

RC-05: Request a software installation

A **researcher** or **educator** needs to request installation of a software application or library on a specific resource that someone else administers.

In most cases, the researcher wants to experience it as follows.

1. First, the researcher visits the community's website and confirms that the software isn't already available on the resource.
2. Then, the researcher sends a request to the community's support team requesting that the software be installed on the resource, mentioning any relevant details, such as project allocations or software options.
3. Then, the community's support staff work with the administrators of the resource to resolve the issue, responding to the researcher when the issue is resolved.

We'll take any solution, as long as...

1. In Step 1, the experience of checking the community's website is as described in use case RC-04.

RC-06: Find a software container that will help set up a specific runtime environment

A **researcher, educator, science gateway developer, or application developer** (hereafter referred to as "community member") needs to find a software container that will help set up a specific runtime environment on a resource so the community member can run an application in the desired runtime environment.

In most cases, the community member wants to experience it as follows.

1. First, the community member visits the community website and navigates to a page allowing a search for software containers.
2. The community member enters a name or keywords that describe the container and clicks "Search."
3. The community member receives a page listing relevant containers.

We'll take any solution as long as the following are true.

1. In Step 1, the navigation should be straightforward.
2. In Step 3, the results should span as many container libraries as possible, but ideally limited to those known to work well with the community's resources.
3. In Step 3, the results should include information about how to use the container on specific community resources.

RC-07: Use a container to create a specific runtime environment on a resource

A **researcher, educator, science gateway developer, or application developer** (hereafter referred to as “community member”) needs to use a container image on a specific resource in order to create the runtime environment needed for their work. We assume the community member belongs to a project with an allocation on the resource, and the community member has already identified a specific container image. (Use case RC-06 describes the experience for finding a relevant container image.)

In most cases, the community member wants to experience it as follows.

1. First, the community member logs into the resource.
2. Then, the community member follows the instructions provided with the container for using the container on the resource, and either activates the container or adjusts the launch script for their application(s) to activate the container.
3. If the container doesn’t activate properly or work as expected, the community member files a ticket with the community support team.

We’ll take any solution as long as the following are true.

1. In Step 3, the community’s support personnel coordinate with the resource’s administrators to resolve the issue.

RC-08: Access a repository of files from a compute resource administered by a service provider

A **researcher, science gateway developer, or application developer** (hereafter referred to as “researcher”) needs read-only access to a repository of files while using a compute resource administered by a service provider. The repository is hosted by a (most likely different) service provider. Repository contents may include: installed applications, container images, application configuration files, data files.

In most cases, the researcher wants to experience it as follows.

1. First, the researcher logs into the resource.
2. Then, the researcher looks at the local filesystems, finds the remotely mounted directories, and finds the desired repository. (The researcher may need to try accessing the repository at the expected path before it becomes visible on the system.)
3. If the repository isn’t available among the mounted repositories, the researcher files a ticket with the community support team.

It will always work like this unless the researcher is running an application that needs to access the repository. In that case, instead of Step 2, the researcher submits job requests using the resource’s queueing system, and when the jobs run, they find the repository at the expected path in their runtime environment.

We'll take any solution as long as the following are true.

1. In Step 2, the path for the remotely mounted directories should either be consistent with the repository's documentation or it should be easy to find in the resource's user documentation.
2. In Step 3, the community's support personnel coordinate with the resource's administrators to resolve the issue.
3. Repositories can be hosted by any public research computing community, not limited to the community in which the resource is provided.
4. The authenticity of a repository (specifically, its hosting organization) can be cryptographically verified by the administrator of the resource at any time. Only authenticated repositories should be visible to users of the resource.

RC-09: Access a repository of files from a cloud resource administered by the researcher

A researcher, science gateway developer, or application developer (hereafter referred to as "researcher") needs read-only access to a repository of files while using a cloud resource administered by the researcher. The repository is hosted by a service provider. Repository contents may include: installed applications, container images, application configuration files, data files.

In most cases, the researcher wants to experience it as follows.

1. First, the researcher logs into the cloud resource.
2. Then, the researcher accesses the documentation for the repository to find instructions for mounting the repository.
3. Then, the researcher follows the instructions and installs the software needed to mount the repository.
4. Then the researcher follows the instructions and mounts the repository.
5. Finally, the researcher looks at the local filesystems, finds the remotely mounted directories, and finds the desired repository. (The researcher may need to try accessing the repository at the expected path before it becomes visible on the system.)
6. If the researcher is unable to follow the instructions or encounters errors along the way, the researcher files a ticket with the community support team.

We'll take any solution as long as the following are true.

1. In Step 2, the documentation for the repository includes links to instructions that include any required software installation and configuration steps.
2. In Step 3, any required software must be available for use under a free-use license.
3. In Step 4, the authenticity of a repository (specifically, its hosting organization) can be cryptographically verified by the researcher at any time.
4. In Step 5, the path for the remotely mounted directories should either be consistent with the repository's documentation or it should be easy to find in the resource's user documentation.

5. In Step 6, the community's support personnel coordinate with the repository's administrators to resolve the issue.

RC-10: Create or modify the contents of a repository that will be accessed on many resources

A **researcher, application developer, science gateway developer, or service provider** (aka "curator") needs to create or modify the contents of a repository that will be accessed on many resources. The repository is hosted by a service provider. Repository contents may include: installed applications, container images, application configuration files, data files.

In most cases, the curator wants to experience it as follows.

1. First, the curator is contacted by the repository host and informed that the repository exists and that the curator has been granted permission to manage its contents. This notice includes instructions for accessing a writable version of the repository contents.
2. Then, the curator follows the provided instructions to access the writeable version of the repository and curates the contents of the repository.
3. Finally, after making changes to the contents of the repository, the curator accesses the repository on a resource as described in either use case RC-08 or use case RC-09, and verifies that the repository has the expected contents.
4. If the curator has any issues following the instructions, curating the repository, or verifying the contents of the repository, the curator files a ticket with the repository host.

We'll accept any solution as long as in Step 1, any software required by the instructions should be available for use under a free-use license.