**VA Informatics and Computing Infrastructure (VINCI) Enhancements (E)**

**Data Access Request Tracker (DART)**

Requirements Specification Document



Department of Veterans Affairs

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Version 2.13

Revision History

| Date | Version | Description | Author |
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| 5/16/2016 | 2.13 | Updated Reporting requirements to include PIIs mapping of RSD Reporting Requirements to New Reports 1, 2, 3, & 4 | PII |
| 4/8/2016 | 2.12 | Removed Enhancements not if Pase Period of Contract. Updated requirements for Request Changes enhancement – Updated 1.6.1.1 and 1.6.1.2 to reflect new approact for Performance Improvements | PII |
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| 2/23/2016 | 2.10 | Updated 1.1.1.16 to eliminate removal of CAPRI/VistA Web and add removal of Surgery Quality Data User Group (SQDUG)  Noted in 1.1.1.13 & 1.1.1.14 that this was done previously  Replaced version of e-mail message in 1.5.3.3 with version provided by PII; 508 compliance | PII, PII |
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| 2/17/2015 | 1.1 | Updated with BRD-RSD list and priorities. | PII |
| 1/15/2015 | 1.0 | Draft RSD developed | Dr. PII |

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# Introduction

The mission of the Department of Veterans Affairs (VA), Office of Information & Technology (OI&T), is to provide benefits and services to veterans of the United States Armed Forces. In meeting these goals, OIT strives to provide high quality, effective, and efficient Information Technology (IT) services to those responsible for providing care to the veterans at the point-of-care, as well as throughout all the points of the veterans’ health care. The VA depends on Information Management/Information Technology (IM/IT) systems to meet mission goals.

The VA Informatics and Computing Infrastructure (VINCI) Program is intended to fulfill the need of the VA Research community and business intelligence for a secure and powerful analytical environment that provides access to appropriate data. The VINCI Program will provide data, data analysis tools, software, software development tools and support for the VA Researchers and is expanding the VA capability for informatics research and business intelligence.

Data Access Request Tracker (DART) is a software application available in the VINCI Program. It is a custom web application that provides researchers and operations staff with a streamlined workflow to facilitate transparent and timely decision responses. DART is a standardized application used to gather requests access requirements, specify request locations and associated personnel, determine and gather the appropriate required documentation, distribute the documentation to the appropriate reviewers, and provide functionality for reviewers to approve requests.

## Purpose

The VINCI (E) DART Requirements Specification Document (RSD) is intended to provide a high-level description of the requirements necessary to provide enhancements to the DART application, with guidance from the VINCI (VA Informatics and Computing Infrastructure) Business Requirements Document (BRD) and other supporting DART documentation.

This RSD uses the Agile Methodology for development and, as such, many of the details resulting from the specification gathering process will be recorded in Theme, Epic, and User Stories. For details on the Agile Methodology and how it pertains to developing this RSD, please refer to Appendix A – Agile Methodology.

The primary audience for this document includes stakeholders, functional analysts, developers, testers, Office of Information and Technology (OI&T) managers, and business managers.

## Scope

Due to the quantity, diversity, and complexity of the DART application, the scope of this document is limited to enhancements planned for the VINCI Enhancement Project Base Period. Those enhancements are listed below in Table 1 in priority order.

Table 1: DART Enhancements

| Priority | Description |
| --- | --- |
| **1** | **Preparatory to Research –** Incorporate the Preparatory to Research process into the DART application so that all research related processes are in a single location. |
| **2** | **Reporting –** Provide automated and ad-hoc reports as defined by the DART Reporting Business Requirement document. |
| **3** | **Add-Remove Review –** Allow the Initial National Data Systems (NDS) Reviewer the ability to select and deselect reviews as needed. Adding or removing a review will have an effect on the tracking history and status timeline information. Additionally, the reason for the change will need to be captured. |
| **4** | **Data Sources by Individual** – Allow end-user the ability to distinguish which user requires access to data sources that are provided on an individual basis. When a Principal Investigator (PI) submits a request in the DART application, not all Researchers on the project will require access to CAPRI/VistAWeb or the Mainframe. Currently, the application requires a form for each Researcher associated with the request. Application needs to allow the PI to select which requestors require access to certain data sources, perhaps with the use of a pop-up box. |
| **5** | **Request Changes Communication** – Need to be able to add a descriptor to the message so the requestor knows what needs to be changed. Need to be able to add a brief description to the subject line. The long explanation would still remain in the body of the communications message. |
| **6** | **Performance Improvements** – Improve load times for requests with a lot of amendments. Remove the request reload when switching between History/Communications pages and the request. Improve document handling and storage. |
| **7** | **Participant Tracking** – Indicate when a participant was added or deleted from a request. |

## References

The following are references for the DART RSD:

* HIPAA (Health Insurance Portability and Accountability Act of 1996)
* PPACA (Patient Protection and Affordable Care Act)-"Health Care Reform" House of Representatives (H.R.) 3590, Section 1104-Administrative Simplification, Section 10109-Development of Standards for Financial and Administrative Transactions
  + Public Law 111–148, The Patient Protection and Affordable Care Act
  + PPACA Compliance, Certification, and Penalties
* VINCI Technical Services Project Repository (TSPR)
* VINCI System Security Plan (SSP)
* URL

# Overall Description

This section outlines the overall specifications for accessibility, business rules, design constraints, disaster recovery, documentation and functionality related to the operation of the DART.

## Accessibility Specifications

The existing DART application complies and will continue to comply with Section 508 for web applications. Refer to the VA’s Section 508 Background and Standards page for more details.

For additional information, reference Section 3 of this document.

## Business Rules Specification

The following are the DART business rules:

* Only VA authorized personnel will have access to the DART application. For security purposes, the VA does not allow unauthorized non-VA personnel to have access to the VA secure network.
* Proper email notification will be supplied to the appropriate parties informing of actions.
* Data access requests along with the required documentation will be submitted to data steward for review and approval.

## Design Constraints Specification

All software development by VINCI developers will conform to technology standards as defined in the One-VA Technical Reference Model (TRM), as well as meet all VA/VHA security policies, regulations, and 508 compliance.

A list of the significant supporting third-party technologies used by DART includes those in the Table 2 below.

Table 2: DART Technologies

| **Technology Name** | **Minimum Version/Release** |
| --- | --- |
| Apache Tomcat | 6 |
| Maven | 3.0.4 |
| Jenkins | 1.500 |
| Java JDK | 7 |
| Hibernate | 4.1.7 |
| JAXB | 1.2 |
| Spring | 3.1.2 |
| JDOM | 2.0.2 |
| Jaxen | 1.1.3 |
| Apache Commons | 2.x.x |
| Log4j | 1.2.16 |
| cglib | 2.2 |
| jackson | 1.5.3 |
| Java Mail | 1.4.5 |
| xerces | 2.10.0 |
| xalan | 2.7.1 |
| ehCache | 2.6.0 |
| Com4j | 1.0 |
| Mockito | 1.9.5 |
| jQuery | NA |
| AJAX | NA |
| Bootstrap | 2.1.1 |
| DataTables | 1.9 |
| Mustache |  |

This project enhances VINCI DART currently in production at AITC Austin, Texas.

User access authentication is accomplished through integration with the VA Active Directory. This will ensure that only authorized users may access the applications and data.

Agile development methodologies will be utilized for development. Agile development methodologies including a scrum management framework will be utilized for development using a cross functional team. Fixed length iterations will be employed with applicable testing. Each of these will provide an opportunity for early business owner feedback to ensure compliance with the required specifications.

### Implementation and Testing

Due to the extensive scope and complexity of enhancements requested for DART, implementation of the new functionality is scheduled to span over a period of twenty-four months. Plans to implement enhanced functionality are detailed in the System Design Document (SDD).

Per VA policy, all development deliverables shall comply with VA test and implementation requirements. This includes conformance testing to requirements for each new enhancement or function implemented.

The major objective is to ensure a fully executed test plan is performed to:

* Verify expected performance of technical requirements, as addressed in the VINCI (E) DART System Design Document (SDD).
* Validate satisfaction of acceptance criteria, per the business functional requirements addressed in this VINCI (E) DART Requirements Specification Document (RSD).

The table below identifies the test activities that shall be performed:

Table 3: Test or Compliance Activities and Descriptions

| **Test or Compliance Activity** | **Description** |
| --- | --- |
| **VA Security Requirements Testing** | See paragraph **2.13*, Security Specifications***. This test type validates the requirements specified in “Security Specifications” in the RSD. |
| **Unit Testing** | This test type validates testing of each component of the product, also known as Product Component Test. |
| **Integration / Functional Testing** | This test validates that integration of new functions or enhancements do not compromise performance of other system functions. |
| **User Acceptance Testing (UAT)** | This test type employs actual user tests to validate business acceptance criteria have been met for each new function or enhancement implemented. |
| **Section 508 Compliance** | Compliance with Section 508 ensures that product functionality meets assistive technology requirements. The project must obtain approval from the Section 508 Program Office. For more information, contact the Section 508 Program Office at DNS. See paragraph ***3.1, 508 Compliance Functionality*** for details. |
| **Performance Testing** | See paragraph ***2.9, Performance Specifications,*** for measurements of performance expectations. In this test type, system performance is measured against numeric specifications placed on the software or on human interaction with the software as a whole. |

## Disaster Recovery Specification

Disaster Recovery specifications for the VINCI AITC which hosts the DART application are documented in the VINCI System Security Plan (SSP). The SSP is a sensitive document which is available on an as-needed basis to authorized personnel only.

Additionally, data protection/back-up/archive requirements relevant to this project are available in Appendix D.

## Documentation Specifications

VINCI development team will adhere to documentation requirements as required by PMAS to comply with VA and Product Development (PD) documentation standards and/or Pro Path requirements. The ProPath templates will be used to document requirements, use cases, interface controls, design specifications, security plans, and project management and implementation specifications. Team Foundation Server will be used to track requirements and Epic stories. All project documentation will be stored in VINCI Enhancement SharePoint Site and final approved documents will be posted to TSPR. Templates are available at http://DNS DNS /process/Library/Forms/Default.aspx. A list of documentation relevant to this project is available in Appendix C.

## Functional Specifications

Functional requirements for the DART Enhancements will be documented in accordance with Agile methodology, and, as such, the Business Needs will be addressed by one Theme (see Table 4) , one or more Epic Stories, which are further broken down into multiple User Stories. The requirements listed below are intended to serve as a description of the enhancements to the original development of the DART application.

Please refer to the VINCI Business Requirements Document (BRD) for further details relating to Business Needs/Owner Requirements.

Table 4: DART Enhancements Theme

| **IDENTIFIER** | **THEME** |
| --- | --- |
| 1.0 | As a VINCI Business Owner, I need DART development to provide enhancements so that it has more features, improves usability, and accommodates more approval processes. |

### Preparatory to Research

This enhancement to DART will add a new workflow for Preparatory to Research requests. This will include modifications to the 4-page wizard, but not to the workflow, as the existing NDS workflow can be used.

Table 5: Preparatory to Research

|  |  |  |  |
| --- | --- | --- | --- |
| **EPIC 1.1:** DART needs to incorporate Preparatory to Research requests. | | | |
| **IDENTIFIER** | **USER STORY** | | **ACCEPTANCE CRITERIA** |
| 1.1.1 | As a DART user, I want to request Preparatory to Research data access approval so that appropriate steps are followed in accessing research data. | | Able to execute the Preparatory to Research process using DART. |
|  | **TASK** | | | |
| 1.1.1.1 | Modify the New Request Window so that “Preparatory to Research” is added as the first choice in the Request Type drop-down list. | | | |
| 1.1.1.2 | Modify the New Request Window so that the “Operations” items in the Request Type drop-down list are removed. | | | |
| 1.1.1.3 | Modify the New Request Window so that when the Create Request button is selected, a new DART request email is sent per existing functionality. | | | |
| 1.1.1.4 | Modify the New Request Window so that when the Create Request button is selected, the Preparatory to Research wizard is initiated. | | | |
| 1.1.1.5 | Modify the Activity Information Page so that the IRB Number field is removed. | | | |
| 1.1.1.6 | Modify the Activity Information Page so that the “IRB Expiration” label is changed to “Expected IRB Submission Date." | | | |
| 1.1.1.7 | Modify the Activity Information Page so that the Start Date field is removed. | | | |
| 1.1.1.8 | Modify the Activity Information Page so that the End Date field is removed. | | | |
| 1.1.1.9 | Modify the Data Sources Page so that under Data Storage Location, the Local VA Server Location option is removed. | | | |
| 1.1.1.10 | Modify the Data Sources Page so that under Data Storage Location, "VINCI" is selected by default and is not editable. | | | |
| 1.1.1.11 | Modify the Data Sources Page so that the section entitled “Will data be transferred external to the VHA? \*” is removed. | | | |
| 1.1.1.12 |  | | | |
| 1.1.1.13 | Modify the Data Sources Page so that the item, “(Must complete CDW Production Domain Checklist),” following the CDW Production Domains label is removed. Note this has been done previously | | | |
| 1.1.1.14 | Modify the Data Sources Page so that the item, “(Must complete CDW Raw Domain Checklist),” following the CDW Production Domains label is removed. Note this has been done previously | | | |
| 1.1.1.15 |  | | | |
| 1.1.1.16 | Modify the Data Sources Page so that under the Other data sources section, Homeless Registry, Legacy Data Warehouses, Surgery Quality Data User Group (SQDUG) and OEF/OIF Roster File are removed. | | | |
| 1.1.1.17 | Modify the Data Sources Page so that under CDW SAS Format, MCA (formerly DSS) NDE (legacy) data source is removed. | | | |
| 1.1.1.18 | Modify the Data Sources Page so that the two HIPAA questions are removed. | | | |
| 1.1.1.19 | Modify the Documents Page so that the “Preparatory to Research Memorandum” document is required for the Primary Site. | | | |
| 1.1.1.20 |  | | | |
| 1.1.1.21 | Modify the Documents Page so that if any of the three Vital Status data sources are checked, a “Vital Status Rules of Behavior” is required for each participant. | | | |
| 1.1.1.22 | Modify the Documents Page so that there are no Administrator documents. | | | |
| 1.1.1.23 | Modify the Documents Page so that if the CDW Production Domain data source or CDW Raw Domain data source is checked, a CDW Checklist is not required. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.1.2 | As an NDS Administrator, I want to approve or deny Preparatory to Research requests so that only authorized individuals are given access to research data. | Able to approve or deny Preparatory to Research requests when requesting access to research data. | |
|  | **TASK** | | | |
| 1.1.2.1 | Modify workflow so that upon selection of the Submit button, the NDS Workflow is initiated. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.1.3 | As a DART Owner, I want to notify all participants and VINCI that the IRB Submission Date has been reached so that data access can be terminated. | Able to generate email notification that is formatted correctly and functions as requested to notify users when access has been terminated. | |
|  | **TASK** | | | |
| 1.1.3.1 | Add new email notification so that participants are notified when the “Expected IRB Submission Date" is reached. See proposed format in Requirement 1.1.3.3. | | | |
| 1.1.3.2 | Modify the email notice so that Expected IRB Submission Date notifications are sent to Requestor where Notifications = True and to DART Admin groups for VINCI. | | | |
| 1.1.3.3 | Modify the email notice so that the Expected IRB Submission Date Notification format looks as follows:   From: PII [mailto:PII ]  Sent: [Date\_Time\_Stamp]  To: [See Req. 5.2]  Subject: DART: [DART\_Tracking\_Number] - [PI\_Last\_Name] - DART - Preparatory to Research Access Expiring Today  DART: Your data access for Preparatory to Research expires today. You may amend the request if you need more time as long as you have not already submitted your protocol to your IRB. Please review your request below if you have questions.  Study Name: [Study\_Name] Tracking Number: [DART\_Tracking\_Number]  You can review this request by clicking on the following link: https://DNS .DNS :PORT/vinci\_dart\_client/dart9/dashboard.html | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.1.4 | As an ORD Reviewer, I want modifications to the reporting so that there are two separate approval times - one for Preparatory to Research and one for IRB Research. | Able to confirm through reporting that approval times have been established for Preparatory to Research and IRB Research. | |
|  | **TASK** | | |
| 1.1.4.1 | Modify reporting so that those reports containing ORD approval times will split the approval times into two different categories - one for Preparatory to Research requests and one for IRB Research requests. | | |

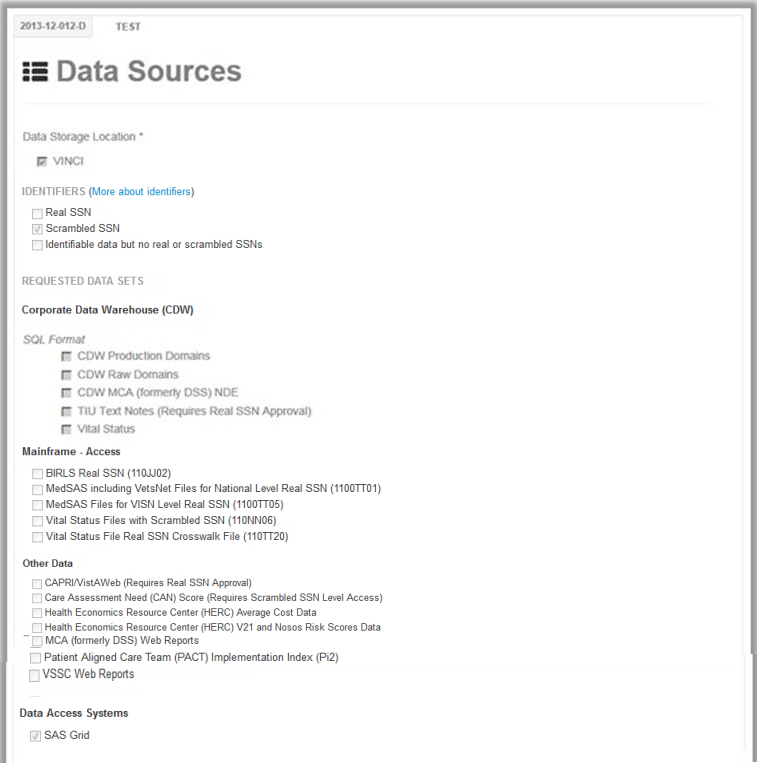


Figure 1: Proposed Data Sources Page

### Reporting

The business requirements captured here include the current needs for DART reporting functionality for Research requests. These are the new and standing reports that will always be required for both performance workload and application efficiency checks.

Table 6: Reporting

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EPIC 1.2:** DART needs a reporting tool and standing reports. | | | | | |
| **IDENTIFIER** | | **USER STORY** | | **ACCEPTANCE CRITERIA** | |
| 1.2.1 | | As DART Owner, I want a **Reporting Tool** to generate reports so that I can understand how DART is being used. | | Able to access and utilize a web-based tool to view, run, export, and generate reports. | |
|  | | **TASK** | | | |
| 1.2.1.1 | | Develop a reporting tool to be web-interfaced so that it can run from a web site. | | | |
| 1.2.1.2 | | Develop a reporting tool to be accessible from the DART Dashboard so that it can be accessed within the application. | | | |
| 1.2.1.3 | | Develop a reporting tool to be accessible by all DART Staff and Administrators so that they can generate their own reports. | | | |
| 1.2.1.4 | | Develop a reporting tool to allow for display of reports in a printer friendly format so that they can be printed. | | | |
| 1.2.1.5 | | Develop a reporting tool to be able to export any report into a Microsoft Excel readable format so that they can be studied and shared. | | | |
| 1.2.1.6 | | Develop a reporting tool to provide ad-hoc reports so that they are available on an as-needed basis. | | | |
| 1.2.1.7 | | Develop a reporting tool to provide automated reports so that they are available on a set time schedule. | | | |
| **IDENTIFIER** | **USER STORY** | | **ACCEPTANCE CRITERIA** | |
| 1.2.2 | As DART Owner, I want standing **ad-hoc reports** available so that I can see both performance workload and application efficiency checks. | | Able to run and display reports listed in tasks. | |
|  | | **TASK** | | | |
| 1.2.2.1 | | The **Total Research Requests Workload** report should display all (new and amended) New Protocol Requests and Approved Protocol Request Weekly (Sun-Sat) Requests (Protocols), Monthly Requests (Protocols) and Users protocols with the ability to sort by [Protocol Type] (new or amendment). Each report should be collectively totaled for the work week (cut off times reflected in central standard time). The report should have the ability to display and sort. Incorporated into new Report 1 | | | |
| 1.2.2.2 | | The **Research Request Approved** report should calculate the total number of protocol requests, participants and data sources approved in the current reporting month for all requests, new and amendments. The report should have the ability to display and sort. Incorporated into new Report 1 | | | |
| 1.2.2.3 | | The **Research Request Initiated** report should capture the number of requests initiated in the DART application within the current reporting month. Incorporated into new Report 2 | | | |
| 1.2.2.4 | | The **Research Request Denied** report should capture the reasons for the requests to be "Closed" or "Denied" from the [Notes] field, all requests where the [Status] is "Closed" or "Denied" with a "Closed" or "Denied" date within the current reporting month. Incorporated into new Report 2 | | | |
| 1.2.2.5 | | The **Research Protocol Request Processing Time: Total Processing Time** report helps determine how long requests are taking to process. It should calculate the total number of days from [Initial Request Date] through [Approval Date] for all requests that have a [Status] of “Approved” and contain an [Approval Date] within the current month and any [Status] of “Approved” amendments with an [Approved Date] within the current month. The report should have the ability to display and sort. Incorporated into new Report 4 | | | |
| 1.2.2.6 | | The **Research Protocol Request Processing Time: By Approver** report helps determine how long requests are taking to process. It should calculate the total number of working days/hours for section to approve a new or amended protocol request. Each section should include all “new” research protocol requests that have a [Status] of “Approved” and contain an [Approval Date] within the current reporting month, all research protocol amendment requests with a [Status] of “Approved” within the current reporting month. The report should only total working hours/days (excluding weekends and federal holidays) for processing the new/amended research protocol request requests. The report should have the ability to display and sort. Incorporated into new Report 4 | | | |
| 1.2.2.7 | | The **Research Request Utilization Report (by Participant/User)** should display all [Approved] original requests with an [Approved Date] within the current month and any [Approved] amendments with an [Approved Date] within the current month where the amendment was used to add [Participants] to the request. The report is pulled to include, [Data Source Requested], [Data Sources Tab] and [Participants]. Totals should reflect the number of participants for each [Data Source Requested] and the total of [Participants] for each [Data Sources Tab]. Incorporated into new Report 3 | | | |
| 1.2.2.8 | | The **Research Request Utilization Report** provides requests by protocol. It should display all [Approved] original requests with an [Approved Date] within the current month and any [Approved] amendments with an [Approved Date] within the current month where the amendment was used to add [Participants] to the request. The report is pulled to include, [Data Source Requested], [Data Sources Tab] and [Participants]. Totals should reflect the number of participants for each [Data Source Requested] and the total of [Participants] for each [Data Sources Tab]. Incorporated into new Report 4 | | | |
| 1.2.2.9 | | The **Research Request Submitted for NDS Initial Review** report provides requests received by user and protocol. It should capture the number of requests [Submitted] for "NDS Initial Review" within the current reporting month. Incorporated into new Report 4 | | | |
| 1.2.2.10 | | The **Quarterly Average Working Days to Approval: All Research Requests** report provides how long approvals take. It should display by Month Approved, by Quarter and FY:   1. the number of requests and average number of working days from submission to “final NDS approval” for all research requests for each approving step. 2. the average number of working days from submission to final NDS approval. Incorporated into new Report 4 | | | |
| 1.2.2.11 | | The **Quarterly Average Working Days to Approval: Real SSN Research Requests** report provides how long real SSN approvals take. It should display by Month Approved, by Quarter & FY:   1. the number of requests and average number of working days from submission to “final NDS approval” for real SSN research requests. 2. the number of requests and average number of working days from “request for ORD review” to “ORD approval” for real SSN research requests. 3. the number of initial requests for real SSN data (first request for project or amendment that adds SSN for the first time) and for these, the average number of working days from “request for ORD review” to  “ORD  approval”  and from submission to final NDS approval. 4. the number of initial requests for real SSN data (first request for project or amendment that adds SSN for the first time) with ORD approval by research site (include primary and secondary site (flagged). Incorporated into new Report 4 | | | |
| 1.2.2.12 | | The **Monthly List of Pending ORD Change Requests** report provides what requests are pending. It should display the Project ID, PI, Date of “ORD Change Request,” and the number of days from Change Request to report generation; sort by longest wait. Incorporated into new Report 3 | | | |
| 1.2.2.13 | | The **Monthly List of Requests Denied** report provides what requests are denied. It should display (for any reviewer): Project ID, PI, and the Reviewer Denying the Request. Incorporated into new Report 2 | | | |
| **IDENTIFIER** | | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.2.3 | | As DART Owner, I want standing **automated reports** available so that I can see both performance workload and application efficiency checks. | Able to run and display reports listed in tasks. | |
|  | | **TASK** | | | |
| 1.2.3.1 | | The **Total Research Requests Workload** report should display all (new and amended) New Protocol Requests and Approved Protocol Request Weekly (Sun-Sat) Requests (Protocols), Monthly Requests (Protocols) and Users protocols with the ability to sort by [Protocol Type] (new or amendment). Each report should be collectively totaled for the work week (cut off times reflected in central standard time). The report should have the ability to display and sort. Incorporated into new Report 1 | | | |
| 1.2.3.2 | | The **Research Request Approved** report should calculate the total number of protocol requests, participants and data sources approved in the current reporting month for all requests, new and amendments. The report should have the ability to display and sort. Incorporated into new Report 1 | | | |
| 1.2.3.3 | | The **Research Request Initiated** report should capture the number of requests initiated in the DART application within the current reporting month. Incorporated into new Report 2 | | | |
| 1.2.3.4 | | The **Research Request Denied** report should capture the reasons for the requests to be "Closed" or "Denied" from the [Notes] field, all requests where the [Status] is "Closed" or "Denied" with a "Closed" or "Denied" date within the current reporting month. Incorporated into new Report 2 | | | |
| 1.2.3.5 | | The **Research Protocol Request Processing Time: Total Processing Time** report helps determine how long requests are taking to process. It should calculate the total number of days from [Initial Request Date] through [Approval Date] for all requests that have a [Status] of “Approved” and contain an [Approval Date] within the current month and any [Status] of “Approved” amendments with an [Approved Date] within the current month. The report should have the ability to display and sort. Incorporated into new Report 4 | | | |
| 1.2.3.6 | | The **Research Protocol Request Processing Time: By Approver** report helps determine how long requests are taking to process. It should calculate the total number of working days/hours for section to approve a new or amended protocol request. Each section should include all “new” research protocol requests that have a [Status] of “Approved” and contain an [Approval Date] within the current reporting month, all research protocol amendment requests with a [Status] of “Approved” within the current reporting month. The report should only total working hours/days (excluding weekends and federal holidays) for processing the new/amended research protocol request requests. The report should have the ability to display and sort. Incorporated into new Report 4 | | | |
| 1.2.3.7 | | The **Research Request Utilization Report (by Participant/User)**  should display all [Approved] original requests with an [Approved Date] within the current month and any [Approved] amendments with an [Approved Date] within the current month where the amendment was used to add [Participants] to the request. The report is pulled to include, [Data Source Requested], [Data Sources Tab] and [Participants]. Totals should reflect the number of participants for each [Data Source Requested] and the total of [Participants] for each [Data Sources Tab]. Incorporated into new Report 3 | | | |
| 1.2.3.8 | | The **Research Request Utilization Report** provides requests by protocol. It should display all [Approved] original requests with an [Approved Date] within the current month and any [Approved] amendments with an [Approved Date] within the current month where the amendment was used to add [Participants] to the request. The report is pulled to include, [Data Source Requested], [Data Sources Tab] and [Participants]. Totals should reflect the number of participants for each [Data Source Requested] and the total of [Participants] for each [Data Sources Tab]. Incorporated into new Report 4 | | | |
| 1.2.3.9 | | The **Research Request Submitted for NDS Initial Review** report provides requests received by user and protocol. It should capture the number of requests [Submitted] for "NDS Initial Review" within the current reporting month. Incorporated into new Report 4 | | | |
| 1.2.3.10 | | The **Quarterly Average Working Days to Approval: All Research Requests** report provides how long approvals take. It should display by Month Approved, by Quarter and FY:   1. the number of requests and average number of working days from submission to “final NDS approval” for all research requests for each approving step. 2. the average number of working days from submission to final NDS approval. Incorporated into new Report 4 | | | |
| 1.2.3.11 | | The **Quarterly Average Working Days to Approval: Real SSN Research Requests** report provides how long real SSN approvals take. It should display by Month Approved, by Quarter & FY:   1. the number of requests and average number of working days from submission to “final NDS approval” for real SSN research requests. 2. the number of requests and average number of working days from “request for ORD review” to “ORD approval” for real SSN research requests. 3. the number of initial requests for real SSN data (first request for project or amendment that adds SSN for the first time) and for these, the average number of working days from “request for ORD review” to  “ORD  approval”  and from submission to final NDS approval. 4. the number of initial requests for real SSN data (first request for project or amendment that adds SSN for the first time) with ORD approval by research site (include primary and secondary site (flagged). Incorporated into new Report 4 | | | |
| 1.2.3.12 | | The **Monthly List of Pending ORD Change Requests** report provides what requests are pending. It should display the Project ID, PI, Date of “ORD Change Request,” and the number of days from Change Request to report generation; sort by longest wait. Incorporated into new Report 3 | | | |
| 1.2.3.13 | | The **Monthly List of Requests Denied** report provides what requests are denied. It should display (for any reviewer): Project ID, PI, and the Reviewer Denying the Request. Incorporated into new Report 2 | | | |

### Add-Remove Review

This enhancement to DART will affect the Initial NDS Reviewer’s ability to select and deselect reviews as needed. Adding or removing a review will have an effect on the tracking history, status timeline, and status percentage complete information. Additionally, the reason for change will need to be captured in Communications and disseminated to the requestor.

Table 7: Add-Remove Review

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EPIC 1.3:** DART needs ability to select and deselect reviews as needed. | | | | |
| **IDENTIFIER** | **USER STORY** | | **ACCEPTANCE CRITERIA** | |
| 1.3.1 | As an Initial NDS Reviewer, I want DART modified so that previously specified additional reviews can be added and/or removed. | | Able to add or remove an additional review. | |
|  | **TASK** | | | |
| 1.3.1.1 | Modify the NDS Decision Page so that an NDS Reviewer is allowed to select and deselect additional reviews post Initial NDS Review Complete and prior to Final NDS Approval. | | | |
| 1.3.1.2 | Modify the NDS Decision Page so that already checked selections are not greyed-out and can be deselected. | | | |
| 1.3.1.3 | Modify the NDS Decision Page so that if the NDS Reviewer selects or deselects additional reviews, an informational message of “Additional review changes are ready to be submitted!” is displayed below the SUBMIT REVIEW section title using the green informational message CSS style. Do not display message if original selections have not changed. | | | |
| 1.3.1.4 | Modify the NDS Decision Page so that post Initial NDS Review Complete and prior to Final NDS Approval remove the following buttons: “Complete Initial Review”, “Request Changes”, and “Deny." | | | |
| 1.3.1.5 | Modify the NDS Decision Page so that post Initial NDS Review Complete and prior to Final NDS Approval remove the “Error!” message “Error: Initial NDS review has already been submitted (Approved).” | | | |
| 1.3.1.6 | Modify the NDS Decision Page so that post Initial NDS Review Complete has a yellow button labeled “Change Reviews." See Proposed Change Reviews NDS Decision Page graphic below in Figure 2. | | | |
| 1.3.1.7 | Modify the NDS Decision Page so that if the “Change Reviews” button is selected and all reviews are removed, the request status is set to “Request Sent for Final NDS Review” with related functionality and buttons. | | | |
| 1.3.1.8 | Modify the NDS Decision Page so that upon Submit of Additional Review Change communication, for any review that is withdrawn, that Request is removed from the affected Group’s To-Do List but the Request is kept available in their Group’s Request Administration queue. | | | |
| 1.3.1.9 | Modify the NDS Decision Page so that upon Cancel of Additional Review Change communication, the Additional Review Change window is closed and return passed to the NDS Decision page. | | | |
| 1.3.1.10 | Modify the NDS Decision Page so that if the “Change Reviews” button is selected and no changes have been made, an “Error!” message “Error: No changes to additional reviews have been made” is displayed. Then clear the error message when additional reviews are changed or the NDS Reviewer navigates away from the page.This requirement is no longer needed as the request button only becomes active once a review has been changed | | | |
| 1.3.1.11 | Modify the NDS Decision Page so that if the NDS Reviewer makes changes to the additional reviews selections but navigates to another page before selecting the “Change Reviews” button, the changes do not persist. | | | |
| 1.3.1.12 | Modify the NDS Decision Page so that an additional review that is already approved can be withdrawn. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.3.2 | As the DART Business Owner, I want DART modified so that the history of a request reflects changes to the additional reviews. | Able to verify that the History Display shows correct changes to additional reviews. | |
|  | **TASK** | | | |
| 1.3.2.1 | Modify the history so that upon Submit of Additional Review Change communication, a History event of “Additional Reviews Changed by NDS” is added with date and time stamp with Initiator. See Proposed History Display below Figure 3. | | | |
| 1.3.2.2 | Modify the history so that after an “Additional Reviews Changed by NDS” event, the changes are entered in additional reviews starting with reviews that have been withdrawn and then reviews that have been added. | | | |
| 1.3.2.3 | Modify the history so that for removed reviews, “Request Withdrawn from [Group] Review” is entered with date and time stamp with Initiator. [Group] refers to the approving authority that was removed. Repeat for each additional review removed. | | | |
| 1.3.2.4 | Modify the history so that for added reviews, the standard event language of “Request Sent for [Group] Review” is entered with date and time stamp with Initiator. [Group] refers to the approving authority that was added. Repeat for each additional review added. | | | |
| 1.3.2.5 | Modify the history so that if all reviews are removed, “Request Sent for Final NDS Review” is added after the above History entries. | | | |
| 1.3.2.6 | Modify the history so that if a review that has already been approved is subsequently withdrawn, the previous approval entry is left intact. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | | |
| 1.3.3 | As the DART Business Owner, I want DART modified so that the Request Status elapsed time display reflects the changes. | Able to verify that the Request Status Display shows the correct changes. | | |
|  | **TASK** | | | |
| 1.3.3.1 | Modify the Request Status Elapsed Time Display so that if a review is withdrawn from a request, that review is indicated as “Withdrawn” in the Request Status display. See Privacy example in the Proposed Request Status Display graphic below in Figure 4. | | | |
| 1.3.3.2 | Modify the Request Status Elapsed Time Display so that for a Withdrawn review, a grey CSS style is displayed. See Privacy example in the Proposed Request Status Display graphic below in Figure 4. | | | |
| 1.3.3.3 | Modify the Request Status Elapsed Time Display so that the elapsed days for a Withdrawn review for a Reviewer are the Request Withdrawn from [Group] Review date minus the Request Sent for [Group] Review date. | | | |
| 1.3.3.4 | Modify the Request Status Elapsed Time Display so that the elapsed days for a Withdrawn review for a Requestor remain unchanged. | | | |
| 1.3.3.5 | Modify the Request Status Elapsed Time Display so that the elapsed days for a Withdrawn review are added to the Reviewer Actual Total. | | | |
| 1.3.3.6 | Modify the Request Status Elapsed Time Display so that if a review is added to a request, that review is added to the Request Status display per existing functionality. | | | |
| 1.3.3.7 | Modify the Request Status Elapsed Time Display so that the elapsed days for a Reviewer for an added review follow existing methodology whereby the counter begins on the date assigned and completes upon disposition (approved/denied) excepting for periods of Change Requested events. | | | |
| 1.3.3.8 | 1.3.3.8 Modify the Request Status Elapsed Time Display so that if a review that has been previously withdrawn is subsequently added back, its display status  “Withdrawn” remains "Withdrawn" and a new line item is added as “Waiting for Review” (including CSS style) and begins with zero elapsed time and builds from there. | | | |
| 1.3.3.9 | Modify the Request Status Elapsed Time Display so that if a previously approved review is withdrawn, the displayed status is changed from “Approved” to “Withdrawn”. The elapsed days will remain the same. | | | |
| 1.3.3.10 | Modify the Request Status Elapsed Time Display so that all other functionality remains the same. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | |
| 1.3.4 | As an Initial NDS Reviewer, I want DART modified so that I am able to document the reason for changing the additional reviews. | Able to verify correct changes to the Additional Review Change Window, NDS Decision Page, and Communications Page. | |
|  | **TASK** | | | |
| 1.3.4.1 | Modify the NDS Decision Page so that upon selection of Change Reviews button, a new communication window labeled “Additional Review Change” pops up. See Proposed Additional Review Change Window graphic below in Figure 5. | | | |
| 1.3.4.2 | Modify the NDS Decision Page so that the “Additional Review Change” window is a standard communications window with a Topic field, Message field, and Cancel and Submit buttons in the same communications window CSS style currently used. See Proposed Additional Review Change Window graphic below in Figure 5. | | | |
| 1.3.4.3 | Modify the NDS Decision Page so that the Topic field is pre-populated with the words “Additional Reviews Have Changed” and the field is editable. | | | |
| 1.3.4.4 | Modify the NDS Decision Page so that the Topic field is limited to 180 characters. | | | |
| 1.3.4.5 | Modify the NDS Decision Page so that upon submit of Additional Review Change communication, an Additional Review Change email notification is sent to Requestors who are selected for notifications. See email notification format in Requirement 1.3.5.2 below. | | | |
| 1.3.4.6 | Modify the NDS Decision Page so that upon submit of Additional Review Change communication, an email notification is sent to the added review Groups per existing functionality. | | | |
| 1.3.4.7 | Modify the Communications Page so that upon submit of Additional Review Change communication, a message is added to the Request’s Communication page using the Topic “Additional Reviews Have Changed”, the Author, Date, and Message. | | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** | | |
| 1.3.5 | As an Initial NDS Reviewer, I want DART modified so that the Requestor of changes to the additional reviews is notified. | Able to verify that the requestor has been properly notified of changes to additional reviews. | | |
|  | **TASK** | | | |
| 1.3.5.1 | Modify the Additional Review Change Email Notification so that the message is in Times New Roman font. | | | |
| 1.3.5.2 | Modify the Additional Review Change Email Notification so that the email message layout is a follows:  From: PII [mailto:PII ]  Sent: [Date\_Time] To: [Requestor] Subject: DART: [Tracking\_Number] - [PI\_Lastname] - [Topic]  Study Name: [Study\_Name] Date Reviews Changed: [Date\_Time\_Changed] Principal Investigator: [Principal\_Investigator]  Tracking Number: [Tracking\_Number]  The additional reviews for this request have changed. See message below for details.  Message: [Message]  You can review this request by clicking on the following link: https://DNS .DNS :PORT/vinci\_dart\_client/dart9/dashboard.html | | | |
| 1.3.5.3 | Modify the Additional Review Change Email Notification so that [Topic] is the Topic field from the Additional Review Change communication. | | | |
| 1.3.5.4 | Modify the Additional Review Change Email Notification so that [Message] is the Message field from the Additional Review Change communication. | | | |
| 1.3.5.5 | Modify the Dashboard Queue so that for requests in process, the status percentage in the queue is adjusted for all users to reflect added and withdrawn reviews. | | | |
| 1.3.5.6 | Modify the Dashboard Queue so that withdrawn reviews will not be used in calculating the percent complete. | | | |

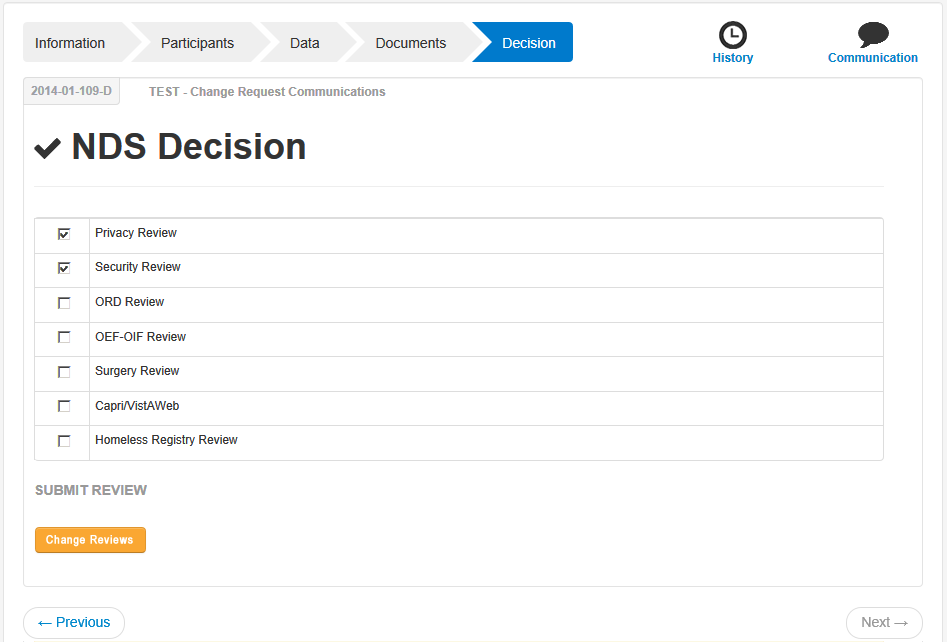


Figure 2: Proposed Change Reviews NDS Decision Page

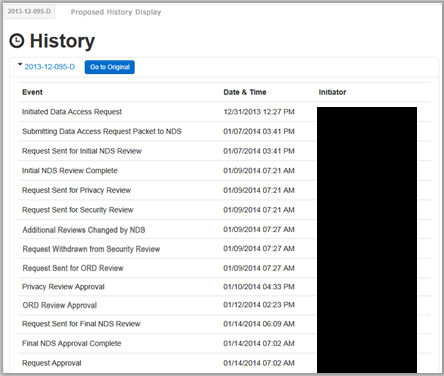


Figure 3: Proposed History Display

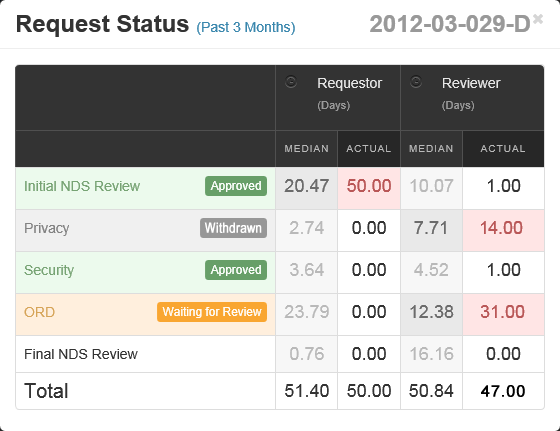


Figure 4: Proposed Request Status Display

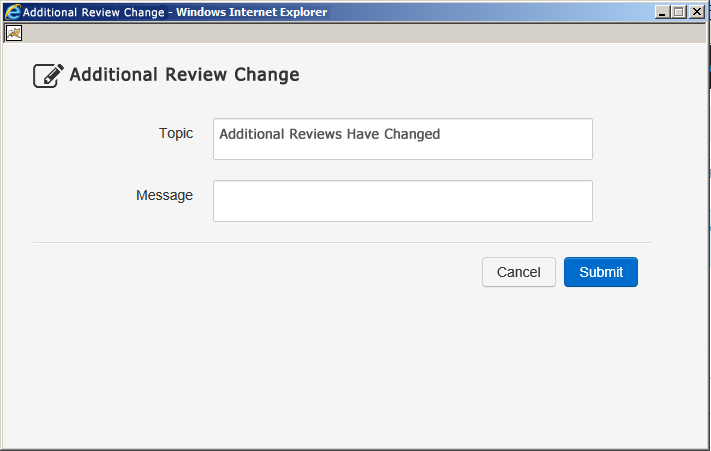


Figure 5: Proposed Additional Review Change Window

### Data Sources by Individual

This enhancement to DART will allow the end-user the ability to distinguish which user requires access to data sources that are provided on an individual basis.

Table 8: Data Sources by Individual

|  |  |  |
| --- | --- | --- |
| **EPIC 1.4:** DART needs to allow the user to select which requestors require access to certain data sources. | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.4.1 | As a DART Principal Investigator, I want to be able to distinguish requestor access so that requesting data sources by individual is simplified. | Able to select which requestors require access to certain data sources. |
|  | **TASK** | |
| 1.4.1.1 | Modify the Data Sources Page to add a pop-up box so that I have the ability to select which requestors require access to certain data sources that exist within the current system. | |

### Request Changes Communication

This enhancement to DART will improve communications by incorporating topic elements in the subject lines of communications emails and include the actual message being sent.

Table 9: Request Changes Communication

|  |  |  |
| --- | --- | --- |
| **EPIC 1.5:** DART needs to improve communications by adding topic elements and by reformatting the email notification. | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.5.1 | As a DART Reviewer, I want modifications so that the Topic is added to the subject line of the Request Changes email sent to the Requestor. | Able to verify that the topic is added to the subject line of email notification as specified. |
|  | **TASK** | |
| 1.5.1.1 | Modify the Request Changes email notification so that additional fields are added for the Requestor of: [Topic] Date Change Requested: [Date\_Time\_Requested] Message: [Message] | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.5.2 | As a DART Reviewer, I want modifications so that the Request Changes message from communications is added to the Request Changes email for the Requestor. | Able to verify that topic has been captured properly. |
|  | **TASK** | |
| 1.5.2.1 | Modify the Request Changes email notification so that the Topic captured in the Request Changes communication is appended to the existing DART Request Changes email notification in the Requestor subject line following the [Review\_Group] field. See email format in Requirement 1.5.3.3 below. | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.5.3 | As a DART Reviewer, I want the Request Changes email that is sent to the Requestor modified so that it is more informative. | Able to verify that Request Changes email functions as detailed in tasks. |
|  | **TASK** | |
| 1.5.3.1 | Modify the Request Changes email notification so that the Requestor receives an email formatted per Requirement 1.5.3.3 below. | |
| 1.5.3.2 | Modify the Request Changes email notification so that the message is in the Times New Roman font. | |
| 1.5.3.3 | Modify the Request Changes email notification so that it looks as follows:  From: PII [mailto:PII ]  Sent: [Date\_Time]  To: [Requestor]  Subject: DART: [Tracking\_Number] - [PI\_Lastname] - DART - Change Requested by [Reviewer\_Group] - [Topic]  Tracking Number: [Tracking\_Number]  Study Name: [Study\_Name]  Principal Investigator: [Principal\_Investigator]  Date Change Requested: [Date\_Time\_Requested]  Following its review, [Reviewer\_Group] has requested a change or additional information for this DART request. Please review the message below and use DART to take the action requested. If you have questions you may respond to the reviewer through the DART Communications function. The current status of this request is “Change Request.” Once you have taken the action requested, be sure to resubmit the request through DART so the request status will be updated.  Message: [Message]  You can review the full request by clicking on the following link: https://DNS .DNS :PORT/vinci\_dart\_client/dart9/dashboard.html | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.5.4 | As a DART Reviewer, I want the Change Request Completed email modified so that it is more informative. | Able to verify that Request Completed email functions as detailed in tasks. |
| **IDENTIFIER** | **TASK** | |
| 1.5.4.1 | Modify the Change Request Completed email notification so that an additional field is added for the Requestor of Date Change Submitted: [Date\_Time\_Submitted] | |
| 1.5.4.2 | Modify the Change Request Completed email notification so that the Requestor sends an email formatted per Requirement 1.5.4.4. | |
| 1.5.4.3 | Modify the Change Request Completed email notification so that the message is in the Times New Roman font. | |
| 1.5.4.4 | Modify the Change Request Completed email notification so that it looks as follows:  From: PII [mailto:PII ]  Sent: [Date\_Time]  To: [Reviewer\_Group]  Subject: DART: [Tracking\_Number] - [PI\_Lastname] - DART - Change Requested by [Reviewer\_Group] - Submitted  Study Name: [Study\_Name]  Date Change Submitted: [Date\_Time\_Submitted]  Principal Investigator: [Principal\_Investigator]  Tracking Number: [Tracking\_Number]  Reminder: Please click on the Communications icon located in the top right hand corner to view any communications that may have been sent for your review or action.  You can review this request by clicking on the following link: https://DNS .DNS :PORT/vinci\_dart\_client/dart9/dashboard.html | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.5.5 | As a DART Reviewer, I want the Communication page modified so that the Request Changes communication Topic is reflected on the Communication page. | Able to verify that Request Changes communication functions as detailed in tasks. |
| **IDENTIFIER** | **TASK** | |
| 1.5.5.1 | Modify the Communication page for all users so that the standard Topic text blurb for a Request Changes communication is changed from “VINCI Dart Request Change Required” to what is entered in the Topic field in the Request Changes Window. | |

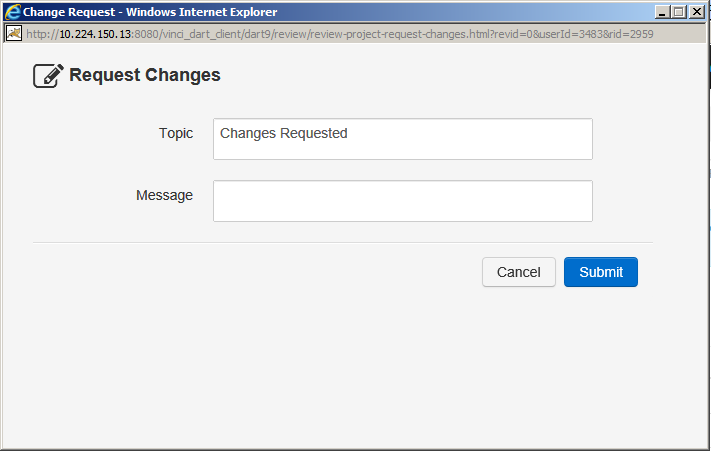


Figure 6: Request Changes Window

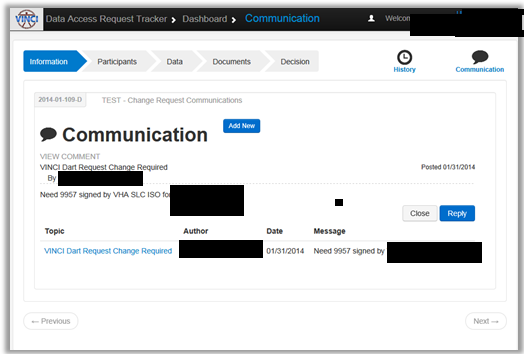


Figure 7: Current Communication Page

### Performance Improvements

This improvement to DART is meant to decrease the amount of time it takes to load requests and switch between pages of the request.

Table 10: Performance Improvements

|  |  |  |
| --- | --- | --- |
| **EPIC 1.6:** DART needs performance improvements on loading requests and page switching. | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.6.1 | As the DART user, I require performance improvements so that using the application is more productive. | Able to verify performance improvements to DART as details in tasks. |
|  | **TASK** | |
| 1.6.1.1 | This requirement is no longer needed as the modified 1.6.1.2 handles the desired performance issue | |
| 1.6.1.2 | Modify DART to improve performance so that requests, especially those with lots of amendments, load faster by eliminating document related bottlenecks. | |

### Participant Tracking

This enhancement to DART allows reviewing authorities to quickly see at-a-glance the participant status for all personnel.

Table 11: Participant Tracking

|  |  |  |
| --- | --- | --- |
| **EPIC 1.7:** DART needs to allow viewing of the participant status of all personnel. | | |
| **IDENTIFIER** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.7.1 | As a DART Reviewer, I want to know when a participant was added to or deleted from a request so that I know what has changed. | Able to verify that participant statuses can be viewed and functions as detailed in tasks. |
|  | **TASK** | |
| 1.7.1.1 | Modify the Participants & Locations table so that a column is added for a date field before Name field. See Figure 8 below. | |
| 1.7.1.2 | Modify Participant Tracking so that the label for the date column is “Added (Deleted)”. See Figure 8 below. | |
| 1.7.1.3 | Modify Participant Tracking so that deleted dates are shown in brackets in red text following added date. | |

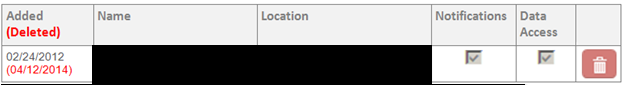


Figure 8: Proposed Participants and Locations Table

## Graphical User Interface (GUI) Specifications

DART GUI is a web application built using HTML5, CSS3, JavaScript, Bootstrap, Mustache templates, AJAX, and JSON.

## Multi-divisional Specifications

Multi-Divisional specifications are generally captured in each individual requirement specification. See Section 2.6 for the list of specifications.

## Performance Specifications

### Performance

* DART system will have SLA of 95% uptime.
* DART solution will have fail over capability.

### Capacity

In accordance with VINCI standards, the DART application capacity will need to meet the criteria shown in Table 19 below per the VINCI Business Requirements Document Section 8.2.

Table 19: Service Level Requirements (SLR) - Capacity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EPIC 1.15:** In accordance with VINCI(E) standards, the DART application capacity will need to meet the following criteria. | | | | |
| **NONF ID** | **SLR Question** | **SLR Criteria** | **Description** |
| 1.15.1 | How many users will be on the system hourly? | DART - 50 | NA |
| 1.15.2 | How many transactions will each average user perform each hour? | DART - 5 | Predicted number of transactions is 250 data access requests per year. |
| 1.15.3 | What are the anticipated peak user times during the day? | Business day from 8AM ET through 5PM HA | NA |
| 1.15.4 | What is the anticipated peak transaction load (when do you think that there will be the most transactions being performed on the system) during the day? | Business Day from 9AM ET through 3PM HA | NA |
| 1.15.5 | How many new users will be added in one year? | DART - 1,000 | NA |
| 1.15.6 | How many more (if any) transactions will be added in one year? | DART - 200% | NA |
| 1.15.7 | What kind of information will be stored? (Specify average of each kind per month) | DART - Data user, study, and supporting documentation | NA |
| 1.15.8 | What kind of search capacity is required? | DART - Medium | Medium (11-1000 per hour) |
| 1.15.9 | What type of system(s) is/are required? | Intranet (All VA)  Internet (public) | NA |
| 1.15.10 | Is there a need for heavy application reporting? If yes, when? | DART - Weekly | NA |

### Availability

In accordance with VINCI standards, the DART application will need to meet the criteria for availability as shown in Table 20 below per the VINCI Business Requirements Document Section 8.1.

Table 20: Service Level Requirements (SLR) - Availability

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EPIC 1.16:** In accordance with VINCI(E) standards, the DART application availability will need to meet the following criteria. | | | | |
| **NONF ID** | **SLR Question** | **SLR Criteria** | **Description** |
| 1.16.1 | How much time should the system be available (and how much down time is acceptable due to incident [unexpected] outage)? | DART - 3 business days downtime | Downtime does not include planned outages for maintenance which generally occur during non-business hours |
| 1.16.2 | When should the system be available (what will be the core operating hours of the system)? | DART - During business hours | DART is generally used by users during working hours. |
| 1.16.3 | How soon should the system fully recover from an outage? (Includes Mean Time to Restore [MTRS]) | DART - 1 business day | DART, VINCI Central, and VINCI Workspace systems employ redundancy and should not experience unavailability to end user. |
| 1.16.4 | How much data will be restored when outage is recovered? | DART - Full restoration | DART has real-time duplication of database to prevent loss. |
| 1.16.5 | What time period should be considered for maintenance periods? | Late Friday through midnight Sunday Eastern Time. | NA |
| 1.16.6 | What standard time zone will the system operate in? | Eastern, Central, Mountain, Pacific, and Hawaii-Aleutian (HA) | Encompasses all VA facilities throughout the US minus territories |

## Quality Attributes Specification

The DART Project Team is familiar with all aspects of releasing software to the VA following ProPath guidelines for its Class 1 software. All software is written following One-VA Technical Reference Model (TRM) and 508 guidelines for GUI development. Additionally, internal code review and development checklists will be created to ensure compliance to standards.

## Reliability Specifications

The software will be released with zero high or medium impact defects. Test defect logs will be submitted after internal Quality Assurance (QA) and testing for VA review.

The enterprise DART database reliability specifications have yet to be determined.

* Availability – the system shall be available 24/7.
* Mean Time To Repair (MTTR) – System down time shall be a maximum of 24 hours depending on the nature of the failure. For example, if the servers that are allocated to go down (for whatever reason) it is likely they could be brought back on line in a 24 hour period because the problem would be relegated to the servers themselves and not some kind of environmental catastrophe. If the failure is due to a more widespread problem, such as a fabric failure at AITC - Austin, the down time could be greater than 24 hours.
* Accuracy – The system shall return entries exactly as they were passed with no modification.
* Defect repair – It is expected that all defects related to the implementation get resolved during initial development and subsequent UAT testing.
* When the system goes live in Production the development team will address defects of a critical nature that are deemed “show stoppers.” Enhancement requests made after go-live will be logged for consideration in a future, coordinated release.

## Scope Integration

The DART application will perform at the same specification as the currently deployed version of the application.

## Security Specifications

DART system shall remain behind the VA firewall and subject to VA security initiatives and protocols. DART will exchange PII or other data that would be deemed sensitive and therefore there is a need for encryption of the data that is exchanged between DART and external data bases DART. Sign on shall be in compliance with VA security and privacy standards.

Ensure the proposed solution meets all VHA Security, Privacy, and Identity Management requirements, including VA Handbook 6500. DART follows all VA security directives and guideline s from National Institute of Standards and Technology (NIST), Federal Information Security Management Act (FISMA), and RiskVision. DART is housed within VINCI at AITC which provides physical security and follows best practices. A continuous monitoring plan has been implemented which reviews key security controls for regular monitoring.

## System Features

The DART application software features are captured in Section 2.6 above.

## Usability Specifications

The DART application usability specifications are captured in Table 21 below.

Table 21: Usability Specifications

| **EPIC 1.17:** The following Usability/User Interface requirements must be built into VINCI enhancements, if applicable. | |
| --- | --- |
| **NONF ID** | **Description** |
| 1.17.1 | Left align content in table cells to facilitate quick visual scan. |
| 1.17.2 | Left align text for column headers to facilitate visual scan and make columns and content appear more organized. |
| 1.17.3 | Used mixed case instead of all caps whenever possible (e.g., dropdown list items, table data, table headers, hyperlinks, tab names.). Limit the use of “all caps” throughout the application. |
| 1.17.4 | Simplify button labels. Re-label buttons to reflect standard terminology that is common in web interfaces and other applications (e.g., “Cancel”). Emphasize the action being performed in the most succinct way possible. Minimize redundancy in text/terminology that is used to convey the same action |
| 1.17.5 | Left align page/section titles to anchor titles in consistent locations regardless of window sizing. |
| 1.17.6 | Labels for fields should be left aligned to facilitate quick visual scan and make forms and field groupings appear more organized. |
| 1.17.7 | Use colors such as red and green only for status driven content. Avoid using red for text/content, links, button labels, etc. This will reduce risk for user error, improve link discoverability, and facilitate understanding of differences in navigation/actions/content. It will also help users to isolate important status information (using red, green, etc.) from other less important when viewing and processing information provided to them on a page. |
| 1.17.8 | Provide visual separation between the navigation space and the main content area. |
| 1.17.9 | Add field level validation and notification of missing information on the same page without launching a new window or navigating to another page. |
| 1.17.10 | Make all text hyperlinks appear consistent in style. |
| 1.17.11 | Make drop-down selection box widths appropriate for content and visual appeal. |
| 1.17.12 | Use standard and always visible radio buttons for “Yes/No” options instead of requiring the user to click in a drop down box and then click to select the “Yes” or “No” option. |
| 1.17.13 | Use standard date and time selection widgets. Where date and time are selected/picked from a standard widget, also provide direct data entry to support keyboard navigation. Enable field level validation immediately upon entry. Include instructional format text within the field entry box. |
| 1.17.14 | Provide standard sort behavior and visual indications on columns in all tables. |
| 1.17.15 | Define and adhere to a standard model for use and design of controls, buttons, hyperlinks, and navigation elements. |
| 1.17.16 | Ensure the text is sized to be readable (for example, by using the 007 Rule to assure text size is readable for users with 20/40 vision. The formula: Text height = .007 \* distance between eyes and screen). |
| 1.17.17 | Place common navigation elements in consistent locations. |
| 1.17.18 | Place critical information “above the fold” (i.e., in the top portion of the screen that is immediately viewable). |
| 1.17.19 | Use consistent screen flow models, elements, and terms to support similar workflows. |
| 1.17.20 | Use consistently named buttons when action is the same (e.g., Add vs Save vs Submit). |
| 1.17.21 | Enable users to print views from where they are in the interface. Avoid requiring the user to “run a report” in order to print something that is viewable on the screen. |
| 1.17.22 | Provide field entry tool tips at the field location. Ensure consistency across the application in field labels, formats, location of tooltips, and tool tip text. |
| 1.17.23 | Provide visual indication of required fields. |
| 1.17.24 | Display field labels in close proximity to entry elements. |
| 1.17.25 | Use consistent elements to filter data. |
| 1.17.26 | Use consistent elements to sort data. |
| 1.17.27 | Use consistent model for display, layout, and grouping of data entry fields. |
| 1.17.28 | Provide alternate row shading in lengthy tables of data, form elements, etc. |
| 1.17.29 | Ensure the icons are recognized by users. |
| 1.17.30 | Provide some “white space” between status icons in report views, white board views, etc. |
| 1.17.31 | Auto-populate default values in entry/selection fields when possible and appropriate. |
| 1.17.32 | Visual differentiate status icons from clickable icons, when appropriate. |
| 1.17.33 | Define and support the appropriate user tab sequence through fields in forms in order to support keyboard navigation when entering data in forms. |
| 1.17.34 | Define and adhere to standard to action button placement on screens, forms, etc. |
| 1.17.35 | Visually distinguish the primary action button on a page. |
| 1.17.36 | Consistently use screen elements, action elements, workflow sequences within/across screen, language, etc. |
| 1.17.37 | Provide error messages in user-centric language with specific instructions on the meaning of the error and how to recover from it. Use error messages and method of display consistently across the interface. |
| 1.17.38 | Provide context-specific Help. |
| 1.17.39 | Do not use the term “sex” or any like abbreviations of that to represent gender. |

# Applicable Standards

GUI software will comply with requirements in the Section 508 Development Checklists.

## 508 Compliance Functionality

Section 508 of the Rehabilitation Act of 1973 and Rehabilitation Act Amendments of 1998 mandates that all software developed by federal agencies allow access to and use of information and data by individuals with disabilities. Section 508 enhancements to the DART application ensure accessibility for users with various disabilities without impacting software usability for our primary audience of users.

The DART application will be updated to ensure Section 508 Compliance with respect to requirements specified in the following checklists:

* 1194.21 Software applications and operating systems
* 1194.22 Web-based intranet and internet information and applications
* 1194.31 Functional performance criteria
* 1194.41 Information, documentation, and support

Table 22: 508 Compliance Functionality

|  |  |  |
| --- | --- | --- |
| **EPIC 1.18:** DART will continue to comply with Section 508 standards. | | |
| **NONF ID** | **USER STORY** | **ACCEPTANCE CRITERIA** |
| 1.18.1 | As a DART user, I want to continue to be able to use the DART application with assisted technology. | DART complies with Section 508 standards.  Able to use DART with Assistive Technologies in the same manner as non-disabled users. |
|  | **TASK** | | |
| 1.18.1.1 | Review and update DART for Section 508 compliance. | | |

# Interfaces

Any required or updated interfaces that are part of the VINCI Enhancements Project are detailed in Section 2.6. All other interfaces not part of the VINCI Enhancements Project will perform as the currently deployed version of the DART application.

## Communications Interfaces

Table 23 below provides a high-level description of the communication specifications for the DART application.

Table 23: DART Communication Specification

| **Communications**  **Protocol** | **Description** |
| --- | --- |
| Ethernet Communications Interface | Known as IEEE 802.3 as it was standardized by the Institute for Electrical and Electronics Engineers. |
| HTTP | Protocol for communication over the internet |
| TCP | Transmission Control Protocol for intranet |

## Hardware Interfaces

The DART application runs on a Microsoft Windows -based computer using Internet Explorer versions 9, 10, or 11.

## Software Interfaces

The DART application software interfaces are as displayed in Figure 13 below:

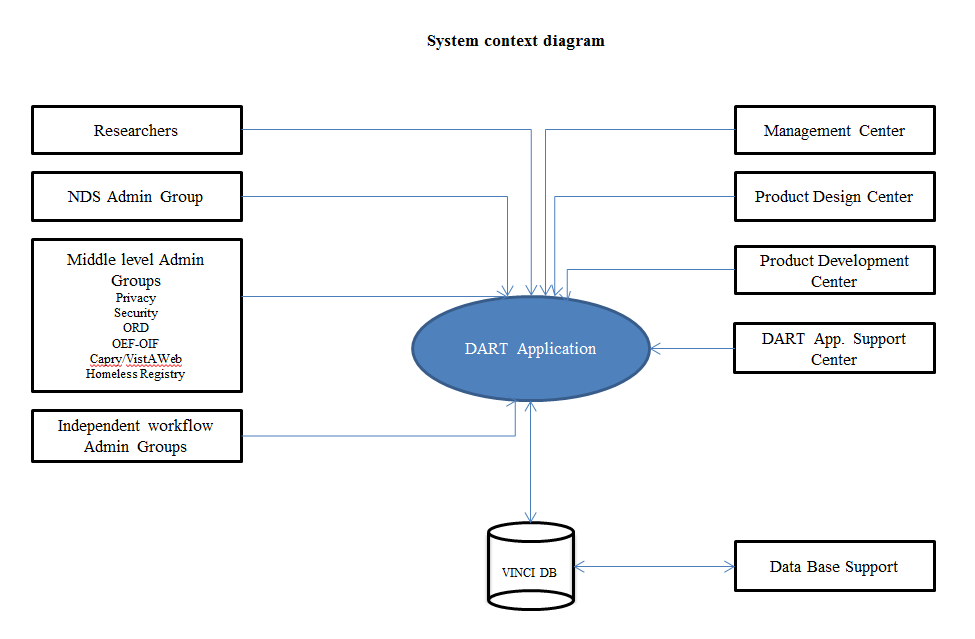


Figure 13: Application Context Diagram

## User Interfaces

The DART application user interface is a Java Web application.

# Legal, Copyright, and Other Notices

The DART application will be compliant with all VA Privacy Policy regulations.

# Purchased Components

The DART application is deployed on purchased components that make up the VINCI AITC infrastructure. The following hardware is in the process of being made available in parallel with this project:

* HP 16x BL460c Gen9 around (2x 2.5ghz 12 cores; 512gb of RAM; 2x 240gb SSD; 2x IB/Ethernet cards add-on; 2x C7000 Chassis with IB add-on)
* FortiGate 1500D Firewall
* DDN SSDs for 3 spare pool drives and to add another storage pool of 10 SSD drives
* DL560 Gen8 Server (HP DL560 Gen8 CTO Server (HP 16GB 2Rx4 PC3-14900R-13 Kit; HP 300GB 6G SAS 15K 2.5in SC ENT HDD; HP 800GB 12G SAS HE 2.5in EP SC SSD; HP 10GbE 2P 560FLR-SFP+ Adptr FIO Kit; HP 2GB FBWC for P-Series Smart Array; HP Ethernet 10Gb 2P 560SFP+ Adptr; HP TPM Module Kit; HP 81E 8Gb SP PCI-e FC HBA; HP BLc 10Gb SR SFP+ Opt)
* 3PAR 4-node 7400c with AO x (Tier-0 SSD with tier-2 NL drives; 12K20D-16FC with 5x SS8460 enclosures, 20x HMSHMS-3M cables, power and ICL cables, rail kits, licenses for SFA OS, dual UPSs and ATSs; 3TB 7,200 RPM 6Gb/s SAS; 800GB Read Intensive SSD 6Gb/s SAS drive module (read/write ratio 90/10), for less than 3 full writes /day)

# User Class Characteristics

There are three classes of users of the DART application. They are researchers, approving authorities, and a read-only administrator role. See Table 24 below for more details.

Table 24: User Classes

|  |  |  |
| --- | --- | --- |
| **Type of User** | **Description** | **Access and Responsibilities** |
| Primary Users | Researchers:   * DART Principal Investigator * DART User * DART Reviewer * DART Owner * DART Business Owner | Read/Write tools access to DART.  Responsible for submitting requests. |
| Primary Users | Approving Authorities:   * NDS Administrator * NDS Reviewer * ORD Reviewer | Read/Write access to DART.  Responsible for reviewing and approving requests. |
| Secondary Users | Administrators:   * DART Administrator | Read/View-only access to DART.  Responsible for viewing requests. |

# Estimation

Per the ProPath Requirements Specification Document (RSD) template, input from VA Office of Information and Technology (OIT) Product Development (PD) organization is required to provide estimates for completing the software functional size, effort, and duration on the VINCI Enhancements project. Per the template, the following instructions are provided.

Instructions

1. Contact The VA Office of Information and Technology (OIT) Product Development (PD) Process, Performance, and Oversight (PPO) Project Estimation Support to request an RSD-based Function Point Estimate
2. Request to have a results summary returned in the format of the following table.

**Table 25:   
Project Software Functional Size and Size-Based Effort and Duration Estimate Application**

**(TBD)**

| **Item** | **A** | **B** | **C** | **D** | **E** | **Total** |
| --- | --- | --- | --- | --- | --- | --- |
| **Counted Function Points** |  |  |  |  |  |  |
| **Estimated Scope Growth** |  |  |  |  |  |  |
| **Estimated Size at Release** |  |  |  |  |  |  |

| **Size-Based Effort Estimates** | **Labor Hours** | **Probability** |
| --- | --- | --- |
| **Low-Effort Estimate – With indicated probability, project will consume no more than:** |  |  |
| **High-Effort Estimate – With indicated probability, project will consume no more than:** |  |  |

| **Size-Based Duration Estimates** | **Work Days** | **Probability** |
| --- | --- | --- |
| **Low-Duration Estimate – With indicated probability, project will consume no more than:** |  |  |
| **High-Duration Estimate -- With indicated probability, project will consume no more than:** |  |  |

**Figure 14: Cumulative Probability (“S-curve”) Chart**

*[Insert Cumulative Probability (“S-curve”) Charts here*

# Approval Signatures

REVIEW DATE: May 2015

SCRIBE: PII

Signed:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PII

Integrated Project Team (IPT) Chair/Project Manager Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PII

DART Business Representative

Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PII

VINCI Business Sponsor Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PII , PhD

IT VINCI Program Manager Date

# Appendix A – Agile Methodology

Agile methodology is an alternative to traditional sequential project management (e.g., Waterfall), typically used in software development. It helps teams respond to unpredictability through incremental, iterative work cadences, known as sprints. A sprint is the basic unit of development in Scrum.

Sprints last between one week and one month, and are a "time-boxed," restricted to a specific duration, effort of a constant length. Each sprint is preceded by a planning meeting where the tasks for the sprint are identified and an estimated commitment for the sprint goal is made; and followed by a review or retrospective meeting where the progress is reviewed and lessons for the next sprint are identified. During each sprint, the team creates finished portions of a product. The set of features that go into a sprint come from the product backlog, which is an ordered list of requirements. Backlog items selected to go into the sprint, called the sprint goals, are determined during the sprint planning meeting.

DART requirement artifacts will be refined and developed within the framework of the Agile methodology. Within the Agile methodology, each business need documented in the DART backlog will be mapped to one or more Epic Stories. Each Epic Story will be broken down into appropriate User Stories, which will then be further developed into Technical Stories and Use Cases (if necessary). Finally, a Test Case will be developed for each of the defined User Stories. Please see Figure 15 and Figure 16 below for illustrations of these processes.



Figure 15 Agile Requirements Flow



Figure 16 Agile Requirements Workflow

# Appendix B – Acronyms and Definitions

Additional acronyms and definitions can be found in the OIT Master Glossary.

Table 26: Acronyms and Definitions

| **Acronym** | **Definition** |
| --- | --- |
| AITC | Austin Information Technology Center |
| BRD | Business Requirements Document |
| CAPRI | Compensation and Pension Record Interchange |
| CDW | Common Data Model |
| CR | Change Request |
| DART | Data Access Request Tracker |
| DSS | Decision Support System |
| FY | Fiscal Year |
| HIPAA | Health Insurance Portability and Accountability Act |
| ID | Identifier |
| IT | Information Technology |
| IM/IT | Information Management/Information Technology |
| IRB | Internal Review Board |
| MCA | Managerial Cost Accounting |
| NDE | National Data Extract |
| NDS | National Data System |
| NONF | Non-Functional Requirement |
| OEF | Operation Enduring Freedom |
| OIF | Operation Iraq Freedom |
| OI | Office of Information |
| OI&T | Office of Information & Technology |
| ORD | Office of Research and Development |
| PHI | Protected Health Information |
| PMAS | Program Management Accountability System |
| PPACA | Patient Protection and Affordable Care Act |
| QA | Quality Analyst |
| RSD | Requirements Specification Document |
| SAS | Science Analysis System |
| SDD | System Design Document |
| SLR | Service Level Requirements |
| SSN | Social Security Number |
| TRM | Technical Reference Model |
| TRR | Technical Readiness Review |
| TSPR | Technical Services Projects Repository |
| VA | Veterans Affairs |
| VHA | Veterans Health Administration |
| VINCI | VA Informatics and Computing Infrastructure |
| VIReC | VA Information Resource Center |
| VistA | Veterans Health Information System and Technology Architecture |

# Appendix C – Document Specifications

Table 27: Document Specifications

| **Artifact/Deliverable** | **Definition/Description** |
| --- | --- |
| Requirements Traceability Matrix (RTM) | The RTM uniquely identifies and tracks each requirement to ascertain it is accounted for in the development of the system or application. The matrix is designed to provide a simple reference for traceability during design, development, and testing. |
| Requirements Specification Document (RSD) | The RSD specifies the functions, business rules, data, and technology that are to be implemented by the solution. It documents what is required to meet the user community’s needs and the client’s expectations. |
| System Design Document (SDD) | The SDD translates the Requirements Specifications into a document from which the developers can create the actual system. It identifies the top-level system architecture, and identifies hardware, software, communication, and interface components. |
| Technical Readiness Review (TRR)  TRR Agenda  TRR Package Definition | A review to ascertain that the constructed system satisfies the stated requirements. |
| Master Test Plan | The MPT identifies the tasks and activities needed to be performed so that all testing aspects of the program are adequately tested and that new functionality can be successfully implemented. The MTP includes items to be tested, test strategy, test criteria, test deliverables, test schedule, test environments, staffing and training needs. |
| Test Cases/Test Scripts | A Test Case is a specific condition being executed within a system under test. A Test Case includes set up steps, input data, user interaction, expected and actual results, and the type of test or technique being performed. A Test Script is a collection of step-by-step instructions that defines a test and enables its execution. Test Scripts may take the form of either documented textual instructions that are executed manually or computer readable instructions that enable automated test execution. |
| Component Integration Testing | Product Component Integration testing is performed to expose defects in the interfaces and interaction between integrated components as well as verifying installation instructions. Artifacts created:   * Vista Software Quality Assurance Checklist * Test Evaluation * Updated Agile Defect Log (Agile Projects) |
| 508 Test Certification | Review and fix section 508 requirements and obtain accessibility certification that summarizes the level of compliance within the section 508 standards. |
| Formal Test Results | A description of the outcomes of a specific test execution and comparison of the actual test results to the expected results from the test case. Documents any variances that indicate further analysis is required. |
| Installation Guide | The Installation Guide is documented as part of the Production Operations Manual (POM).  Installation procedures, or an Installation Guide, are required user documentation component for national releases of products /patches to be installed on multiple platforms (e.g., client/server installations). Installation procedures provide the information necessary to install the software with little or no assistance from the software developers or support staff as well as Troubleshooting instructions and Back-out procedures. Installation procedures are a required documentation component and must be accessible according to the "Electronic and Information Technology Accessibility Standards" section 1194.41. |
| Release Notes | Release Notes describe changes to existing software and new features and functions of a subsequent release of software, which makes them useful as a marketing tool. |
| Security Guide | The Security Guide identifies and explains any unique and/or atypical features and miscellaneous information that may be of particular interest to security personnel (e.g., Information Security Officers [ISOs]), operations support, and other support groups. |
| Technical Manual | This section of the Production Operations Manual provides sufficient technical information about the software for programmers and technical personnel to operate and maintain the software with only minimal assistance from the product support personnel. |
| User Guide | A User Guide is a technical communication document intended to give assistance to people using a particular system. The User Guide contains both a written guide and the associated images. In the case of computer applications, it is usual to include screenshots of the human-machine interface(s), and hardware manuals often include clear, simplified diagrams. |
| Production Operations Manual (POM) | The Operations and Maintenance section defines the roles and responsibilities of each party involved in the delivery and support of the application/ service. In addition, the Project Manager creates the Operations and  Maintenance Plan and the Operations and Maintenance Responsibility Matrix, along with defining the specific roles and responsibilities for support of the product in production. |
| Software Code | The actual implementation of the system design in the chosen programming languages. |
| Lessons Learned | Lessons Learned during development cycle. |

# Appendix D – Data Protection/Back-up/Archive Requirements

The non-functional requirements in the table below should be reviewed, accessed, and tested while performing the development for the VINCI Enhancements Project. These requirements fulfill the business need, as stated in the VINCI Business Requirements Document (BRD), to develop and implement a plan for the data life cycle within the VINCI infrastructure.

**Table 28: Data Life Cycle Requirements**

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| --- | --- |
| **EPIC 2.1:** In accordance with VINCI (E) standards, the data storage architecture will need to meet the following criteria to minimize the amount of un-archived data at rest. | |
| **NONF ID** | **Requirement** |
| 2.1.1 | Provide ability to track all disk storage allocations. |
| 2.1.1.1 | Provide disk storage allocation for all projects including size, device, purpose, allocation, and expansion dates. |
| 2.1.1.2 | Provide the ability to categorize disk usage allocation by type of usage; i.e., database, file system, SAS Grid. |
| 2.1.1.3 | Provide the ability to monitor disk storage usage per project and storage device. |
| 2.1.1.4 | Provide the ability to request additional disk space and data archiving. |
| 2.1.1.5 | Provide the ability to view all disk allocation, usage, and archiving for each project. |
| 2.1.1.6 | Provide the ability to request additional disk allocations. |
| 2.1.1.7 | Provide the ability to release portions of a previously allocated disk allocation. |
| 2.1.1.8 | Provide the ability to allow an entire project or portions of it to be archived and taken offline. |
| 2.1.1.9 | Provide the ability to reintroduce portions or an entire project back online from archived records. |
| 2.1.1.10 | Provide quotas on disk storage allocation for each project. |
| 2.1.1.11 | Provide reviewing and rejection capability for large disk space request. |
| 2.1.2 | Provide slower and inexpensive disk storage alternative. |
| 2.1.2.1 | Procure hardware that will be a low cost disk storage option. |
| 2.1.2.2 | Provide the option to have disk storage online. |
| 2.1.2.3 | Provide backups/recovery through hardware interface. |
| 2.1.3 | Provide a systematic storage allocation system. |
| 2.1.3.1 | Provide a tiered storage allocation system that allows allocation growth on slower device. |
| 2.1.3.2 | Determine the size of each storage device from each tier that can be allocated to each project. |
| 2.1.3.3 | Provide different tier storage allocations to a project as sub-folders under the same project folder. |
| 2.1.3.4 | Provide the ability to borrow disk space for short periods to complete data analysis work. |
| 2.1.4 | Provide the ability to strategically archive completed and inactive project data. |
| 2.1.4.1 | Provide the ability to prioritize project archiving list from DART and SQL Server project database metadata. |
| 2.1.4.2 | Provide data storage usage and project tracking. |
| 2.1.4.3 | Provide periodic reports of resource utilization. |
| 2.1.4.4 | Provide the ability to send messages to projects that have been identified for archiving, request confirmation or feedback. |
| 2.1.4.5 | Provide the ability to generate a list of projects that are ready to be archived. |
| 2.1.4.6 | Provide the ability to archive project by backing up and take offline. |
| 2.1.4.7 | Provide periodic reports of project resource utilization. |
| 2.1.4.8 | Provide disk storage allocation for all completed and inactive projects including size, device, purpose, allocation and expansion dates. |
| 2.1.4.9 | Provide the ability to categorize disk usage allocation by type of usage; i.e. database, file system, SAS Grid. |
| 2.1.5 | Provide /add new high end storage devices. |
| 2.1.5.1 | Procure a DDN 12K-20 with approximately 300TB conventional disk, and 11TB usable SSD space. This will be used to migrate the high IO (input/output) requirement Hyper-V clusters to (SSD), and extend the other existing Tier 1 space (conventional disk). |