

2016 ALCF User Survey Results

Introduction

This document provides the results of the ALCF 2016 User Survey. Every year the ALCF seeks feedback from its users. This year, 45.1% of our users responded to the survey.¹ The primary data contained in this document are the frequencies, percentages--or averages, as appropriate--of the responses for each question.

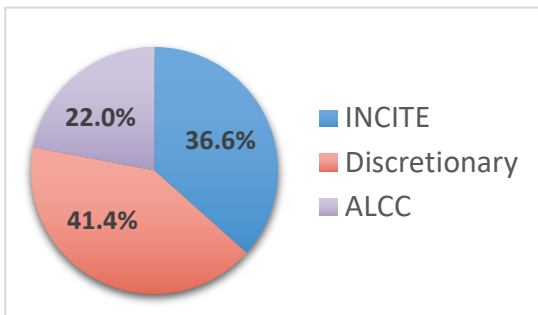
Survey Design

This survey was designed to move ALCF users quickly through the most salient questions about the facility. Survey questions were grouped behind filtering yes/no questions. In one case, users chose from a list and if they selected a specific choice, the related questions were filtered.

ALCF hired survey experts from Cvent, a web survey hosting and consulting company, to manage the 2016 survey. The team drew upon Cvent's vast experience and incorporated lessons learned from previous surveys as well as internal feedback from various ALCF teams, ALCF leadership, the ALCF User Advisory Council, and ASCR. The result was a streamlined survey, improved questions, and a representative user response to the survey.

Demographics

ALCF users are located around the world and are representative across different types of allocations. The pie chart below shows the distribution of users across the different allocation programs. Users were categorized by their most substantial allocation program. The table shows the top five countries in which our users reside, primarily the US. Countries in the top 20 included: USA, India, China, United Kingdom, France, Switzerland, Germany, Spain, South Korea, Italy, Japan, Sweden, Finland, Slovakia, Canada, Taiwan, Brazil, Singapore, Austria, Belgium.



Country	Pct. Total
United States	84.0%
India	1.9%
China	1.9%
United Kingdom	1.4%
France	1.1%

¹ Users as defined by DOE include project PIs and users from each of our core-hour allocation programs: INCITE, ALCC, and Director's Discretionary who have logged into facility resources. Partially completed surveys were considered responses. Note that the response rates are very high compared to typical surveys.

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Overall Satisfaction

Users were very satisfied overall with the Argonne Leadership Computing Facility in 2016 as reflected in the following survey results. The high levels of satisfaction seen here are reinforced by the related data contained in more specific survey questions.

Overall, how would you rate your experience with the Argonne Leadership Computing Facility in 2016?

Question Subject	Excellent	Above Average	Average	Below Average	Poor
Overall Satisfaction	255	117	34	3	3

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Science at ALCF

The core mission of the ALCF is to enable breakthrough science on one of the most powerful supercomputers in the world. The survey targets this mission by asking the users about the progress of their science goals and whether ALCF had an impact on these goals.

Was the progress you made toward the major science goal(s) of your project during your 2016 allocation satisfactory? Yes completely = 55.7 %; Yes partially = 40.0%; No, not really = 4.3%.

Response	Frequency
yes, completely	256
yes, partially	184
no, not really	20

How important was ALCF support in affecting the level of progress toward your science goal(s) in 2016? Very important = 64.6%; Somewhat important = 27.4%; Not important = 8.0%

Response	Frequency
very important	297
somewhat important	126
not important	37

ALCF users were given an opportunity to provide comments on the science section. Users classified these comments by choosing one or more of the following selections: praise, suggestion for improvement, problem, or complaint.

Response	Frequency
Praise	199
Suggestions for Improvement	42
Problem Experienced	22
Complaint	5

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User Support

Users were asked, “Please select the means by which you used these support resources in 2016.” If a user selected, “Did Not Use Staff Support,” they were not asked detailed questions related to user support. Note that in cases where respondents are asked to select “all that apply,” response percentages can total more than 100%.

Please select the means by which you used these support resources in 2016. (Select all that apply)		Frequency	Percent
Email		307	75%
Phone		120	29%
Web site (e.g., 'Contact Us' web form)		97	24%
In-Person		104	25%
Other Support Resources		7	2%
Did Not Use Staff Support		58	14%

ALCF asked users to rate quality of documentation, quality of on-line support, and availability of support.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
On-line Support	150	161	48	11	3	8
Professional/Courteous	277	90	8	3	1	1
Support Availability	227	127	14	3	3	6

Users were then asked about perception of account activation time, ease of finding documentation, and whether key documentation types were available. The following questions were added to the survey to get user perceptions of ease of application and wait time for Cryptocard delivery.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Login Soon After Application	150	161	48	11	3	8
Easy to Find Documentation	277	90	8	3	1	1
Easy to Apply for User Account	150	161	48	11	3	8
Wait Time for Crypto Card Reasonable	277	90	8	3	1	1

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ALCF users were given an opportunity to provide comments in the user support section. Users classified these comments by choosing one or more of the following selections: praise, suggestion for improvement, problem, or complaint.

Type of Comment	Frequency
Praise	117
Suggestion for Improvement	21
Problem Experienced	7
Complaint	1

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Infrastructure and Software

The first part of this section of questions focuses on the computing environment: the scheduler, hardware, operating system, basic libraries, storage/tape, and visualization hardware. Since all respondents used the infrastructure and software, there was no “filter question” for this section.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Disk/Tape Sufficient	189	151	34	8	3	44
Capability Reasonable	176	134	43	6	0	70
Scheduling Turnaround	147	148	73	27	7	27
Availability of Tools	163	115	57	8	1	85
Visual/Analysis Met Needs	133	88	53	6	0	149
Availability of Libraries	183	141	49	16	4	36

A set of questions also asked about the operating environment.

Question Subject	Extremely Satisfied	Somewhat Satisfied	Neither	Somewhat Dissatisfied	Extremely Dissatisfied	NA
Systems Reliability	280	116	13	4	0	16
Storage Capacity	255	113	22	1	1	37
Build Environment	203	125	34	23	5	39
Communicating Updates	273	101	27	2	0	26

ALCF users were given an opportunity to provide comments in the infrastructure and software section. Users classified these comments by choosing one or more of the following selections: praise, suggestion for improvement, problem, or complaint.

Type of Comment	Frequency
Praise	106
Suggestion for Improvement	35
Problem Experienced	4
Complaint	7

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Science and Technical Support

This section of the survey addresses the effectiveness of ALCF support at problem resolution, including emails sent to support@alcf.anl.gov, phone calls, and in person meetings with individuals at the ALCF.

This survey section started with the initial filter question: “Did you use ALCF support to resolve a problem during your 2016 allocation?” 198 users responded “Yes,” while 226 users responded “No,” or “Not that I remember,” in which case they were not asked the subsequent questions.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Satisfactory Resolution	117	53	17	7	2	1
Prompt Assistance	126	54	7	8	1	1
Complete/Accurate Assistance	117	53	17	7	2	1

Users also provided input about why they used ALCF science and technical support.

Primary reasons for using ALCF science and technical support	Frequency
Gaining access to the leadership computing systems.	102
Improving code performance.	60
Communicating with subject matter experts.	42
Needing help finishing project.	35
Providing quarterly reports to ALCF.	16
Preparing an ALCC proposal.	16
Preparing an INCITE proposal.	15
Other Reasons	34

ALCF users were given an opportunity to provide comments in the science and technical support section, and again were able to classify these comments as praise, suggestion for improvement, problem, or complaint.

Response	Frequency
Praise	72
Suggestion for Improvement	6
Problem	1
Complaint	2

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Developing Code

This section of the survey asked questions related to developing codes on ALCF Blue Gene systems, namely Intrepid and Mira.

This survey section started with the initial filter question: “Did you log into the ALCF systems and compile code that ran on Intrepid or Mira?” 318 users responded “Yes,” while 105 users responded “No.” If a user responded “No,” they were not asked the subsequent questions.

“Which of the following performance tools do you use on your laptop, cluster-based system, or ALCF system?”

Performance Tool	Frequency
gprof	90
HPCToolkit	57
TAU	57
PAPI	44
Vampir	19
mpiP	15
HPCTW	11
Scalasca	6
OpenSpeedShop	4
Other (please specify)	29

“Did you use the performance tools specified above to attempt to improve the performance of your code:”

Question Subject	Yes	No
On your laptop (or desktop) prior to running on ALCF systems?	118	199
On cluster-based systems prior to running on ALCF systems?	133	184
On ALCF systems?	130	187

“Were the performance tools you used on these systems helpful to running on ALCF?”

Response	Frequency
Yes	198
No	119

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Users chose from the following list of debugging tools that they use on laptop, clusters, or ALCF systems.

Response	Frequency
gdb	155
DDT	70
bgq stack	63
TotalView	42
coreprocessor	20
STAT	5
Other	8

Users specified which of the following, if any, they experienced when using the debuggers.

Response	Frequency	%
Tool I prefer is not available on the system	16	5%
Need more training (in-person or via videos)	113	36%
Tool crashes or otherwise can't handle my code	38	12%
Need more documentation	94	30%
Other	91	29%

Users specified which of the following frameworks they used for threading.

Threading Framework	Frequency
OpenMP	216
No Threading	68
CUDA	49
Pthreads	42
OpenCL	13
OpenACC	12
Intel TBB	12
Other	8

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Users chose common roadblocks that make threading challenging.

Roadblocks encountered when threading code	Frequency
Only makes sense in a few places in my code.	81
Performance is poor compared to MPI-only implementation.	66
Threads are complicated to implement.	60
Code is not thread safe.	48
Code cannot be threaded due to insufficient fine-grain parallelism.	26
Only implemented in libraries I use (BLAS/LAPACK i.e. ESSL).	19
Other roadblocks:	83

Users chose the following I/O mechanisms/library selections.

I/O Approach	Frequency
MPI-IO	143
HDF5	116
POSIX	74
NetCDF/PNetCDF	32
Custom or Others (please describe)	57

ALCF users were given an opportunity to provide comments in the developing code section, and again were able to classify these comments as praise, suggestion for improvement, problem, or complaint.

Response	Frequency
Praise	72
Suggestion for Improvement	6
Problem	3
Complaint	1

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ALCF Catalysts

Since many ALCF users did not have a Catalyst and so would not be able to answer the questions in this section, the section contained the initial filter question: “Did you interact with a Catalyst as part of your use of ALCF services?” 123 users responded “Yes,” 213 users responded “No,” and 80 users responded “I don’t know.” Only users who answered “Yes” were asked questions about their Catalysts.

Of the 123 users who answered “Yes,” ALCF presented questions relating to the Catalysts and their role in the project.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Project Benefited by Catalyst	95	21	4	1	1	1
Prompt/Professional	96	22	2	2	0	1
Helped with Performance Issue	82	18	9	1	2	11
Understood Constraints	92	24	1	1	1	4
Assisted on Problems	90	25	3	2	1	2

ALCF users were given an opportunity to provide comments in the Catalyst section, and again were able to classify these comments as praise, suggestion for improvement, problem, or complaint.

Response	Frequency
Praise	39
Suggestion	2
Problem	2
Complaint	2

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Workshops

Since not all users attended ALCF workshops, this section of the survey had the initial filter question: “Did you attend an ALCF-sponsored workshop during your 2016 allocation?” 102 users responded “Yes,” and 313 users responded “No.” The results in the table below are for those users who responded that they had attended an ALCF designed and managed workshop.

ALCF Staff Measure	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Got to know staff/services	53	34	4	1	1	7
Got project running	40	25	9	2	2	22
Relevant/helpful training	59	31	4	1	0	5
Sufficient access to experts	64	26	5	0	1	4
Performance help	48	24	11	1	0	16
Using new tools/libraries	43	28	8	3	0	18
Understood science	39	24	12	1	1	23
Understood bottlenecks	40	20	13	1	1	25

ALCF users were presented with choices on possible subjects of future workshops.

Topic	Frequency
Performance Tools	237
MPI/OpenMP	196
Debugging	165
Visualization	162
Programming Models	155
Other (please specify)	29

ALCF users were again given the opportunity to provide comments as part of the workshop section, and could classify those comments as praise, suggestion for improvement, problem, or complaint.

Response	Frequency
Praise	90
Suggestions for Improvement	8
Problem	2
Complaint	0