



# ARCHER2

## SP Quarterly Report

January – March 2022  
EPCC  
The University of Edinburgh



## Document Information and Version History

<b>Version:</b>	1.0
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<b>Reviewer(s)</b>	Alan Simpson

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0.1	10/03/2022	Template created	Jo Beech-Brandt
0.2	04/04/2022	Data and narrative added	Jo Beech-Brandt
0.3	07/04/2022	Added entries	Anne Whiting, Kieran Leach
0.4	08/04/2022	Graphs added	Jo Beech-Brandt
0.5	12/04/2022	Review	Alan Simpson
1.0	13/04/2022	Release version	Jo Beech-Brandt, Alan Simpson



## 1 The ARCHER2 Service

This is the report for the ARCHER2 SP Service for the Reporting Period:  
1<sup>st</sup> January – 31<sup>st</sup> March 2022.

### 1.1 Service Highlights

- Charging was enabled on the ARCHER2 full system from 4 January. Utilisation has remained high with the utilisation over the quarter at 89% compared to utilisation of 90% in the previous quarter. There is a low priority queue available which jobs will run in if there is spare capacity and this should ensure that the utilisation remains high.
- A total of 176 pieces of query feedback were received this quarter from 3621 queries handled, with all of them graded good, very good or excellent.
- A donation of £286 was made to our selected service charity, Save the Children, a donation of £1 per query feedback item (176 from the SP service and 110 from the CSE service).
- Users have reported an unusual number of job failures on the system. The SP team has worked with the CSE team and HPE to investigate these failures and this work is on-going. Some classes of node problems have been identified and improved node health-checking has been implemented. The CSE and SP teams continue to support users while this is on-going.
- Work continues to develop our Business Continuity Management System, ensuring the service resilience that our users and their science need. A business impact assessment was carried out for our ACF datacentre to establish the priorities for returning service components to an operational state should something bad happen. Not surprisingly the top priority was ensuring access to our very secure building to start on remedial work!
- The ARCHER2 4-Cabinet system was removed from the ACF, and the /work filesystem which was attached to the system will be moved and attached to the full ARCHER2 system.
- Both the ARCHER2 Home File System and the ARCHER2 Infrastructure Hosts were transitioned from the legacy Data Centre Network to the new 200 Gbit/s Data Centre Network.
- A number of updates were made to the Slurm scheduler including a modification of the priority setup, a bug fix to the job submission script, and an update to the configuration to permit the conduct of rolling reboots of compute nodes.

### 1.2 Forward Look

- Initial work to prepare for the first part of our ISO 22301 (business continuity) external audit will be completed, and we will have the audit in June. We then have further work to do before the second part of the audit in the autumn. We are carrying out this work to ensure we are using best practice in planning for service resilience and minimising impact and downtime of service outages, thus minimising disruption to our users.

- Our cycle of internal audits and improvement actions continue throughout the year culminating in ISO 9001 Quality and 27001 Information Security external audits. Whilst having the award is gratifying, this work delivers real benefit to the services we deliver and to our users by ensuring we handle their data in a secure manner and look for opportunities to improve the services we deliver to them.
- The SP team will continue to work closely with the CSE team and HPE to address the high level of job failures and to support users experiencing problems.
- We anticipate commencing development of the TDS following handover from HPE in the coming weeks. This will be deployed with as similar a configuration as possible to the main system to support testing and development.
- Members of the SP team will be presenting at the Cray User Group (CUG) meeting in May 2022.

## 2 ARCHER2 Performance Report

This is the contractual performance report for the ARCHER2 SP Service for the Reporting Periods from 1 January 2022 until 1 March 2022.

### 2.1 Service Points and Service Credits

The Service Levels and Service Points for the SP service are defined by EPSRC in Schedule 2.2 of ARCHER2 SP Service Contract.

The Working Day (WD) for the ARCHER2 Service is 10 Working Hours (WH) as the Service operates from 0800-1800. The Median Time to Resolution is measured in WD.

- **Availability:** *Service Threshold: <=96.5%; Operating Service Level: >98.0%, ≤ 98.5%.*
- **ARCHER2\_SP\_Level1 (MTR):** The Median Time to Resolution, of all SP queries falling within Level 1 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >1 WD; Operating Service Level: >0.3 WD, ≤ 0.45 WD.*
- **ARCHER2\_SP\_Level2 (MTR):** The Median Time to Resolution, of all SP queries falling within Level 2 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >8 WD; Operating Service Level: >2 WD, ≤4 WD.*
- **ARCHER2\_SP\_Level3 (MTR):** The Median Time to Resolution, of all SP queries falling within Level 3 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >25 WD; Operating Service Level: >12 WD, ≤16 WD.*
- **Initial Response to Queries (%):** The percentage of the total number of SP queries assigned to the Contractor in the Reporting Period responded to within 3 Working Hours. *Service Threshold: <96.00%; Operating Service Level: 98.00 – 98.99%.*
- **Query User Satisfaction (%):** The percentage of the total number of query satisfaction surveys completed in each Reporting Period, rating the quality of the resolution of Queries by the Contractor as “Good”, “Very Good” or “Excellent”. *Operating Service Level: 82.00 – 87.99%*

#### 2.1.1 Service Points

Metric	Jan 2022		Feb 2022		Mar 2022		Q1 2022	
	Perf	Points	Perf	Points	Perf	Points	Perf	Points
Availability	100%	-3	99.7%	-3	100%	-3	99.9%	-9
SP_Level1 (MTR)	0.00	-2	0.00	-2	0.00	-2	0.00	-6
SP_Level2 (MTR)	0.06	-2	0.07	-2	0.06	-2	0.06	-6
SP_Level3 (MTR)	4.02	-2	11.18	-0.5	0.19	-2	3.92	-4.5
Initial Response (%)	100%	-1	100%	-1	100%	-1	100%	-3
Query Satisfaction (%)	100%	-2	100%	-2	100%	-2	100%	-6
<b>Total</b>		<b>-12</b>		<b>-10.5</b>		<b>-12</b>		<b>-34.5</b>

#### 2.1.2 Service Credits

As the Total Service Points are negative (-34.5), no Service Credits apply in 22Q1.

### 2.2 SP Query Statistics

The metrics were specified by EPSRC in Schedule 2.2 of ARCHER2 SP Service Contract.

- **Assigned:** The number of SP queries assigned to the Contractor within each query resolution category in the Reporting Period.

- **Resolved:** The number of SP queries resolved by the Contractor within each query resolution category in the Reporting Period.
- **Backlog:** The number of SP queries assigned to the Contractor that remained unsolved within each query resolution category in the Reporting Period
- **Correspondence:** The average number of pieces of correspondence generated for SP queries in each query resolution category.
- **First Response:** The average time taken for the Contractor to first respond to the Originator of the SP query.

January 2022					
Service level	Assigned	Resolved	Backlog	Correspondence	First Response
SP_Level1	1218	1218	0	0.203	0:00:50
SP_Level2	197	185	31	7.341	0:16:43
SP_Level3	4	10	2	21.2	0:10:43
February 2022					
Service level	Assigned	Resolved	Backlog	Correspondence	First Response
SP_Level1	1038	1038	0	0.223	0:00:35
SP_Level2	143	158	16	8.038	0:15:20
SP_Level3	0	1	1	18	0:22:09
March 2022					
Service level	Assigned	Resolved	Backlog	Correspondence	First Response
SP_Level1	883	883	0	0.2	0:01:00
SP_Level2	134	126	24	7.897	0:14:28
SP_Level3	4	2	3	6.5	0:09:04
Q1 2022					
Service level	Assigned	Resolved	Backlog	Correspondence	First Response
SP_Level1	3139	3139	0	0.209	0:00:48
SP_Level2	474	469	24	7.725	0:15:39
SP_Level3	8	13	3	18.692	0:11:21

## 2.3 Query Resolution

Metric	Jan 2022		Feb 2022		Mar 2022		Q1 2022	
	MTR	Resolved	MTR	Resolved	MTR	Resolved	MTR	Resolved
SP_Level1	0:00:16	1218	0:00:20	1038	0:00:33	883	0:00:23	3139
SP_Level2	0:37:00	185	0:44:09	158	0:36:28	126	0:37:43	469
SP_Level3	40:10:37	10	111:50:25	1	1:51:09	2	39:13:52	13
<b>Total</b>		<b>1413</b>		<b>1197</b>		<b>1011</b>		<b>3621</b>

A total of 3621 queries were resolved by the ARCHER2 SP Service in the Reporting Period. The percentage of user queries responded to within 3 hours was 100%.

## 2.4 Query Feedback

During January, there were 75 feedback scores received during this period. 100% were Good, Very Good or Excellent with 77% given the highest score of Excellent.

During February, there were 62 feedback scores received during this period. 100% were Good, Very, Good or Excellent with 76% given the highest score of Excellent.

During March there were 39 feedback scores received during this period. 100% were Good, Very Good or Excellent with 87% given the highest score of Excellent.

Overall, during Quarter 1, there were 176 feedback scores received during this period. 100% were Good, Very Good or Excellent with 79% given the highest score of Excellent.

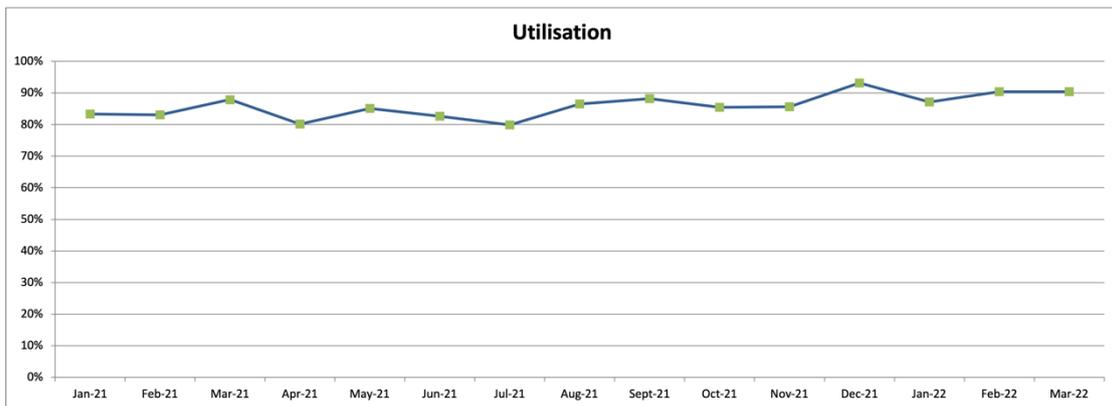
## 2.5 Maintenance and Outages

Type	Start	End	Duration	User Impact	Reason
Full	2022-03-30	2022-03-30	-	Scheduled Maintenance	Not required
Partial: Login Nodes	2022-02-02 10:00	2022-02-02 12:05	2 hrs 5 mins	Users unable to connect to ARCHER2	Short, unexpected outage on the LDAP authentication server while maintenance work took place

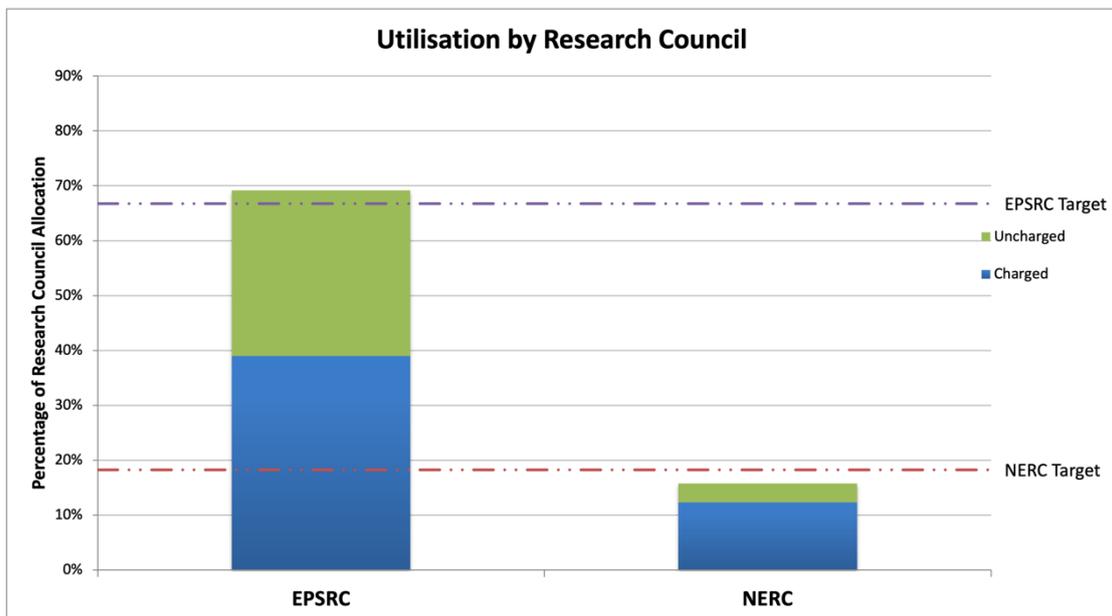
# 3 ARCHER2 Service Statistics

## 3.1 Utilisation

Utilisation from 1 January – 31 March is 89% which is slightly decreased from 90% the previous quarter. It should be noted that this is the first quarter where the full ARCHER2 23 cabinet system has been available. Utilisation for January was 87%, for February 90% and for March 90%.

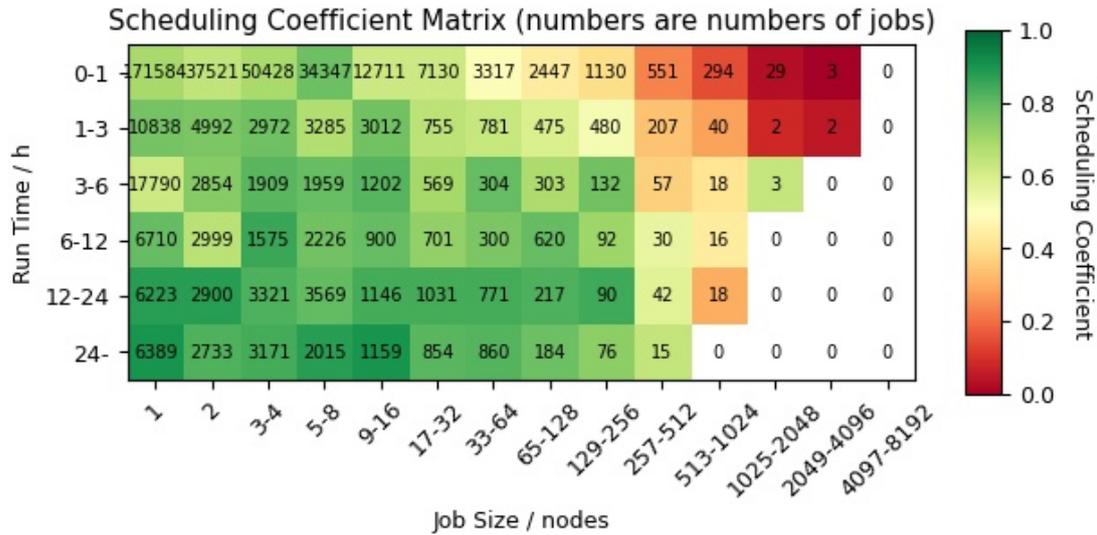


The utilisation by the Research Councils, relative to their respective allocations, is presented below. This bar chart shows the usage of ARCHER2 by the two Research Councils presented as a percentage of the total Research Council allocation on ARCHER2. It can be seen that EPSRC slightly exceeded their target this quarter with their usage being at 69.20% (against their target of 66.76%) and NERC did not meet their target with utilisation being 15.74% (against their target of 18.24%).



### 3.2 Scheduling Coefficient Matrix

The colour in the matrix indicates the value of the Scheduling Coefficient. This is defined as the ratio of runtime to runtime plus wait time. Hence, a value of 1 (green) indicates that a job ran with no time waiting in the queue, a value of 0.5 (pale yellow) indicates a job queued for the same amount of time that it ran, and anything below 0.5 (orange to red) indicates that a job queued for longer than it ran.



The usage heatmap below provides an overview of the usage on ARCHER2 over the quarter for different job sizes/lengths. The colour in the heatmap indicates the number of CUs expended for each class, and the number in the box is the number of jobs of that class.

