



Vera C. Rubin Observatory
Rubin Observatory Project Office

Computing Infrastructure

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Abstract

The Vera Rubin Observatory Computer Infrastructure is formed by four sites: La Serena, Cerro Pachon, Tucson and Cloud, each organized in different clusters. This document details the Cluster's amount of Nodes, Processing Capacity (CPU), Network Interfaces Information and Memory (RAM) Infrastructure per site.

Change Record

Version	Date	Description	Owner name
1	2020-04-30	LSST RST Version	Ivan Gonzalez
2	2021-05-11	Isstdoc LaTeX Version	Ivan Gonzalez
3	2021-06-04	First Revision Concluded	Ivan Gonzalez
4	2021-09-23	Disk Storage added	Ivan Gonzalez
5	2021-10-18	Corrections to Disk Storage Information	Ivan Gonzalez
6	2021-11-22	Yagan Cluster Added	Ivan Gonzalez

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Computing Infrastructure

1 Chile

1.1 La Serena

For details of La Serena infrastructure please visit <https://confluence.lsstcorp.org/x/4APMBw>

1.1.1 Antu

- **Name:** Commissioning Cluster
- **Platform:** Kubernetes
- **Multicast:** Yes
- **Apps:** Nublado
- **Nodes:** 15
- **CPU:** 832
- **Memory:** 3.2TB
- **Usable Storage:** 26TB

Node	CPU	Memory	Network	Disk Storage
antu01.lsst.org	72	376GB	2x10GB	10.25TB
antu02.lsst.org	72	376GB	2x10GB	10.25TB
antu03.lsst.org	72	376GB	2x10GB	10.25TB
antu04.lsst.org	64	187GB	2x10GB	2.25TB
antu05.lsst.org	64	187GB	2x10GB	2.25TB
antu06.lsst.org	64	187GB	2x10GB	XTB
antu07.lsst.org	64	187GB	2x10GB	2.25TB
antu08.lsst.org	64	187GB	2x10GB	2.25TB
antu09.lsst.org	64	187GB	2x10GB	2.25TB
ls-dtn01.lsst.org	48	187GB	2x10GB	32.3TB
ls-dtn02.lsst.org	48	187GB	2x10GB	32.3TB
ls-efdetl01.lsst.org	40	187GB	2x10GB	6TB
ls-fwr01.lsst.org	48	92GB	2x10GB	XTB
ls-handoff01.lsst.org	24	187GB	2x10GB	XTB
ls-handoff02.lsst.org	24	187GB	2x10GB	XTB

1.1.2 Core LS

- **Name:** IT Services
- **Platform:** Libvirt
- **Multicast:** No
- **Apps:** Foreman, DHCP and DNS
- **Nodes:** 3
- **CPU:** 96
- **RAM Memory:** 231GB

Node	CPU	Memory	Network	Disk Storage
core01.ls.lsst.org	32	77GB	2x1GB	500GB
core02.ls.lsst.org	32	77GB	2x1GB	932GB
core03.ls.lsst.org	32	77GB	2x1GB	932GB

1.1.3 Core Dev

- **Name:** IT Development
- **Platform:** Libvirt
- **Multicast:** No
- **Apps:** Foreman, DHCP and DNS
- **Nodes:** 2
- **CPU:** 36
- **RAM Memory:** 96GB

Node	CPU	Memory	Network	Disk Storage
core1.dev.lsst.org	32	80GB	1x1GB	500GB
core2.dev.lsst.org	04	16GB	1x1GB	872GB

1.1.4 Kueyen

- **Name:** Kueyen Cluster
- **Platform:** Kubernetes
- **Multicast:** Yes
- **Apps:** CSC and EFD
- **Nodes:** 4
- **CPU:** 128
- **RAM Memory:** 312GB
- **Usable Storage:** 18TB

Node	CPU	Memory	Network	Disk Storage
kueyen01.ls.sst.org	32	77GB	2x10GB	XTB
kueyen02.ls.sst.org	32	77GB	2x10GB	15.6TB
kueyen03.ls.sst.org	32	77GB	2x10GB	12TB
kueyen04.ls.sst.org	32	77GB	2x10GB	15.6TB

1.1.5 Oracle

- **Name:** Oracle Nodes
- **Apps:** Oracle
- **Nodes:** 2
- **CPU:** 96
- **RAM Memory:** 374GB
- **Usable Storage:** X.XTB

Node	CPU	Memory	Network	Disk Storage
oradb01.ls.sst.org	48	187GB	2x10GB	XTB
oradb02.ls.sst.org	48	187GB	2x10GB	XTB

1.1.6 Ruka

- **Name:** Ruka Cluster
- **Platform:** Kubernetes
- **Multicast:** No
- **Apps:** RKE
- **Nodes:** 6
- **CPU:** 256
- **RAM Memory:** 610GB
- **Usable Storage:** 11TB

Node	CPU	Memory	Network	Disk Storage
ruka01.ls.lsst.org	32	78GB	2x10GB	6.2TB
ruka02.ls.lsst.org	32	78GB	2x10GB	4.7TB
ruka03.ls.lsst.org	32	78GB	2x10GB	3.6TB
ruka04.ls.lsst.org	32	125GB	2x10GB	4.8TB
ruka05.ls.lsst.org	32	125GB	2x10GB	3.6TB
ruka06.ls.lsst.org	32	125GB	2x10GB	4.4TB

1.1.7 Rancher LS

- **Name:** Rancher LS
- **Platform:** Kubernetes
- **Multicast:** No
- **Apps:** Rancher WUI
- **Nodes:** 3
- **CPU:** 12
- **RAM Memory:** 21GB
- **Usable Storage:** 120GB

Node	CPU	Memory	Network	Host	Disk Storage
rancher01.ls.lsst.org	4	7GB	1x1GB	core01.ls.lsst.org	40GB
rancher02.ls.lsst.org	4	7GB	1x1GB	core02.ls.lsst.org	40GB
rancher03.ls.lsst.org	4	7GB	1x1GB	core03.ls.lsst.org	40GB

1.2 Cerro Pachon

1.2.1 Andes

- **Name:** Andes Cluster
- **Platform:** Kubernetes
- **Multicast:** Yes
- **Apps:** RKE
- **Nodes:** 6
- **CPU:** 192
- **RAM Memory:** 1.3TB
- **Usable Storage:** 16TB

Node	CPU	Memory	Network	Disk Storage
andes01.cp.lsst.org	32	376GB	2x10GB	1.86TB
andes02.cp.lsst.org	32	376GB	2x10GB	1.86TB
andes03.cp.lsst.org	32	345GB	2x10GB	4.6TB
andes04.cp.lsst.org	32	77GB	2x10GB	XTB
andes05.cp.lsst.org	32	77GB	2x10GB	10.1TB
andes06.cp.lsst.org	32	77GB	2x10GB	11.1TB

1.2.2 Yagan

- **Name:** Yagan Cluster
- **Platform:** Kubernetes
- **Multicast:** Yes
- **Apps:** RKE
- **Nodes:** 7
- **CPU:** 448
- **RAM Memory:** 1.7TB
- **Usable Storage:** 168TB

Node	CPU	Memory	Network	Disk Storage
yagan01.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan02.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan03.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan04.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan05.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan06.cp.lsst.org	64	256GB	2x10GB	5.4TB
yagan07.cp.lsst.org	64	256GB	2x10GB	5.4TB

- **Name:** Yagan Cold Spare

Node	CPU	Memory	Network	Disk Storage
yagan08.cp.lsst.org	64	256GB	2x10GB	465GB

1.2.3 Amor

- **Name:** Amor Cluster
- **Multicast:** Yes
- **Apps:** Docker
- **Nodes:** 2
- **CPU:** 32
- **RAM Memory:** 124GB
- **Usable Storage:** 862GB

Node	CPU	Memory	Network	Disk Storage
amor01.cp.lsst.org	16	62GB	2x10GB	893GB
amor02.cp.lsst.org	16	62GB	2x10GB	893GB

1.2.4 Azar

- **Name:** Azar Cluster
- **Multicast:** Yes
- **Apps:** Docker
- **Nodes:** 2
- **CPU:** 112
- **RAM Memory:** 752GB
- **Usable Storage:** 11TB

Node	CPU	Memory	Network	Disk Storage
azar1.cp.lsst.org	56	376GB	2x10GB	11TB
azar2.cp.lsst.org	56	376GB	2x10GB	11TB

1.2.5 Core CP

- **Name:** Summit Core Cluster
- **Platform:** Libvirt
- **Multicast:** No
- **Apps:** Foreman, DHCP, DNS
- **Nodes:** 3
- **CPU:** 96
- **RAM Memory:** 231GB

Node	CPU	Memory	Network	Disk Storage
core01.cp.lsst.org	32	77GB	2x10GB	500GB
core02.cp.lsst.org	32	77GB	2x10GB	500GB
core03.cp.lsst.org	32	77GB	2x10GB	500GB

1.2.6 Rancher CP

- **Name:** Rancher CP
- **Platform:** Kubernetes
- **Multicast:** No
- **Apps:** Rancher WUI
- **Nodes:** 3
- **CPU:** 12
- **RAM Memory:** 21GB
- **Usable Storage:** 35GB

Node	CPU	Memory	Network	Host	Disk Storage
rancher01.cp.lsst.org	4	7GB	1x1GB	core1.cp.lsst.org	40GB
rancher02.cp.lsst.org	4	7GB	1x1GB	core2.cp.lsst.org	40GB
rancher03.cp.lsst.org	4	7GB	1x1GB	core3.cp.lsst.org	40GB

2 United States

Tucson site is undergoing a rebuilding process, therefore information may not be up to date.

2.1 Tucson Lab

2.1.1 Pillan

- **Name:** Pillan Cluster
- **Platform:** Kubernetes
- **Multicast:** Yes
- **Apps:** RKE
- **Nodes:** 1
- **CPU:** 40
- **RAM Memory:** 30GB
- **Usable Storage:** 4TB

Node	CPU	Memory	Network	Disk Storage
pillan01.tu.lsst.org	40	30GB	1x10GB	4TB

2.1.2 Core TU

- **Name:** Tucson Core Cluster
- **Platform:** Libvirt
- **Multicast:** No
- **Apps:** Foreman, DHCP, DNS
- **Nodes:** 3
- **CPU:** 96
- **RAM Memory:** 231GB
- **Usable Storage:** X.XTB

Node	CPU	Memory	Network	Disk Storage
core1.tu.lsst.org	32	77GB	2x10GB	XTB
core2.tu.lsst.org	32	77GB	2x10GB	XTB
core3.tu.lsst.org	32	77GB	2x10GB	XTB

3 Cloud

3.1 Google Cloud Platform

IT uses Google Cloud services to deploy development pods

- **Name:** Cloud Core Cluster
- **Platform:** GKE
- **Multicast:** No
- **Apps:** Graylog
- **Nodes:** 3
- **CPU:** 6
- **RAM Memory:** 17.7GB
- **Storage:** X.XTB

Node	CPU	Memory	Network	Storage
node1	2	5.9GB	1x10GB	XTB
node2	2	5.9GB	1x10GB	XTB
node3	2	5.9GB	1x10GB	XTB

A Acronyms

Acronym	Description
CP	Cerro Pachon
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
GCP	Google Cloud Platform
GKE	Google Kubernetes Engine
IT	Information Technology
ITTN	IT Technical Note
LS	La Serena
RKE	Rancher Kubernetes Engine
RST	reStructuredTex
TU	Tucson
WUI	Web User Interface