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1. Date and time of this instance.

```
[ec2-user@ip-172-31-38-74 home]$ date  
Thu Feb 19 15:27:25 UTC 2015
```

2. How long has the system been running?

```
[ec2-user@ip-172-31-38-74 home]$ uptime  
15:30:57 up 44 min, 1 user, load average: 0.00, 0.04, 0.05
```

3. Name and version of Operating Systems running on this instance.

```
[ec2-user@ip-172-31-38-74 home]$ cat /etc/*release  
NAME="Amazon Linux AMI"  
VERSION="2014.09"  
ID="amzn"  
ID_LIKE="rhel fedora"  
VERSION_ID="2014.09"  
PRETTY_NAME="Amazon Linux AMI 2014.09"  
ANSI_COLOR="0;33"  
CPE_NAME="cpe:/o:amazon:linux:2014.09:ga"  
HOME_URL="http://aws.amazon.com/amazon-linux-ami/"  
Amazon Linux AMI release 2014.09
```

4. Who is logged in?

```
[ec2-user@ip-172-31-38-74 home]$ who  
ec2-user pts/0    2015-02-19 15:08 (dhcp-892b7959.ucd.ie)
```

5. Who is running what? (Hint: using top or ps command)

```
[ec2-user@ip-172-31-38-74 home]$ top
```

```
top - 15:40:30 up 53 min, 1 user, load average: 0.00, 0.01, 0.05  
Tasks: 61 total, 1 running, 60 sleeping, 0 stopped, 0 zombie  
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni,100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st  
Mem: 1020196k total, 488716k used, 531480k free, 14908k buffers  
Swap: 0k total, 0k used, 0k free, 413364k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	19480	1600	1284	S	0.0	0.2	0:00.51	init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.09	ksoftirqd/0
5	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0H
6	root	20	0	0	0	0	S	0.0	0.0	0:00.05	kworker/u30:0

7 root	20	0	0	0	0	S	0.0	0.0	0:00.25	rcu_sched
8 root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_bh
9 root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
10 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	khelper
11 root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
12 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	netns
13 root	20	0	0	0	0	S	0.0	0.0	0:00.00	kworker/u30:1
19 root	20	0	0	0	0	S	0.0	0.0	0:00.00	xenwatch
20 root	20	0	0	0	0	S	0.0	0.0	0:00.00	xenbus
21 root	20	0	0	0	0	S	0.0	0.0	0:00.11	kworker/0:1
115 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	writeback
118 root	25	5	0	0	0	S	0.0	0.0	0:00.00	ksmd

6. Which devices are there?

lspci

```
00:00.0 Host bridge: Intel Corporation 440FX - 82441FX PMC [Natoma] (rev 02)
00:01.0 ISA bridge: Intel Corporation 82371SB PIIX3 ISA [Natoma/Triton II]
00:01.1 IDE interface: Intel Corporation 82371SB PIIX3 IDE [Natoma/Triton II]
00:01.3 Bridge: Intel Corporation 82371AB/EB/MB PIIX4 ACPI (rev 01)
00:02.0 VGA compatible controller: Cirrus Logic GD 5446
00:03.0 Unassigned class [ff80]: XenSource, Inc. Xen Platform Device (rev 01)
```

lsblk

```
NAME    MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda    202:0   0  8G  0 disk
└─xvda1 202:1   0  8G  0 part /
```

7. What has the user been doing? (command-line history)

[ec2-user@ip-172-31-38-74 home]\$ history

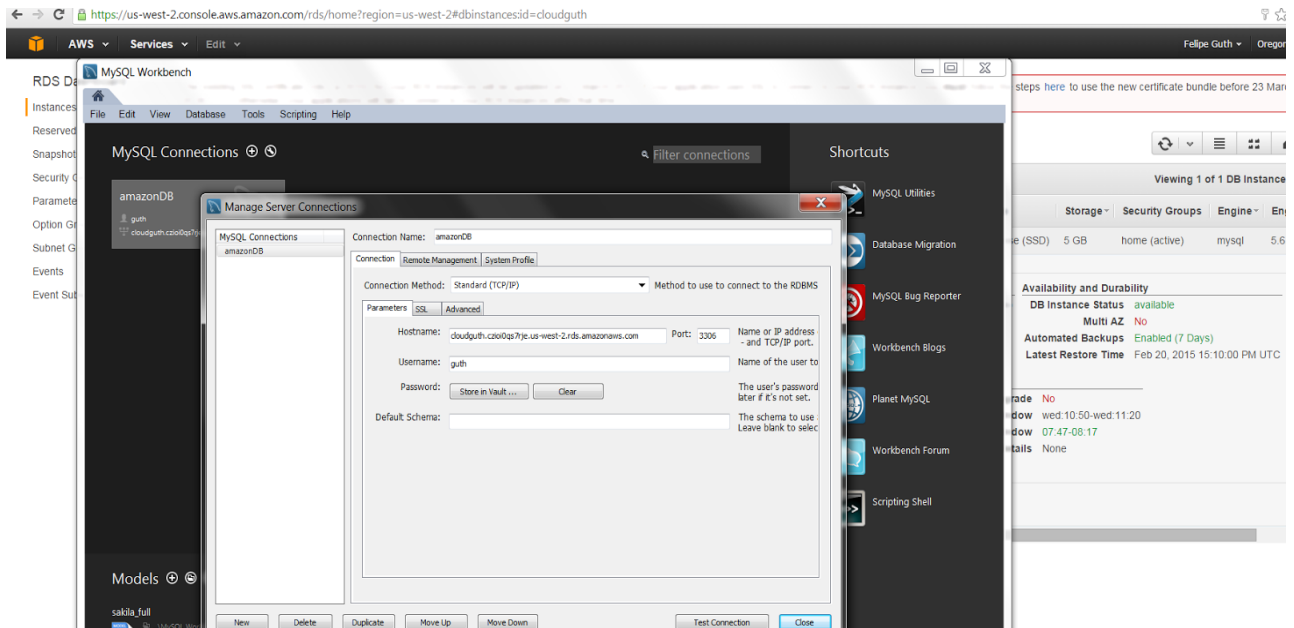
```
1 pwd
2 ls
3 ec2-describe-instance-status
4 ec2-describe-instance-status -A
5 touch
6 sudo apt-get update
7 sudo apt-get-install update
8 ls
9 pwd
```

```
10 cd
11 ls
12 pwd
13 sudo yum update
14 ec2-describe-instance-status i-c77c61cd
15 ec2-describe-instance-status i-c77c61cd -A
16 descrybe-instance-status
17 sudo apt-get update
18 ls
19 pwd
20 cd ..
21 sudo datetime
22 c2-describe-instance-status
23 ec2-describe-instance-status
24 cli
25 ec2-describe-instance-status -0
26 ec2-describe-instance-status -o
27 ec2-describe-instance-status -h
28 ec2-describe-instance-status
29 ec2-describe-instance-status -O
30 export AWS_ACCESS_KEY=AKIAJK4CKQACI6AHDTLQ
31 export AWS_SECRET_KEY=wAvBsE8RGT+5jY+Gc8xA3IP/NFiLdpmFMfb5S12
32 source ~/.bashrc
33 ec2-describe-regions
34 ec2-describe-instance-status
35 ec2-describe-instance-status i-c77c61cd
36 ec2-describe-instance-status -A
37 describe-instance-status
38 aws ec2 describe-instance-status
39 date
40 uptime
41 uname
42 uname -a
43 uname -rv
44 uname -n
45 ls /etc/*release
46 ls /etc/*os-release
47 ls /etc/os-release
48 lsb_release -a
49 lsb_release
50 lsb_release -si
51 cat /etc/*version
52 cat /etc/os-release
```

```
53 cat /etc/*release
54 sho
55 who
56 top
57 lshw
58 lsdev
59 lsblk
60 lshw
61 hwinfo
62 lspci
63 ls SCSI
64 lsusb
65 lnx
66 ls SCSI
67 lnx
68 lnx -Fx
69 lsblk
70 df
71 df -H
72 history n
73 history
```

II. Using SimpleDB Using AWS Simple DB

To perform the tasks 1-5 of the section 2, I installed the MySQL Workbench and allowed the access in Amazon. The MySQL Workbench is a much better tool than the Amazon Scratchpad. Following is the image of the connection parameters.



1. Create the Domain Car as follows:

Creating Domain/Table

The screenshot shows the MySQL Workbench interface. The left sidebar contains the 'SCHEMAS' panel with a tree view showing the database structure. The main editor window displays a SQL query to create a table named 'Car'. The query is as follows:

```
1 CREATE TABLE `Car` (  
2   `ItemName` varchar(15) NOT NULL,  
3   `Year` int(11) DEFAULT NULL,  
4   `Weight` int(11) DEFAULT NULL,  
5   `Cylinders` int(11) DEFAULT NULL,  
6   `Power` int(11) DEFAULT NULL,  
7   `mpg` int(11) DEFAULT NULL,  
8 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;  
9
```

The right sidebar shows the 'SQL Additions' panel with a message: 'Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.'

The bottom panel shows the 'Output' window with a table of results:

Time	Action	Message	Duration / Fetch
15:25:20	Apply changes to Car	Changes applied	

Below the output table, the 'Table: Car' is listed with its columns:

Table: Car
Columns:

Inserting Data

The screenshot shows the MySQL Workbench interface with the 'Car' table selected in the Navigator. The SQL editor contains two INSERT statements. The first statement inserts a row for 'Chevrolet' with Year 78, Weight 2051, 6 cylinders, NULL power, and NULL mpg. The second statement inserts a row for 'Chevrolet' with Year 80, Weight 80, 8 cylinders, NULL power, and NULL mpg. The Result Grid shows the current state of the 'Car' table with 8 rows. The Output pane shows the execution of the INSERT statements, indicating that 1 row(s) were affected for each.

```
21 • INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylinders, Power,
22   VALUES
23   ('Chevrolet',78, 2051,6 ,NULL, NULL);
24
25 • INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylinders, Power,
26   VALUES
27   ('Chevrolet',80, NULL,8,NULL, NULL);
```

ItemName	Year	Weight	Cylinders	Power	mpg
Audi	70	2400	4	102	20
Audi	73	NULL	5	NULL	23
Audi	75	NULL	NULL	NULL	24
Audi	78	NULL	NULL	NULL	NULL
Chevrolet	77	2035	4	85	17
Chevrolet	78	2051	6	NULL	NULL
Chevrolet	80	80	8	NULL	NULL
Fiat	81	1867	4	30	37

Car 6 x

Time	Action	Message	Duration / Fetch	
33	15:50:32	INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylind...	1 row(s) affected	0.234 sec
34	15:50:33	SELECT * FROM dbguth.Car LIMIT 0, 1000	8 row(s) returned	0.234 sec / 0.000 sec
35	15:53:02	SET SQL_SAFE_UPDATES=0	0 row(s) affected	0.234 sec
36	15:53:02	delete from dbguth.Car	8 row(s) affected	0.234 sec
37	15:53:08	INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylind...	1 row(s) affected	0.249 sec
38	15:53:09	INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylind...	1 row(s) affected	0.234 sec
39	15:53:09	INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylind...	1 row(s) affected	0.265 sec
40	15:53:09	INSERT INTO dbguth.Car (ItemName, Year, Weight, Cylind...	1 row(s) affected	0.234 sec

2. Query the Domain Car for all items with Year 78

The screenshot shows the MySQL Workbench interface with the 'Car' table selected in the Navigator. The SQL editor contains a query: `select * from dbguth.Car where Year = 78`. The Result Grid shows the results of the query, displaying two rows: 'Audi' with Year 78 and 'Chevrolet' with Year 78, Weight 2051, 6 cylinders, NULL power, and NULL mpg. The Output pane shows the execution of the query, indicating that 2 row(s) were returned.

```
1 • select * from dbguth.Car where Year = 78
```

ItemName	Year	Weight	Cylinders	Power	mpg
Audi	78	NULL	NULL	NULL	NULL
Chevrolet	78	2051	6	NULL	NULL

Car 1 x

3. Update the Weight attribute of Audi with 3000

The screenshot shows the MySQL Workbench interface with the 'amazonDB' database selected. The SQL editor contains the following query:

```
1 • update Car set Weight = 3000 where ItemName = 'Audi' and Year = 70;
2 • select * from Car
```

The 'Result Grid' displays the data from the 'Car' table. The first row, representing an Audi from 1970, has its 'Weight' column updated to 3000. The other columns (Year, Cylinders, Power, mpg) are NULL. The remaining rows show other car models with their respective attributes.

ItemName	Year	Weight	Cylinders	Power	mpg
Audi	70	3000	4	102	20
Audi	73	NULL	5	NULL	23
Audi	75	NULL	NULL	NULL	24
Audi	78	NULL	NULL	NULL	NULL
Chevrolet	77	2035	4	85	17
Chevrolet	78	2051	6	NULL	NULL
Chevrolet	80	NULL	8	NULL	NULL
Fiat	81	1867	4	30	37

The 'SCHEMAS' panel on the left shows the database structure, including the 'Car' table and its columns: ItemName, Year, Weight, Cylinders, Power, and mpg. The 'Output' panel at the bottom is currently empty.

4. Delete the value 8 from the Cylinders attribute of Chevrolet

The screenshot shows the MySQL Workbench interface with the 'amazonDB' connection. The left sidebar contains the 'Navigator' pane with sections for MANAGEMENT, INSTANCE, PERFORMANCE, and SCHEMAS. The 'SCHEMAS' section is expanded, showing the 'dbguith' database and its 'Car' table. The 'Query 2' editor shows the following SQL statements:

```
1 • update Car set Cylinders = NULL where ItemName='Chevrolet' and Year=
2 • select * from Car;
```

The 'Result Grid' displays the data for the 'Car' table. The columns are ItemName, Year, Weight, Cylinders, Power, and mpg. The data is as follows:

ItemName	Year	Weight	Cylinders	Power	mpg
Audi	70	3000	4	102	20
Audi	73	NULL	5	NULL	23
Audi	75	NULL	NULL	NULL	24
Audi	78	NULL	NULL	NULL	NULL
Chevrolet	77	2035	4	85	17
Chevrolet	78	2051	6	NULL	NULL
Chevrolet	80	NULL	NULL	NULL	NULL
Fiat	81	1867	4	30	37

The bottom of the interface shows the 'Output' pane with 'Action Output' selected.

5. Delete the Domain Car

