

IBM Cloud Private System Requirements Notes

Introduction

This document provides a realistic summary of system requirements for the various nodes in an ICP cluster.

As an expedient you can create one machine that meets the maximum requirements of the management nodes and clone it.

Specifying the worker node resource requirements is obviously much more of an "it depends" endeavor. The worker node requirements shown in this document are merely a suggestion. More precise worker node requirements can only be determined based on the workloads to be run.

Summary of ICP development system requirements

Suggested ICP development deployment resource allocations are described in the table below.

Machine Role	Number	vCPU/Core	Memory (GB)	Storage Disks x Size (GB)
Boot/Master	1	4	16	1 x 280
Proxy	1	2	8	1 x 230
Management	1	4	16	1 x 280
VA	1	4	16	1 x 500
Worker	2 or 3	2	8	1 x 200
NFS Server	1	2	8	1 x 200

- Management = Node that is used to run ELK stack, Prometheus, Grafana and other monitoring tools
- VA = Vulnerability Advisor - security scans of images; optional if not of interest; not usually part of a development cluster
- NFS server is used for application shared storage. Disk needs to be sized appropriately.
- All disks can be thin-provisioned.

Summary of production system requirements

Suggested ICP production deployment resource allocations are described in the table below.

Machine Role	Number	vCPU/Core	Memory (GB)	Storage Disks x Size (GB)
Master	3 or 5	8	32	1 x 280 (1 x 270 if VA enabled)
Proxy	3	2	4	1 x 230 (1 x 240 if VA enabled)
Management	2 or 3	8	32	1 x 280 (1 x 270 if VA enabled)
Vulnerability Advisor	3	8	32	1 x 500
Worker	5+	4	32	1 x 200 (1 x 210 if VA enabled)
GlusterFS	3+	4	16	1 x 40 (/dev/sda) 1 x 256 (/dev/sdb) 1 x 256 (/dev/sdc)

File system sizings

See the ICP 2.1.0.2 Knowledge Center [Hardware requirements and recommendations](#)

NOTE: For a production VM, be sure to use Logical Volume Manager (LVM) for all file systems other than those that require a physical partition, e.g., `/boot` , `swap`.

ICP Master and **ICP Management** nodes suggested disk partitioning (280 GB disk). For master and management nodes we recommend that `/var` be at least 60 GB which is larger than what is specified in the ICP Knowledge Center documentation.

NOTE: ICP 2.1.0.3 moves to using `/var` instead of `/var` and `/opt` . The tables below reflect disk sizings as of ICP 2.1.0.2.

File System Name	Mount Point	Size (GB)
system (aka root)	/	20
boot	/boot	256 MB
swap		8
var	/var	70
tmp	/tmp	50
home	/home	10
opt	/opt	120

ICP Vulnerability Advisor nodes disk partitioning (500 GB disk) For the VA nodes we recommend that `/var` be 300 GB.

File System Name	Mount Point	Size (GB)
system (aka root)	/	20
boot	/boot	256 MB
swap		8
var	/var	300
tmp	/tmp	50
home	/home	10
opt	/opt	110

ICP Proxy node suggested disk partitioning (230 GB disk).

File System Name	Mount Point	Size (GB)
system (aka root)	/	20
boot	/boot	256 MB
swap		4
var	/var	70
tmp	/tmp	10
home	/home	10
opt	/opt	120

ICP Worker node suggested disk partitioning (200 GB disk)

File System Name	Mount Point	Size (GB)
system (aka root)	/	20
boot	/boot	256 MB
swap		4
var	/var	50
tmp	/tmp	20
home	/home	10
opt	/opt	100

NOTE: Lack of file system space particularly in `/var` is a common problem during the installation and upgrade/update of ICP. Particularly on master and management nodes, the `/var/lib/docker` directory can consume 40 GB to 50 GB. The `/var/lib/kubelet` directory typically consumes ~10 GB.