

VM Lifecycle

ACGRID-III (Hanoi)

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Normal VM lifecycle consists of following commands:

- Deploy new instance:
 - stratus-run-instance <VM Marketplace_ID>
- Describe running instances:
 - stratus-describe-instance [VM ID]
- Access instance:
 - ssh root@www.xxx.yyy.zzz
- Remove instance:
 - stratus-kill-instance <VM ID>

Deploying a Virtual Machine from the Marketplace



Use a ttylinux image Identifier from the Marketplace to understand the VM lifecycle:

- Browse the StratusLab Marketplace: <http://marketplace.stratuslab.eu>
- `export TTYLINUX_ID=LwcRbwCalYSysY1wftQdAj6Bwoi`

Deploy your virtual machine:

- `stratus-run-instance ${TTYLINUX_ID}`
- Response should give the VM ID and Public IP:

```
.....  
:: Starting machines ::  
.....  
:: Starting 1 machine  
:: Machine 1 (vm ID: 12)  
    Public ip: 134.158.75.34  
:: Done!
```

Follow the status of the machine with the VM ID:

- `stratus-describe-instance <VMID>`

```
$ stratus-describe-instance 12
id  state    vcpu memory    cpu% ip      name
12  Running   1     0         0    134.158.75.34 one-12
```

- All active machines can be seen with same command without VMID.

```
$ stratus-describe-instance
id  state    vcpu memory    cpu% ip      name
11  Running   1    131072     4    134.158.75.33 one-11
12  Running   1      0         0    134.158.75.34 one-12
```

Connecting to the Virtual Machine



Wait until the machine is "Running" then ping the VM:

- ping <IP>

```
$ ping 134.158.75.33
PING 134.158.75.33 (134.158.75.33): 56 data bytes
64 bytes from 134.158.75.33: icmp_seq=0 ttl=63 time=0.780 ms
64 bytes from 134.158.75.33: icmp_seq=1 ttl=63 time=0.704 ms
...
```

If all's OK, log into the machine as root:

- ssh [root@134.158.75.33](ssh://root@134.158.75.33)

```
$ ssh root@134.158.75.33
#
# echo $USER
root
```

Deploy second machine instance:

- stratus-run-instance ...
- Log into machine as root
- Stay logged in...

Common machine states:

- Prolog, Boot: initialization of an image
- Running: machine is active
- Failed: problem with starting/running the machine

Stopping the Virtual Machine



Graceful shutdown from within the machine:

- shutdown -h

```
# shutdown -h
# Connection to 134.158.75.33 closed by remote host.
Connection to 134.158.75.33 closed.
```

- Wait for the unknown state, then kill (remove) the instance:

```
$ stratus-describe-instance 11
id  state      vcpu memory   cpu% ip          name
11  Unknown    1    131072    3    134.158.75.33 one-11
```

- This safely stops all services and halts the machine.

Rip the power cord from the wall:

- stratus-kill-instance <VMID>

```
$ stratus-kill-instance 12
$ stratus-describe-instance 12
id  state      vcpu memory   cpu% ip          name
12  Done       1    131072    4    134.158.75.34 one-12
```

Changing VM Resources



At deployment, you can choose the number of CPUs, amount of RAM and swap space.

StratusLab has a number of predefined types:

- `stratus-run-instance --list-type` (default is `m1.small`)

```
$ stratus-run-instance --list-type
Type      CPU      RAM      SWAP
m1.large  2 CPU    512 MB   1024 MB
c1.xlarge 4 CPU    2048 MB  2048 MB
m1.small   1 CPU    128 MB   1024 MB
c1.medium 1 CPU    256 MB   1024 MB
m1.xlarge  2 CPU    1024 MB  1024 MB
t1.micro   1 CPU    128 MB   512 M
```

Deploy an m1.xlarge instance

```
$ stratus-run-instance --quiet --type=m1.xlarge $TTYLINUX_ID
14, 134.158.75.36

$ stratus-describe-instance 14
id  state    vcpu memory  cpu% ip        name
14  Pending  2     0        0    134.158.75.36 one-14
```


What happens when you need resource allocations different from the predefined types?

Edit the machine template for complete control:

- edit `$HOME/stratuslab/share/vm/schema.one`
- Replace: `vm_vcpu` → number of CPUs desired
- Replace: `vm_ram` → RAM in MB
- Replace: `vm_swap` → swap space in MB

Use standard commands to launch and control instance.

NOTE: Machine images must be capable of using multiple CPUs, additional RAM, etc. for this to be useful.

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