

MVO Internal Report 19-03**MVO Operations Computers****Version 1***R.C. Stewart, MVO**5 September 2019***Table of Contents**

a)	Introduction.....	2
b)	Seismic Processing Computers (overviews)	3
c)	webobs.....	4
d)	nagios	6
e)	MVOWXP002.....	8
f)	mvoscream3	10
g)	mvocobweb1	11
h)	seis-display	12
i)	earthworm02	13
j)	earthworm03	14
k)	Seismologist's iMac.....	17
l)	seisan	19
m)	piton	20
n)	Network Drives	21
o)	Backup Computers.....	22
p)	Time Servers.....	23
q)	Earthworm Startup Scripts and Configuration Files	24

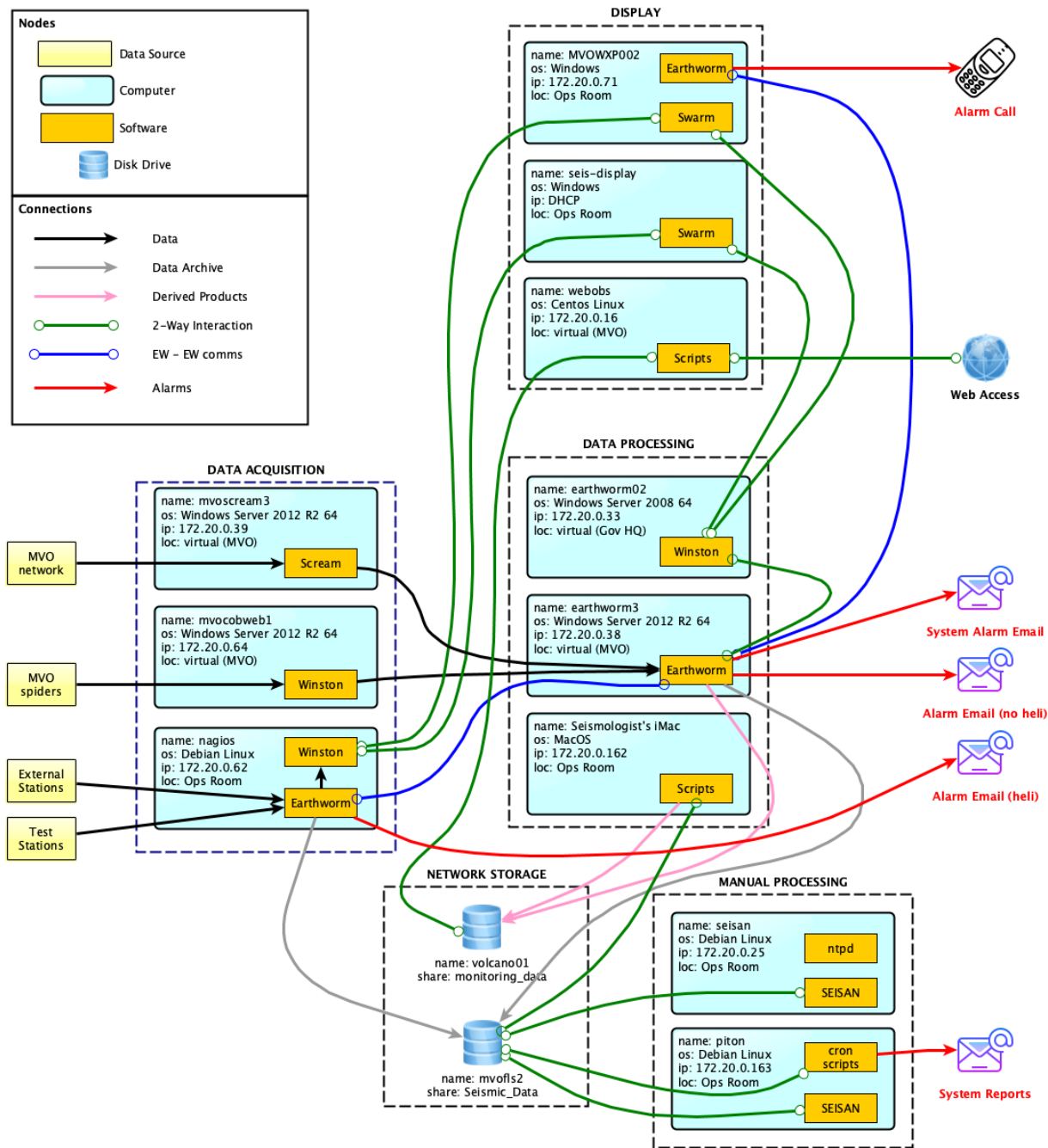
a) Introduction

This document contains information about computers used in MVO Operations.

It should be read in conjunction with MVO Internal Report 19-01, which contains detailed information about seismic processing at MVO.

Virtual computers can be accessed using Remote Desktop software.

b) Seismic Processing Computers (overviews)



c) webobs

Hostname: webobs
 Location: Virtual machine on mvohvs2 (MVO Server Room)
 IP address: 172.20.0.16
 OS: Centos Linux

Accounts

<i>Username</i>	<i>Password</i>
webobs	MVO/Sbobew!!
mvo	MVO/User!
root	MVO/Toor!!

Function(s)

- Provide external access to MVO data
- MVO observations log
- Synchronise monitoring data between machines
- Collect and archive data from remote cameras
- Plots hypocentres

Software

- Apache web server
- Webobs (mixture of MATLAB and shell scripts)
- MATLAB
- In-house shell scripts run under crontab

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//172.20.0.40/Seismic_Data	/mnt/volcano01/Seismic_Data	
//172.20.0.38/monitoring_data	/mnt/earthworm00/monitoring_data	
//172.20.0.40/SF1	/mnt/volcano01/SF1	
//172.20.0.38/log	/mnt/earthworm00/log	
//172.20.0.40/Environmental	/mnt/volcano01/Environmental	
//172.20.0.40/MVO_IMAGERY2	/mnt/volcano01/MVO_IMAGERY2	
//172.20.0.40/Gas	/mnt/volcano01/Gas	
//172.20.0.40/	/mnt/volcano01/bubble	
//172.20.0.40/MVO_IMAGERY	/mnt/volcano01/MVO_IMAGERY	
//172.20.0.52/Seismic_Data	/mnt/mvofls2/Seismic_Data	
//172.20.0.40/MVO	/mnt/volcano01/mvo	
//172.20.0.40/Deformation	/mnt/volcano01/Deformation	
//mvofls3/DVG_Data	/mnt/mvofls3/DVG_Data	
//mvofls3/Imagery_Data	/mnt/mvofls3/Imagery_Data	

Computer Not Accessible or Acting Up

1. If webobs is not accessible, or is failing to respond, or is giving strange error messages, it must be rebooted.
2. Rebooting from the OS does not work, for reasons that are not fully understood.
3. Contact Dave Williams or Rod Stewart to reboot

Adding A New User

1. Ask the user to
 - a. Browse the site and click cancel twice to go to the registration page.
 - b. Fill in and submit the registration form.
2. webobs will then send an email with the username and encrypted password string to webobs@mvo.ms (password for the account is Montserrat).
3. ssh onto webobs and go to /mvo/webobs/WWW/authDir.
4. Edit .htusers: add username:encrypted_password for every new user.
5. Edit .htgroups: add the new username(s) to one of three groups: ipgp (ipgp folk), mvo (mvo and src folk), read only (volunteers, visitors, anyone without full MVO access)
6. Go to /mvo/webobs/CONFIG
7. Edit Operateurs.conf and add a line in the relevant part of the list for the new user. The order of users in this file is the order they appear in users lists in webobs

Alternative method

1. Generate a username and password with <http://www.htaccesstools.com/htpasswd-generator/>
2. Follow steps 3 onwards above

Imagery

- Scripts for transferring data from remote cameras are run under the mvo username.

Plotting Hypocentres Manually

- Scripts are in ~webobs/seismic
- *hypos_*.ksh* plots hypocentres
- *fps_*.ksh* plots fault plane solutions
- Scripts have to be run as root
- Plots appear in /mvo/webobs/WWW/html/request/manual

External Access

\$ ssh webobs@webobs.mvo.ms

d) nagios

Hostname: nagios
Location: At rear of Ops Room
IP address: 172.20.0.62
OS: Debian Linux

Note

This is a dual-boot machine. It can also be booted (as webobs2) to run webobs.

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat
root	nagios

Function(s)

- Holds recent seismic waveform data
- Import and export of some seismic data
- Issue email alarms
- Monitoring computer network

Software

- Winston wave server
- Earthworm
- Nagios

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//earthworm3/monitoring_data	/mnt/earthworm3/monitoring_data	
//172.20.0.40/Seismic_Data	/mnt/dome/seismic_data	
//volcano01/SF1/	/mnt/volcano01/SF1	

Earthworm Setup

<i>Earthworm Ring</i>	<i>Function</i>
WAVE_RING	Carries waveform data
TRIGGER_RING	Carries alarm messages
HYPO_RING	Carries hypocentres - unused
EXPORT_RING	Carries waveform data for export

<i>Earthworm Module</i>	<i>Parameter file</i>	<i>Function</i>
statmgr	statmgr.d	
archman	archman_mseed.d	Archives continuous data in miniseed format
coaxtoring	coaxtoring.d	Recreates ring from other machines
export_generic	export_generic.d	Exports data to SRC
sound_alarm	sound_alarm.d	Sends alarm emails with helicorder plot
ringtocoax	ringtocoax.d	Sends rings to other machines
ringdup_scn	ringdup_scn.d	Copies WAVE_RING to EXPORT_RING, changing some SCNL codes
slink2ew	slink2ew.d	Imports data from IRIS, inc Calipso
slink2ew	slink2ew_*.d	Imports data from particular stations
gdi2ew	gdi2ew.d	Not used
import_ack	import_ack.d	Imports data from
export_scnl_actv	export_scn_src.d	Exports data to SRC

<i>Files</i>	<i>Directory</i>
Parameter files	/home/seisan/ew/run_mvo/params/
Log files	/home/seisan/ew/run_mvo/log/

Earthworm Control

- Earthworm starts automatically on boot
- To restart Earthworm, type *pau*<CR> in the XX window and it will stop and restart automatically.
- To restart a module, type *restart* <mod_id><CR> in the XXX window.
- To update status, type <CR> in the XXX window.

e) MVOWXP002

Hostname: MVOWXP002
Location: At left-rear of Ops Room (left two screens)
IP address: 172.20.0.71
OS: Windows XP

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Display of seismic data
- Issue telephone alarms

Software

- Earthworm
- Swarm
- Kermit 95

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//volcano01/monitoring_data	S:	Disconnected
//172.20.0.52/Seismic_Data	M:	Disconnected

Earthworm Setup

<i>Earthworm Ring</i>	<i>Function</i>
TRIGGER_RING	Carries alarm messages

<i>Earthworm Module</i>	<i>Parameter file</i>	<i>Function</i>
statmgr	statmgr.d	
sound_alarm	sound_alarm_system.d	Makes phone calls for system alarms
sound_alarm	sound_alarm.d	Makes phone calls for alarms
dirwatch	dirwatch.d	Stops disks getting too full
coaxtoring	coaxtoring.d	Recreates ring from another machine

<i>Files</i>	<i>Directory</i>
Parameter files	c:\earthworm\run_mvo\params\
Log files	c:\earthworm\run_mvo\log\

Earthworm Control

- Earthworm starts automatically on boot
- To stop Earthworm, type *quit*<CR> in the start_ew.bat window and it will stop and restart automatically.
- To start Earthworm, run C:\earthworm\run_mvo\params\start_ew.bat (shortcut on desktop).
- To restart a module, type *restart* <mod_id><CR> in the start_ew.bat window.
- To update status, type <CR> in the start_ew.bat window.

Phone Call Alarms

- Uses script C:\earthworm\v7.7\bin\alarmcall.ksc
- Logs in C:\earthworm\run_mvo\log

f) mvoscream3

Hostname: mvoscream3
Location: Virtual machine on mvohsv2 (MVO Server Room)
IP address: 172.20.0.39
OS: Windows Server 2012 R2 64-bit

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Import seismic waveform data from Guralp stations
- Export seismic waveform data to Earthworm

Software

- Scream!

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//volcano1/SF1	V:	
//mvoscream02/data	T:	Scream data on backup
local	C:\scream\data	Scream data

g) mvocobweb1

Hostname: mvocobweb1
Location: Virtual machine on mvohvs2 (MVO Server Room)
IP address: 172.20.0.64
OS: Windows Server 2012 R2 64-bit

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Import data from SPIDERS
- Export seismic data to Earthworm

Software

- Winston Wave Server
- Various scripts

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//volcano1/SF1	V:	

Starting Software

- All software is started automatically in DOS cmd windows on boot.

h) seis-display

Hostname: seis-display
Location: At left-rear of Ops Room (right two screens)
IP address: by DHCP
OS: Windows XP

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Display of seismic data

Software

- Swarm

i) earthworm02

Hostname: earthworm02
Location: Virtual machine (GOM Server Room)
IP address: 172.20.0.33
OS: Windows Server 2008 64-bit

Note

This machine is an offline backup for earthworm03 and is only being used temporarily for winston wave server.

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Holds recent seismic waveform data

Software

- Winston Wave Server

j) earthworm03

Hostname: earthworm03
Location: Virtual machine on mvohvs1 (MVO Server Room)
IP address: 172.20.0.38
OS: Windows Server 2012 R2 64-bit

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Processing seismic data
- Issue email alarms

Software

- Earthworm 7.8
- blat
- stunnel

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//mvofls2/seismic_data	S:	
//volcano01/SF1	V:	
//volcano01/seismic_data	W:	
//earthworm02/monitoring_data	F:	disconnected
local	C:\monitoring_data	

Earthworm Setup

<i>Earthworm Ring</i>	<i>Function</i>
WAVE_RING	Carries waveform data
RAW_RING	Carries waveform data that needs to be modified
TRIGGER_RING	Carries alarm messages and detected event messages

<i>Earthworm Module</i>	<i>Parameter file</i>	<i>Function</i>
archman	archman.d	Archive continuous data
scream2ew	scream2ew.d	Import waveform data from Scream!
carlstatrig	carlstatrig.d	Event triggering
carlsubtrig	carlsubtrig.d	Event triggering
trig2disk	trig2disk.d	Save event triggers to disk
ew2rsam	ew2rsam.d	Create RSAM data
newheli	newheli_MVO.d	Make helicorder plots for MVO stations
newheli	newheli_MISC.d	Make helicorder plots for other stations
newheli	newheli_REG.d	Make helicorder plots for regional stations
newsgram	newsgram_MVO.d	Make spectrograms for MVO stations
newsgram	newsgram_MISC.d	Make spectrograms for other stations
newsgram	newsgram_REG.d	Make spectrograms for regional stations
statmgr	statmgr.d	
copystatus	TRIGGER_RING WAVE_RING	Copy messages between rings
rsam2file	rsam2file.d	Save RSAM data on disk
rsam2alarm	rsam2alarm.d	Create alarm from RSAM data
rsam2alarm	rsam2alarm_trem.d	Create alarm from RSAM data
swarm_alarm	swarm_alarm.d	Create alarm for swarm of triggers
scream_alarm	scream_alarm.d	Create alarm if data channels missing
sound_alarm	sound_alarm_system.d	Sends system alarms by email
sound_alarm	sound_alarm.d	Sends alarms by email
dirwatch	dirwatch.d	Stops disks getting too full
export seisan	export seisan.d	Archive continuous data
test_alarm	test_alarm.d	Tests alarm messages
ringtocoax	ringtocoax.d	Sends ring to another machine
fir	fir.d	Filters data to create SP channels
wftimefilter	wftimefilter.d	Sanitizes data packets
copystatus	RAW_RING WAVE_RING	Copy messages between rings
export_generic	export_generic.d	
export_generic	export_generic1.d	
ringtocoax	ringtocoax_alarms	Exports ring to another machine
ringdup_generic	ringdup_generic.d	
coaxtoring	coaxtoring.d	Imports ring from another machine
import_generic	import_spider.d	Imports waveform data from mvocobweb1

<i>Files</i>	<i>Directory</i>
Parameter files	c:\earthworm\run_mvo\params\
Log files	c:\earthworm\run_mvo\log\

Earthworm Control

- Earthworm starts automatically on boot
- If there is no start_ew.bat window showing status:
 1. run start_ew.bat (shortcut on desktop) as Administrator
 2. run start_ew.bat (shortcut on desktop).
- To stop Earthworm, type *quit*<CR> in the start_ew.bat.
- To start Earthworm manually:
 1. run start_ew.bat (shortcut on desktop) as Administrator
 2. run start_ew.bat (shortcut on desktop).
- To restart a module, type *restart* <mod_id><CR> in the start_ew.bat window.
- To update status, type <CR> in the start_ew.bat window.

Email Alarms

- The email alarms are sent using *blat*. Log is in c:\earthworm\run_mvo\log\blat.log.
- The email software needs to have *stunnel* running as a service.

Error Messages from *newsgram* and *newheli* Earthworm Modules

- It is not unusual to get occasional error messages from the various newsgram and newheli modules.
- If these are overwhelming, there might be a problem with connecting to the Winston Wave Server on nagios.

k) Seismologist's iMac

Hostname: Seismologist's iMac
Location: Rod's desk
IP address: 172.20.0.162
OS: MacOS

Note

This computer can be incredibly slow. Have patience.

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat

Function(s)

- Creation of pan plots
- Creation of megaplots
- Data plotting

Software

- MATLAB R2010a
- Shell scripts running under cron.

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//mvofls2/Seismic_Data	/mnt/mvofls2-Seismic_Data	

Pan Plots

- Pan plots are created once a day, for the previous day, starting at 01:00 UTC.
- The cron script uses MATLAB.
- /Users/seisan/src/panacea/pan_cron2.sh

Megaplots

- Megaplots are created once a day, starting at 06:00 UTC.
- The cron script uses MATLAB.
- /Users/seisan/src/panacea/megaplot_cron.sh

Plots for Reports

- MATLAB scripts to generate plots are in /Users/seisan/src/MVOMonitoringPlot
- Scripts for six-monthly reports are in subfolders for each report
 - These scripts need to be copied to the parent directory to run in MATLAB
 - Some plots create figures in the Figures subfolder, others plot on screen and need to be saved as png files.
- The following files in /User/seisan/src/MVOMonitoringPlot/data need to be updated manually before creating the plots.
 - SO2_traverse_data_from_TC_latest.csv
 - VT_string_dates_SurfAct.txt
 - VT_string_dates.txt
 - VT_string_dates_only.txt

I) seisan

Hostname: seisan
Location: Venus' desk
IP address: 172.20.0.25
OS: Debian Linux

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat
root	

Function(s)

- Data processing
- Local time server

Software

- SEISAN
- Shell scripts
- ntpd

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//earthworm3/monitoring_data	/mnt/earthworm3/monitoring_data	
//172.20.0.40/Seismic Data	/mnt/dome/seismic_data	
//volcano01/SF1/	/mnt/volcano01/SF1	

m) piton

Hostname: piton
Location: Rod's desk
IP address: 172.20.0.163
OS: Debian Linux

Accounts

<i>Username</i>	<i>Password</i>
seisan	mont-serrat
root	

Function(s)

- Data processing
- System report alarms

Software

- SEISAN
- Shell scripts run by crontab

Data Storage

<i>Share</i>	<i>Mount Point</i>	<i>Data</i>
//earthworm3/monitoring_data	/mnt/earthworm3/monitoring_data	
//172.20.0.40/Seismic_Data	/mnt/dome/seismic_data	
//volcano01/SF1/	/mnt/volcano01/SF1	

n) Network Drives

<i>Computer</i>	<i>IP</i>	<i>Share</i>	<i>Data</i>
earthworm03	172.20.0.38	monitoring_data	Derived seismic data
volcano01	172.20.0.40	Seismic_Data	Seismic waveform and event data
		SF1	
		Environmental	
		MVO_IMAGERY2	
		Gas	
		bubble	
		MVO_IMAGERY	
		MVO	
		Deformation	
mvofls1	172.20.0.51		
mvofls2	172.20.0.52	Seismic_Data	Seismic waveform and event data
mvofls3	172.20.0.53	DVG_Data	
		Imagery_Data	

o) Backup Computers

These are the designated backup computers for seismic processing computers

<i>Computer</i>	<i>Backup Computer</i>	<i>IP</i>	<i>Location</i>
webobs	nagios (2 nd boot)	172.20.0.62	
mvoscream3	mvoscream1	172.20.0.31	Down
mvoscream3	mvoscream2	172.20.0.32	Virtual offsite
mvocobweb1	none	-	-
nagios	none	-	-
earthworm03	earthworm02	172.20.0.33	Virtual offsite
earthworm02	none		
Seismologist's iMac	none	-	
seisan	piton	172.20.0.163	Ops Room

p) Time Servers

All computers should set their time from the following servers:

1. seisan 172.20.0.25
2. internet pool servers

q) Earthworm Startup Scripts and Configuration Files

Scripts (Windows)

ew_nt.cmd	Set environment variables
start_ew.bat	Start earthworm

Scripts (Linux)

Configuration files

earthworm.d	Set memory rings, module IDs, message types
earthworm_global.d	DON'T TOUCH
startstop_nt.d	Commands for starting modules (Windows)
startstop_unix.d	Commands for starting modules (Linux)
statmgr.d	Lists descriptor files