Overview

One of the big changes with Satellite 6 and also Red Hat Subscription Management (RHSM) is that the tools now maintain an accurate inventory of what systems are consuming which subscription. This document will illustrate how to use hammer and other tools to extract subscription consumption information from Satellite. This information is useful for audit/reporting and other usages.

Prerequisites

It is important that you have read (or understand) the concepts as presented in:

* The Hammer CLI Guide

Hammer-cli-csv

One of the most common questions we get is 'How can I see which systems are using which subscription?'. Introduced as a supported tool in Satellite 6.2.2, hammer-cli-csv, can be used to **export** subscription consumption usage. It can also be used as part of the renewal process to **attach** subscriptions based upon the contents of a CSV file (as described in Subscription-manager for the former Red Hat Network User: Part 6 - understanding and improving the renewal experience). For now, we'll focus on the export functionality.

Note: some earlier versions of hammer-cli-csv didn't respect hammer's request_timeout value. This was addressed via RHBA-2017:0197. If you are running Satellite 6.2.7 or newer, you have this erratum already. If you aren't, you'd need to apply it if you are exporting large numbers of hosts.

Firstly, let's run hammer to export subs

```
hammer csv content-hosts \
 --export \
 --file content-hosts-export.csv \
 --itemized-subscriptions \
 --verbose \
 --organization Example
```

NOTE If you haven't setup hammer's configuration file to store username/password & server, it connects to https://localhost and uses **admin** as the username.

The command above writes `content-hosts-export.csv` to the current directory

```
cat content-hosts-export.csv
Name,Organization,Environment,Content View,Host Collections,Virtual,Guest of
Host,OS,Arch,Sockets,RAM,Cores,SLA,Products,Subscription Name,Subscription
Type,Subscription Quantity,Subscription SKU,Subscription Contract,Subscription
Account,Subscription Start,Subscription End,Subscription Guest
kvm01.example.com,Example,Infrastructure,RHEL7_Infra,"",No,,Red Hat Enterprise
Linux Server 7.3,x86_64,1,16316756,2,"",69|Red Hat Enterprise Linux Server,"Red
Hat Enterprise Linux Server, Premium (1-2 sockets) (Unlimited guests) with Smart
Management",Red Hat,1,RH0149450,11002744,5699795,07/04/2016,07/04/2017,
```

Below is an explanation of each of the fields. **Note**: A full example report is attached to this blog post.

Item	Details	Notes

Name	Name of the host	
Organization	Organization the host resides in	
Environment	Lifecycle Environment of the Host	
Content view	Attached Content View	
Host Collections	list of 1 or more Host Collections that the host is a member of (comma separated)	
Virtual	is the host virtual or physical (as reported by subscription-manager facts)	
Guest of Host	on which hosts does the guest reside	
OS	Operating system (as reported by subscription-manager facts)	
Arch	Architecture (as reported by subscription-manager facts)	
Sockets	Sockets (as reported by subscription-manager facts)	
RAM	Memory (as reported by subscription-manager facts)	
Cores	Cores (as reported by subscription-manager facts)	
SLA	Service Level Agreement	
Products	Installed Products (from /etc/pki/product*) (comma separated)	Covered in Subscription-manager for the former Red Hat Network User: Part 8 - product certificates
Subscription Name	Canonical name of the subscription (as reported by subscription-manager, rct and the UI)	
Subscription Type	what type of subscription	

		There are 3 types (Red Hat, Red Hat Guest [for derived subscriptions], and Custom [for 3 party products])
Subscription Quantity	Quantity of attached entitlements	Instance based subs counting is *interesting* see Subscription-manager for the former Red Hat Network User: Part 10 - Instance Based Subscriptions
Subscription SKU	Stock Keeping Unit (SKU)	
Subscription Contract	Contract number of the subscription	
Subscription Account	Which account are these subscriptions from.	
Subscription Start	When does the subscription start	
Subscription End	When does the subscription end	
Subscription Guest	Host constraint of this subscription	only guests of the listed host can use this subscription.

Expanding hammer-cli-csv to report on custom fields

While the report above is useful for most use cases, maybe you have a need to report on fields that aren't in the default report.

Example: I want to create a simple custom report that shows that prints the host name, subscription status, and CPU model name.

In /etc/hammer/cli.modules.d/csv.yml (or your user's local hammer config file) add:

```
:csv:
  :enable_module: true
  :columns:
    :content-hosts:
      :define:
        - :name: Subscription Status
          :json:
            - subscription_status_label
        - :name: Last Checkin
          :json:
            - subscription_facet_attributes
            - last_checkin
        - :name: CPU Model Name
          :json:
            - facts
            - proc_cpuinfo::common::model_name
```

Then run a hammer export

```
hammer csv content-hosts \
 --export \
 --columns "Name,Subscription Status,CPU Model Name" \
 --file custom_report.csv
```

And let's look at the report.

```
Name,Subscription Status,CPU Model Name
kvm01.example.com,Fully entitled,"Intel(R) Core(TM) i7-5557U CPU @ 3.10GHz"
```

How do I know what properties to use in my configuration file?

Any property of the object that your are exporting can be used via hammer csv. In this example, we are exporting data from a (content) host, so any of a (content) hosts properties is valid. Lets look at a host **kvm01.example.com** via the API to see all of its properties.

```
curl -sk \
 -u admin:[redacted] https://satellite.example.com/api/hosts/kvm01.example.com   |
json_reformat
 {
     "ip": null,
     "environment_id": 3,
     "environment_name": "KT_Example_infrastructure_rhel7_infra_2",
     "last_report": "2017-02-19 13:00:41 UTC",
     "mac": "b8:ae:ed:7d:0b:aa",
     "realm_id": null,
     "realm_name": null,
     "sp_mac": null,
     "sp_ip": null,
     "sp_name": null,
     "domain_id": 1,
     "domain_name": "example.com",
     "architecture_id": 1,
     "architecture_name": "x86_64",
     "operatingsystem_id": 9,
     "operatingsystem_name": "RedHat 7.3",
     "subnet_id": 1,
     "subnet_name": "Infrastructure",

 <!-- OUTPUT REDACTED ->
 }
```

Any of the above can be used.

Hammer as an ad-hoc reporting tool.

Hammer has a few functionalities that make it useful for ad-hoc reporting. As an example, you may not need system level subscription report, but you may want to know 'of the subscriptions that I've purchased, how many are in use (and conversely, how many do I have free?'). You can do this with hammer, specifically `hammer subscription list`. Hammer can output to a number of formats, including CSV, YAML and JSON.

```
hammer --output json subscription list \
  --organization Example
```

```
[
  {
    "ID": 251,
    "UUID": "2c9180935a41d344015a513e4fcd0c1d",
    "Name": "Red Hat Enterprise Linux for Virtual Datacenters with Smart Management,
Standard",
    "Contract": 11002776,
    "Account": [REDACTED],
    "Support": "Standard",
    "Quantity": "Unlimited",
    "Consumed": 0,
    "End Date": "2017-07-04T03:59:59.000+0000",
    "Attached": 0
  },
  {
    "ID": 252,
    "UUID": "2c9180935a568fcf015a58992cce003b",
    "Name": "Red Hat Cloud Infrastructure with Smart Management, Premium (2-
sockets)",
    "Contract": 11002794,
    "Account": [REDACTED],
    "Support": "Premium",
    "Quantity": "Unlimited",
    "Consumed": 0,
    "End Date": "2017-07-04T03:59:59.000+0000",
    "Attached": 0
  }
]
```

sat6Inventory

If you are still on Satellite 6.0 or Satellite 6.1, you do not have access to hammer-cli-csv. We provide in the Red Hat Satellite GitHub Organization the community supported sat6Inventory script, which is useful for subscription reporting for older versions of Satellite. **Note**: sat6Inventory does work with Satellite 6.2, but we prefer that you use hammer-cli-csv as that is the supported tool. And feel free to file RFEs against hammer-cli-csv.

rhsmShowConsumerSubs

If you are using systems registered to Red Hat Subscription Managemen (RHSM), we provide, also in the Red Hat Satellite GitHub Organization the community supported rhsmTools repo, which has the **rhsmShowConsumerSubs.py** script, which is useful for subscription reporting for Red Hat Subscription Management. It reports subscriptions attached to any consumer registered to RHSM. These include systems (type system) & subscription management applications (type SAM and Satellite)

Further reading

- Subscription-manager for the former Red Hat Network User: Part 1
- Subscription-manager for the former Red Hat Network User: Part 2 - Subscription-manager learns grep
- Subscription-manager for the former Red Hat Network User: Part 3 - Understanding virt-who
- Subscription-manager for the former Red Hat Network User: Part 4 - Understanding Subscription Manifests
- Subscription-manager for the former Red Hat Network User: Part 5 - working with subscriptions that require virt-who
- Subscription-manager for the former Red Hat Network User: Part 6 - understanding and improving the renewal experience

- Subscription-manager for the former Red Hat Network User: Part 7 - understanding the Red Hat Content Delivery Network
- Subscription-manager for the former Red Hat Network User: Part 8 - Product Certificates
- Subscription-manager for the former Red Hat Network User: Part 9 - A Case Study with activation keys.
- Subscription-manager for the former Red Hat Network User: Part 10 - Instance Based Subscriptions
- Subscription-manager for the former Red Hat Network User: Part 11 - Identity Certificates