

| Activity | Action | Initiator | Initiator Detail | Endpoint | Endpoint Detail | Port | Protocol | SELinux Type | Notes |
|--------------------------------|--|------------------|-------------------------|--|-----------------------|------------|--------------|-------------------------|--|
| Capsule Registration | Capsule Registration (content host) | Capsule | subscription-manager | Satellite Server | Apache (Katello) | 443 | https | http_port_t | Katello's Candlepin Proxy |
| | Capsule Registration (smart-proxy) | Capsule | Smart Proxy | Satellite Server | Apache (Foreman API) | 443 | https | http_port_t | |
| | Content Mirroring | Capsule | Apache (Pulp) | Satellite Server | Apache (Pulp) | 443 | https | http_port_t | |
| | Forward request to Satellite | Capsule | Reverse Proxy | Satellite Server | Apache (Katello) | 443 | https | amqp_port_t | Katello's Candlepin Proxy |
| | External Node Classification | Capsule | Puppet Master | Satellite Server | Apache (Foreman) | 443 | https | http_port_t | |
| | Run Report | Capsule | Puppet Master | Satellite Server | Apache (Foreman) | 443 | https | http_port_t | |
| | Template Retrieval (Capsule -> Satellite) | Capsule | Smart Proxy | Satellite Server | Apache (Foreman) | 443 | https | http_port_t | Templates proxy retrieves template over SSL from Foreman |
| | DNS records | Capsule | nsupdate | DNS server | bind | 53 | dns | dns_port_t | The capsule is usually on the same server as Bind (i.e localhost, no firewall changes) |
| | DHCP records | Capsule | omapi | DHCP server | ISC dhcpd | 7911 | omapi | dhcpd_port_t | The capsule is usually on the same server as ISC (i.e localhost, no firewall changes) |
| | Realm records | Capsule | XMLRPC API | IdM Server | Apache | 443 | https | http_port_t | |
| Docker Content Download | Docker Content Download | Capsule | Pulp | Satellite Server | Pulp | 5000 | https | complex_main_port_t | |
| Power Management | BMC On/Off/Cycle/Status | Capsule | User initiated API/UI | Client | IPMI Device | 623 | UDP | IPMI | Server -> (https) -> Capsule -> (IPMI) -> Managed node |
| | | Capsule | Smart Proxy | Discovered node | Image Proxy | 8443 | https | http_port_t | Capsule sends "reboot" command to the discovered host (HTTPS only) |
| | iPXE chained template retrieval (Capsule -> Satellite) | Capsule | Smart Proxy | Satellite Server | Apache (Foreman) | 443 | https | http_port_t | Proxy retrieves template over SSL from Foreman |
| goferd message bus | Forward message to dispatch router on Capsule | Capsule | Dispatch Router | Satellite Server | Dispatch Router (Hub) | 5646 | amqp | unconfined_service_t | When the Capsule qdrouterd service starts, it connects to TCP 5646 on the Satellite |
| | Send report to Satellite Server | Capsule | Smart Proxy | Satellite Server | Apache (Foreman) | 443 | https | http_port_t | Upload report to Satellite, process results and display in web ui |
| | Initiation | Client | subscription-manager | Satellite Server | Apache (Katello) | 443 | https | http_port_t | Candlepin Proxy |
| Telemetry Data Upload | Send data to Red Hat Portal | Client | Telemetry data uploader | Satellite Server | Apache (Katello) | 443 | https | http_port_t | Red Hat Access plugin runs a REST service for forwarding data to Red Hat |
| goferd message bus | Forward message to client | Client | Katello Agent | Capsule | Dispatch Router | 5647 | amqp | unconfined_service_t | When goferd starts on the client, it connects to TCP 5647 on the Capsule and stays open |
| Content Host Registration | Capsule CA RPM Installation | Client | yum | Capsule | Apache | 80 | http | http_port_t | Downloads the katello-ca-latest RPM for configuring RHSM + installation of CA certs |
| | Initiation | Client | subscription-manager | Capsule | Reverse Proxy | 8443 | https | http_port_t | |
| Puppet Run | Manifest Request | Client | Puppet agent | Capsule | Puppet Master | 8140 | https | puppet_port_t | |
| PXE Boot | DHCP | Client | BIOS/EFI | Capsule | DHCP | 67 | UDP | dhcpd_port_t | UDP Broadcast, 67 source & destination Capsule side (Client sends & receives on 68) |
| | PXE | Client | BIOS/EFI | Capsule | TFTP Server | 69 | UDP | tftp_port_t | |
| | Template Retrieval (Client -> Capsule) | Client | Anaconda | Capsule | Smart Proxy | 8000 | http | soundd_port_t | Client connects to proxy port HTTP 8000 to download templates for provisioning. |
| | Installation | Client | Anaconda / Yum | Capsule | Apache (Pulp) | 80 / 443 | https / http | http_port_t | |
| Package Installation | Yum Execution | Client | Yum | Capsule | Apache | 443 / 80 | https / http | http_port_t | |
| Bootdisk | Full host bootdisk generation | Satellite Server | Bootdisk generator | Capsule | Apache (Pulp) | 443 / 80 | https / http | http_port_t | Only happens for Full host bootdisk during generation (ISO file download) |
| | iPXE chained template retrieval (Client -> Capsule) | Client | iPXE firmware | Capsule | Smart Proxy | 8000 | http | soundd_port_t | iPXE firmware from bootdisk configures network and chainloads additional iPXE script |
| | Installation/Removal/Update | Client | Yum | Capsule | Apache (Pulp) | 443 / 80 | https / http | http_port_t | Full host image does not download kernel/image, only yum and rpm content. |
| Telemetry Data Upload | Send data to Red Hat Portal | Client | Telemetry data uploader | Capsule | Reverse Proxy | 443 | https | http_port_t | Reverse proxy forwards data to Red Hat Access plugin REST service on Satellite Server |
| OpenSCAP | Configure client | Client | Puppet agent | Capsule | Puppet Master | 443 | https | http_port_t | Puppet agent run to configure 'foreman_scap_client' (install manually on client host) |
| | Send report to Capsule | Client | foreman_scap_client | Capsule | Smart Proxy | 9090 | https | websm_port_t | Send generated SCAP report to Capsule for processing |
| | Send report from Capsule to Satellite | Capsule | Smart Proxy | Satellite Server | Apache (Foreman API) | 443 | https | http_port_t | Send Processed SCAP report from Capsule to Satellite |
| | View SCAP report in HTML / XML format | Satellite Server | Foreman | Capsule | Smart Proxy | 9090 | https | http_port_t | View original SCAP report in HTML or XML format |
| Content Host Registration | Capsule CA RPM Installation | Client | yum | Satellite Server | Apache | 80 | http | http_port_t | Downloads the katello-ca-latest RPM for configuring RHSM + installation of CA certs |
| | Installation/Removal/Update | Client | Yum | Capsule | Apache | 443 / 80 | https / http | http_port_t | |
| Provisioning | Template Retrieval | Client | Anaconda | Satellite Server | Apache (Foreman) | 80 | http | http_port_t | Direct Host connects Satellite HTTP 80 to download templates for provisioning. |
| Bootdisk | iPXE chained template retrieval | Client | iPXE firmware | Satellite Server | Apache (Foreman) | 80 | http | http_port_t | iPXE firmware from bootdisk configures network and chainloads additional iPXE script |
| Package Installation | Yum Execution | Client | Yum | Satellite Server | Apache (Pulp) | 443 / 80 | https / http | http_port_t | |
| Discovery | Host discovery and provisioning | Discovered node | Discovery image | Capsule | Smart Proxy | 9090 | https | websm_port_t | Discovery node reports in Satellite 6 and sends facts |
| Docker Content Download | Docker Content Download | Client | | Capsule | Pulp | 5000 | https | complex_main_port_t | |
| Activity | Action | Initiator | Initiator Detail | Endpoint | Endpoint Detail | Port | Protocol | SELinux type | Notes |
| | Capsule Feature Retrieval | Satellite Server | Apache (Foreman) | Capsule | Smart Proxy | 9090 | https | websm_port_t | |
| Content Promotion | Initiation | Satellite Server | Apache (Katello) | Satellite Server | Apache (Pulp) | 443 | https | http_port_t | API call tells Pulp to do necessary things for promotion |
| Content Sync | Initiation | Satellite Server | Apache (Katello) | Satellite Server | Apache (Pulp) | 443 | https | http_port_t | API call tells Pulp to do necessary things for promotion |
| | Remote Yum Repository | Satellite Server | Apache (Pulp) | Remote Repository | | 80 | http | http_port_t | Typically HTTP, but could be other protocols |
| | Red Hat CDN | Satellite Server | Apache (Pulp) | Red Hat | CDN | 443 | https | http_port_t | |
| Content Mirroring | Initiation | Satellite Server | Apache (Pulp) | Capsule | Apache (Pulp) | 443 | https | http_port_t | Happens after sync and promote |
| Provisioning | Smart Proxy API Req. to configure TFTP, DHCP, etc | Satellite Server | Apache (Foreman) | Capsule | Smart Proxy | 9090 | https | websm_port_t | Orchestration, configure Smart Proxy for provisioning. Requesting IP, TFTP PXE config. |
| | | Satellite Server | Apache | Capsule | Smart Proxy | 9090 | https | websm_port_t | Satellite 6 sends "reboot" command to Capsule (to be proxied to the discovered host) |
| Remote Install | Initiation | Satellite Server | Apache (Katello) | Satellite Server | Apache (Pulp) | 443 | https | http_port_t | API call tells Pulp to begin consumer action |
| | Send install command to client | Satellite Server | Apache (Pulp) | Satellite Server | Qpid | 5671 | amqp | amqp_port_t | |
| | Forward message to dispatch router on Satellite | Satellite Server | Qpid | Satellite Server | Dispatch Router (Hub) | 5671 | amqp | amqp_port_t | Dispatch router is connected to Qpid on localhost |
| Telemetry Data Upload & Report | Send and read data to/from Red Hat Portal | Satellite Server | Red Hat Access plugin | cert-api.access.redhat.com | Telemetry service | 8443 | https | http_port_t | Isolated Host sends data for analysis and also retrieves analytics reports |
| Remote Install | Initiation | Satellite Server | Apache (Katello) | Satellite Server | Apache (Pulp) | 443 | https | http_port_t | |
| | Send install command to client | Satellite Server | Apache (Pulp) | Satellite Server | Qpid | 5671 | amqp | amqp_port_t | |
| | Forward message to dispatch router on Satellite | Satellite Server | Qpid | Satellite Server | Dispatch Router (Hub) | 5671 | amqp | amqp_port_t | Dispatch router is connected to Qpid on localhost |
| Compute Resources | Fog interactions (query/create/destroy/etc) | Satellite Server | Fog | Compute Resource | Openstack | 5000 | http | complex_main_port_t | |
| Compute Resources | Fog interactions (query/create/destroy/etc) | Satellite Server | Fog | Compute Resource | EC2 | 443 | https | http_port_t | |
| Compute Resources | Fog interactions (query/create/destroy/etc) | Satellite Server | Fog | Compute Resource | oVirt | 443 | https | http_port_t | |
| Compute Resources | Fog interactions (query/create/destroy/etc) | Satellite Server | Fog | Compute Resource | Libvirt | 22 / 16514 | ssh / tls | ssh_port_t, virt_port_t | Either is common |
| Telemetry Data Upload & Report | Send and read data to/from Red Hat Portal | Satellite Server | Red Hat Access plugin | cert-api.access.redhat.com | Telemetry service | 443 | https | http_port_t | Direct Host sends data for analysis and also retrieves analytics reports |
| Orchestration | Validation of DNS conflicts | Satellite Server | Foreman | DNS server | bind | 53 | dns | dns_port_t | DNS service must be reachable by Satellite Server - see "query_local_nameservers" setting |
| Remote execution | Run Job on VM (ask Capsule to run it on VM) | Satellite Server | Foreman REX plugin | Capsule | with REX feature | 9090 | https | websm_port_t | Foreman -> API call as many others, same flow for load_balancing queries and live updates |
| Remote execution | Run Job on VM proxied through Capsule | Capsule | Capsule REX plugin | Target host | | 22 | ssh | ssh_port_t | SSH connection uploading job script and executing it (reading the whole output of run) |
| Remote execution result upload | Upload output of job to Satellite | Capsule | Capsule REX plugin | Satellite Server | | 443 | https | http_port_t | API call passing output to foreman-tasks plugin |
| Remote Execution | Run remote execution job | Capsule | Smart Proxy | Capsule | Smart proxy dynflow | 8008 | https | http_port_t | Internal comms, smart proxy to smart proxy dynflow core services (no firewall changes) |