12	TTL 3600	

Add a New  Record

## Creating and Assigning a View to a DNS Server from IP Lists

Under the [DNS Admin Tab](#), you should see a "Show Views" button for server types that support this feature.

Manage DNS Servers

Server:

Default:

Transfer Type:

Server Type:

Master Server:

SOA:  ex: ns1.dns.6connect.net. hostmaster.6connect.net.

Username:

Password:

Port:

Remote Directory:

Named Conf Path:

Pre Command:

Post Command:

Edit the "View Name" field to label the view.

Views:


Add a New View


View Name:

Description:

You will be prompted to select the [IP List\(s\)](#) that you wish to assign to the view.

**Views:**

**Example View** 

Included IPs: **Dev ACL** 

Add Key:  Val:  **Add**

**Add a New View**

View Name:

Description:  **Add New View**

**Hide Views** **Test Config** **Update Server** **Delete Server**

You can also assign custom key/value pairs as needed.

## Split Horizon

### Split Horizon (DNS Views)

When working with DNS zones, there are scenarios where you will want to create "Views" for a given zone file, server or record.

#### Creating a View using the List Manager

Before you can assign a View, you need to create a View and assign to the DNS server. To create a View, you can perform the action from the DNS Admin Tab (under the Show Views button), or you can use the Data Import tab and click on the [List Management](#) button.

**Create a New List**

Name	Code	Description
<input type="text"/>	<input type="text" value="IPLIST"/>	<input type="text"/>



**Manage Lists**

Name	Code	Description	Actions
<input type="text"/>	<input type="text"/>	<input type="text"/>	

Use the "Eye" icon to expand the view of the list and enter in relevant values.

**Create a New List**

Name	Code	Description
<input type="text" value="Dev ACL"/>	<input type="text" value="IPLIST"/>	<input type="text" value="Safe view list for internal Dev team"/>













**Initial Population**

Delimiter:

10.0.0.0/24  
192.168.1.0/24

Once the list is completed, click on the "Pencil" icon to save the list. and will then appear in the bottom pane.

**Manage Lists**

Name	Code	Description	Actions
Dev ACL	IPLIST	Safe view list for internal Dev team	  
<b>Item Display</b>	<b>Item Value</b>	<b>Actions</b>	
	10.0.0.0/24	   	
	192.168.1.0/24	   	
<input type="text"/>	<input type="text"/>		

Once saved - you can now generate Views using the IP list(s) from the [DNS Admin](#) Tab or the [Zone Editing](#) screens.

## Zone Editing

### Editing a Zone Record

There are two ways to edit a DNS zone:

1. Click on the ["Edit Zone"](#) icon. This will take you directly to the Zone Editing screen.
2. Click on the zone name. At the Zone Detail View screen, you can click on the ["Edit this zone"](#) hyperlink.

The Zone Editing screen has three main areas:

**1)Zone Management:** This area is at the top of the screen and provides direct access to confirm zone file changes. By clicking the ["Check Zone"](#) button, we automatically confirm that your zone is verified and highlight any problem entries. Once verified, you have the option to perform an ["rndc reload"](#) or ["rndc retransfer"](#) of the particular zone you are editing and the server type it is associated to.

**\*Note: When zones are written the serial number is incremented and DNSSEC refreshed (if enabled)**



Figure 1: Normal zone with no errors

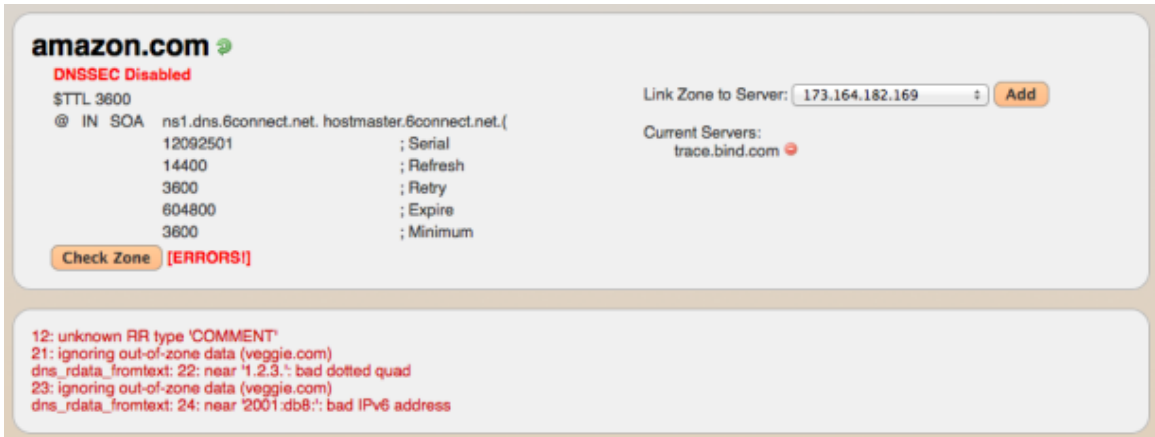


Figure 2: Zone with multiple errors of different types

If errors are detected, the relevants zone record entries will be highlighted to show the error condition.

### 2)DNS Zone Record Data:

You have two modes for viewing/editing Zone Record Data. he [Verbose](#) view and a [BIND](#) view allow for varying levels of comfort with DNS editing tools. The [Search](#) window also allows the user to filter the list by using multiple parameters.

**DNS Records** View: ☒ Verbose ☐ BIND  Search by Record, Value, etc

- 1 **COMMENT** maps to update A record based on turnup date TTL 3600
- 2 **NS** @ maps to dns2.mycloud.net. TTL 3600
- 3 **NS** @ maps to dns3.mycloud.net. TTL 3600
- 4 **NS** amazon.com. maps to ns1.dns.6connect.net. TTL 3600 Automatically Added
- 5 **NS** amazon.com. maps to ns2.dns.6connect.net. TTL 3600 Automatically Added
- 6 **NS** amazon.com. maps to ns3.dns.6connect.net. TTL 3600 Automatically Added
- 7 **NS** amazon.com. maps to ns1.dns.bind.com. TTL 3600 Automatically Added
- 8 **MX** maps to mx.mycloud.net. with priority 10
- 9 **MX** maps to mx2.mycloud.net. with priority 20
- 10 **A** veggie.com. maps to 1.2.3.4 TTL 3600
- 11 **A** www maps to 1.2.3. TTL 3600  
Record value must be an IPv4 address (ex: 127.0.0.1).
- 12 **AAAA** veggie.com. maps to 2001:db7::1 TTL 3600
- 13 **AAAA** www maps to 2001:db8: TTL 3600  
Record value must be an IPv6 address (ex: 2001:db10:2001::4).

Add a New  Record

To Edit a Zone Record, simply double-click on it the entry and make any required edits. Press the "Cylinder and Pencil" button to save your edits.

Type	Record	Priority	Value	Description	TTL
<input type="text" value="MX"/>	<input type="text"/>	<input type="text" value="20"/>	<input type="text" value="mx2.mycloud.net."/>	<input type="text"/>	<input type="text"/>

3)Show DNS Zone: This view gives you a "CLI type" view of the one file - this is a read only screen.

**Hide Zone File**

```
$TTL 3600
@ IN SOA ns1.dns.6connect.net. hostmaster.6connect.net. (
    12092501      ; Serial
    14400        ; Refresh
    3600         ; Retry
    604800       ; Expire
    3600 )       ; Minimum

; This zone was auto-generated by 6connect, Inc., ProVision.

@ IN COMMENT  update A record based on turnup date
@ IN NS dns2.mycloud.net.
@ IN NS dns3.mycloud.net.
amazon.com. 3600 IN NS ns1.dns.6connect.net.
amazon.com. 3600 IN NS ns2.dns.6connect.net.
amazon.com. 3600 IN NS ns3.dns.6connect.net.
amazon.com. 3600 IN NS ns1.dns.bind.com.
IN MX 10 mx.mycloud.net.
IN MX 20 mx2.mycloud.net.
veggie.com. IN A 1.2.3.4
www IN A 1.2.3.
veggie.com. IN AAAA 2001:db7::1
www IN AAAA 2001:db8:
```

4)Show DS Records: This section displays the DS keys generated for this particular zone.

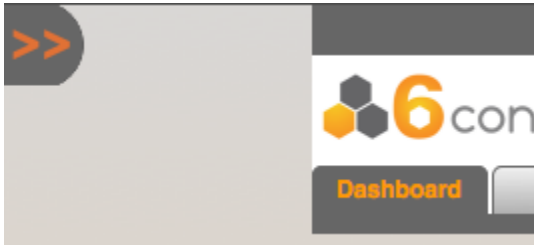
5) Show Zone History: The feature allows you to revert/reload previous zone versions. Note that the zone has to actually be pushed for the Zone History area to show up on the screen.

**Hide Zone History**

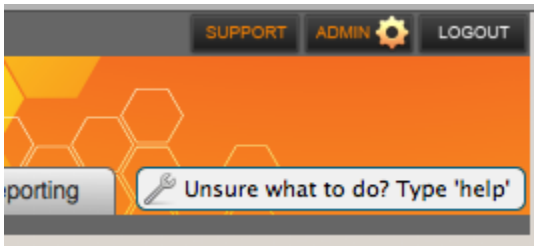
Version Saved On 2012-12-14 08:09:34

Version Saved On 2012-12-14 08:09:10

## Functionality



### [Tree View](#)



### [Assistant](#)

Tabs

\_topic\_DashboardTab



### [Dashboard](#)

[Site/Customer](#)

[DNS](#)

[IPAM](#)

[Peering](#)

\_topic\_ObjectsTab

[Objects](#)

\_topic\_LogTab

[Log](#)

\_topic\_ReportingTab

[Reporting](#)

\_topic\_LogTab

## IPAM Tab


IPAM Tab



This tab serves as the primary interface for administering IPv4 and IPv6 address ranges. The interface is broken up by aggregates and the view can be filtered by using the

### Adding Aggregate Blocks

The 6connect platform takes care of your IP subnetting, so you simply need to add in your aggregate blocks. You can either use the Welcome

screen or you can add top-level aggregate blocks manually with the  button.

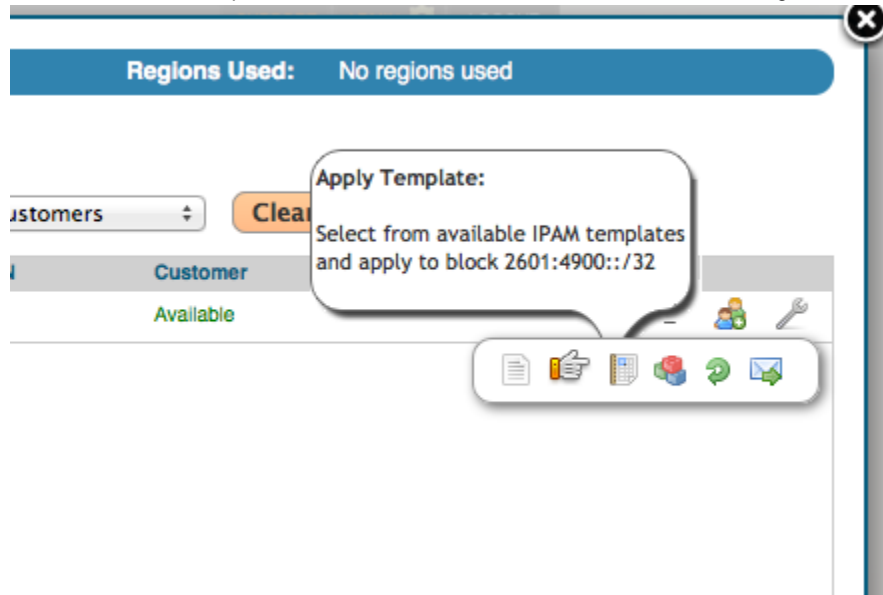
Once expanded, you can apply various properties to the block:

The image shows the 'Add Aggregate' form. It has fields for 'Subnet' (with a placeholder 'x.x.x.x/yy OR xxxxxxxx:xxxx:xxxx:'), 'RIR' (with a dropdown menu), 'VLAN' (with a text input), 'Tags' (with a text input), and 'Region' (with a dropdown menu). There is an 'Add Aggregate' button and a close button (X) in the top right corner.

## IP Templates

The "Notebook" icon will allow you to apply a template (auto split) which allows the user to automatically split the series of blocks into a given size.

You will also have the option to limit the number of blocks that are created for the given selection.



## Managing Aggregates

### Managing Aggregates - Basic/Advanced

**Manage**

If you click on the **Manage** button for a given aggregate, you will be directed to a dedicated interface for working with the block.

### Searching

Search By:  **Search**

An easy way to filter your visible list is to use the search function. Simply type in the parameter you want to filter by and it will highlight and filter the list by the parameter.

### Filtering

Filter By: **All Masks** **All RIR**  **All Regions** **All Custom Codes** **All VLANs** **Both** **All Sites** **Clear Filters**

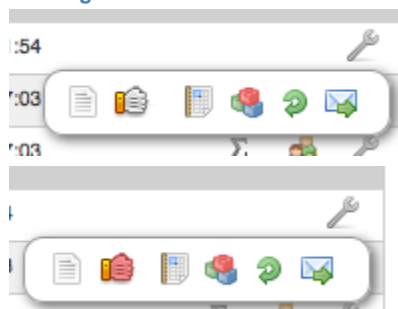
Filtering allows you to modify the view of the data you are seeing on screen. The filter options can be used in a number of combinations.

Currently, we support filtering by:

- 1) Subnet Mask
- 2) RIR
- 3) Tag(s)
- 4) Region
- 5) Custom Code per Block
- 6) VLAN
- 7) Assigned or Available space
- 8) Resource Holder (who/what the blocks are assigned to)

Use the **"Clear Filter"** button to reset the parameters.

### Working with Blocks





Mouse over any icon and it will describe its function, clicking on the icon will perform the action.

### Assigning subnets and single IPs

"Edit Attributes" lets you customize specific parameters for the particular IP Block, including whether to allow sub-assignments for a given block or IP address. Enter your tag, and click "Update Tags" to tag the selected block, whether or not it is assigned to a customer. The options are up to your company's naming convention, and again, a consistent one is recommended. Some examples are: VoIP block, Infrastructure, Interfaces, Loopbacks, and Geographical Region. You can then enter a tag in **Tag Search** and return all blocks associated with that particular tag.

**TIP:** VLANs and the "Custom Field" option are treated as tags. You can search by them and edit them from this interface.

**TIP:** Note that sub-assigned blocks still fall under the parent block that was initially assigned to them.

For available blocks, the green "Create Child" icon is available. By clicking this icon, the subnet will be split into two corresponding blocks. For example, if you have a /26, and you need a /27, this button will split it for you so you can assign from there. Precautions have been put in place to be sure subnetting is correct, and also that a multi-user environment is supported.

### Reclaiming Space

The "Closed Glove" icon will reclaim a block from an existing customer.

When a block is reclaimed, it the "Closed Glove" icon will turn into a "Red Closed Glove" icon. At that time, the IP block will be assigned to a "Holding" account. After a specified amount of time (the default is 30 days), the block will be released to "Available" status and will be available for assigning. Should you want to release the IP block from the "Holding" account manually, you can either:

1. Click the "Red Closed Glove" icon to force the release of the IP block to "Available" status; you will have to confirm the override via a popup window.
2. From the "Admin Tab" click on the link to purge the "Holding" Account and mark the IP blocks as now "Available" for assignment.

If you reclaim an on-the-bit-boundary block, you can click the "Sigma", and re-aggregate the block.

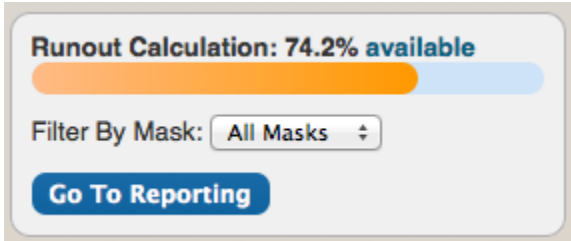
### Assigning IP Space

The "Glove" icon will assign a block to a the resource of your choice.

The "Envelope" icon will send the relevant IP block information to the customer on record. You will be able to choose the email template and customer contact to send the information to in the next screen. Default templates are customizable by the Administrator.

### Navigation - Top

Select the aggregates that you want to view.  
The Advanced view provides a global view on one screen.  
You can use the Search function to "jump" to relevant results as well.  
[Navigation - Runout](#)

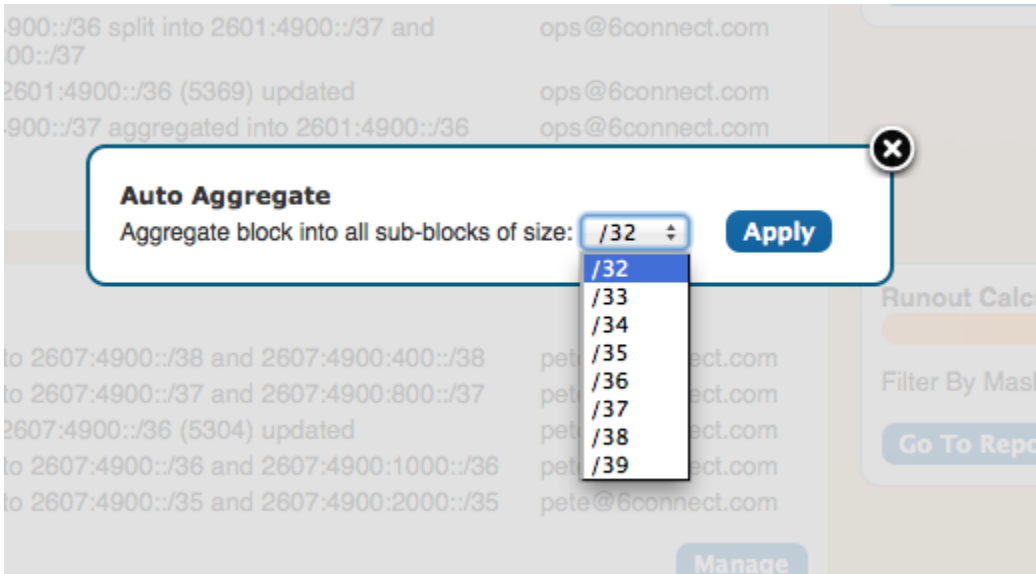


For a given aggregate, we provide utilization statistics for each block. Use the ["Filter By Mask"](#) dropdown to change the calculation based on the blocks of the given subnet mask available.  
**Working with Templates - Auto Split\_Aggregate**

When you add Top Level Aggregate (TLA) blocks, you have the ability to [Auto Split](#) the block into given block sizes. You can also take these actions from the "Management" screen. If blocks have already been split and are unassigned, you will then have the option to [Auto Aggregate](#) the block.

2601:4900::/32 – LACNIC (Anchorage, AK)		
2012-12-04 23:05:06	(API) 2601:4900::/38 split into 2601:4900::/39 and 2601:4900:200::/39	ops@6connect.com
2012-12-04 23:05:03	(API) 2601:4900::/37 split into 2601:4900::/38 and 2601:4900:400::/38	ops@6connect.com
2012-12-04 23:05:02	(API) 2601:4900::/36 split into 2601:4900::/37 and 2601:4900:800::/37	ops@6connect.com
2012-12-04 23:04:58	(API) Block 2601:4900::/36 (5369) updated	ops@6connect.com
2012-12-04 23:02:54	(API) 2601:4900::/37 aggregated into 2601:4900::/36	ops@6connect.com
Apply Template...		Manage

Depending on the selection - you will be presented with a modal window to select what block size to aggregate/split to. This works for both IPv4 and IPv6 aggregate blocks.

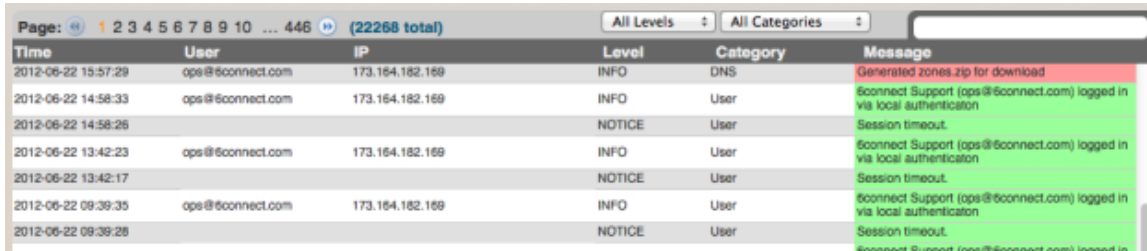


**Log Tab**



## Log Tab

Logging is shown and kept locally, if you would like to output to a syslog server, you can do so from the [Admin Tab](#).



Time	User	IP	Level	Category	Message
2012-06-22 15:57:29	ops@fconnect.com	173.164.182.169	INFO	DNS	Generated zones.zip for download
2012-06-22 14:58:33	ops@fconnect.com	173.164.182.169	INFO	User	fconnect Support (ops@fconnect.com) logged in via local authentication
2012-06-22 14:58:26			NOTICE	User	Session timeout.
2012-06-22 13:42:23	ops@fconnect.com	173.164.182.169	INFO	User	fconnect Support (ops@fconnect.com) logged in via local authentication
2012-06-22 13:42:17			NOTICE	User	Session timeout.
2012-06-22 09:39:35	ops@fconnect.com	173.164.182.169	INFO	User	fconnect Support (ops@fconnect.com) logged in via local authentication
2012-06-22 09:39:28			NOTICE	User	Session timeout.

## Filtering

You can filter the log view by time, user, action, source IP address, by typing the results in the white box at the upper right.

### Filtering by Level

You can filter the log view by Level:

- All Levels (Default view)\*
- Emergency
- Alert
- Critical
- Error
- Warning
- Notice
- Info
- Debug

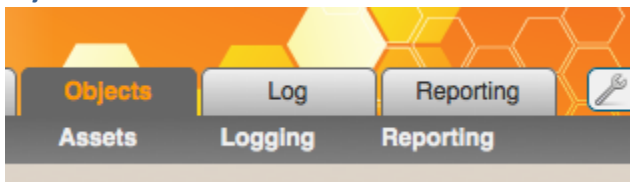
### Filtering by Category

You can filter the list by activity type:

- All Categories (Default view)\*
- User
- IPAM
- Resource Holder
- DNS
- Peering
- Assistant
- API
- NTP
- Device
- Reporting

## Objects Tab

### Objects Tab



The Objects Tab gives you an easy way to track your Assets. We designed the module to be as open-ended as possible so you can customize almost every aspect to fit your business. From the [Asset Admin](#) screen you can create Customer Fields and Custom Asset Types. Whether you are laying out a datacenter structure or mapping out a multiple campus environment - our flexible container system means you have options.

### Using Objects - Child-Level Assets

As you create the "Top-Level Assets" - you will then be able to assign "Child-Level" Assets underneath them. This allows you to create and customize your own hierarchy based on how you track your assets in your organization.

As an example, you can see below:

[Top](#) / [San Jose - SJC1](#) / [SJC-R1R1](#) / DellR710

## Server : DellR710

Hypervisor  
vCenter



Server OS  
Windows 2008 Server - Datacenter


ipv4

The Breadcrumb navigation allows you to see the hierarchy of your assets as you browse. In the example, the Top-Level is "San Jose-SJC1" with "SJC-R1R1" serving as a Rack identifier in a datacenter. The "Dell R710" is a server within the rack. When you select a given Asset, you will also be able to see the Child-Level Assets underneath it:

[Top](#) / [San Jose - SJC1](#) / [SJC-R1R1](#)

## Rack : SJC-R1R1

 Edit  Delete

Children Assets  Add Child Asset

Name	Type
Jupiter1	Router
HPDL510	Server
DellR710	Server
DellR710-2	Server

## Using Objects - Top-Level Assets

Based on the Asset Types and Custom Fields you created in the Asset Admin screen, you will be able to work with varying levels of assets within the same framework.

For example, a colocation company may need to track assets and interfaces across multiple datacenters.

The result is that they would create the following Asset Types:

- 1) Datacenter
- 2) RackID
- 3) Server
- 4) Router
- 5) VM (Virtual Machine)
- 6) Interface

And they would probably need the following Custom Fields:

- 1) Location Code
- 2) RackU
- 3) Server Type (Make, Model, Asset Tag, etc)
- 4) Router Type (Make, Model, Asset Tag, etc.)
- 5) Hypervisor
- 6) Hostname
- 7) Interface type
- 8) IPv4 address
- 9) IPv6 address

## Reporting Tab

### Reporting Tab

This page provides some basic reporting functionality around User Activity, Customers and Contacts and IPAM related data. You have the option

to either view in the browser or generate a CSV to download.  
For basic reports, you can generate data for user activity, company data and contact information. This is especially useful for exporting data.

Reports

User Activity:

All Users

Company List:

Contacts:

Show Data

Download CSV

For IPAM reporting you have multiple options to display and filter your reports. You can customize using the multi-select boxes to generate your report.

IPAM

IP Type

IPv4

IPv6

RIR

1918

1918-SJC

AfriNIC

APNIC

Company

2010 USA National Games

6connect Available

6connect Holding

6connect Reverse

Region

Any Region

Ashburn, VA

Boston, MA

Chicago, IL

Tag

3G Mobile

ANY

Anycast

Anycast Group 1

DC

VRF2

Is Assigned?

Is SWIPed?

Show Data

Download CSV

There are more reports in progress and they will be added to this page. For Report suggestions or feedback, email us at [support@6connect.com](mailto:support@6connect.com?subject=Report%20Ideas) | <mailto:support@6connect.com?subject=Report%20Ideas>].

## Resource Tab

### Site Tab

Dashboard

Site

DNS

IPAM

Peering

Objects

Log

Reporting

Create Customer

Logging

Reporting

This tab lists all your site records that are assigned allocations. The default sort order is by site ID, but they can also be sorted alphabetically. As on the search from the dashboard, you can modify DNS, edit site information, delete a site, or create a new site record. From this screen, you can also see a count of the zones and IP assignments for each record.

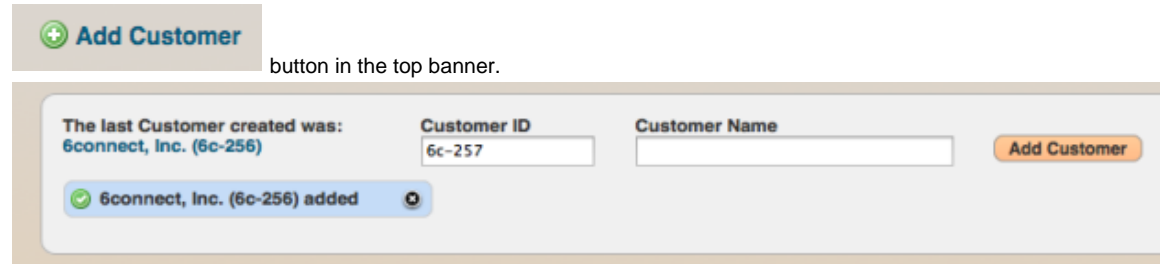
- Note: You can also sort by the Header Row by clicking on the header name. 6connect currently support sorting records by Unique ID, Name, and Custom Field.\*

### Site Record Controls

Zones	IPv4	IPv6				
2	3	2				
3	5	3				

## Creating a New Site

To create a new site record, which is required before you can add zones or IP addresses, click on the



The screenshot shows a top banner with a green plus icon and the text "Add Customer". Below it, a dialog box displays the last customer created: "6connect, Inc. (6c-256)". It includes input fields for "Customer ID" (containing "6c-257") and "Customer Name", and an "Add Customer" button. A confirmation message at the bottom states "6connect, Inc. (6c-256) added" with a green checkmark and a close icon.

The new dialog box will allow you specify the new Customer information and then Edit it as needed. It is very important that to understand the entity receiving resources must actually be a customer with a valid Customer ID to be assigned IP addresses or added to DNS.

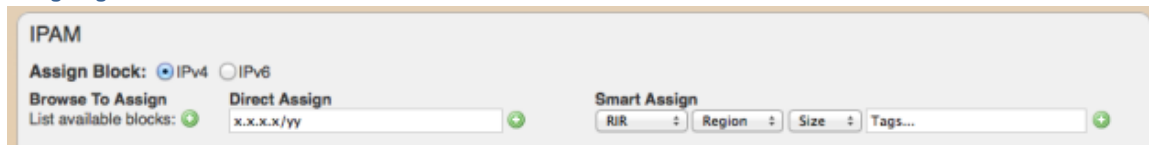
- Note: When a customer has records assigned to it, you will not be able to delete the record until you reclaim/reassign those resources.\*

Fill in the Phone, Fax, and Mailing address in the corresponding fields. Country code is not required for US companies, but is available in the Mail Country drop down list. Click "Update" to save.

- Note: For non-US addresses, select the Country first, this will change the "state" dropdown to an open text field for you to enter the address information.\*

## Assigning IP Addresses

### Assigning IP Addresses



The IPAM interface shows options to "Assign Block" for IPv4 (selected) or IPv6. It includes a "Browse To Assign" section with a "List available blocks" button and a "Direct Assign" text field containing "x.x.x.x/yy". The "Smart Assign" section features dropdown menus for "RIR", "Region", "Size", and "Tags...", each with a green plus icon for additional options.

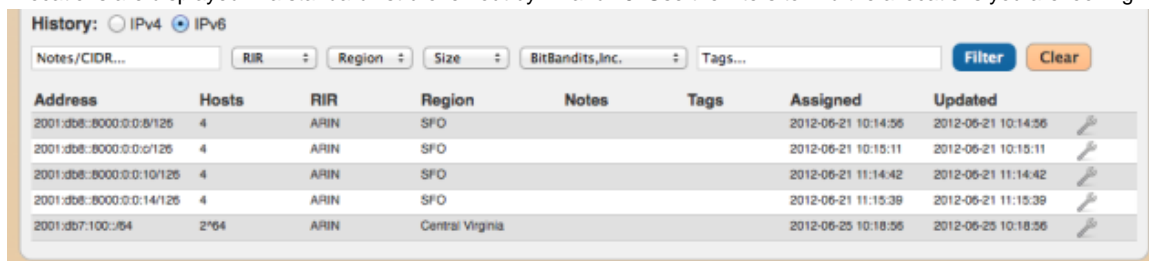
IP Block Assignments can be done in three ways from this view.

1. **Browse and Assign:** Click on the "Green Plus" icon by the IPv4/IPv6 Assignments text. This will automatically bring you to the IPAM Tab. From there you can assign an IP block and the Site record will automatically be in focus in the drop down menu.
2. **Direct Assign:** Use the text field to enter the octets/mask and then click on the "Green Plus" icon. A pop-up window will appear to confirm availability of the block for assigning. You will have the option to assign the block or cancel the operation.
3. **Smart Assign:** Use the drop down menus to select the parameters for the block you wish to assign (RIR, Region, Tag, and Block Size) and then click on the "Green Plus" button.

**\*Note: When blocks are assigned, they will appear highlighted in the assignment listing area.**

### IP Allocation History

Allocations are displayed in a standard list broken out by v4 and v6. Use the filters to find the allocations you are looking for.



The IP Allocation History table shows a list of IP allocations with columns for Address, Hosts, RIR, Region, Notes, Tags, Assigned, and Updated. The table is filtered for IPv6 and shows five entries, all assigned to BitBandits, Inc. in the SFO region.

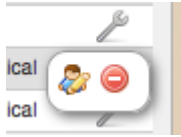
Address	Hosts	RIR	Region	Notes	Tags	Assigned	Updated
2001:db8::8000::0:8/126	4	ARIN	SFO			2012-06-21 10:14:56	2012-06-21 10:14:56
2001:db8::8000::0:c/126	4	ARIN	SFO			2012-06-21 10:15:11	2012-06-21 10:15:11
2001:db8::8000::0:10/126	4	ARIN	SFO			2012-06-21 11:14:42	2012-06-21 11:14:42
2001:db8::8000::0:14/126	4	ARIN	SFO			2012-06-21 11:15:39	2012-06-21 11:15:39
2001:db7:100::/64	2^64	ARIN	Central Virginia			2012-06-25 10:18:56	2012-06-25 10:18:56

## Managing Contacts

### Managing Site Contacts

Contacts								
First	Last	Email	Email 2	Phone	Phone 2	Mobile	TZ	Role
Aaron	Hughes	aaron@6connect.com	support@6connect.com	1-408-555-1212	1-408-555-1212	1-408-555-1212	PT	Technical
Leroy	Jenkins	leroy@gmail.com		345-223-1231			PT	
John	Parker	john@6connect.com		234.634.1234		888-call-now	ET	Technical
Tom	Taylor	taylor@toms.com		503-555-1256		866-555-1134	ET	Technical

Use the "Green Plus" icon to add a new contact under the record.



Use the "Wrench" icon to bring up the editing options for the contact. Here you can [Edit](#), or [Delete](#) the contact.

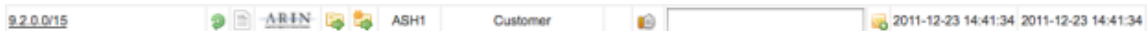
## SWIP to RIR

### How to SWIP

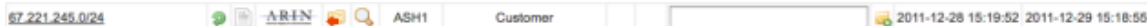
6connect has provided integration with the following RIR APIs for SWIP and de-SWIP functionality. We will be integrating with other RIRs in the future.

- **ARIN** Restful API
- **RIPE** RPSL API
- **APNIC** - Email template
- **LACNIC** - Email template
- **AfriNIC** - Email template

When you have assigned a block, you will then have the option to do a "Simple" or "Detailed" reassignments as well as "Reallocates" to ARIN. Please note that a "Detailed" reassign requires ARIN POC information and nameserver field(s) to be populated.



There is a time requirement for the request to be replicated to WHOIS (~5 minutes), during that time you will see a status icon. Once the block has been SWIPped, you will then have the option to perform a de-SWIP function and un-announce the space from the RIR.



**\*Note:** If the SWIP returns an error, hover over the SWIP icon to see what the error was and then attempt it again once the issue is addressed.

### Managing DNS

#### DNS Management

**\*Note:** For a complete Zone Editing walk through, go to [Zone Editing Tutorial](#).

DNS Management can be accomplished from this screen as well.

### DNS

New DNS Zone
No template (empty zone)
Create Zone

#### Zone Delegation

Delegated Zone	Slave IP	Site	
Enter zone name here	IPv4 or IPv6	6c-004	Add Slave

#### Zone Records

	Tags	Entries	
32.1.2.in-addr.arpa	null	1	
16.0.8.in-addr.arpa	null	1	
apple.com	null	3	

Use the "Wrench" icon to select items from the menu for additional actions.



Clicking on the "Cylinder" icon will allow you to add or delete NS records, the "Eye" icon allows you to view the Zone records and the "Delete" icon deletes the zone record. You can also get a count of the records in each zone listed.

### Adding a New Zone

To enter a new zone name, do so, and then click "Create Zone". This will put the new zone into DNS where you can view/edit/delete using the icons documented above. You can also use the [Template](#) function to assign a DNS template to a particular zone.

## DNS Delegation

In this section you can also set any DNS delegation for the customer record as needed.

## Searching

Enter the company name or a fragment thereof. IPAM returns all records that meet your criteria. From this screen you can jump to DNS administration for the zone, edit company information, delete a company from the database, or create a new company record.

The search function supports additional search parameters:

- By Octet: If you enter in "129.168", for example, the search results will consist of the IP address ranges that begin with the octet entered. This search function works for both IPv4 and IPv6.
- By Zone: Use the prefix "@" to denote you are searching for a zone and this will limit your results accordingly. If you enter in a "." followed by letters, zones will also be searched.
- By Email address
- If the search parameter contains "@" but no first character, a contact/company will be the primary search result.
- Notes fields (for IP blocks and DNS zones): Use the prefix "notes" with your query and you will be directed to a search results field.

## Navigation

### Jump to a module:

Example: "module IPAM", "log", "device", "Reporting", "ipv4", "ipv6", "admin", "DNS admin"

### Jump to a VLAN:

Example: "VLAN 10"

## Network Tools

### ping or ping6:

Example: ping arin.net would send 5 ICMP packets to arin.net

Example: ping6 arin.net would send 5 ICMPv6 packets to arin.net

### traceroute or traceroute6:

Example: traceroute arin.net traceroute to arin.net

Example: traceroute6 arin.net traceroute6 to arin.net

### host:

Example: host arin.net would host arin.net

### nslookup:

Example: nslookup arin.net would nslookup arin.net

### dig:

Example: dig arin.net would dig arin.net

### whois:

Example: whois -h whois.arin.net 192.149.252.76 would return whois information about 192.149.252.76

### scan:

Example: scan 192.168.0.0/24 would ping scan 192.168.0.0/24

### nmap:

Example: nmap -sn 192.168.0.0/24 would nmap -sn 192.168.0.0/24

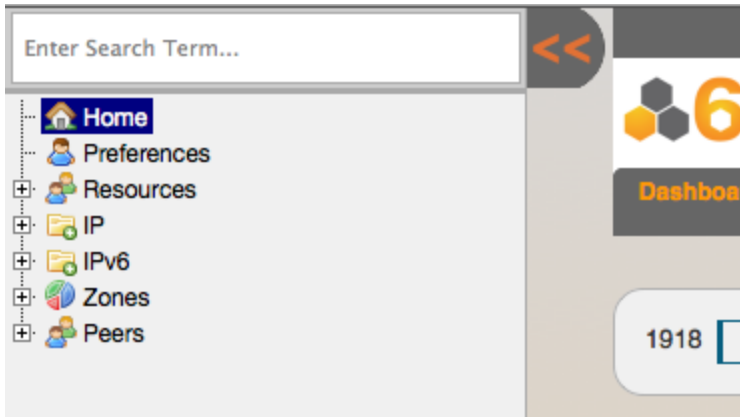
## Tree View

### Tree View

While using the 6connect platform, you also have an alternate way to view your data with our "Tree View" functionality. Simply press the button on the upper left of the interface to get an expanded pane into the platform (opens in a new window).



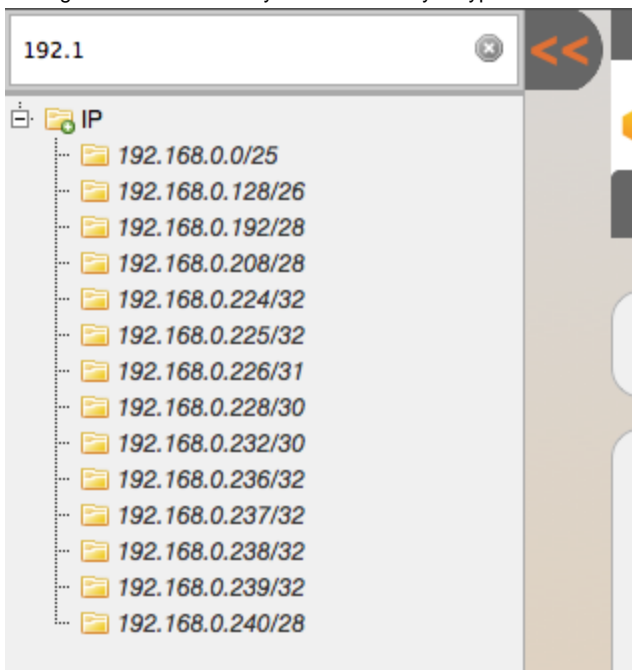
The expanded view looks like this:



As you expand and manipulate the Tree View section, the primary pane will be modified to accommodate your selection.

#### Using Tree View

While you can browse elements manually by clicking the "+" button, the Search field at the top of window will provide you the ability to to real-time filtering of items that match your criteria - as you type! Use this for Ass



## IPAM Admin

### IPAM Admin

- The ["Process Holding Tank now"](#) link will mark any block assigned to ["Holding"](#) as ["Available"](#). This command will process ALL addresses assigned to ["Holding"](#) depending on their age. The default time for release to ["Available"](#) is 30 days. If a block has not been in the holding tank for that specified length of time, it will not be released using this feature (it can be released). This is customizable via the **Admin** configuration file.
  - The ["Edit Tags"](#) link allows you Add/Edit/Sort/Remove allowable tags in the IPAM tool.
  - The ["Edit Regions"](#) link allows you Add/Edit/ Sort/Remove allowable Regions in the IPAM tool.
  - The ["Edit Contact Roles"](#) link allows you to Add/Edit/ Sort/Remove Contact Roles/Types (Abuse, Admin, Technical, etc.).
  - The ["IPv4 Subnets"](#) link allows you Add/Edit/ Sort/Remove the allowable subnets for assignment from within a record.
  - The ["IPv6 Subnets"](#) link allows you Add/Edit/ Sort/Remove the allowable subnets for assignment from within a record.
  - The ["RIR List"](#) link allows you Add/Edit/ Sort/Remove the RIR entries in the RIR drop-down menu.
  - The ["IPv4 Exact Filter"](#) link allows you to Add/Edit/Sort/Remove the [Filter by Netmask](#) entries visible on the IPAM screen dropdown.
  - The ["IPv6 Exact Filter"](#) link allows you to Add/Edit/Sort/Remove the [Filter by Netmask](#) entries visible on the IPAM screen dropdown.

## Templates

## Templates

When generating new zones, having the ability to create zone "templates" is designed to save you time and effort. Instead of having to repeatedly enter in DNS records into zones, you can now create and store templates in our platform to make generating the zones easier. The interface allows for storing multiple templates and editing them at any time.

**DNS Templates**

Name	Records	Created By	Modified
Demo Template	3	ops@6connect.com	2012-06-22 16:31:13
New Radio Tower	1	ops@6connect.com	2012-06-22 16:31:43

**Add template**

Name:

**SOA Record**

ns1.dns.6connect.net. hostmaster.6connect.net.

Serial:  Refresh:  Retry:  Expiry:  Minimum:

**Zone Records**

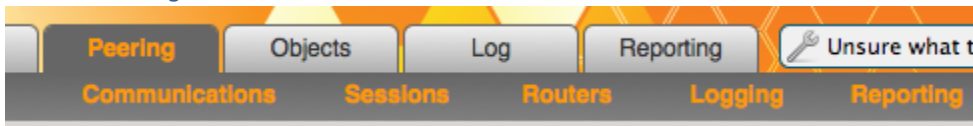
Host:  TTL:  Type:  Value:

**Save Template** **Cancel**

```
@      IN      SOA      ns1.dns.6connect.net. hostmaster.6connect.net. (
<SERIAL> ; serial
14400    ; refresh
3600     ; retry
604800   ; expire
3600     ; minimum
)
```

# 6connect Peering

## 6connect Peering



The Peering Tab consists of three functional areas:

[Communication Manager](#)

[Peering Session Manager](#)

[Router Administration](#)

## Communication Manager

### How it Works

The Communication Manager allows you track communications per exchange. You can mark peering status and even send out peering requests from the interface.

[Selecting an Exchange](#)



Exchange AMS-IX

0 % Peered 0 % Not Qualified 0 %

### Peers at AMS-IX

ASN	Network Name	State	Detail	Actions
42	Packet Clearing House AS42			
286	KPN			
559	SWITCH			
702	Verizon Business - EMEA			
855	Bell Aliant Inc.			
1103	SURFnet bv			

This is where you are able to select the Peering Exchange (per peeringdb entry) that you want to manage.

#### Setting Peer Status

Peer Status can be tracked easily from the Communication Manager. The Manager gives you three options for status tracking:

- **Existing Peer:** Marks a peer as an existing one and removes the Email icon.
- **Not Qualified to Peer:** Marks peer as "not qualified" and removes the Email icon.
- **Reset Peering Request:** Resets the status of the peer so you can select Existing or Not Qualified or Email icons.

#### Sending and Tracking Communications

- **Email Peer:** Brings up a screen to email the peering coordinator. The email template pre-populates data based on peeringdb data (To address, Subject line and Peering exchange information). You have the chance to edit the email prior to sending.

## Peering Session Manager

#### Managing Peers

##### Filter Menu:

Filter: [Peers Only](#) | [Down Sessions](#) | [IPv6 Only](#) | [IPv4 Only](#) | [List Unique Peers](#)

The links serve as active filters for isolating relevant peering entries.

[Peers only](#) will filter the sessions to only show you existing peers that you have sessions with.

[Down Sessions](#) will filter the sessions to show only the entries that are currently down or inactive.

[IPv6 Only](#) will filter the sessions to show only the entries with an IPv6 address.

[IPv4 Only](#) will filter the sessions to show only the entries with an IPv4 address.

[List Unique Peers](#) will filter out duplicate entries of peering sessions from the same ASN then provide you a single list of unique ASNs that you are peering with.

##### Header Menu:

ASN	Company Name	Location (update)	IP Address	Router	Type	Prefixes	PeeringDB	State
-----	--------------	-------------------	------------	--------	------	----------	-----------	-------

[ASN](#) is the ASN assigned to the Company listed. This field is sortable. If you click on the ASN link, the list will sort in ascending order (this is the default view of the tool).

**NOTE:** If you click on the ASN number, the session data will automatically be filtered to just the entries tied to that particular ASN. At the bottom of the screen, you will then have a list of the specific sessions present in peeringDB along with their status. If you so NOT have an active peering session for a connection, it will appear in **RED** and you can press the ["Add Session"](#) button.

[Company Name](#) is the Company Name assigned to the ASN. This field is sortable. If you click on the Company Name link, the list will sort in ascending order.

[Location](#) is based off the Exchange Names that are entered/updated from the Admin screen. This field is sortable. If you click on the Location link, the list will sort in ascending order.

**NOTE:** If you click on the Location, the session data will automatically be filtered to just the entries tied to that particular Location.

[IP Address](#) is the IP Address (IPv4/IPv6) of the session. This field is sortable. If you click on the IP Address link, the list will sort in ascending order.

[Router](#) is the Router assigned to the session. This field is sortable. If you click on the Router link, the list will sort in ascending order.

[Type](#) is the Type of session as defined by the user. When entering a new peering session, the user can specify the type of session (Peer, Peer-PNI, Customer, Upstream, Unknown). This field is sortable. If you click on the Type link, the list will sort in ascending order.

[Prefixes](#) are the number of prefixes learned from public exchanges or private peering connections. This field is sortable. If you click on the Prefixes link, the list will sort in ascending order.

[PeeringDB](#) is a direct link to the ASN's entry in PeeringDB. It will open up the link in a new browser window.

[State](#) displays the state of the listed peering session (prefixes receiving, Active, Down, Admin, etc.). This field is sortable. If you click on the State link, the list will sort in ascending order.

#### Actions:



Mouse over any icon and it will describe its function, clicking on the icon will perform the action. From left to right:

"[Stop Sign](#)" deletes the peering sessions from the assigned peer.

"[Paper with Pencil](#)" brings you to a dedicated editing screen to modify the peering session from its initial values. The editable fields will appear below the current peering session entry. Press the "[Update](#)" button to apply your edits to the session data.

"[Gear with Pencil](#)" allows you to configure the parameters of the peering session. This will bring up the current router configuration in a text frame for review. Below this frame is the new configuration text that will be pushed to the router. If the configuration is correct, click the "[Push the config](#)" link to send the configuration to the router. You will receive a confirmation message when the process is complete.

"[Unplugged](#)" de-peers the sessions from the assigned peer.

"[Closed Door](#)" shuts down the session with the assigned peer.

"[Open Door](#)" doesn't shut down the session with the assigned peer.

## Router Administration

### Managing Exchange Routers

Exchange routers are updated from your peeringdb entry.

The "[Edit Router](#)" link will allow you edit relevant router information including Router Type and v4/v6 Peer groups.

Once the Routers have been added, you will see a more details on the right side table.

This Management screen also lets you [Delete](#) your ASN specific sessions from the tool, [Delete](#) "Unknown" peers from the tool, [Create State Script](#) once all routers are entered, and [Update](#) UNKNOWN Company names from whois data.

## CLI (Beta)

### Command Line Interface - BETA

- [Overview](#)
- [CLI Commands \(BETA\)](#)

### Overview

The command line interface for ProVision is a beta feature that has been release for feedback.



#### How to Access the CLI from your browser

When logged into ProVision via a web browser, use the key combination "Control+Shift+S" or "Control+Shift+~" to access/close the CLI

## CLI Commands (BETA)



#### CLI Help

When in the CLI, type:

```
ipam man
```

for sample commands and syntax

Currently, the CLI supports the following commands:

ipam <command> [-t] [<cidr>] [<resource name>] [<args>]

show: show details for a block. Examples:

- "ipam show 10.0.0.0/8" will show details for the block 10.0.0.0/8

- "ipam show holding" will show details for all blocks in the Holding Tank

- "ipam show "<resource name>" will show details for all blocks assigned to <resource name>

add: add a block. ex: "ipam add 192.168.0.0/24"

update: update attributes for a block. ex: ipam update 192.168.0.0/24 --vlan=100 tags=VM,Dev

assign: assign a block to a resource. ex: ipam assign 192.168.0.0/24 "<resource name>"

assign: smart assign a block to a resource. ex: ipam assign --mask=24 --rir=ARIN --type=ipv4 "<resource name>"

unassign: reclaims a block from a resource and places it in the Holding Tank. If the block is already in the holding tank, reclaims it and makes it available.