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**RAC 2017 Q&A**

October 13, 2016

# Goals for Today

- Overview of RAC
- Noteworthy Changes in 2017
  - Terminology
  - Schedule
  - Streaming within competitions
  - Storage (National Data Cyberinfrastructure)
- Rapid Access Service (RAS)
- Q&A



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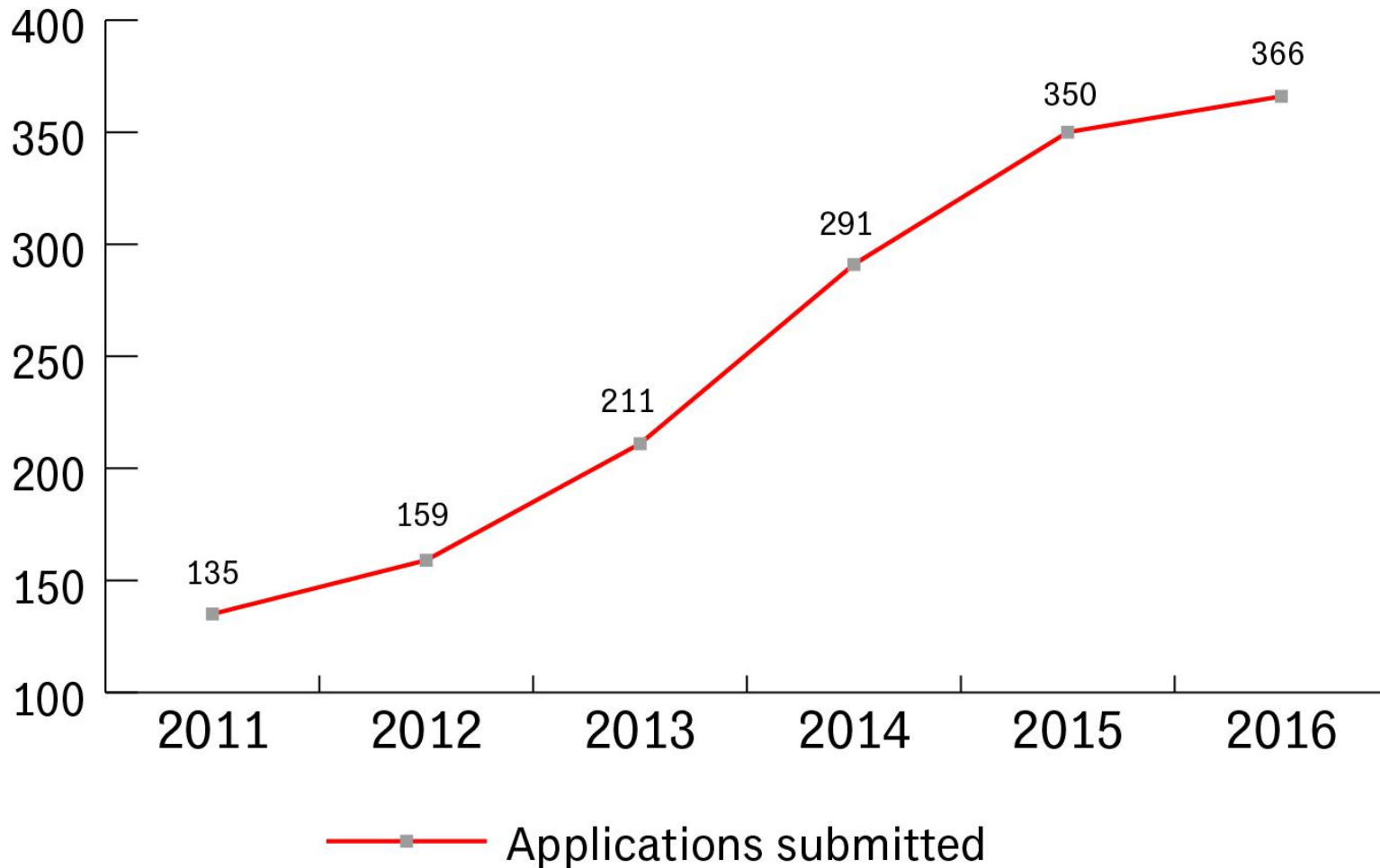
**RAC Overview - 2017**

# Overview of RAC

- All CC users can access resources without any special allocation - [Rapid Access Service](#) (RAS).
- Compute Canada's [Resource Allocation Competitions \(RAC\)](#) exists for researchers who need more than they can get from RAS.
- Any faculty member can apply. Sponsored users can access the resulting allocation.
- An “allocation” is really a “prioritization” within a shared system, based on:
  - Peer-reviews
  - Technical reviews
- For storage, an “allocation” is really an allocation.

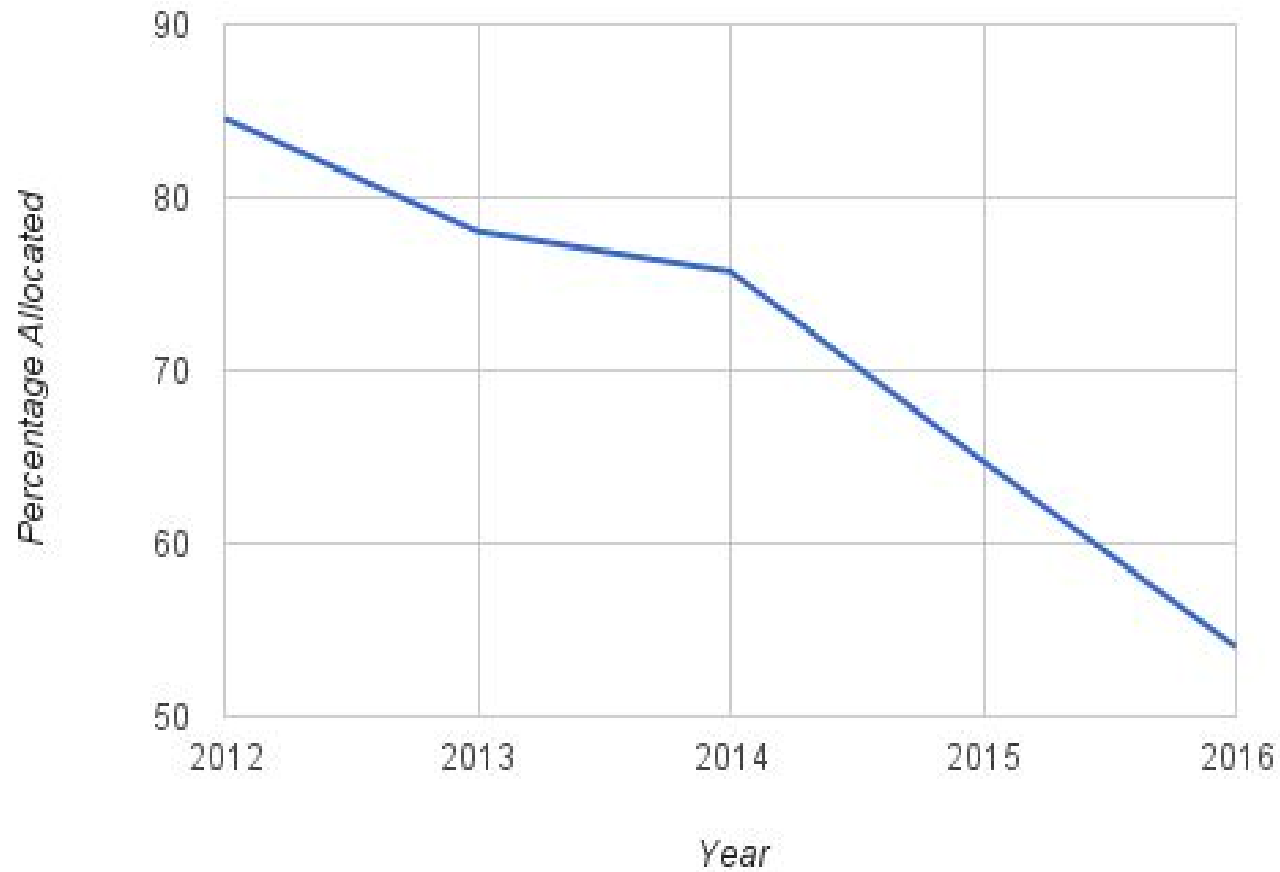
# RAC has Become Increasingly Popular

## RAC Applications: 2011-2016



# Resources Under Pressure

## Percentage Requested CPU Awarded



# Good News / Bad News for 2017

- Good news: National Data Cyberinfrastructure being deployed now:
  - 60+ PB disk
  - 60+ PB tape
  - Several different storage-related services
- Good news: 3 new compute systems available for allocation in 2017:
  - GP1 (UVIC): 6600 core OpenStack cloud system (available now!)
  - GP2 (SFU): approximately 25k cores, hundreds of GPU cards, nodes with memory up to 3TB. Available for allocation in RAC 2017.
  - GP3 (Waterloo): approximately 25k cores, hundreds of GPU cards, nodes with memory up to 3TB. Available for allocation in RAC 2017.
- Bad news: many older clusters being removed from RAC (perhaps including the cluster you used last year).
- Storage and GPUs should be better in 2017, raw number of CPUs does not change much (though they are newer). More CPU to come in RAC 2018.

# RAC Overview - 2017 Scientific Committees

## RAC Chairs

### **Victoria Kaspi**

Astronomy & Subatomic Physics

### **Tomáš Paus**

Bioinformatics, Neuroscience and Medical Imaging

### **Peter Kusalik**

Chemistry, Biochemistry, Biophysics

### **Paul Kushner**

Earth and Environmental Sciences

### **Cécile Devaud**

Engineering, Mathematical & Computer Sciences

### **Anabel Quan-Haase**

Humanities & Social Sciences

### **Jeremy Schofield**

Nano, Materials & Condensed Matter

### **Nikolas Provatas**

Research Platforms and Portals

## Scientific reviewers

We expect to have ~90 scientific reviewers this year.





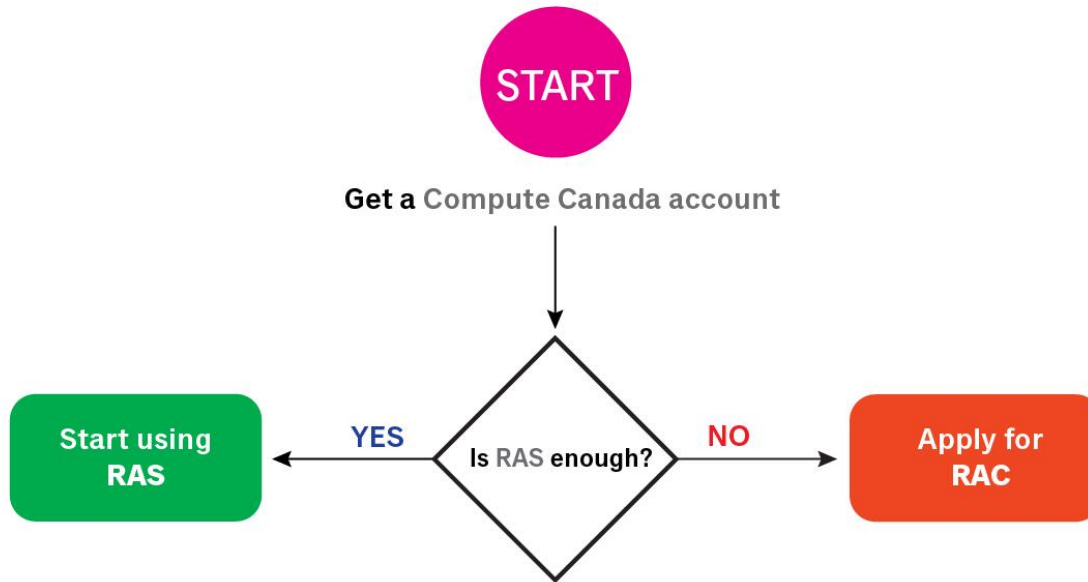
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**Changes to the RAC - 2017**

# Terminology cleanup - Default Allocation

- Previously, we described the resources that people could get without RAC as a “Default Allocation”.
- Plenty of confusion about this - for compute, it was never a true allocation/user.
- **It is now called Rapid Access Service (RAS)**
- Users will now have “Rapid Access” to batch compute, storage, cloud, etc.
- **There are two ways to access CC resources - RAS and RAC. The fundamental distinction is that RAC requires scientific and technical review, while RAS does not.**

# RAC vs. RAS: What to choose?



## Glossary

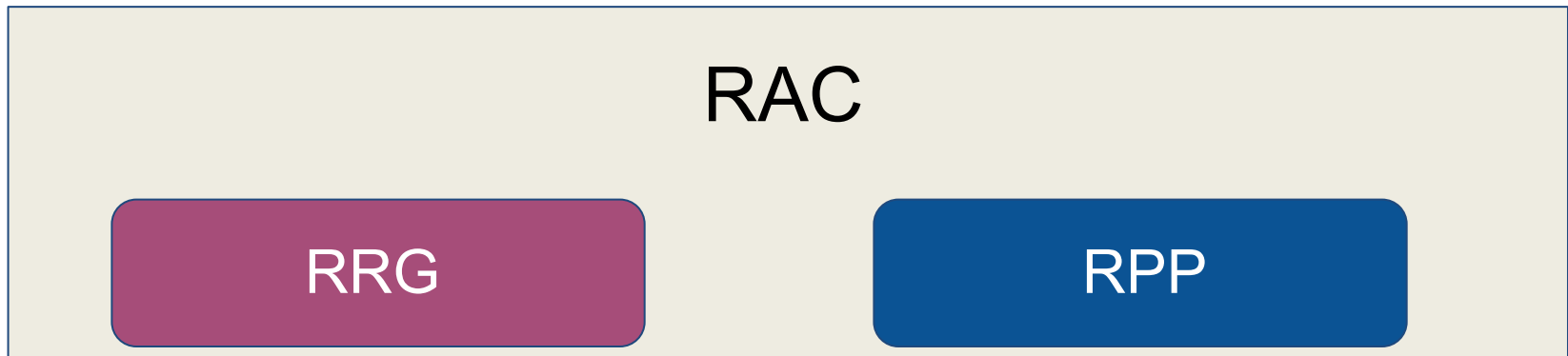
RAS: Rapid Access Service

RAC: Resource Allocation Competitions

Questions? Email: [rac@computecanada.ca](mailto:rac@computecanada.ca)

# Terminology cleanup - RAC

- “RAC” refers to the sum of all competitions we run - Resource Allocation Competitions
- The individual faculty groups competition is now **Resources for Research Groups (RRG) competition.**
- **In other words RAC = RRG + Research Platforms and Portals (RPP)**



Note: Fast Track is a subset of RRG, by invitation only.

# New Schedule

**Main change: Moved from calendar year to fiscal year.**

Have already received some positive feedback from users about this change.  
Better suited to granting council schedules (e.g., no conflict with NSERC).

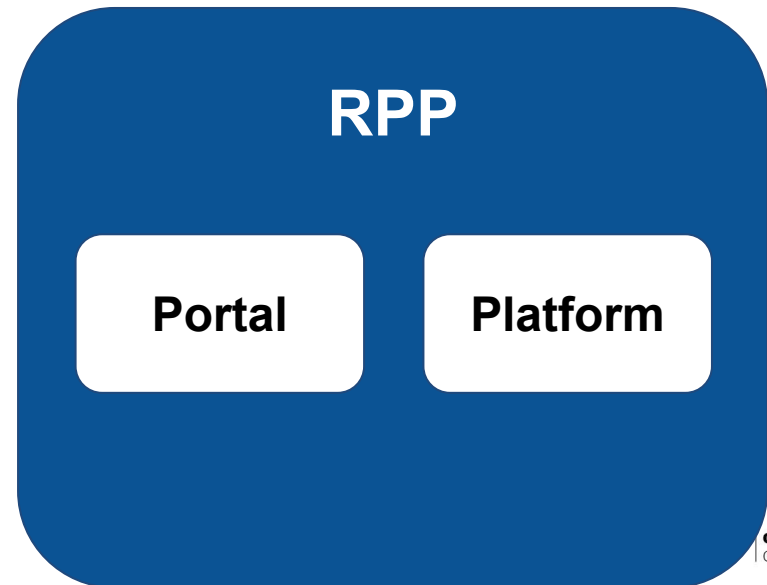
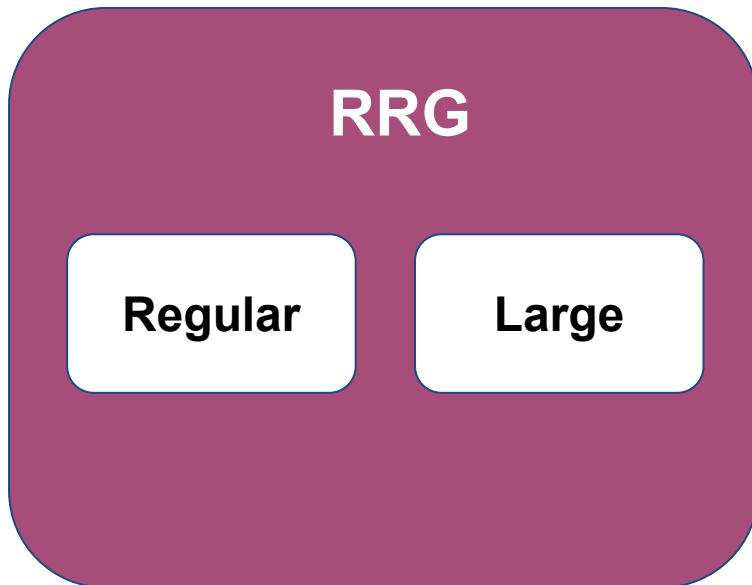
| <b>Process</b>                 | <b>Start</b>       | <b>Finish</b>       |
|--------------------------------|--------------------|---------------------|
| RPP NOI submission             | Sep 1, 2016        | Sep 22, 2016        |
| Fast Track submission          | Oct 11, 2016       | Nov 9, 2016         |
| RRG and RPP submissions        | Oct 11, 2016       | <b>Nov 24, 2016</b> |
| RPP progress report submission | Dec 1, 2016        | Jan 5, 2017         |
| Send allocation letters        | Mar 9, 2017        | Mar 9, 2017         |
| <b>Implement Awards</b>        | <b>April, 2017</b> | <b>April, 2017</b>  |

# New Schedule - Motivation

- Feedback:
  - Users: Stay clear of other deadlines
  - Users: Not enough of a gap between award notification and implementation
  - Users+Internal: releasing info on December 24 and implementing awards on January 8 is not ideal.
  - Reviewers: more time is useful.
- Practicalities for 2017:
  - Several systems being decommissioned between January and April 2017.
  - GP2 and GP3 should be available for allocations if we start in April (or very close).

# RAC “Streams”

- Feedback from users - RAC process is “onerous and often” for what is allocated.
- RAC Chairs recommendation:
  - Make less onerous by creating different amounts of work for large vs. small requests.
  - Make less often by allowing multi-year awards. **Deferred to 2018.**
- **We will implement streams for RAC in 2017.**



# RRG Streaming

## RRG

- **Regular stream:**
  - Batch Compute between 50-1999 Core Years
  - Storage between 10-999 TBs
  - GPUs between 10-199 GPU years
  - Cloud Compute between 80-499 VCPUs
  - Persistent Cloud between 10-99 VCPUs
  - Evaluation: At least 2 scientific reviews and 1 technical reviewer.
  - Workload: Shorter Technical Justification document.
- **Large stream:** exceeds at least one of the resource limits for Regular as defined above
  - Evaluation: At least 3 scientific reviews and 1 technical reviewer.  
Possibility of external review.
  - Discussion at chairs face-to-face meeting.
  - Workload: Larger and more detailed Technical Justification document (similar to last year's template)



# RPP Streaming

## RPP

### 1. Service Portal:

- a. Do not require large computing or storage resources, but may require support effort by the Compute Canada technical team.
- b. Often use the Compute Canada Cloud, generally require a static IP address, and may (or may not) have more stringent up-time requirements than most research projects.
- c. Reduced documentation/justification expected.
- d. May be directly approved with 1 technical and 1 science review.

### 2. Compute and Storage Platform

- a. Any RPP proposal requiring at least 50 core years (or 50 VCPUs in the cloud) OR at least 50 TB of storage will be considered a Compute and Storage Platform.
- b. Multiple reviews + discussion in committee meeting.

Reminder: RPP has 2 stages: 1) lightweight NOI, 2) full proposal

# Storage

- Standard service offerings on new storage (National Storage Cyberinfrastructure) regardless of physical location.
- This includes (definitions in [glossary](#) or RAS [landing page](#)):
  - /HOME - not normally allocated in RAC
  - /SCRATCH - not normally allocated in RAC
  - /PROJECT - available for allocation
  - /NEARLINE - available for allocation
- (Of course, in 2017 we will be running some legacy systems which do not conform to what is shown above.)



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**More on RAS**

# Rapid Access Service - Batch Compute

- Under RAS, people can access batch compute, storage, cloud, etc.
- Traditional batch compute use under RAS is called **Opportunistic Use**. It comes with no promises. 80% of each new system will be available for RAC allocation, the remaining resources are available for RAS via Opportunistic Use.
- Recommendation from RAC chairs - allow users without RAC to plan some of their usage through short-term allocations.
  - Response - **plan to pilot a “Compute Burst”** service for RAS users starting in the spring (GP2 and GP3 only). Lightweight process to get modest allocation for limited time.

# Rapid Access Service - Storage (Coming Soon)

| Storage Type | Space Quota                        |   | # of Files Quota            |
|--------------|------------------------------------|---|-----------------------------|
|              | Space Available, <i>by Default</i> | Maximum available via RAS, <i>by request</i>    |                             |
| /HOME        | 50GB per user                      | NA  | 500K per user               |
| /SCRATCH     | 20TB per user,<br>100TB per group  | 100TB per user (maximum duration: 3 months)     | 1M per user, 10M per group  |
| /PROJECT     | NA                                 | 10TB per group (GP2/GP3);<br>1TB per group (LP) | 500K per user, 5M per group |
| /NEARLINE    | NA                                 | 5TB per group                                   | none                        |

Increase up to maximum available via email to [support@computecanada.ca](mailto:support@computecanada.ca).

# Rapid Access Service - Cloud

**Testing:** These instances have a limited life-time and are available for testing, debugging, etc.

Users generally need only a few testing instances. **Available now!**

**Compute:** These are instances that have a limited life-time and typically have constant high-CPU requirements. They are sometimes referred to as 'batch' instances. Users may need a large number of compute instances for production activities. **Available April 2017**

**Persistent:** These are instances that are meant to run indefinitely and would include web servers, database servers, etc. In general, these use less CPU power than compute instances (ie. the nodes are "oversubscribed"). **Available April 2017**

See limits on our [RAS page](#).

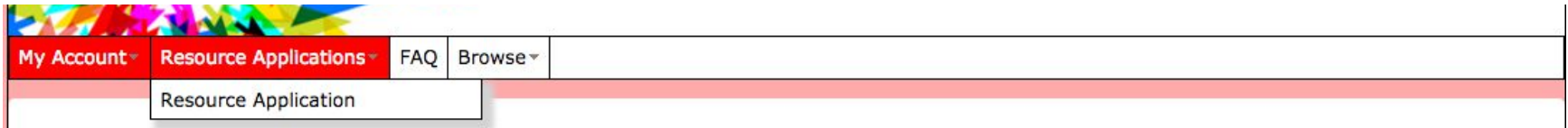


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**More on Procedure**

# Procedure

Login to the Compute Canada DB ([ccdb.computecanada.ca](http://ccdb.computecanada.ca)) and you should see something like:

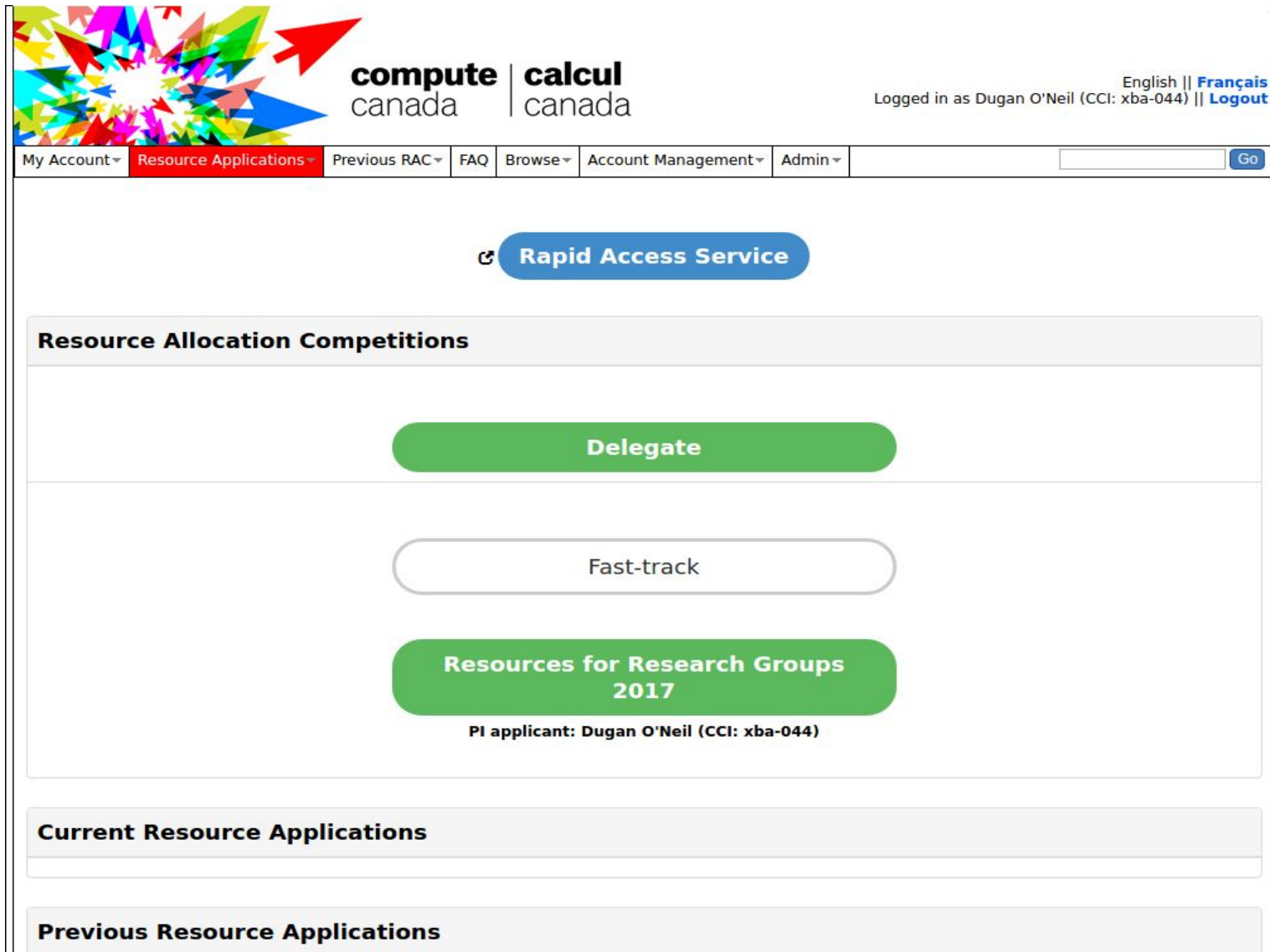


**Choose “Resource Application”**



# Procedure

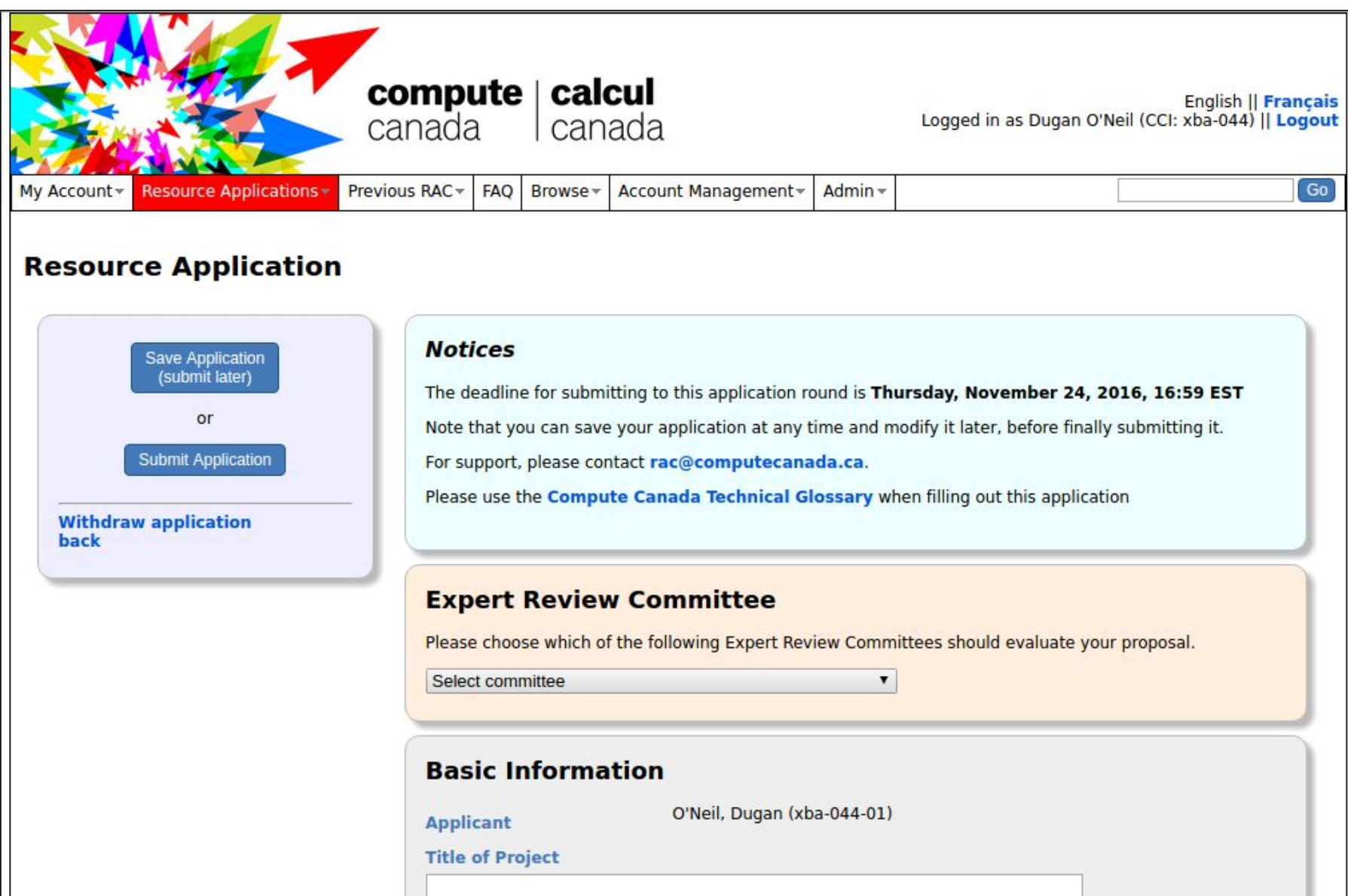
Choose competition (or to delegate to a sponsored user)



The screenshot displays the Compute Canada website interface. At the top left is a colorful geometric logo. The header includes the text "compute canada" and "calcul canada" in a split layout. On the right, it shows the user is logged in as "Dugan O'Neil (CCI: xba-044)" with options for "English" and "Français" and a "Logout" link. Below the header is a navigation bar with dropdown menus for "My Account", "Resource Applications" (highlighted in red), "Previous RAC", "FAQ", "Browse", "Account Management", and "Admin". A search bar with a "Go" button is also present. The main content area features a blue "Rapid Access Service" button. Below this is a section titled "Resource Allocation Competitions" containing three buttons: "Delegate" (green), "Fast-track" (white with grey border), and "Resources for Research Groups 2017" (green). Under the last button, it specifies "PI applicant: Dugan O'Neil (CCI: xba-044)". At the bottom, there are sections for "Current Resource Applications" and "Previous Resource Applications".

# Procedure

Fill out the online portion of the form:



The screenshot shows the 'Resource Application' page on the Compute Canada website. At the top, there is a navigation bar with the Compute Canada logo, a language selector (English/Français), and a user login status (Dugan O'Neil). Below the navigation bar is a menu with options like 'My Account', 'Resource Applications', 'Previous RAC', 'FAQ', 'Browse', 'Account Management', and 'Admin'. The main content area is titled 'Resource Application' and contains three main sections: 'Notices', 'Expert Review Committee', and 'Basic Information'. The 'Notices' section provides a deadline of Thursday, November 24, 2016, at 16:59 EST and contact information for support. The 'Expert Review Committee' section has a dropdown menu to select a committee. The 'Basic Information' section shows the applicant's name as 'O'Neil, Dugan (xba-044-01)' and a field for the project title.

**compute canada | calcul canada**

English || Français  
Logged in as Dugan O'Neil (CCI: xba-044) || Logout

My Account ▾ Resource Applications ▾ Previous RAC ▾ FAQ Browse ▾ Account Management ▾ Admin ▾  Go

## Resource Application

Save Application (submit later)

or

Submit Application

[Withdraw application back](#)

### Notices

The deadline for submitting to this application round is **Thursday, November 24, 2016, 16:59 EST**

Note that you can save your application at any time and modify it later, before finally submitting it.

For support, please contact [rac@computecanada.ca](mailto:rac@computecanada.ca).

Please use the [Compute Canada Technical Glossary](#) when filling out this application

### Expert Review Committee

Please choose which of the following Expert Review Committees should evaluate your proposal.

Select committee ▾

### Basic Information

**Applicant** O'Neil, Dugan (xba-044-01)

**Title of Project**

# Procedure

## Upload Canadian Common CV (CCV):

### Canadian Common CV for Dugan O'Neil

*For this application round, all PIs are required to submit a Canadian Common CV along with RRG (not Fast Track) or RPP applications. This will require you to visit the CCV website, complete a generic CV, and then submit it to Compute Canada's "Compute Canada CCV" template.*

*Please [click here](#) for detailed instructions on how to fill in and submit your CCV.*

**CCV Account Identifier (1-8 digit number)**

**CCV Submission Confirmation Code:**

**Currently saved CCV:** No CCV uploaded.

#### CCV Publications Reporting

*For each of your reported publications, please click "Yes" to indicate that the publication **was supported or enabled by Compute Canada resources**. Otherwise, click "No" to indicate that the publication was not supported or enabled by Compute Canada resources. Publications you have not yet provided an answer for are surrounded by a red border. In order to submit this application, you must provide an answer for all publications -- there will be no red borders left at that time.*

Click here to report that all publications were enabled by Compute Canada:  
**SELECT ALL**

| Publication | Change value to: |
|-------------|------------------|
|-------------|------------------|

# Procedure

Upload justification document:

## Research and Technical Justification

**Justification Document:** Upload a PDF document that describes the research rationale, research achievements expected including timelines, technical requirements and technical justification for the project (written for a broad scientific audience). Also include the research progress over the past year if you had a previous award.

Use one of the templates provided for your request. Please review prior to writing and submitting your request.

- Regular Stream Applications ( [Microsoft Word](#), [L<sup>A</sup>T<sub>E</sub>X](#) )
- Large Stream Applications ( [Microsoft Word](#), [L<sup>A</sup>T<sub>E</sub>X](#) )

Use 12 point font. Guidelines for the length of your proposal are provided in the template. You may only upload one file. If you upload more than one, only the last will be saved. [Maximum 5 MB]

**No file uploaded**

No file chosen

# Questions?