



# RHN SATELLITE: BEST PRACTICES FOR MULTIPLE ORGANIZATIONS

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Red Hat Satellite 5.1 supports the creation and management of multiple organizations within one Satellite installation, allowing for the division of systems, content, and subscriptions across different organizations, departments, or other specified groups. This guide will help you understand and make the most of this new capability, guiding you through some basic best practices in a task-oriented manner.

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## SETTING UP YOUR 5.1 SATELLITE

### What You'll Need To Get Started

Whether you are installing a fresh Satellite or upgrading an older version of Satellite, you'll need the following things to get a Multiple Organization Support ('multi-org') Satellite up and running:

- Satellite Certificate for Satellite 5.1 (Contact Red Hat Technical Support to obtain a 5.1 certificate; see <http://www.redhat.com/apps/support> for contact information)
- An RHN hosted (rhn.redhat.com) account with sufficient Satellite subscriptions available (if not running Satellite in disconnected mode.)
- Satellite 5.1 ISO image:
  - Red Hat Network Satellite (v5.1 for AS v4 x86):  
<https://rhn.redhat.com/rhn/software/channel/downloads/Download.do?cid=7977>
  - Red Hat Network Satellite (v5.1 for AS v4 x86\_64):  
<https://rhn.redhat.com/rhn/software/channel/downloads/Download.do?cid=7978>
  - Red Hat Network Satellite (v5.1 for AS v4 s390):  
<https://rhn.redhat.com/rhn/software/channel/downloads/Download.do?cid=7979>
  - Red Hat Network Satellite (v5.1 for AS v4 s390x):  
<https://rhn.redhat.com/rhn/software/channel/downloads/Download.do?cid=7980>
- A system with Red Hat Enterprise Linux AS 4. Minimum requirements:
  - **Software:** Red Hat Enterprise Linux AS 4 (x86, x86\_64, s390, or s390x architecture) with the @Base package group installed.
  - **Hardware:** Please refer to the *Red Hat Network Satellite 5.1.0 Installation Guide* for detailed Hardware requirements.

### Installing Satellite 5.1 On A New System

If you are installing Satellite 5.1 on a new system, please refer to the instructions in the *Red Hat Network Satellite 5.1.0 Installation Guide* available at:

[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Installation\\_Guide](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Installation_Guide)

### Upgrading To Satellite 5.1 From A Previous Satellite Installation

If you would like to upgrade an existing Satellite installation to Satellite 5.1, you will want to refer to the following set of instructions in the Red Hat Knowledgebase:

How is Red Hat Network (RHN) Satellite upgraded to the most current version? (Article ID: 8610)

[http://kbase.redhat.com/faq/FAQ\\_49\\_8610.shtm](http://kbase.redhat.com/faq/FAQ_49_8610.shtm)

We strongly recommend reading through this document in its entirety to understand how upgrading to Satellite 5.1 will affect your existing Satellite before you go through the upgrade process. You will want to take particular note of the following sections in the 'Pitfalls to Watch Out For' chapter of this document:



- 'Which Users Get Satellite Administrator Access After an Upgrade to Satellite 5.1?' (page 17)
- 'Activation Key Format Change With Upgrade to Satellite 5.1' (page 17)
- 'RHN Proxy Server and Monitoring Behavior on a Multi-Org Satellite' (page 18)

## RECOMMENDED MODELS FOR USING MULTIPLE ORGANIZATIONS

The multiple organization support feature for Satellite adds a new realm of possibilities for how Satellite can fit into your organization. Outlined here are a couple of example usages of the multi-org feature. We hope these can serve as good examples of the feature's possibilities and help guide you in determining how to make the most of this feature for your organization. It is certain that there are other ways of utilizing this feature (please share your usage with us!), but these two cases are what we anticipate to be the most common.

If you are not sure that usage of the multi-org feature is right for your organization at this time, please note that you can use Satellite 5.1 in the same one-organization manner that you have always been able to. Installing or upgrading to Satellite 5.1 does not require that you make use of the multi-org feature. You may create additional organizations on your Satellite and start using those organizations at whatever pace makes the most sense for you. It is a good idea to create an additional organization and use it on a trial basis for a limited set of systems/users to fully understand the impact of a multi-org Satellite on your organization's processes and policies.

### Centrally-Managed Satellite for A Multi-Department Organization

(See *Figure 1*) In this example, the Satellite is maintained by a central group within a business or other organization. The Satellite administrator(s) of organization #1 (the initial organization created during Satellite organization) treat organization #1 (the 'Administrative Organization') as a staging area for software and system subscriptions and entitlements. The Satellite administrators' responsibilities include the configuration of the Satellite (any tasks available under the 'Satellite Tools' area of the web interface), the creation and deletion of additional Satellite organizations, and most importantly the allocation and removal of software and system subscriptions and entitlements.

Additional organizations on the Satellite in this model are mapped roughly to departments within an organization. A suggestion for deciding at what level to divide up the various departments in your organization is to think about the lines along which departments purchase subscriptions and entitlements for use with Satellite. It may make the management of entitlements of your Satellite organizations a little easier if you know that the systems in each organization share a common cost center. However, you know your organization better than we can; if a better model for mapping departments in your organization to Satellite organizations is apparent to you, then you should consider that method as well.

To maintain maximum centralized control over organizations in your Satellite, we recommended reserving an organization administrator account under each newly-created organization so that you may access that organization at a later time. For more details on this, please refer to the 'Maintaining Central Control Over Each Organization' section on page 12.

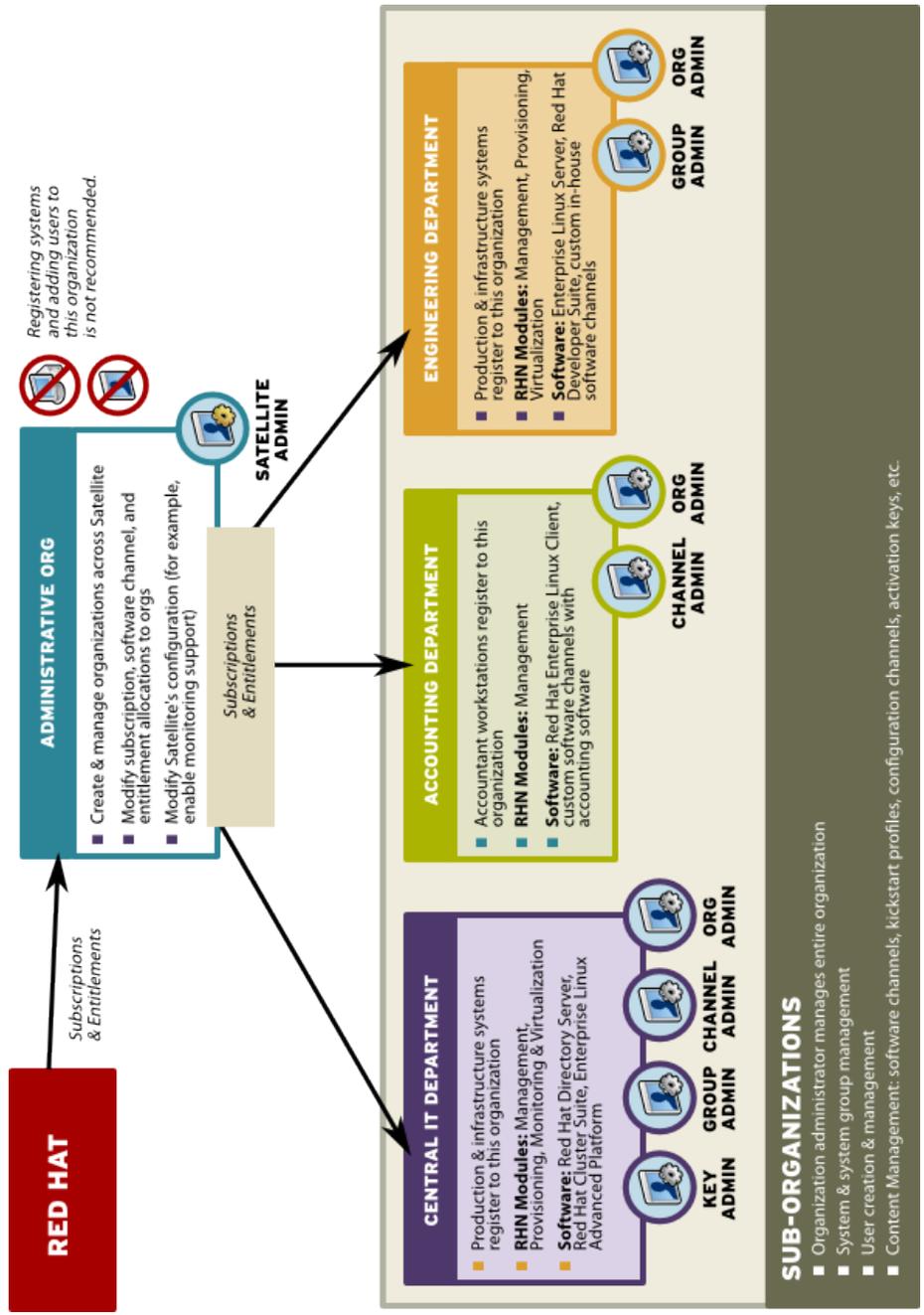


Figure 1: Centrally-Managed Satellite for A Multi-Department Organization



## **Decentralized Management of Multiple Third Party Organizations**

(See *Figure 2*) In this example, the Satellite is maintained by a central group, but each organization is treated separately without relations or ties to the other organizations on the Satellite. Each organization may be a customer of the group that manages the Satellite application itself. While a Satellite consisting of sub-organizations that are all part of the same company or organization may be an environment more tolerant of sharing systems and content between organizations, in this decentralized example sharing is less tolerable.

You will not need to worry about one organization consuming entitlements another organization has purchased; entitlements may be allocated in specific amounts to each organization. Each organization will have access to any Red Hat-provided content that you have synced to the Satellite if the organization has software channel entitlements for the content. However, if one organization pushes custom content to their organization, it will not be available to other organizations. You cannot provide custom content that is available to all or select organizations without re-pushing that content into each organization you would like it to be available to. This requires API scripting (see 'Sharing Software Content Centrally' on page 13.)

In this scenario, you may or may not wish to reserve an account for yourself in each organization so that you may have login access. If you are using Satellite to provide managed hosting services to external parties, for example, you will want to reserve an account for yourself so that you may access systems in that organization and push content to it. However, if you are using Satellite to provide unmanaged hosting services, you may wish to refrain from reserving an account for yourself in each organization to preserve each organization's privacy.

## **GENERAL BEST PRACTICES FOR MULTI-ORG SATELLITE USAGE**

Regardless of the specific model above you are following in the management of your multi-org Satellite, the best practices list below should be useful. We recommend reading through this list before setting up your multi-org Satellite so that you are fully-informed of the feature's capabilities and current limitations.

### **Recommended Usage of the Administrative Organization**

We do not recommend using the administrative organization (organization #1) for registering systems and creating users in any situation except if you intend to use Satellite as a single organization Satellite or are in the process of migrating from a single organization Satellite to a multiple organization Satellite. This is due to a few reasons:

1. The first organization is treated as a special case with respect to entitlements. You can only add or remove entitlements to this organization implicitly by removing them or adding them from the other organizations on the Satellite.
2. This organization is intended to be a staging area for subscriptions and entitlements. When you associate the Satellite with a new certificate, any new entitlements will be granted to this organization by default. In order to make those new entitlements available to additional organizations, you will need to explicitly allocate those entitlements to additional organizations from the administrative organization.

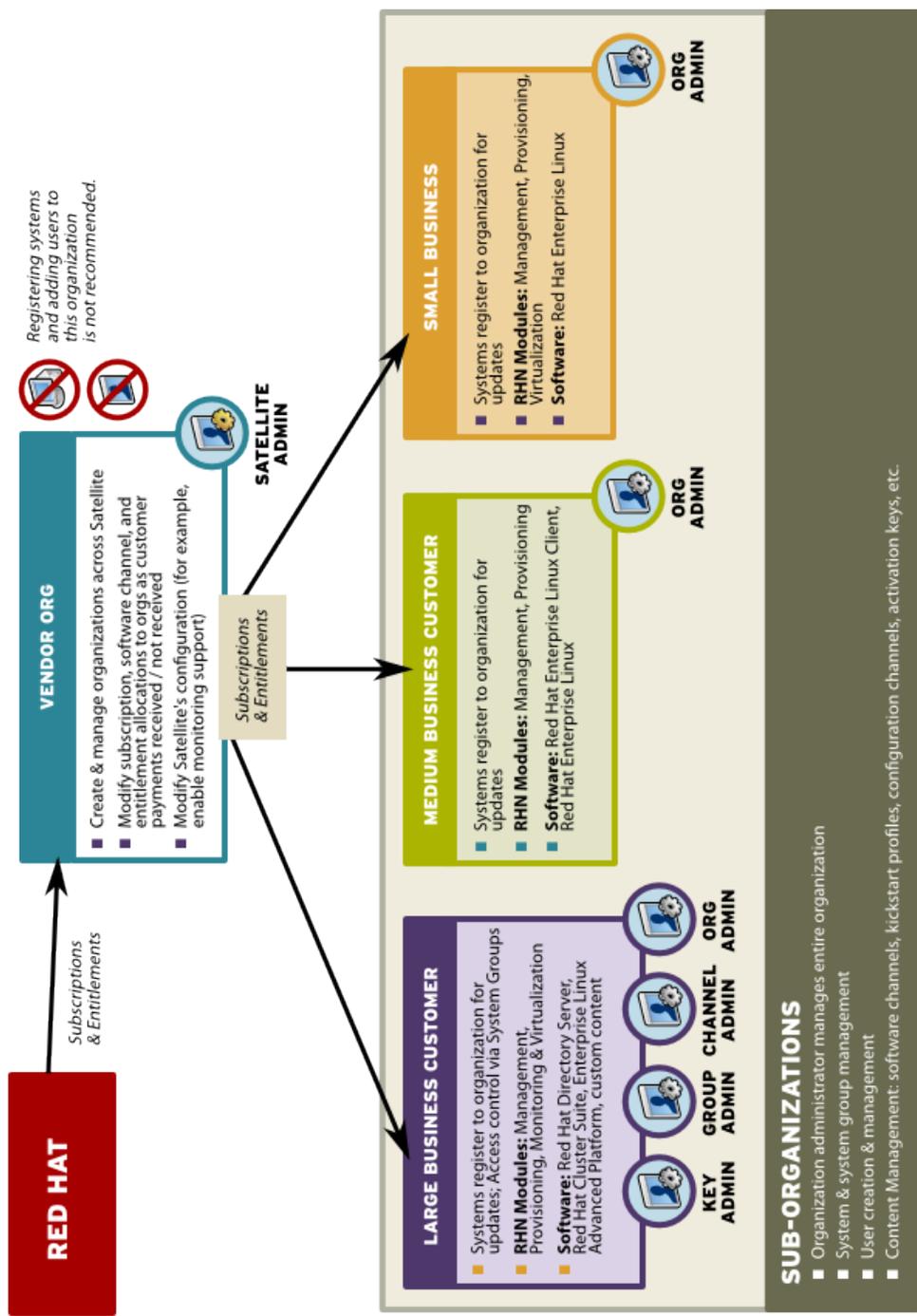


Figure 2: Decentralized Management of Multiple Third Party Organizations



If you do end up treating the administrative organization as any other organization, do understand that this organization's usage of subscriptions and entitlements will be more difficult to control than the usage of other Satellite organizations. If you have upgraded a previous version of Satellite to a Satellite with multi-org support, we recommend managing organization #1 as you had always managed it, and slowly, organization-by-organization, move your users and systems to new additional organizations on the Satellite. When the last organization is migrated out of organization #1, you will then be able to treat it as an administrative organization as recommended here.

## **Creating New Organizations**

*(See Figure 3)*

The Satellite web interface screen to create new Satellite organizations is reasonably straightforward (logged in under a login with Satellite administrator privileges, visit Satellite Tools > Organizations > (+) create new organization to access it,) but we will point out some best practices to consider during and after the organization creation process.

### **Organization Name**

Satellite organizations are easily renamed after creation, so you need not worry if there is a reorganization at your business or if a department decides to change their name or focus.

### **Initial Organization Administrator Account**

You will want to consider reserving the initial organization administrator account for yourself if you would like to log into this organization at some future point. For more details, please see 'Maintaining Central Control Over Each Organization' on page 12.

If your Satellite is configured for PAM authentication, you will probably want to avoid using PAM accounts for the initial organization administrator account for new organizations. It is better practice to create a Satellite-local account for organization administrators and reserve PAM-authenticated accounts for Satellite logins with less elevated privileges. This is because you do not want to encourage your users to always log into Satellite with elevated privileges, as the potential for making mistakes is higher using these accounts.

It's a good idea to create a login name for the initial organization administrator that demonstrates what organization it is for. For example: "orgadmin-mktg," "eng-dept-admin," etc. This will make it easier to figure out which login you need to use to access a particular organization at a later point in time.

English (change) | RED HAT NETWORK SATELLITE | Knowledgebase | Documentation | Systems | LOGGED IN: admin | Preferences | Sign Out | Search

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NO SYSTEMS SELECTED

## Create New Organization

Organizations Subscriptions Users Satellite Configuration Task Engine Status

Organization Details

Organization Name\*: Marketing Department  
Tip: Between 3 and 128 characters

Create Initial Organization Administrator

Your **Satellite Administrator** role will not allow you to login into or modify this new organization, and your Satellite login cannot be a member of more than one organization. Consequently, you will need to create a new login for the initial **Organization Administrator** for this organization:

Desired Login\*: `satadmin-mktgdept`  
Tip: Between 5 and 64 characters  
Examples: 'sales-admin', 'admin\_prodops@example.com', 'sales.admin'

Desired Password \*:  
Confirm Password \*:

Pluggable Authentication Modules (PAM):  
If you would like to set up your satellite to authenticate against LDAP, kerberos, and other network-based authentication systems, please visit the [reference guide](#) for instructions on how to set up PAM.

Email \*:  
First Name \*: Dr.  
Last Name \*:

\* - Required Field

Create Organization

Figure 3: Screenshot of the Satellite Screen for Creating a New Organization



## **Steps to Follow After Organization Creation**

After creating the organization, there are a few steps you will want to run through in order to get the organization up and running:

1. The first thing you will want to do is go to the new organization's system entitlements screen (Satellite Tools > Organizations > click on the organization's name > Subscriptions) and grant some management entitlements to the organization. Management system entitlements are a base requirement for an organization to function in Satellite. If you notice that the top-level "Users" tab of a new Satellite organization is missing and that attempts to register systems to it always fail, it is likely that you have forgotten to allocate management entitlements to the organization. The number of management entitlements allocated to an organization is equivalent to the maximum number of systems that may register to that organization on the Satellite, despite the number of software entitlements available. (For example, if you've provided 100 Red Hat Enterprise Linux Client entitlements but only 50 management system entitlements to an organization, only 50 systems at maximum will be able to register to that organization.)
2. Next, you'll want to allocate appropriate amounts of software subscriptions and other system entitlements to the organization. This can be done in the same area of the web interface as referenced above (Satellite Tools > Organizations > click on the organization's name > Subscriptions.)
3. You will want to make sure you grant the 'RHN Tools' software channel entitlements to each organization such that every system in that organization may subscribe to this channel. This channel is important as it contains various client software required for extended Satellite functionality, such as clients necessary for configuration management and kickstart support as well as the `rhn-virtualization` package which is necessary for the entitlements of Xen virtual guests to be counted correctly in accordance with the Red Hat Enterprise Linux subscription they are associated with.
4. If you have any custom software channel content you'd like to make available to this organization, you may want to add it now. See 'Sharing Software Content Centrally' on page 13 for more details.
5. Finally, if you reserved the initial organization administrator account in this new organization for yourself, you will want to log out of the Satellite web interface and log back into the Satellite using your account in the new organization. Visit the top-level 'Users' tab and create a new organization administrator account in the organization for the person (or people) you expect to manage this organization. Satellite will automatically send a notice of this new account's creation to both you and the user you created it for.

A general guideline for assigning subscriptions and entitlements to new organizations is that you will want the total number of base/parent software channel entitlements to be equal to the number of management system entitlements, and you will also want the same number of RHN Tools software entitlements allocated to the organization. Here is an example of how to assign entitlements that are fully usable to an organization and not wasteful of the total number of entitlements and subscriptions on your Satellite certificate:



- Red Hat Enterprise Linux Client: 50 entitlements
- Red Hat Enterprise Linux Server: 50 entitlements
- Red Hat Network Tools: 100 entitlements
- RHN Management System Entitlement: 100 entitlements

## **Maintaining Central Control Over Each Organization**

As Satellite administrator you are given the ability to create each organization, and the creation process involves setting up the first organization administrator for that organization. Make sure that when you create a new organization, you reserve that initial organization administrator account for yourself by filling your details out in the 'Create Initial Organization Administrator' section of the 'Create New Organization' screen. A suggested naming scheme for this login is: "satellite-admin-n", where n is the number of the organization. (You may also substitute the department name for the n.) Then, log into the organization after creation using your satellite-admin-n login and password, and create the second organization administrator underneath the 'users' tab of your n-organization. This second organization administrator account can be assigned to the person you've designated to own the organization and you may fill his or her details in when creating it and pass the login details to that person.

## **Basic Satellite Organization Management Tasks**

### ***Registering Systems to Organizations***

Registering a system against a particular organization on your Satellite is a relatively simple process. There are two basic ways to do this:

#### **1. Registering Using Login & Password**

If you provide a login and password that is a member of the target organization, a system will be registered against the same organization the user is a member of. For example, if user -123 is a member of your Central IT organization, the following command would register the system it is run on to the Central IT organization on your Satellite:

```
rhncpkey --username=user-123 --password=foobar
```

Please note that neither the `--orgid` parameter (for RHEL 4 and 5) nor the `--orgpassword` parameter (in RHEL 4) for `rhncpkey` are used within the context of a satellite registration. These flags are unrelated to Satellite's multiple organization support.

#### **2. Registering Using An Activation Key**

You may also register a system to an organization using an activation key from that organization. Activation keys will register systems into the organization that the activation key was created in. Activation keys are a good registration method to use if you would like to allow users to register systems into an organization without providing them login access to that organization. If you have a scenario in which you would like to



move systems between organizations, you may also script the system's move between two organizations and protect login credentials into that organization by using an activation key for each organization in your script.

Note that activation keys have a new format in Satellite 5.1 (See 'Activation Key Format Change With Upgrade to Satellite 5.1' on page 17) so the first few characters of the activation key are used to indicate which organization (by ID number) owns the activation. (See 'Custom Software Channel Disk Space Usage' on page 20 for more details on how to look up the ID number of an organization.)

### ***Sharing Software Content Centrally***

In Satellite 5.1, only Red Hat-provided channels are available to all organizations on the Satellite. Any custom builds of Red Hat or other software that you would like to provide in custom channels will need to be re-pushed (using the `rhnpush` tool) to custom channels underneath each organization. This process can be made easier with some automation using the newly-expanded Satellite API. We have provided a sample script to accomplish this on page 15. (The Satellite Team is currently investigating better channel sharing support in a future release of the Satellite product.) To push content to a particular organization, you simply need to use the `rhnpush` tool with a Satellite login with organization administrator privileges associated with the target organization (For more details on using the `rhnpush` tool, refer to section 6.2 of the *Satellite Channel Management Guide*.)

We recommend only pushing production-level content to organizations across your Satellite. See 'Protecting Production Systems from Pre-Release Content' on page 16 for more information.

Script 1 on page 15 is a script that will help automating the push of the same custom content to multiple organizations at once. To use this script:

1. Modify `SATELLITE_HOST` to reflect the fully-qualified domain name of your Satellite.
2. You'll also want to fill out `SATELLITE_LOGIN_HASH` with logins and passwords (in the form 'login\_goes\_here': 'password\_goes\_here') into each organization you'd like to push the content to.
3. Next, fill out `CHANNEL_INFO` with the details you'd like filled in for the channels you are going to create in each organization and fill out `PKG_CONTENT_DIR` to point to a directory of the RPM packages you'd like to push into the channel.
4. Finally, fill out `SUFFIX_HASH` to map each login to a particular organization. For example, if `prad03` is a login in the engineering department account, you can associate this login with the term 'eng' to make that clear. This 'eng' suffix will be applied to the end of the software channel label for that org. So for example, if my `SUFFIX_HASH` is `SUFFIX_HASH = {'prad-engdept' : 'eng', 'prad-mktgdept' : 'mktg'}` and the desired channel label I entered into `CHANNEL_INFO` is 'rhel4-as-', then the label for the channel in the engineering department's organization will be 'rhel4-as-eng' and in the marketing department it will be 'rhel4-as-mktg.' This is necessary because channel labels must be unique across organizations on a Satellite.



## ***Bootstrapping Systems & Sharing Kickstarts Centrally***

Satellite 5.1 does not yet have a mechanism for sharing or migrating kickstart profiles across organizations.

One suggestion for maintaining centralized kickstart profiles would be to create a bootstrap organization specifically for this purpose. All of your centrally-managed kickstart profiles should be stored in this organization. The Satellite's bootstrap file would also belong here, so that bootstrapped systems by default would register to this organization. (Please review 'Satellite Bootstrap Script' on page 22 for an important warning.)

When you bootstrap or kickstart systems with Satellite with this setup, they will register to the bootstrap organization by default. However, you may add a post-script to each kickstart profile (and to the Satellite bootstrap file) containing logic to determine which organization the system belongs to and then re-registering the system to the appropriate organization using a login that is a member of that organization. Then, you might want to add a small API script to go through and delete any system profiles generated in the kickstart organization as a part of this process. (You could have this script run every night via `crond`, and have the bootstrapped and/or kickstarted systems register to a designated system group so the script can simply delete systems in that system group nightly.)

This will also give you a picture of what systems are registering to your Satellite across organizations, and as part of your nightly 'deleting old profiles' script you could write out a list of systems to use as an auditing log for system registration to your Satellite.

## ***Transferring Systems Between Departments***

Currently in Satellite 5.1 there is not yet a mechanism for transferring systems between organizations beyond re-registering the system. If you need to transfer a system from your IT department to your Engineering department, you will need to re-register it to the Satellite by using `rhnreg_ks` with a login that is a member of the Engineering organization. In order to reclaim the subscriptions and entitlements the system consumed, the IT organization would then need to delete that system's profile from their Satellite organization. The downside to this is that you will lose the system's history as accumulated in its system profile. However, in many cases the system history would not be very useful if it referred to content that is not accessible by the system's new organization.

A reasonable way for this transfer to occur, if the system is changing ownership between two departments, is to run through the following steps:

1. Back up the system's profile. Make use of the system API to record details about the system and store them in a safe location.
2. Audit the system to see what kinds of content it is using. Is the system subscribed to configuration channels that won't be available in the new organization? Is the system subscribed to software channels that won't be available? Advise the system's new owner of any content that the system is consuming now that may not be available after its move to a new organization.



```
#!/usr/bin/env python

"""
Script to :
- create unique channels for given users
- Push Content to the same for each user
"""

import os
import xmlrpclib

# Fill out the following variables to suit your Satellite, organizations, and channel content
SATELLITE_HOST = "test10-64.rhndev.redhat.com"
SATELLITE_URL = "http://%s/rpc/api" % SATELLITE_HOST
SATELLITE_LOGIN_HASH = {'prad03': 'redhat', 'prad02' : 'redhat'}
SUFFIX_HASH = {'prad03' : '03', 'prad02' : '02'}
CHANNEL_INFO = {'label' : 'channel-',
                'name' : 'channel-',
                'summary' : 'dummy channel',
                'archLabel' : 'channel-ia32',
                'parentLabel' : ''}
PKG_CONTENT_DIR = '/tmp/upload/'

client = xmlrpclib.Server(SATELLITE_URL, verbose=0)

def getKeys(users):
    """
    Generate session key for each user
    """
    keylist = {}
    for login,password in users.items():
        sessionkey = client.auth.login(login, password)
        keylist[login] = sessionkey
    return keylist

def createChannels(keylist, info):
    """
    Create unique channels per user
    """
    channel_list = {}
    for login,key in keylist.items():
        # create channel under each org
        # Channel label,name should be unique
        label = info['label'] + SUFFIX_HASH[login]
        name = info['name'] + SUFFIX_HASH[login]
        try:
            print "Creating Channel: ",label
            client.channel.software.create(key, label, name, \
                                           info['summary'], info['archLabel'], \
                                           info['parentLabel'])
        except xmlrpclib.Fault, e:
            print e
        channel_list[login] = label
    return channel_list

def pushContent(users, channels):
    """
    Invoke rhnpush to push packages to channels
    """
    for login,password in users.items():
        print "Pushing Content to %s" % channels[login]
        push_cmd = 'rhnpush --server=%s/APP --username=%s --password=%s \
                    --dir=%s --channel=%s -vvvv --tolerant --nosig' % \
                    (SATELLITE_HOST, login, password, PKG_CONTENT_DIR, \
                     channels[login])
        os.system(push_cmd)

def main():
    # Create Session keys
    keys = getKeys(SATELLITE_LOGIN_HASH)
    # Create channels
    channel_list = createChannels(keys, CHANNEL_INFO)
    # push content to channels
    pushContent(SATELLITE_LOGIN_HASH, channel_list)

if __name__ == '__main__':
    main()
```

**Script 1: Push custom content to many organizations at once with this script**



3. Provide the system's new owner shell access to the machine to re-register it using their login. Since their login is a member of the new organization the system is to be moved to, the system will correctly register to that organization.
4. When the new system owner has confirmed that the machine has been re-registered, you may then delete the system's profile out of your organization.

### ***Sharing Other Content Centrally***

Unfortunately, Satellite 5.1 does not yet have a mechanism for sharing or migrating activation keys, configuration channels, or configuration files. For this content to be accessible by multiple organizations, it will have to be re-created in each organization. One of the complications of sharing these forms of content is that in most cases they depend on other content that is organization-specific. For example, if a shared activation key depended on a configuration channel that was not available in another organization, the activation key would fail in that other organization.

### ***Protecting Production Systems from Pre-Release Content***

You will probably want to keep development and testing versions of your custom Red Hat Enterprise Linux builds in an organization specifically designated for pre-release software. You can restrict access to this pre-release content by only pushing production-quality content to other organizations. You may wish to further partition pre-release software by only making the pre-release versions (e.g., development, testing, and staging versions) available in each respective organization that works on that content. For example, a development team working on package foo would not have access to pre-release versions of package bar which is developed by another team. This depends on your environment and how the organizations interact, so use your judgment and your knowledge of your organization to decide the best way to do this.

### ***Restricting Access to Department-Licensed Software***

What if your engineering department has an engineering-department-only license to a particular piece of software? If you maintain an organization administrator account in the engineering department's organization, you (or any organization or channel administrator in the organization) can push this software to a channel in the engineering organization. If you do this, only systems registered to that organization may access the software.

### ***Managing Subscriptions and Entitlements***

One of the largest web interface differences you'll note between older versions of Satellite and Satellite 5.1 is the expansion of the 'Satellite Tools' area. Much of the new screens in this area are dedicated to making the subscription management tasks of a multi-organization Satellite easier to accomplish. This section of the interface was designed mindful that many organization may need to change entitlements across multiple organizations at a single time, for example on a quarterly or annual basis.



There are two basic ways to modify the entitlements or subscriptions allocated to a particular organization on your Satellite. You may browse to a particular subscription's details page under Satellite Tools > Subscriptions and visit the 'Organizations' tab of that subscription to modify the allocation of that single entitlement across multiple organizations on one screen. You may also browse to a particular organization's details page under Satellite Tools > Organizations and modify that organization's allocation of any system or software entitlement on one of two screens, each dedicated to the specific type of entitlement.

Note that as mentioned earlier in the 'Recommended Usage of the Administrative Organization' section on page 7, the first organization on your Satellite (the 'administrative organization') is treated in a different manner than all other organizations on the Satellite with respect to entitlements. As soon as you activate a Satellite Certificate on your Satellite, any new additional entitlements on the certificate will be assigned to this organization by default, and will need to be allocated to other organizations on the Satellite out of the administrative organization's entitlement pool. The administrative organization can not have its entitlements de-allocated in the same manner as the other organizations because it is essentially the entitlement pool that provides to all of the other organizations on the Satellite. In order to decrement entitlements from this special organization, you will need to allocate those entitlements to other organizations on the Satellite.

## **PITFALLS TO WATCH OUT FOR**

### **Which Users Get Satellite Administrator Access After an Upgrade to Satellite 5.1?**

If you have upgraded to Satellite 5.1 from a previous version of Satellite, note that any users who were marked as organization administrators in your Satellite will also have the 'Satellite administrator' role applied to their accounts. This will give them access to the Satellite Tools menu with controls for configuring the Satellite as well as viewing and modifying entitlement and subscription allocations to all of the organizations on the website. (Note that in previous versions of Satellite, the 'Satellite Tools' menu was available to all organization administrators, but now is not available to users with this role unless they also have Satellite administrator privileges.)

You may wish to downgrade any organization administrator users you do not wish to have Satellite administrator privileges before you upgrade to Satellite 5.1 by removing their organization administrator role. You can also remove the Satellite administrator role from these users after you upgrade in the web interface under Satellite Tools > Users by clicking the icons in the 'Satellite Admin?' column.

### **Activation Key Format Change With Upgrade to Satellite 5.1**

If you have upgraded to Satellite 5.1 from a previous version of Satellite, you'll also want to note that an updated activation key format will be applied to any new activation keys that you create or any existing activation keys for which you modify the key string. The new activation key format prepends keys with a number and a hyphen to indicate to which organization on the Satellite the keys belong.

After an upgrade, your old activation keys in the administrative organization will remain the same and continue to work. However, if you decide to change the key string field of an old activation key and update it, it will be prepended with a '1-' string, to indicate each key is a member of organization 1 (the administrative



organization.) For example, if you used to have a 'rhel4as-server-x86' activation key, if you modify the key string to be 'rhel4as-web-server-x86' the actual key string will be modified to '1-rhelas4-web-server-x86' and the old activation key string will no longer work. Modifying any other fields of an older, pre-upgrade-to-Satellite-5.1 activation key will not result in the key having a string prepended to it; only modifying the key string field will cause this modification.

## **RHN Proxy Server and Monitoring Behavior on a Multi-Org Satellite**

RHN Proxy and Monitoring Scouts are treated as cross-organization, shared resources for usage by all organizations on a Satellite, independent of which organization the RHN Proxy is registered and managed within or in which organization the monitoring scouts reside.

## **What Happens to My Subscriptions When I Activate a New Satellite Certificate?**

This is a very good question and an action you should be aware of the consequences of, especially in the context of a multi-org Satellite:

### ***Certificate Has Less Entitlements Than I Am Using***

If you are issued a new Satellite certificate and it contains less entitlements than the systems in the various organizations on your Satellite are consuming, you will be unable to activate this new certificate when uploading it through the Satellite's web interface under Satellite Tools > Satellite Configuration > Certificate, uploading it through the `rhel.redhat.com` profile of the Satellite system under the 'Satellite' tab, or by running the `rhel-satellite-activate` command. You will get an error saying there are insufficient entitlements in the certificate.

There are a couple of ways you can shrink your usage of entitlements in order to activate your new certificate. We do recommend evaluating each organization on your Satellite's entitlement usage and making a judgment on which organizations should give up some of their entitlements based on your knowledge of your business. You can then contact each organization administrator directly and request that they unentitle or delete the system profiles of extraneous systems in their organizations. If you have login access to these organizations, you can even do this yourself. Logged in under a Satellite administrator role, though, you cannot decrement the allocated entitlements to an organization below the number of entitlements that organization has actively associated with system profiles.

However, we understand that there are some situations in which you need to free up those entitlements and do not have a lot of time to do so, and may not have access to log into each organization in order to do this yourself. There is an option in multi-org Satellites that will allow the Satellite administrator to decrement an organization's entitlement count below their usage from the administrative organization. For example, using this option, if your certificate is 5 system management entitlements shy of being able to cover all registered systems on your Satellite, the 5 systems that were most recently registered to that organization will be unentitled. This process is described below:



1. In the `/etc/rhn/rhn.conf` file, set `web.force_unentitlement=1`
2. Restart Satellite (needed one time only)
3. Reduce the allocated entitlements to the desired organizations either via each organization's 'Subscriptions' tab or via individual entitlement's 'Organizations' tabs.
4. A number of systems in the organization should now be in an 'unentitled' state. The number of systems unentitled in the organization will be equal to the difference between the total number of entitlements you removed from the organization and the number of entitlements the organization did not have applied to the systems. For example, if you removed 10 entitlements from the organization in step 3, and the organization has 4 entitlements that were not in use by systems, then 6 systems in the organization will be unentitled.

After you have freed up the sufficient number of entitlements required, you should then be able to active your new Satellite certificate. Note that modifying the `web.force_unentitlement` variable is only necessary to decrement an organization's allocated entitlements below what they are using. If an organization has more entitlements than are being actively used, you do not need to set this variable to remove them.

### ***Certificate Has More Entitlements Than I Am Using***

If you are issued a new Satellite certificate and it has more entitlements than are being consumed on your Satellite, any extra entitlements will be assigned to the administrative organization. If you log into the web interface as a Satellite administrator, you will then be able to allocate these entitlements to other organizations. The previously-allocated entitlements to other organizations will be unaffected.

### **Accessing Other Organizations on Your Satellite**

Oops, you're a Satellite administrator and you've created a new organization on your Satellite, but you set another user up to be the organization administrator and you can't access that organization anymore. What can you do?

We suggest interacting directly with any organization administrator who is a member of the organization you are seeking access to. If you are logged into Satellite's web interface with satellite administrator privileges, you can look up the email address and name of any organization administrator on the Satellite. (Go to Satellite Tools > Organizations > click on the name of the organization of interest > click on the 'Users' tab.) You could request one of these administrators create an organization administrator account for you in their organizations.

Sometimes dire situations arise, though. For example, what if the only organization administrator of the account is no longer employed at your place of business and you can no longer administer the organization? Red Hat Technical Support (<http://www.redhat.com/apps/support>) can provide you with a script to reset the password of a login in the organization you need to access in situations like these.



## Delegating Satellite Administrator Privileges to Another User

Delegating Satellite administrator privileges to another user on your Satellite can be a tricky process. We are hoping to improve this in future versions of Satellite, but for now here's how to do it:

1. Log into the Satellite web interface with a login that has Satellite administrator privileges.
2. Click on the 'Satellite Tools' tab on the top-level navigation bar. Go to the 'Users' tab on the left-hand navigation bar.
3. To grant Satellite administrator privileges, click the empty circle under the 'Satellite Admin?' column in the row of the user you'd like to grant Satellite administrator privileges to. It should become a green checkmark.
4. To remove Satellite administrator privileges from a user, click the green checkbox under the 'Satellite Admin?' column in that user's row. It should become a blank white circle.

Note that if you grant Satellite administrator privileges to a login that is a member of another organization, such as an organization that is not the designated administrative organization, they will still be able to access the 'Satellite Tools' top-level menu but they will not be able to access the content that is in the administrative organization.

## Custom Software Channel Disk Space Usage

Any organization users with sufficient privileges (organization administrator or channel administrator) are able to push content to your Satellite. Also note that if a user re-pushes the same custom content to their organization that exists in another organization, this content will take up twice the disk space.

Software channel content on the Satellite is split out by organization under the Satellite system's file system under `/var/satellite/redhat/$ORG_NUM` where `$ORG_NUM` is the organization ID of the organization the content was pushed to. You can look up an organization's ID number by visiting the Satellite Tools > Organizations screen in the Satellite web interface and examining the links to each page. The URLs to each organization's details screen should be of the form: <https://my-satellite.example.com/rhn/admin/multiorg/OrgDetails.do?oid=9> where, in this example '9' is the organization ID of the organization being examined.

Since there is a potential for a lot of disk space to be consumed by custom software channel content, you will want to monitor your Satellite's disk space as appropriate to ensure that it won't run out of disk space.

## Adding System Entitlements To Multiple Organizations At Once

As discussed in 'Managing Subscriptions and Entitlements' on page 16, there are two basic ways of allocating subscriptions and entitlements to organizations: you may assign one subscription across all organizations on one screen, or you may assign one organization subscriptions across all possible subscriptions on one screen (one screen for software subscriptions and one screen for system entitlements.)



There is an inconsistency in the system entitlements details pages such that only organizations that have at least one entitlements show up on the list of organizations. If you would like to assign a particular system entitlement to an organization that currently has 0 entitlements of that type, you will need to visit each individual organization's Subscriptions > System Entitlements tab in order to do this. Once you have allocated at least one entitlement of that type to an organization, it will appear in the entitlement's 'Organizations' tab.

### **Unrelated Flags in the `rhncg_ks` Client**

As mentioned in the 'Registering Systems to Organizations' on page 12, neither the `--orgid` parameter (for RHEL 4 and 5) nor the `--orgpassword` parameter (in RHEL 4) for `rhncg_ks` are related to Satellite's multiple organization support. You cannot use these flags to control to which Satellite organization a system registers to.

### **Troubleshooting Missing Functionality in Organizations**

There are a few odd behaviors you may observe in organizations that may not have been allocated necessary subscriptions or entitlements. The following is a list of symptoms and their causes and solutions:

#### ***The 'Users' Top-Level Tab in My Organization is Missing***

This is likely to occur when an organization has not been assigned any RHN management system entitlements. Log in to the Satellite web interface with a Satellite administrator account, grant the affected organization at least one management system entitlement, and try again.

#### ***Systems Cannot Register to My Organization***

This could be caused by a few different scenarios:

1. Have you granted the organization at least one RHN management system entitlement? RHN management system entitlements are a base requirement for systems to register to a Satellite. Log into the Satellite web interface with a Satellite administrator account, grant the affected organization at least one management system entitlement, and try again.
2. What operating system is installed on the client? Do you have enough software entitlements allocated to that organization to apply one to this system? Are you sure you've allocated the correct type of software entitlements to that organization? Is the system running an operating system supported by Satellite?
3. Are you running a version of Red Hat Enterprise Linux that is not supported by your current version of Satellite? You may need to upgrade your Satellite, for example, in order to support Enterprise Linux 5 systems.
4. Is there channel content available for the system to subscribe to? Have you run the `satellite-sync` command on your Satellite to sync the Red Hat provided content the corresponds to the system onto the Satellite?



5. Are you using an appropriate activation key to register the system? Does the activation key require a system entitlement that the organization has available slots for? Does the key have a usage limit?
6. Does the organization have any stale, old system profiles that are consuming the entitlements meant for the system you are trying to register? Can you delete the stale profile to free up those entitlements for the new system?

### ***Kickstart Web Interface is Missing***

If no provisioning entitlements have been allocated to that organization, some menu items, such as Systems > Kickstart, will not appear in the navigation menus for an organization. Grant provisioning entitlements to the organization to allow affected organization administrators to access these menu options.

### ***Kickstart Trees Cannot Be Created***

If there are no RHN Tools channel entitlements accompanying the base channel entitlements granted to an organization, administrators will be unable to create kickstart trees for organizations. To enable kickstart tree creation grant RHN Tools channel entitlements to the affected organization.

### ***Virtual Guests Take Up Too Many Entitlements***

If your virtual host system is registered to Satellite and has the 'Virtualization' (Enterprise Linux 5 Server) or the 'Virtualization Platform' (Enterprise Linux 5 Advanced Platform) system entitlement allocated to it, but guests within its guest limit (4 guest for Virtualization, unlimited for Virtualization Platform) are consuming full management system entitlements and base software channel entitlements, make sure that you have allocated the RHN Tools channel to that organization, and that the host is subscribed to this channel and has the `rhv-virtualization` package installed.

### ***Satellite Bootstrap Script***

We recommend maintaining one client bootstrap script (located at <http://my-satellite.example.com/pub>) on your Satellite. If an organization attempts to create a new bootstrap script, this new bootstrap script will override the previous bootstrap script unless the old script is manually re-named or moved.

## **CONCLUSION**

### **Thank You!**

The Red Hat Network Satellite Team would like to thank you for choosing Red Hat Network Satellite. We hope you will enjoy using it and that it will help you simplify your systems management processes. We encourage you to participate in our community (details below) and send us any feedback and suggestions you may have on the product.



## Getting Help

### Red Hat Support

You may get official Red Hat support for Red Hat Network Satellite from the Red Hat Support site:

<http://www.redhat.com/apps/support>

### Red Hat Network & Satellite 108 Community

Satellite also has an open, public community on the Red Hat 108 site where you can discuss and exchange tips, tricks, and scripts for making the most out of Satellite and/or Red Hat Network with other Satellite users and developers.

- The Red Hat Network and Satellite 108 community is located at:  
<http://rhn-satellite.108.redhat.com/>
- The public mailing list for questions, discussion, and feedback for Satellite is available as part of the RHN/Satellite 108 community:  
**rhn-satellite-users@redhat.com**
  - Sign up at: <https://www.redhat.com/mailman/listinfo/rhn-satellite-users>

## APPENDIX - USEFUL DOCUMENTATION

- Red Hat Network Satellite 5.1.0 Release Notes  
[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Release\\_Notes](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Release_Notes)
- Red Hat Network Satellite 5.1.0 Installation Guide  
[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Installation\\_Guide](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Installation_Guide)
- Red Hat Network Satellite 5.1.0 Reference Guide  
[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Reference\\_Guide](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Reference_Guide)
- Red Hat Network Satellite 5.1.0 Client Configuration Guide  
[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Client\\_Configuration\\_Guide/](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Client_Configuration_Guide/)
- Red Hat Network Satellite 5.1.0 Channel Management Guide  
[http://www.redhat.com/docs/manuals/satellite/Red\\_Hat\\_Network\\_Satellite-5.1.0/html/Channel\\_Management\\_Guide](http://www.redhat.com/docs/manuals/satellite/Red_Hat_Network_Satellite-5.1.0/html/Channel_Management_Guide)
- Red Hat Knowledgebase  
<http://kbase.redhat.com>

**Author's Note:** A special thanks goes to Pradeep Kilambi for providing the multi-org software content push python script included in this document on page 15.