Maximum Number of Concurrent Queries

Max Ganz II @ Redshift Research Project

5th March 2023

Abstract

There is a limit of 30 concurrent queries per queue, regardless of the number of slots configured for a queue. When any queue has reached the limit of 30 concurrent queries, the superuser queue is no longer able to execute queries, but other user queues are unaffected.

Contents

Introduction

Redshift supports multiple concurrent queries.

The mechanism used to control and configure concurrent queries, both system-issued and user-issued, is that of queues and slots.

For users-issued queries, there can be from one to seven queues, each of which has one to fifty slots, and there is a system-wide maximum of fifty slots. The number of queues and how many slots are in each queue is configured by a system administrator.

Each slot can run one query (actually, a single slot can in the right circumstances run multiple queries, but that's for a later white paper).

When a query is issued, a queue is selected (by means which are irrelevant to the investigation) and the query sent to that queue. If the queue has empty slots, one of them will be used to execute the query immediately. If all slots are occupied, the query goes into a FIFO queue for that queue, and will be executed once a slot becomes available.

There is then with Redshift a limit of fifty concurrent user-issued queries; fifty slots would be configured and fifty queries issued. At this point any additional user-issued queries would necessarily be queued.

This white paper investigates whether Redshift does in fact allow fifty user-issued queries to be executed concurrently.

Test Method

Proof #1 (1 queue 50 slots, 50 queries)

A Redshift cluster is configured to have one queue of 50 slots.

Two simple test tables are created, and then 50 identical queries are simultaneously issued, which select the count(*) of the join of the two tables. The tables contain a single raw encoded `int8` column, with one exactly full block per slice of randomly generated `int8`, so the count is typically zero. Where there are so many slots, each slot has very little memory and even with only a single block per slice, the queries take a long time, about 30 minutes.

Once all 50 queries have been issued, we immediately issue a two queries into the superuser queue, the first being leader-node only, the second using worker-nodes.

We then note when every query was queued, when it began executing and when it finished executing.

We then examine the results to see what we find.

Proof #2 (1 queue 50 slots, 40 queries)

The same as proof #1, but now only 40 queries are issued.

Proof #3 (2 queues 30/10 slots, 30/10 queries)

Based on knowledge from the first proof, we now create two queues, of 30 slots and 10 slots (memory allocated *pro rata*).

Then as before 30 identical queries (still counting the join of the tables) are simultaneously issued, this time into the 30 slot queue, and then once they are all issued, 10 more identical queries as issued into the ten slot queue.

As before, we then immediately issue a two queries into the superuser queue, the first being leader-node only, the second using worker-nodes, and we then note when every query was queued, when it began executing and when it finished executing and examine the results to see what we find.

Proof #4 (2 queues 30/20 slots, 30/20 queries)

The same as proof #3, but now with 20 queries in the second queue, which has 20 queries issued.

Results

See Appendix A for the Python `pprint` dump of the results dictionary.

The Python script used to generate the results is available from the White Pages page at the Redshift Research Project. The script is user-friendly, self-contained, stand-alone and exists so that the results can simply and easily be reproduced.

Total test time was 8,095 seconds.

dc2.large, 2 nodes (1.0.30840)

Proof #1 (1 queue 50 slots, 50 queries)

Queue 6 is the single user-configured and default queue. All other queues are system queues.

Queue #	Slots
1	1
2	1
3	2
4	1
5	1
6	50

Queue #	Slots
15	0

All queries are reported as being queued and beginning to execute at the same time, but note the first 30 queries after about 33 minutes complete together, and then after another 20 minutes, the remaining 20 queries complete together (examine the execution end times for queries 30 and 31).

Query	Queue	Queue Start	Exec Start	Exec End
1	6	15:49:58.127771	15:49:58.127780	16:21:50.613780
2	6	15:49:58.070566	15:49:58.070609	16:21:50.615748
3	6	15:49:58.120498	15:49:58.120510	16:21:50.617066
4	6	15:49:58.210868	15:49:58.210878	16:21:50.642211
5	6	15:49:58.160839	15:49:58.160847	16:21:50.671250
6	6	15:49:58.062473	15:49:58.062483	16:21:50.710787
7	6	15:49:58.089557	15:49:58.089566	16:21:50.755797
8	6	15:49:57.835326	15:49:57.835334	16:21:50.770947
9	6	15:49:58.232241	15:49:58.232252	16:21:50.823570
10	6	15:49:58.132214	15:49:58.132222	16:21:50.855381
11	6	15:49:58.087055	15:49:58.087063	16:21:50.887268
12	6	15:49:58.051477	15:49:58.051487	16:21:53.884859
13	6	15:49:58.259194	15:49:58.259203	16:21:54.227551
14	6	15:49:58.117327	15:49:58.117336	16:21:54.585056
15	6	15:49:58.263676	15:49:58.263683	16:21:54.848468
16	6	15:49:58.122405	15:49:58.158070	16:21:55.096476
17	6	15:49:58.071046	15:49:58.071056	16:21:56.054904
18	6	15:49:57.829600	15:49:57.829612	16:21:56.435633
19	6	15:49:58.184733	15:49:58.184741	16:21:58.094943
20	6	15:49:58.274706	15:49:58.274714	16:21:58.710918
21	6	15:49:58.086042	15:49:58.086050	16:21:59.336118
22	6	15:49:58.183266	15:49:58.183278	16:21:59.395178
23	6	15:49:58.181344	15:49:58.181354	16:21:59.635844
24	6	15:49:58.045031	15:49:58.045051	16:22:00.307921
25	6	15:49:58.132691	15:49:58.132699	16:22:00.427576
26	6	15:49:58.227170	15:49:58.227183	16:22:00.658998
27	6	15:49:58.219830	15:49:58.219837	16:22:01.937114
28	6	15:49:58.190592	15:49:58.190610	16:22:03.198462
29	6	15:49:58.078237	15:49:58.078245	16:22:03.220855
30	6	15:49:58.200588	15:49:58.200595	16:22:04.820606
31	6	15:49:58.243559	15:49:58.243568	16:42:11.351617
32	6	15:49:58.196226	15:49:58.196232	16:42:11.936405
33	6	15:49:58.215345	15:49:58.215358	16:42:18.099604
34	6	15:49:58.213584	15:49:58.213594	16:42:18.491249
35	6	15:49:58.217188	15:49:58.217199	16:42:18.510718
36	6	15:49:58.294468	15:49:58.294476	16:42:20.603540
37	6	15:49:58.282827	15:49:58.282834	16:42:20.604723
38	6	15:49:58.278099	15:49:58.278107	16:42:21.234185
39	6	15:49:58.215968	15:49:58.215977	16:42:21.551156

Query	Queue	Queue Start	Exec Start	Exec End
40	6	15:49:58.154419	15:49:58.154426	16:42:21.603266
41	6	15:49:58.224768	15:49:58.224776	16:42:21.651115
42	6	15:49:58.287855	15:49:58.287862	16:42:23.474200
43	6	15:49:58.425462	15:49:58.425469	16:42:23.685237
44	6	15:49:58.262150	15:49:58.262157	16:42:23.934793
45	6	15:49:58.278275	15:49:58.278281	16:42:24.114984
46	6	15:49:58.262670	15:49:58.262681	16:42:24.856536
47	6	15:49:58.354781	15:49:58.354789	16:42:26.005504
48	6	15:49:58.416414	15:49:58.416423	16:42:26.258593
49	6	15:49:58.419910	15:49:58.419917	16:42:26.276310
50	6	15:49:58.416569	15:49:58.416576	16:42:26.483855

The following single row table is the superuser queue leader-node query issued immediately after the 50 queries were issued.

It appears currently *no* logging of completed leader-node queries is occurring (it used to) and so all we have is the timestamp from the `timeofday()` function, which was issued in the query. This is however adequate to show when execution occurred.

timeofday()
Mon Oct 04 15:50:02.432721 2021 UTC

The following single row table is the superuser queue worker-node query issued immediately after leader-node query completed. We see it only finally executed once one or more of the initial batch of 30 queries completed.

Queue #	Queue Start	Exec Start	timeofday()	Exec End
5	15:50:02.481307	15:50:02.481321	Mon Oct 04 16:21:50.898244 2021 UTC	16:21:50.898769

Proof #2 (1 queue 50 slots, 40 queries)

Queue #	Slots
1	1
2	1
3	2
4	1
5	1
6	50
15	0

5

Here we issued only 40 queries. As before, we see a first batch of 30 completing together, and then the final batch of 10 completing together.

Query #	Queue #	Queue Start	Exec Start	Exec End
1	6	16:43:56.785943	16:43:56.785951	17:14:54.546982
2	6	16:43:56.990794	16:43:56.990802	17:15:13.130696
3	6	16:43:56.932712	16:43:56.932726	17:15:14.538681
4	6	16:43:57.101137	16:43:57.101143	17:15:42.708895
5	6	16:43:56.792195	16:43:56.792205	17:15:43.101332
6	6	16:43:57.087052	16:43:57.087060	17:15:44.954837
7	6	16:43:56.643655	16:43:56.643979	17:15:46.211009
8	6	16:43:56.990043	16:43:56.990052	17:15:46.500821
9	6	16:43:56.997153	16:43:56.997821	17:15:46.946331
10	6	16:43:56.783937	16:43:56.783947	17:15:47.163977
11	6	16:43:57.099557	16:43:57.099564	17:15:47.438160
12	6	16:43:57.090594	16:43:57.090603	17:15:47.732970
13	6	16:43:56.943640	16:43:56.943649	17:15:47.737157
14	6	16:43:57.065514	16:43:57.065521	17:15:47.739972
15	6	16:43:57.077606	16:43:57.077625	17:15:47.856719
16	6	16:43:56.890170	16:43:56.890181	17:15:48.003832
17	6	16:43:57.049426	16:43:57.049434	17:15:48.910747
18	6	16:43:56.641216	16:43:56.641229	17:15:49.269827
19	6	16:43:56.867961	16:43:56.867989	17:15:49.288471
20	6	16:43:57.036741	16:43:57.036749	17:15:51.362420
21	6	16:43:56.631125	16:43:56.631135	17:15:51.563885
22	6	16:43:57.079126	16:43:57.079139	17:15:51.840308
23	6	16:43:57.041135	16:43:57.041149	17:15:51.958705
24	6	16:43:57.022074	16:43:57.022085	17:15:51.998679
25	6	16:43:56.988643	16:43:56.988656	17:15:52.021174
26	6	16:43:56.998370	16:43:56.998380	17:15:52.077485
27	6	16:43:57.025380	16:43:57.025387	17:15:52.114683
28	6	16:43:56.990945	16:43:56.990951	17:15:54.020131
29	6	16:43:57.067723	16:43:57.067731	17:15:54.785593
30	6	16:43:57.063241	16:43:57.063250	17:15:55.953745
31	6	16:43:57.118359	16:43:57.118365	17:25:36.035945
32	6	16:43:57.155690	16:43:57.155698	17:25:45.103205
33	6	16:43:57.121212	16:43:57.121219	17:25:45.825897
34	6	16:43:57.167407	16:43:57.167415	17:25:46.036079
35	6	16:43:57.121998	16:43:57.125695	17:25:48.425447
36	6	16:43:57.146333	16:43:57.146338	17:25:48.902028
37	6	16:43:57.160894	16:43:57.160901	17:25:49.069143
38	6	16:43:57.146171	16:43:57.146180	17:25:49.130059
39	6	16:43:57.161057	16:43:57.161063	17:25:49.499375
40	6	16:43:57.157965	16:43:57.157972	17:25:49.911973

The following single row table is the superuser queue leader-node query issued immediately after the 50 queries were issued.

It appears currently *no* logging of completed leader-node queries is occurring (it

used to) and so all we have is the timestamp from the `timeofday()` function, which was issued in the query. This is however adequate to show when execution occurred.

timeofday()
Mon Oct 04 16:44:01.546710 2021 UTC

The following single row table is the superuser queue worker-node query issued immediately after leader-node query completed. Here we see the query as before only executed once queries from the first 30 queries completed.

Queue #	Queue Start	Exec Start	timeofday()	Exec End
5	16:44:01.594764	16:44:01.594776	Mon Oct 04 16:21:50.898244 2021 UTC	17:14:54.548745

Proof #3 (2 queues 30/10 slots, 30/10 queries)

Queue #	Slots
1	1
2	1
3	2
4	1
5	1
6	10
7	30
15	0

The 30 queries to queue #7 were issued first (examine the Queue Start timestamps), followed by the 10 queries into queue #6.

Here we see all queries actually executed in parallel; they all begin at about the same time and all ended at about the same time; they ran in parallel.

Query #	Queue #	Queue Start	Exec Start	Exec End
1	7	17:29:10.116657	17:29:10.116666	17:41:57.179292
2	7	17:29:10.152597	17:29:10.152608	17:41:49.509474
3	7	17:29:10.159927	17:29:10.159936	17:41:48.999495
4	7	17:29:10.210375	17:29:10.210384	17:41:49.683588
5	7	17:29:10.213187	17:29:10.213194	17:41:58.276473
6	7	17:29:10.235929	17:29:10.235939	17:41:58.284404
7	7	17:29:10.254439	17:29:10.254448	17:41:50.098457
8	7	17:29:10.296682	17:29:10.296692	17:41:49.919376
9	7	17:29:10.324581	17:29:10.324590	17:41:58.246735
10	7	17:29:10.328897	17:29:10.328904	17:41:58.341320

Query #	Queue #	Queue Start	Exec Start	Exec End
11	7	17:29:10.358083	17:29:10.358092	17:41:50.165056
12	7	17:29:10.363645	17:29:10.363653	17:41:50.077641
13	7	17:29:10.365459	17:29:10.365467	17:41:58.239877
14	7	17:29:10.368713	17:29:10.368720	17:41:50.164706
15	7	17:29:10.411387	17:29:10.411397	17:41:50.118964
16	7	17:29:10.411742	17:29:10.411748	17:41:58.312306
17	7	17:29:10.417405	17:29:10.417412	17:41:52.788602
18	7	17:29:10.448896	17:29:10.448909	17:41:58.340954
19	7	17:29:10.449213	17:29:10.449220	17:41:58.366137
20	7	17:29:10.451035	17:29:10.451046	17:41:58.266653
21	7	17:29:10.452813	17:29:10.452823	17:41:58.129337
22	7	17:29:10.461381	17:29:10.461389	17:41:58.257869
23	7	17:29:10.461546	17:29:10.461554	17:41:50.103795
24	7	17:29:10.462643	17:29:10.462651	17:41:58.252911
25	7	17:29:10.489043	17:29:10.489051	17:41:55.676683
26	7	17:29:10.508213	17:29:10.508222	17:41:52.912922
27	7	17:29:10.524630	17:29:10.524637	17:41:55.929408
28	7	17:29:10.525336	17:29:10.525354	17:41:52.015737
29	7	17:29:10.584906	17:29:10.584913	17:41:50.928450
30	7	17:29:10.590228	17:29:10.590234	17:41:51.585367
31	6	17:29:15.139446	17:29:15.139459	17:41:58.368530
32	6	17:29:15.146818	17:29:15.146829	17:41:56.844642
33	6	17:29:15.149278	17:29:15.149286	17:41:58.521654
34	6	17:29:15.151224	17:29:15.151233	17:41:58.817737
35	6	17:29:15.151487	17:29:15.151497	17:41:58.370361
36	6	17:29:15.155440	17:29:15.156011	17:41:55.992180
37	6	17:29:15.187292	17:29:15.187304	17:41:58.621754
38	6	17:29:15.187804	17:29:15.187814	17:41:55.308719
39	6	17:29:15.189784	17:29:15.189792	17:41:54.085506
40	6	17:29:15.193096	17:29:15.193103	17:41:56.972871

The following single row table is the superuser queue leader-node query issued immediately after the 50 queries were issued.

It appears currently *no* logging of completed leader-node queries is occurring (it used to) and so all we have is the timestamp from the `timeofday()` function, which was issued in the query. This is however adequate to show when execution occurred.

timeofday()
Mon Oct 04 17:29:15.046693 2021 UTC

The following single row table is the superuser queue worker-node query issued immediately after leader-node query completed. Here we see this query executed immediately; it was not blocked.

Queue #	Queue Start	Exec Start	timeofday()	Exec End
5	17:29:15.181314	17:29:15.181327	Mon Oct 04 17:29:15.223939 2021 UTC	17:29:15.231921

Proof #4 (2 queues 30/20 slots, 30/20 queries)

Queue #	Slots
1	1
2	1
3	2
4	1
5	1
6	20
7	30
15	0

Finally, to check that even with 50 queries, as long as they're spread over multiple queues, execution is fully parallel, this 30/20 proof. We see here that all queries began at about the same time and ended at about the same time; they really did run in parallel.

Query #	Queue #	Queue Start	Exec Start	Exec End
1	7	17:45:40.508312	17:45:40.508322	18:01:41.512858
2	7	17:45:40.565982	17:45:40.565995	18:01:23.100758
3	7	17:45:40.608091	17:45:40.608103	18:01:23.720642
4	7	17:45:40.663260	17:45:40.663291	18:01:42.685471
5	7	17:45:40.674131	17:45:40.674140	18:01:42.632185
6	7	17:45:40.681154	17:45:40.681164	18:01:42.484303
7	7	17:45:40.717998	17:45:40.718013	18:01:42.171824
8	7	17:45:40.726040	17:45:40.726051	18:01:42.272628
9	7	17:45:40.726193	17:45:40.726200	18:01:24.175341
10	7	17:45:40.746223	17:45:40.746232	18:01:42.579424
11	7	17:45:40.753393	17:45:40.753400	18:01:42.687405
12	7	17:45:40.756592	17:45:40.756601	18:01:26.416616
13	7	17:45:40.760058	17:45:40.760067	18:01:24.048386
14	7	17:45:40.761097	17:45:40.761106	18:01:42.580756
15	7	17:45:40.761158	17:45:40.761321	18:01:24.080262
16	7	17:45:40.747651	17:45:40.762795	18:01:24.112432
17	7	17:45:40.760882	17:45:40.764710	18:01:42.648259
18	7	17:45:40.764762	17:45:40.764771	18:01:23.920977
19	7	17:45:40.768682	17:45:40.768691	18:01:42.471272
20	7	17:45:40.778725	17:45:40.778736	18:01:42.664954
21	7	17:45:40.778944	17:45:40.778952	18:01:23.964037
22	7	17:45:40.783861	17:45:40.783869	18:01:23.816765
23	7	17:45:40.791753	17:45:40.791760	18:01:40.880951

Query #	Queue #	Queue Start	Exec Start	Exec End
24	7	17:45:40.792762	17:45:40.792769	18:01:41.372720
25	7	17:45:40.795472	17:45:40.795479	18:01:42.455657
26	7	17:45:40.894647	17:45:40.894656	18:01:23.948445
27	7	17:45:40.895070	17:45:40.895079	18:01:34.244923
28	7	17:45:40.911679	17:45:40.911690	18:01:42.376488
29	7	17:45:40.911803	17:45:40.911812	18:01:42.705763
30	7	17:45:40.917010	17:45:40.917016	18:01:24.320836
31	6	17:45:45.596045	17:45:45.596060	18:01:41.684372
32	6	17:45:45.606666	17:45:45.606677	18:01:40.760743
33	6	17:45:45.608494	17:45:45.608501	18:01:43.120154
34	6	17:45:45.627556	17:45:45.627565	18:01:42.940785
35	6	17:45:45.632816	17:45:45.632827	18:01:39.921029
36	6	17:45:45.647367	17:45:45.647376	18:01:43.102451
37	6	17:45:45.652132	17:45:45.652139	18:01:29.509487
38	6	17:45:45.665223	17:45:45.665234	18:01:30.024999
39	6	17:45:45.671703	17:45:45.671710	18:01:42.976345
40	6	17:45:45.671790	17:45:45.671797	18:01:29.632491
41	6	17:45:45.675316	17:45:45.675324	18:01:29.544447
42	6	17:45:45.683275	17:45:45.683283	18:01:42.579789
43	6	17:45:45.683556	17:45:45.683562	18:01:29.850047
44	6	17:45:45.711906	17:45:45.711915	18:01:30.019516
45	6	17:45:45.712075	17:45:45.712082	18:01:29.967331
46	6	17:45:45.715886	17:45:45.715894	18:01:40.505223
47	6	17:45:45.721388	17:45:45.721397	18:01:34.643008
48	6	17:45:45.722392	17:45:45.722399	18:01:29.714263
49	6	17:45:45.728650	17:45:45.728658	18:01:35.295424
50	6	17:45:45.729012	17:45:45.729022	18:01:37.573317

The following single row table is the superuser queue leader-node query issued immediately after the 50 queries were issued.

It appears currently *no* logging of completed leader-node queries is occurring (it used to) and so all we have is the timestamp from the `timeofday()` function, which was issued in the query. This is however adequate to show when execution occurred.

timeofday()
Mon Oct 04 17:45:45.476594 2021 UTC

The following single row table is the superuser queue worker-node query issued immediately after leader-node query completed. The query was not blocked.

Queue #	Queue Start	Exec Start	timeofday()	Exec End
5	17:45:45.736648	17:45:45.736655	Mon Oct 04 17:45:46.532921 2021 UTC	17:45:46.533540

Discussion

Proof #1 (1 queue 50 slots, 50 queries)

With a single 50 slot queue, we can see all 50 queries queued and began execution at about the same time, 15:49:58, but that they did not in fact actually all execute in parallel.

The first 30 queries ran and completed at about 16:21:50, as can be seen in their "Exec End" timestamps, taking about 32 minutes to run.

The outstanding 20 queries however completed at about 16:42:20 - 21 minutes later.

The explanation here is that the first 30 queries were running while the second 20 queries were not, and then when the first 30 finished, the second 20 queries than actually began to ran, and finished about 20 minutes later, which fits - if 30 queries take about 30 minutes to run, then 20 queries will take about 2/3rds of the time, which is 20 minutes).

This means the start execution time listed in the system tables is basically bogus. It does not mean a query is actually executing.

Returning to the test, once all 50 queries has been issued, a leader-node only query was issued to the superuser queue. This completed immediately.

Then a worker-node query was issued the superuser queue, this at 15:50:02.

This query was blocked until the first batch of 30 queries began to complete, and then it finally was able to complete at 16:21:50 (the time the second batch of 20 queries were able also to begin executing).

Proof #2 (1 queue 50 slots, 40 queries)

This proof is identical to proof #1, except 40 queries are issued rather than 50.

We expect then to see the first 30 execute and when they have completed, the final 10 queries execute, and this what is seen.

As before, the superuser queue leader-only query executed immediately, but the superuser queue work-node-using query was blocked.

Proof #3 (2 queues 30/10 slots, 30/10 queries)

This proof has two queues, one of 30 slots and one of 10.

The first queue of 30 slots has 30 identical queries issued to it; once this has been done, 10 identical queries are issued to the second queue.

What we find now is that all these queries actually really do execute in parallel, and that the superuser queries are not blocked.

Proof #3 (2 queues 30/20 slots, 30/20 queries)

Identical to proof #3, except now with 20 slots and queries in the second queue, to reach the 50 slot limit.

However, this does not change the results : all queries really did execute in parallel, and the superuser queries were not blocked.

Review

So what do we make of this?

First, it looks like there is for any single queue an actual limit of 30 concurrent queries, regardless of how many slots are configured, and the reporting in the system tables of the timestamp of when a query begins execution is bogus (the systems tables are a disaster area, and this is more of the same).

Regarding this limit, it's always a good idea to keep queue configuration simple; any fancy queue configuration in my view is never going to be doing what the admin thinks it's doing. This mitigates in favour of few or even single queues, with lots of slots. Queries which use merge joins, which is to say, well designed queries with matching well designed tables, require practically no memory and so in a situation where these are the queries being issued, you can have lots of slots - you don't need the usual buckets of memory to make hash joins performant. In this case this 30 query limit could be a problem, which seems a bit cruel - it's hitting the people who are operating Redshift correctly.

In my experience though, every client I've worked with has been operating Redshift incorrectly, and so needs plenty of slot memory to handle their hash joins, but at the same time have no awareness of this need at all, and so they tend to have some sort of semi-randomly selected queue configuration which has never been examined for actual impact or performance, because queries are executing and it all seems to work (despite end-users complaining that performance is poor and erratic).

Second, it looks like (and this is pretty odd) that if there is a single queue which has reached the 30 concurrent query limit, the superuser queue - but not other normal user queues, as we've seen in proof #3 - can no longer execute queries which use worker nodes.

I think leader-node only queries continue to execute as normal because they do not in fact use WLM queues at all, and so do not in fact pay attention to `query_group`.

The superuser queue is there at least in part to allow admin to *always* be able to issue commands, to recover a cluster, no matter what state the cluster is in, so if this is true, it's a significant and unexpected issue.

I've not yet experimented to find out, but my expectation is that anything relating to queries - enumerating queries, cancelling processes, etc, would be

leader-node only, but anything which touches normal Redshift tables in any way, such as dropping tables or truncating them, would not be.

Conclusions

There is a limit of 30 concurrent queries per queue, regardless of the number of slots configured in a queue.

Once any one queue reaches its limit of 30 concurrent queries, the superuser queue is no longer able to execute queries.

However, other user queues are *not* affected, and continue to accept and execute queries normally.

(Note leader-node only queries continue to execute as normal, I think because they do not use WLM queues and so cannot be blocked by anything going on in WLM.)

Unexpected Findings

When you investigate Redshift, there are *always* unexpected findings.

1. Completed leader-node only queries now appear not to be logged ***at all***. I think (from memory and from the code of expensively created existing views which show the complete query history) they used to show up in `STL_QUERY`.

Revision History

v1

- Initial release.

v2

- The text regarding what type of queries (leader-node only, or those using worker nodes) could be issued once 50 user-issued queries are running was not correctly written and did not properly express what had been found. This has been corrected.

v3

- Changing timestamp formatting in results, to remove date and so making the tables much clearer. Added an observation in the results regarding the run-time of the second batch of 20 queries.

v4

- Added two more tests, the first being a single 50 slot queue but now with only 40 concurrent queries, the second being two queues, one of 30 slots

and one of 20, both being fully filled with concurrent queries. The findings from these two tests were completely in agreement with existing findings.

v5

Fixed a typo, where a word was accidentally repeated ("we we", rather than "we").

v6

- Changed to Redshift Research Project (AWS have a copyright on "Amazon Redshift").

Appendix A : Raw Data Dump

Note these results are completely unprocessed; they are a raw dump of the results, so the original, wholly unprocessed data, is available.

{'proofs': {'dc2.large': {2: {'1_queue_40_slots': [[6,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 17, 14,
                                                    1857761031,
                                                    datetime.datetime(2021, 10, 4, 17, 14,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    1876139894,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    1877605955,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    1905607752,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 16, 43,
                                                    datetime.datetime(2021, 10, 4, 17, 15,
                                                    1906309127,
                                                    datetime.datetime(2021, 10, 4, 17, 15,

15

```
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 17, 15,
 1907867777,
 datetime.datetime(2021, 10, 4, 17, 15,
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 17, 15,
 1909567030,
 datetime.datetime(2021, 10, 4, 17, 15,
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 17, 15,
 1909510769,
 datetime.datetime(2021, 10, 4, 17, 15,
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 17, 15,
 1909948510,
 datetime.datetime(2021, 10, 4, 17, 15,
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 17, 15,
 1910380030,
 datetime.datetime(2021, 10, 4, 17, 15,
[6,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 datetime.datetime(2021, 10, 4, 16, 43,
 0,
```

```
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1910338596,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             0,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1910642367,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             0,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1910793508,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             0,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1910674451,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             0,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1910779094,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             0,
                                             datetime.datetime(2021, 10, 4, 16, 43,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             1911113651,
                                             datetime.datetime(2021, 10, 4, 17, 15,
                                             [6,
```

```
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 15,
1911861313,
datetime.datetime(2021, 10, 4, 17, 15,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 15,
1912628598,
datetime.datetime(2021, 10, 4, 17, 15,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 15,
1912420482,
datetime.datetime(2021, 10, 4, 17, 15,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 15,
1914325671,
datetime.datetime(2021, 10, 4, 17, 15,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 15,
1914932750,
datetime.datetime(2021, 10, 4, 17, 15,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
```

```
    datetime.datetime(2021, 10, 4, 17, 15,
    1914761169,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
    1914917556,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
    1914976594,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
    1915032518,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
    1915079105,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
    1915089296,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
```

```
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
1917029180,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
1917717862,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 15,
1918890495,
    datetime.datetime(2021, 10, 4, 17, 15,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 25,
2498917580,
    datetime.datetime(2021, 10, 4, 17, 25,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 25,
2507947507,
    datetime.datetime(2021, 10, 4, 17, 25,
[6,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 16, 43,
0,
    datetime.datetime(2021, 10, 4, 16, 43,
    datetime.datetime(2021, 10, 4, 17, 25,
```

```
2508704678,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 25,
2508868664,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 25,
2511299752,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 25,
2511755690,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 25,
2511908242,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
0,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 17, 25,
2511983879,
datetime.datetime(2021, 10, 4, 17, 25,
[6,
datetime.datetime(2021, 10, 4, 16, 43,
datetime.datetime(2021, 10, 4, 16, 43,
```

```
                              datetime.datetime(2021, 10, 4, 16, 43,
                              0,
                              datetime.datetime(2021, 10, 4, 16, 43,
                              datetime.datetime(2021, 10, 4, 17, 25,
                              2512338312,
                              datetime.datetime(2021, 10, 4, 17, 25,
                              [6,
                              datetime.datetime(2021, 10, 4, 16, 43,
                              datetime.datetime(2021, 10, 4, 16, 43,
                              datetime.datetime(2021, 10, 4, 16, 43,
                              0,
                              datetime.datetime(2021, 10, 4, 16, 43,
                              datetime.datetime(2021, 10, 4, 17, 25,
                              2512754001,
                              datetime.datetime(2021, 10, 4, 17, 25,
'1_queue_40_slots_superuser_leader_node': [['Mon '
                                            'Oct '
                                            '04 '
                                            '16:44:01.546710
                                            '2021 '
                                            'UTC',
                                            1711]],
'1_queue_40_slots_superuser_worker_node': [['Mon '
                                            'Oct '
                                            '04 '
                                            '17:14:54.548186
                                            '2021 '
                                            'UTC',
                                            523976]],
'1_queue_40_slots_superuser_worker_node_wlm_query': [[5,
                                                       dateti
                                                       dateti
                                                       dateti
                                                       0,
                                                       dateti
                                                       dateti
                                                       185295
                                                       dateti
'1_queue_40_slots_wlm_config': [[1, 1],
                                [2, 1],
                                [3, 2],
                                [4, 1],
                                [5, 1],
                                [6, 50],
                                [15, 0]],
'1_queue_50_slots': [[6,
                     datetime.datetime(2021, 10, 4, 15, 49,
                     datetime.datetime(2021, 10, 4, 15, 49,
                     datetime.datetime(2021, 10, 4, 15, 49,
                     0,
```

22

```
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912486000,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 21,
 1912545139,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 21,
 1912496556,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 21,
 1912431333,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 21,
 1912510403,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 21,
 1912648304,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
```

```
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912666231,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912935613,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912591318,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912723159,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1912800205,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
```

```
    datetime.datetime(2021, 10, 4, 16, 21,
    1915833372,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    0,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 16, 21,
    1915968348,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    0,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 16, 21,
    1916467720,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    0,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 16, 21,
    1916584785,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    0,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 16, 21,
    1916938406,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 15, 49,
    0,
    datetime.datetime(2021, 10, 4, 15, 49,
    datetime.datetime(2021, 10, 4, 16, 21,
    1917983848,
    datetime.datetime(2021, 10, 4, 16, 21,
[6,
    datetime.datetime(2021, 10, 4, 15, 49,
```

```
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1918606021,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1919910202,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1920436204,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1921250068,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
1921211900,
datetime.datetime(2021, 10, 4, 16, 21,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 21,
```

```
 1921454490,
 datetime.datetime(2021, 10, 4, 16, 21,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 22,
 1922262870,
 datetime.datetime(2021, 10, 4, 16, 22,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 22,
 1922294877,
 datetime.datetime(2021, 10, 4, 16, 22,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 22,
 1922431815,
 datetime.datetime(2021, 10, 4, 16, 22,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 22,
 1923717277,
 datetime.datetime(2021, 10, 4, 16, 22,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 22,
 1925007852,
 datetime.datetime(2021, 10, 4, 16, 22,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
```

```
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 22,
1925142610,
datetime.datetime(2021, 10, 4, 16, 22,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 22,
1926620011,
datetime.datetime(2021, 10, 4, 16, 22,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3133108049,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3133740173,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3139884246,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3140277655,
```

```
                                                  datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   0,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                   3140293519,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   0,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                   3142309064,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   0,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                   3142321889,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   0,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                   3142956078,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   0,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                   3143335179,
                                                   datetime.datetime(2021, 10, 4, 16, 42,
                                                  [6,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
                                                   datetime.datetime(2021, 10, 4, 15, 49,
```

```
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3143448840,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3143426339,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3145186338,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3145259768,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3145672636,
datetime.datetime(2021, 10, 4, 16, 42,
[6,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 15, 49,
0,
datetime.datetime(2021, 10, 4, 15, 49,
datetime.datetime(2021, 10, 4, 16, 42,
3145836703,
datetime.datetime(2021, 10, 4, 16, 42,
```

```
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 42,
 3146593855,
 datetime.datetime(2021, 10, 4, 16, 42,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 42,
 3147650715,
 datetime.datetime(2021, 10, 4, 16, 42,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 42,
 3147842170,
 datetime.datetime(2021, 10, 4, 16, 42,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 42,
 3147856393,
 datetime.datetime(2021, 10, 4, 16, 42,
[6,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 15, 49,
 0,
 datetime.datetime(2021, 10, 4, 15, 49,
 datetime.datetime(2021, 10, 4, 16, 42,
 3148067279,
 datetime.datetime(2021, 10, 4, 16, 42,
'1_queue_50_slots_superuser_leader_node': [['Mon '
                                           'Oct '
                                           '04 '
                                           '15:50:02.432721
                                           '2021 '
```

```
                                               'UTC',
                                               1711]],
 '1_queue_50_slots_superuser_worker_node': [['Mon '
                                             'Oct '
                                             '04 '
                                             '16:21:50.898244
                                             '2021 '
                                             'UTC',
                                             523976]],
 '1_queue_50_slots_superuser_worker_node_wlm_query': [[5,
                                                       dateti
                                                       dateti
                                                       dateti
                                                       0,
                                                       dateti
                                                       dateti
                                                       190841
                                                       dateti
 '1_queue_50_slots_wlm_config': [[1, 1],
                                 [2, 1],
                                 [3, 2],
                                 [4, 1],
                                 [5, 1],
                                 [6, 50],
                                 [15, 0]],
 '2_queues_30/10_slots': [[7,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           0,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           767062626,
                           datetime.datetime(2021, 10, 4, 17,
                          [7,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           0,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           759356866,
                           datetime.datetime(2021, 10, 4, 17,
                          [7,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
                           0,
                           datetime.datetime(2021, 10, 4, 17,
                           datetime.datetime(2021, 10, 4, 17,
```

32

758839559,
datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 759473204,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 768063279,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 768048465,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 759844009,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 759622684,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,

```
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767922145,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
768012416,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
759806964,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
759713988,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767874410,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
759795986,
```

```
                              datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 759707567,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 767900558,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 762371190,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 767892045,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 767916917,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
```

```
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767815607,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767676514,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767796480,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
759642241,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
767790260,
datetime.datetime(2021, 10, 4, 17,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
765187632,
datetime.datetime(2021, 10, 4, 17,
```

```
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 762404700,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 765404771,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 761490383,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 760343537,
 datetime.datetime(2021, 10, 4, 17,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 760995133,
 datetime.datetime(2021, 10, 4, 17,
[6,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
```

```
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           763229071,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           0,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           761697813,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           0,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           763372368,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           0,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           763666504,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           0,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           763218864,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           0,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           760836169,
                                                           datetime.datetime(2021, 10, 4, 17,
                                                           [6,
```

                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          0,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          763434450,
                                          datetime.datetime(2021, 10, 4, 17,
                                          [6,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          0,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          760120905,
                                          datetime.datetime(2021, 10, 4, 17,
                                          [6,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          0,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          758895714,
                                          datetime.datetime(2021, 10, 4, 17,
                                          [6,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          0,
                                          datetime.datetime(2021, 10, 4, 17,
                                          datetime.datetime(2021, 10, 4, 17,
                                          761779768,
                                          datetime.datetime(2021, 10, 4, 17,
'2_queues_30/10_slots_superuser_leader_node': [['Mon '
                                               'Oct '
                                               '04 '
                                               '17:29:15.04
                                               '2021 '
                                               'UTC',
                                               1711]],
'2_queues_30/10_slots_superuser_worker_node': [['Mon '
                                               'Oct '
                                               '04 '
                                               '17:29:15.22
                                               '2021 '
                                               'UTC',
                                               523976]],
'2_queues_30/10_slots_superuser_worker_node_wlm_query': [[5,

```
                                                                    da
                                                                    da
                                                                    da
                                                                    0,
                                                                    da
                                                                    da
                                                                    50
                                                                    da
      '2_queues_30/10_slots_wlm_config': [[1, 1],
                                          [2, 1],
                                          [3, 2],
                                          [4, 1],
                                          [5, 1],
                                          [6, 10],
                                          [7, 30],
                                          [15, 0]],
      '2_queues_30/20_slots': [[7,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                0,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 18,
                                961004536,
                                datetime.datetime(2021, 10, 4, 18,
                               [7,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                0,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 18,
                                942534763,
                                datetime.datetime(2021, 10, 4, 18,
                               [7,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                0,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 18,
                                943112539,
                                datetime.datetime(2021, 10, 4, 18,
                               [7,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 17,
                                0,
                                datetime.datetime(2021, 10, 4, 17,
                                datetime.datetime(2021, 10, 4, 18,
```

40

```
962022180,
datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
961958045,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
961803139,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
961453811,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
961546577,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
943449141,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
```

```
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
961833192,
datetime.datetime(2021, 10, 4, 18,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
961934005,
datetime.datetime(2021, 10, 4, 18,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
945660015,
datetime.datetime(2021, 10, 4, 18,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
943288319,
datetime.datetime(2021, 10, 4, 18,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
961819650,
datetime.datetime(2021, 10, 4, 18,
[7,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
943318941,
```

```
datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 943349637,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 961883549,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 943156206,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 961702581,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 961886218,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
```

```
                                                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    943185085,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [7,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    943032896,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [7,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    960089191,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [7,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    960579951,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [7,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    961660178,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [7,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    943053789,
                                                    datetime.datetime(2021, 10, 4, 18,
```

```
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 953349844,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 961464798,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 961793951,
 datetime.datetime(2021, 10, 4, 18,
[7,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 943403820,
 datetime.datetime(2021, 10, 4, 18,
[6,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 18,
 956088312,
 datetime.datetime(2021, 10, 4, 18,
[6,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 datetime.datetime(2021, 10, 4, 17,
 0,
```

```
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
955154066,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
957511653,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
957313220,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
954288202,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
957455075,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
943857348,
datetime.datetime(2021, 10, 4, 18,
[6,
```

```
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
944359765,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
957304635,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
943960694,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
943869123,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 18,
956896506,
datetime.datetime(2021, 10, 4, 18,
[6,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
datetime.datetime(2021, 10, 4, 17,
0,
datetime.datetime(2021, 10, 4, 17,
```

```
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    944166485,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    944307601,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    944255249,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    954789329,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    948921611,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    0,
                                                    datetime.datetime(2021, 10, 4, 17,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    943991864,
                                                    datetime.datetime(2021, 10, 4, 18,
                                                    [6,
                                                    datetime.datetime(2021, 10, 4, 17,
```

                                                        datetime.datetime(2021, 10, 4, 17,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        0,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        datetime.datetime(2021, 10, 4, 18,
                                                        949566766,
                                                        datetime.datetime(2021, 10, 4, 18,
                                                        [6,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        0,
                                                        datetime.datetime(2021, 10, 4, 17,
                                                        datetime.datetime(2021, 10, 4, 18,
                                                        951844295,
                                                        datetime.datetime(2021, 10, 4, 18,
                               '2_queues_30/20_slots_superuser_leader_node': [['Mon '
                                                                              'Oct '
                                                                              '04 '
                                                                              '17:45:45.47
                                                                              '2021 '
                                                                              'UTC',
                                                                              1711]],
                               '2_queues_30/20_slots_superuser_worker_node': [['Mon '
                                                                               'Oct '
                                                                               '04 '
                                                                               '17:45:46.53
                                                                               '2021 '
                                                                               'UTC',
                                                                               523976]],
                               '2_queues_30/20_slots_superuser_worker_node_wlm_query': [[5,
                                                                                        da
                                                                                        da
                                                                                        da
                                                                                        0,
                                                                                        da
                                                                                        da
                                                                                        79
                                                                                        da
                               '2_queues_30/20_slots_wlm_config': [[1, 1],
                                                                   [2, 1],
                                                                   [3, 2],
                                                                   [4, 1],
                                                                   [5, 1],
                                                                   [6, 20],
                                                                   [7, 30],
                                                                   [15, 0]]}}},
           'tests': {'dc2.large': {2: {}}},
           'versions': {'dc2.large': {2: 'PostgreSQL 8.0.2 on i686-pc-linux-gnu, '
                                         'compiled by GCC gcc (GCC) 3.4.2 20041017 (Red '

49

'Hat 3.4.2-6.fc3), Redshift 1.0.30840'}}}