IBM Hybrid Cloud

ICP Mustgather and Troubleshooting Guide

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General Troubleshooting Information

- Collect the following general troubleshooting data, along with any other data for problem area
  - ICP version and fixpack level (if have)
  - Error description and the timestamp
  - Server topology (Nodes and their configuration of Master, Proxy, VA,Management and Workers)
  - Are they HA?
  - Architecture: Is it a PowerPC? or x86 or other (please specify)
  - IaaS: Where it is installed (VMWARE, Azure, other)
  - hosts file (located under <installation_directory>/cluster)
  - config.yaml file (located under <installation_directory>/cluster)

Operating System and Network Logs

- Operating System
  - List the linux version
    - cat /etc/redhat-release #Redhat
    - lsb_release –a #Ubuntu
  - List the kernel version
    - more /proc/version
    - cat /etc/issue
    - uname -a
  - OS System Logs
    - /var/log/messages #Redhat
    - /var/log/syslog #Ubuntu

- Network
  - List all network interfaces
    - ifconfig -a
  - List all listening ports
    - netstat -l
  - List the hostname
    - hostname -f
  - Test out the internet connection (if any)
    - ping $(hostname -f)

Docker and Kubernetes

- Docker
  - List version
    - docker version
  - List docker info
    - docker info
  - List all Images
    - docker images
  - List running containers
    - docker ps
  - List containers log (if it exists)
    - docker logs -f <container_id>
    - or check in /var/lib/docker/containers

- Kubernetes
  - List version
    - kubectl version --short
  - Kubectl cluster-info
    - Kubectl cluster-info
  - List all pods
    - kubectl get pods -n kube-system
  - List running pods
    - kubectl get pods -n kube-system | grep Running
  - List pods log
    - kubectl logs <pod_name> -n kube-system
  - Describe pod
    - kubectl describe pod <pod_name> -n kube-system

ICP Commonly used log

- ## **ETCD log**
  - docker ps | grep etcd ##get <etcd-container-id>
  - docker logs < etcd-container-id >
- ## **Docker status and logs:**
  - docker info
  - systemctl status docker
  - journalctl -u docker
- ## **Kubelet status and logs:**
  - kubectl cluster-info
  - systemctl status kubelet
  - journalctl -u kubelet
- ## **Config files**
  - <installation_directory>/cluster/config.yaml
  - <installation_directory>/cluster/hosts
- ## **Install logs**
  - You can find the install logs under the <installation_directory>/cluster/logs
- ##**check ICP version**
  - docker images | grep inception
- ##**Timedatectl status**
  - timedatectl

Healthcheck command to help collect the logs

- This command will run an Ansible script similar to the installation and place the logs in the <installation-directory>/cluster/logs/healthcheck/ folder.
- From the <installation-directory>/cluster/ folder, run the following healthcheck command.
  - For Linux® x86_64:
  - sudo docker run --net=host -t -e LICENSE=accept -v "$(pwd)":/installer/cluster ibmcom/icp-inception-amd64:3.1.0-ee healthcheck -v
  - For Linux® on Power® (ppc64le):
  - sudo docker run --net=host -t -e LICENSE=accept -v "$(pwd)":/installer/cluster ibmcom/icp-inception-ppc64le:3.1.0-ee healthcheck –v
- The name of the image, ibmcom/icp-inception-<architecture>:<version> can be verified by running docker images | grep inception

Collected information

- **System Information**
  - Hostname
  - System information
  - Memory information
  - CPU Information
  - Filesystems
  - /etc/hosts file
  - Route information
  - Network adapters
  - Ports that are listening
  - Docker version
  - Docker information
  - Docker images
  - Kubernetes status
  - Docker status
  - Kubernetes node descriptions
  - Kubernetes pod list
  - Kubernetes logs
  - Docker logs
  - Disk performance
- **Pod Details**
  - Kubernetes pod descriptions

1. Installation issue

- Please collect the following if you are having issues to perform the IBM Cloud Private installation
  - Command used to perform installation
  - User that you use to run the command (root, or other, please specify)
  - Config files under cluster folder
  - Installation log, after appending the install command with "-vvv"
    - see Knowledge Center for your version of IBM Cloud Private
    - located /<installation_directory>/cluster/logs
  - Installation output screen if possible
  - Docker was installed standalone or with the installer?
  - The version of docker, if you are not using the one from IBM Cloud Private: docker info

2. Upgrade issue

- Please follow this section if you are having issues to perform the upgrade on your server
  - Command that was used to run the upgrade
  - User that you use to run the upgrade command (root, or other, please specify)
  - Config files
  - ICP version from
    - located /<installation_directory>/cluster/upgrade-version
  - ICP version to
    - Check the version number in the tar.gz located in /<installation_directory>/cluster/images
  - Most recent log (located in /<installation_directory>/cluster/logs) after run the installer
  - What is the Operating System of those servers?
    - uname -a
  - Do you have any fix pack (or patches installed)?
    - Check by logging in to the management console and clicking "About". if yes, please list here

3. Uninstall issue

- If you are having issues to perform the uninstall of your ICP
  - Command that was used to perform uninstall
  - User that you use to run the uninstall command (root, or other, please specify)
  - Re-run the uninstall command with the -vvv option and redirect standard output
    - see Knowledge Center for your version of IBM Cloud Private
    - located /<installation_directory>/cluster/logs
  - A file listing of the directory to which IBM Cloud Private is installed.
    - From a terminal session, navigate to the directory and run:
      > ls -ltR >filelist.txt

4. Re-install issue

- If you are trying to reinstall the ICP please follow this section
  - Command used to perform installation
  - Re-run the uninstall command) with the -vvv option and redirect standard output.
    - See Knowledge Center for your version of IBM Cloud Private
    - located /<installation_directory>/cluster/logs
  - A file listing of the directory to which IBM Cloud Private is installed.
    - From a terminal session, navigate to the directory and run:
      - ls -ltR >filelist.txt
  - Remove Docker data: rm -rf /var/lib/docker
  - Installation log, after appending the install command with "-vvv"
    - see Knowledge Center for your version of IBM Cloud Private)
    - located /<installation_directory>/cluster/logs)
  - Installation output screen if possible
  - Docker was installed standalone or with the installer?

5. Admin console can’t be accessed

Please follow the following steps to check ICP system pods status first:

- 1.Log into master node via SSH and check kube-system pods
  - $ kubectl -n kube-system get pods

- 2.Check if any pods are in a bad state such as CrashLoopBackOff. For example:
  - NAME READY STATUS RTS AGE
  - monitoring-grafana-7c587579dc-jz6ps 1/2 CrashLoopBackOff 393 40s

- 3).Check the containers for that pod
  - $ kubectl -n kube-system describe pods monitoring-grafana-7c587579dc-jz6ps

- 4). To view the logs for a specific container, use the following command. For example, the route in the monitoring-grafana-7c587579dc-jz6ps pod:
  - $ kubectl -n kube-system logs monitoring-grafana-7c587579dc-jz6ps -c router

6. Security (LDAP, HA, Access URL)

- Please follow this section if you are having issues to perform and use the LDAP on your ICP environment
  - What is the user ID being logged in?
  - What type of the ldap are you using?
  - Did you configure LDAP over SSL?
  - What is the LDAP URL being used?
  - Does ldapsearch works?
    - ldapsearch program can be installed by running "apt install ldap-utils" on Ubuntu and "yum install openldap-clients" on Red Hat Enterprise Linux (RHEL).
    - ldapsearch -x -H "<LDAP_URL>" -b "<LDAP_BASEDN>" -D "<LDAP_BINDDN>" -w "<LDAP_BINDPASSWORD>" -s sub
  - What is the status of the auth pod:
    - kubectl -n kube-system get pods | grep auth-idp
  - Logs from the pods of auth-xxx:
    - kubectl -n kube-system logs auth-xxx

7. CLI usage (helm, kubectl, ibm cloud CLI (bx))

- If you are trying to use the CLI and is having problem, please follow the steps below to collect the logs in order to troubleshoot the issue
  - What is the command that you are trying?
  - What is the user running the command?
  - Does the issue happen with the admin account or other accounts?
  - What is the output of the command?
  - Was this command working and stopped or is the first time that you are trying to run it?
- If you are trying to use the Cloud CLI and is having problem, please collect the following additional logs
  - What is the version of the CLI? (cloudctl version)

7. CLI usage (helm, kubectl, ibm cloud CLI (bx)) cont.

- If you are trying to use the helm CLI and is having problem, please collect the following additional logs
  - What is the version of the helm CLI? (helm version --tls)
  - Did the problem occur as a LDAP authenticated user or cluster admin? If it is a LDAP authenticated user, is it an admin in the namespace?
  - Can the user try running the command with the debug? (helm <command> --tls --debug)

- If you are trying to use the kubectl and is having problem, please collect the following additional logs
  - What is the version of the CLI? (kubectl version)
  - Can the user try running the command with the debug?

8. Server Hang

- If you are experiencing server hang, please follow the steps below to collect the
  - Describe the problem and include information where customer observed the server to hang. Be as precise as possible, include which steps customer followed and if this can be reproduced every time or only happens intermittently.
  - The error message(s)
  - Business impact of the issue
  - system crash dump file
  - screenshot of top command (if possible)

9. Server not starting

- If your IBM Cloud Private environment is not starting, please follow the steps below to collect the logs
  - Which server is not starting (master, worker, or ?)
  - systemctl status kubelet
  - systemctl status docker
  - journalctl -u kubelet
  - journalctl -u docker
  - Check the kubernetes services from the master (docker ps -a | grep hyper)
  - The running containers (docker ps |grep ibmcom| grep k8s)

10. Memory issue (OOM)

- If you are having out of memory issues, please follow the steps below to collect the logs
  - Memory Usage
    - Free
- Please help run the healthcheck command to collect the information

11. Slowness

If your ICP environment is slow, please help collect the logs for each nodes:

- Please help run the healthcheck command to collect the information
- Memory Usage
  - Free
- CPU Usage
  - Top
- Disk usage
  - df -h
- sar
- nmon (if available)

Reference

- [Troubleshooting and Support in ICP]

THANK YOU