

**GRACE R Studio Environment Test Plan & Summary Memo**

Version 1.2

**Revision History**

| Version # | Date  (dd-mmm-yyyy) | Author | Revision Summary |
| --- | --- | --- | --- |
| 1.0 | 11 Oct 2021 | Jason Zhang | Initial Release Version. |
| 1.1 | 20 Oct 2021 | Jason Zhang | Edit according to team comments. |
| 1.2 | 08 Dec 2021 | Jason Zhang | Split general workflow section because of the newly added test cases. |

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# **Purpose:**

This RStudio environment test plan and summary memo documents test summary performed by the DSEI subject matter experts (SMEs) as part of GRACE platform and reviewed by the DSEI business system owner.

# **Scope:**

The following capabilities will be implemented as part of RStudio workbench and RStudio Connect in GRACE platform.

* Usability Test
* Performance Test
* Integration Test
* User Acceptance Test

# **System Description:**

RStudio environment will provide capabilities to support rapid generation of R program and other related deliverables in compliance with regulatory guidelines and expectations.

# **Test Scenarios and Result:**

DSEI SMEs perform testing for RStudio environment

This section documents the verification of the usability testing scenarios outlined in Table A. The feedback provided by the tester during the testing will be document in Table A.

This section will be updated on completion of the testing and will be sent for approval.

**Table A: Scenario Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Scenario** | **Tester** | **Result** | **Date** | **Comments** |
| **Usability Testing** | | | | | |
| 1.General Workflow | | | | | |
| 1.1 | Generate tabular clinical output | Jason Zhang | Pass |  |  |
| 1.2 | Generate graphical clinical output | Jason Zhang | Pass |  |  |
| 1.3 | Support R project | Boxuan Li |  |  |  |
| 1.4 | Support R markdown file | Boxuan Li |  |  |  |
| 1.5 | Support R script | Boxuan Li |  |  |  |
| 1.6 | Support python coding | Jason Zhang | Pass |  |  |
| 1.7 | Auto-run designated R scripts | Jason Zhang |  |  |  |
| Global Options | | | | | |
| 2.1 | Running multiple R sessions | Jason Zhang | Pass |  |  |
| 2.2 | Running multiple R version | Jason Zhang | Pass |  |  |
| 2.3 | Git version control support | Jason Zhang | Pass |  |  |
| Project Options | | | | | |
| 3.1 | Project virtual environment | Jason Zhang | Pass |  |  |
| 3.2 | Project Sharing and code collaboration | Jason Zhang | Pass |  |  |
| 3.3 | Code access and authentication | Jason Zhang | Pending |  |  |
| R Package Management | | | | | |
| 4.1 | Required R package installation in main library | Boxuan Li | Pending |  | Few packages in original list are removed from CRAN. BLRM related packages require JAGS 4.X installation in server. |
| 4.2 | Required python package installation | Jason Zhang | Pending |  | Need collect user requirements to draft the python package list. |
| 4.3 | Install R packages from main repository in RStudio package manager | Jason Zhang | Pass |  |  |
| 4.4 | Install R packages from custom repository in RStudio package manager | Jason Zhang | Pass |  |  |
| R Connect Shiny Application | | | | | |
| 5.1 | Support R shiny application | Boxuan Li |  |  |  |
| 5.2 | Host Shiny app through R Studio connect | Boxuan Li |  |  |  |
| 5.3 | Host R Markdown HTML report through R Studio connect | Boxuan Li |  |  |  |
| 5.4 | Host R Markdown PDF report through R Studio connect | Boxuan Li |  |  |  |
| 5.4 | Host R notebook through R Studio connect | Boxuan Li |  |  |  |
| 5.5 | Host jupyter notebook through R Studio connect | Boxuan Li |  |  |  |
| File Import | | | | | |
| 6.1 | Import excel file | Jason Zhang | Pass |  |  |
| 6.2 | Import csv file | Jason Zhang | Pass |  |  |
| 6.3 | Import SAS dataset | Jason Zhang | Pass |  |  |
| 6.4 | Import pdf file | Jason Zhang | Pass |  |  |
| File Transformation | | | | | |
| 7.1 | General function in tidyverse | Jason Zhang | Pass |  |  |
| 7.2 | General function in ggplot2 | Jason Zhang | Pass |  |  |
| 7.3 | General function in openxlsx | Jason Zhang | Pass |  |  |
| 7.4 | General function in arsenal | Jason Zhang | Pass |  |  |
| 7.5 | General function in lubridate | Jason Zhang | Pass |  |  |
| 7.6 | General function in pdftools | Jason Zhang | Pass |  |  |
| File Export | | | | | |
| 8.1 | Export excel file | Jason Zhang | Pass |  |  |
| 8.2 | Export csv file | Jason Zhang | Pass |  |  |
| 8.3 | Export pdf file | Jason Zhang | Pass |  |  |
| 8.4 | Export image file | Jason Zhang | Pass |  |  |
| 8.5 | Export HTML file via Knit | Jason Zhang |  |  |  |
| 8.6 | Export word file | Jason Zhang | Pass |  |  |
| 8.7 | Export rtf file | Jason Zhang | Pass |  |  |
| **Performance Testing** | | | | | |
| 9.1 | Performance on complicated scripts | Jason Zhang | Pending |  | Performance is slower than local machine. |
| 9.2 | Performance with multiple R sessions | Jason Zhang | Pending |  | Performance is slower than local machine. |
| 9.3 | Performance with multiple users |  |  |  |  |
| 9.4 | Memory limits when loading large file | Jason Zhang | Pending |  |  |
| 9.5 | Performance when loading data from integration |  |  |  |  |
| 9.6 | Performance when install R packages | Jason Zhang | Pending |  | Performance is slower than local machine. |
| **Integration Testing** | | | | | |
| 10.1 | Extract and load data from GRACE file server |  |  |  |  |
| 10.2 | Extract and load data from Statistical Computing Environment (SCE) module |  |  |  |  |
| 10.3 | Extract and load data from Clinical Data Analytics (CDA) module |  |  |  |  |
| 10.4 | Extract and load data from local directory |  |  |  |  |
| **User Acceptance Testing** | | | | | |
| 11.1 | BLRM simulation workflow |  |  |  |  |
| 11.2 | Run required R script for pilot study | Jason Zhang |  |  |  |

# **Findings Reported and Status**

This section documents incidents that were identified during testing conducted by DSEI SMEs. “Tester” referred in the table below is the business user.

Status for the incidents is categorized as “In Progress” and “Closed”. Status “In Progress” are for the incident that are being investigated and potentially being fixed. Status “Closed” are for the incidents that are closed, and there is no further action pending. All the incidents will be synchronized with the smartsheet tracker.

**Table C: Findings Reported and Status**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Incident No** | **Description of Incident** | **Workstream** | **Severity** | **Tester** | **Assigned to** | **Decision/Action** | **Status** |
|  |  |  |  |  |  |  |  |

# **Conclusion of Findings Reports**

This section documents the final disposition of findings reported in the previous section.

This section will be updated on the completion of usability testing and will be sent for review.

# **Reference**

|  |  |
| --- | --- |
| **Reference Description** | **Source / Location** |
| RStudio Package Manager: Admin Guide | https://docs.rstudio.com/rspm/admin/index.html |
| Managing Packages in RStudio Team | https://solutions.rstudio.com/data-science-admin/packages/ |
| Installing multiple versions of R on Linux | https://support.rstudio.com/hc/en-us/articles/215488098 |
| Using multiple versions of R with RStudio Workbench / RStudio Server Pro | https://support.rstudio.com/hc/en-us/articles/212364537-Using-multiple-versions-of-R-with-RStudio-Workbench-RStudio-Server-Pro |
| RStudio Team | https://www.rstudio.com/products/team/ |