2014 ALCF User Survey Results

Introduction

This document provides the results of the ALCF 2014 User Survey. Every year the ALCF seeks feedback from its users. This year, 30.0% of our users responded to the survey. Partially completed surveys were considered responses. Respondents included both project PIs and users from each of our core-hour allocation programs: INCITE, ALCC, and Director's Discretionary. The primary data contained in this document are the frequencies, percentages--or averages, as appropriate--of the responses for each question.

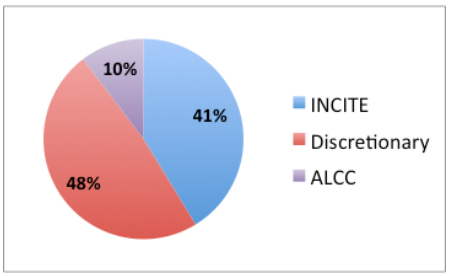
Survey Design

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 2014 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. Countries in the top 20 included: USA, United Kingdom, Germany, China, France, Switzerland, India, Brazil, Canada, Italy, Spain, Japan, Taiwan, Denmark, Belgium, Hong Kong, Hungary, Korea, New Zealand, and Sweden.



Country	Pct. Total
U.S.	83.7%
United Kingdom	2.1%
Germany	1.8%
China	1.7%
France	1.6%

2014 ALCF User Survey Results

Overall Satisfaction

Users were very satisfied overall with the Argonne Leadership Computing Facility in 2014 as reflected in the following survey results.

Overall, how would you rate your experience with the Argonne Leadership Computing Facility in 2014?

Question Subject	Excellent	Above Average	Average	Below Average	Poor
Overall Satisfaction	213	128	24	5	2

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 2014 allocation satisfactory? Yes completely = 57.0%; Yes partially = 37.4%; No, not really = 5.6%.

Response	Frequency
yes, completely	245
yes, partially	161
no, not really	24

How important was ALCF support in affecting the level of progress toward your science goal(s) in 2014? Very important = 64.0%; Somewhat important = 27.4%; Not important = 8.6%

Response	Frequency
very important	275
somewhat important	118
not important	37

Please use the box below to comment on ALCF's role in contributing to your project's progress. Positive role = 96.3%; Negative role = 3.7%.

Response	Frequency
Positive Role	341
Negative Role	13

User Support

Users were asked, "Please select the means by which you used these support resources in 2014." 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 2014. (Select all that apply)	Frequency	Percent
Email	327	82%
Phone	148	38%
Web site (e.g., 'Contact Us' web form)	137	34%
In-Person	108	27%
Other Support Resources	7	2%
Did Not Use Staff Support	42	11%

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	123	180	45	10	3	8
Professional/Courteous	266	94	6	1	0	2
Support Availability	210	138	13	0	1	7

Users were then asked about perception of account activation time, ease of finding documentation, and whether key documentation types were available.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Login Soon After Application	206	95	23	10	3	32
Easy to Find Documentation	135	159	54	9	1	7
Documentation Types Available	128	162	50	13	6	10

The following table was presented as reference for the document types.

Here are documentation types often found in web documentation:

- **Technical Reference**: Detailed documentation typically used by experts.
- **Flowchart /Process Descriptions**: Diagrams to show a process.
- **"HOW TO"**: Difference between HOW TO/tutorial lays in specificity/depth.
- **Tutorials**: Information that walks a user through a detailed set of steps to accomplish a task or action.
- **Getting Started**: A step-by-step guide to assist new users as they ramp up.
- **Glossary**: A list of terms and their definitions.
- **FAQ**: Unique things that are not amenable to treatment in a topic reference.

Users were then asked to rate each type of documentation available on the ALCF website.

Question Subject	Excellent	Above Average	Average	Below Average	Poor
Getting Started	172	110	43	6	1
Technical Reference	126	134	58	12	3
Tutorials	106	107	52	6	4
Flowchart /Process Descriptions	92	86	58	8	3
FAQ	100	112	66	7	5
HOW TO's	108	108	51	7	6

2014 ALCF User Survey Results

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
Easy to Apply for User Account	182	123	27	5	1	31
Wait Time for Crypto Card Reasonable	177	108	36	7	5	36

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	135
Suggestion for Improvement	34
Problem Experienced	6
Complaint	6

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	152	143	33	13	1	53
Capability Reasonable	126	140	33	3	3	90
Scheduling Turnaround	99	137	74	24	8	53
Availability of Tools	117	120	53	9	1	95
Availability of Libraries	146	145	44	7	1	52
Visualization	53	53	35	2	1	0

A set of questions also asked about the operating environment.

Question Subject	Extremely Satisfied	Somewhat Satisfied	Neither	Somewhat Dissatisfied	Extremely Dissatisfied
Systems Reliability	231	125	8	5	1
Storage Capacity	219	114	13	10	1
Build Environment	181	134	10	15	1
Communicating Updates	239	105	14	3	0

2014 ALCF User Survey Results

ALCF asked users about community codes. This year, users were presented with a definition for community codes: "Community codes are considered to be libraries, applications, or development environments that a scientific community develops to address a common computational science problem within their discipline. Examples of community codes are: MILC (Lattice QCD), FLASH (Astrophysics), NWCHEM (Chemistry), Nek5000 (Nuclear Engineering), OpenFOAM (Engineering CFD), LAMMPS (Material Science, Biophysics)"

Users were then asked, "Are community codes a part of your computational science efforts?"

Response	Frequency	%
Yes	183	47%
No	159	41%
I don't know what community codes are	45	12%

If a user selected, "No," or "I don't know what community codes are," they were not asked the following questions related to community codes.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Use Community Code	113	57	5	0	0	8
Use ALCF Compiled Community Code	44	43	12	17	18	49

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	100
Suggestion for Improvement	24
Problem Experienced	6
Complaint	2

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 2014 allocation?" 190 users responded "Yes," while 200 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	113	34	13	2	2	3
Prompt Assistance	121	50	9	3	2	2
Complete/Accurate Assistance	116	55	10	3	1	2

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.	91
Improving code performance.	67
Needing help finishing project.	39
Communicating with subject matter experts.	38
Preparing an INCITE proposal.	32
Providing quarterly reports to ALCF.	16
Preparing an ALCC proposal.	14
Other Reasons	31

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	67
Suggestion	9
Problem	8
Complaint	1

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?" 265 users responded "Yes," while 120 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	102
HPCToolkit	50
TAU	48
PAPI	48
mpiP	26
HPCTW	18
Scalasca	9
OpenSpeedShop	4
Other (please specify)	85

"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?	100	125
On cluster-based systems prior to running on ALCF systems?	117	111
On ALCF systems?	119	111

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

Response	Frequency
Yes	153
No	52

Users chose the following frameworks for threading.

Threading Framework	Frequency
OpenMP	181
Pthreads	57
CUDA	49
No threading	38
OpenAcc	22
OpenCL	15
IntelTBB	9
Other	3

Users chose common roadblocks that make threading challenging.

Roadblocks encountered when threading code	Frequency
Only makes sense in a few places in my code.	46
Performance is poor compared to MPI-only implementation.	47
Code is not thread safe.	44
Threads are complicated to implement.	35
Code cannot be threaded due to insufficient fine-grain parallelism.	32
Only implemented in libraries I use (BLAS/LAPACK i.e., ESSL).	18
Other	17

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

I/O Approach	Frequency
MPI-IO	123
HDF5	70
POSIX	80
NetCDF/PNetCDF	38
Custom or Others	41

Preferred Attributes of Software at ALCF

The following table shows user preferences between two attributes of ALCF software. Users were asked to select one of five radio buttons in a range to denote their preference between more stable and more features. The table shows the distribution of selections.

	Preference of software given choice between stability and features				
Software Types	**More Stable**	•	•	•	**More Features**
System Software	70	36	106	25	19
Scheduler	63	45	99	21	28
Scripting Languages	45	32	123	25	31
Compilers	67	42	94	29	24
Debuggers	38	38	110	40	30
Science/Math Libraries	57	37	101	33	28

Use of Exit Status

"An exit status is a value returned from an application to the shell. For example, the ALCF scheduler uses this value to determine how jobs terminate. When your application or script does not run as expected, do you check the exit status for debugging purposes?"

Response	Frequency
Yes	157
No	59
Does Not Apply	40

"Typically, non-zero exit status indicates fatal error(s). Do your apps or scripts use non-zero status for non-fatal exits?"

Response	Frequency
Yes	97
No	98
Does Not Apply	21

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	59
Suggestion	13
Problem	1
Complaint	1

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?" 131 users responded "Yes," 188 users responded "No," and 56 users responded' "I don't know." Only users who answered "Yes" were asked questions about their Catalysts.

Of the 131 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	83	35	5	2	1	5
Prompt/Professional	90	28	7	1	0	5
Helped with Performance Issue	71	32	6	4	1	17
Understood Constraints	82	32	7	2	0	8
Assisted on Problems	81	32	8	3	0	7

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	46
Suggestion	0
Problem	1
Complaint	1

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 2013 allocation?" 69 users responded "Yes," and 306 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.

Question Subject	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
Got to know staff/services	40	19	5	1	0	4
Got project running	29	10	7	2	1	20
Relevant/helpful training	42	22	2	1	0	2
Sufficient access to experts	40	18	5	0	0	6
Performance help	31	15	8	0	0	15
Using new tools/libraries	29	18	9	2	0	11
Understood science	26	15	9	0	0	19
Understood bottlenecks	24	19	7	0	1	18

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

Topic	Frequency
Performance Tools	39
MPI/OpenMP	38
Debugging	33
Programming Models	27
Visualization	26
Other (please specify)	3

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	26
Problem	1
Complaint	1