Health eTime User Guide Plus Step 1 and Step 2 Instructions and Requirements Traceability Matrix

For All Three VA Virtual Machines

MedRed LLC and BT Americas submission to the Department of Veterans Affairs 21st Century Medical Scheduling America Competes Contest (Challenge.gov)

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1. Introduction and Overview

1.1. About the Submission

The Health eTime submission for the Department of Veterans Affairs' 21st Century Medical Scheduling America Competes Contest is the product of a collaboration between MedRed LLC and BT Americas. Our approach reflects the combined experience and judgment of the partners in the areas of application development, VistA integration and health information technology deployment. In designing our approach and the application we were mindful of three overarching challenges that help to define the contest. First, as the contest materials make clear, the Department of Veterans Affairs (VA) has a comprehensive, expansive, continuously evolving set of needs and requirements. Second, the VA operates and maintains enterprise systems of unparalleled scale. Third, inherent in the Open Source focus of the contest is an unstated concern regarding software license costs and "vendor-in". Our team has extensive experience with these issues and we architected our plan, and the application, with that experience in mind. After first examining a multitude of commercial and custom scheduling products currently available in the market, we concluded that our submission should not consist of a poorly aligned, proprietary, "Commercial-off-the-Shelf" (COTS) product forced to meet contest requirements. Instead, we settled on an underlying strategy of Open Source, agile development and iterative releases based on close consultation with the requirements and the user group. Details regarding our approach, the resulting Health eTime scheduling application (Version Alpha), and its accompanying documentation, are provided below.

1.1.1. About the Health eTime Scheduling Application (Version Alpha)

The Health eTime application (Version Alpha) has been developed to VA specifications as a rapid prototype and integrated with VistA through a web service layer based on the VA Medical Domain Web Services (MDWS) standard. An overview of the application architecture is provided below in Figure 1.1.

Our goal was to field a rapid prototype developed via agile methodologies. All capabilities demonstrated are functional but, as with any prototype, much of the functionality can be refined and expanded. The primary development goal was to demonstrate core functionality in the context of the contest requirements and constraints and provide insight into the critical baseline question of how Open Source VistA might be effectively modernized using open source, agile methodologies and incremental releases.

The four core functional improvements included in Version Alpha developed for the contest include:

1) Integration with VistA
2) Scheduling capability across VA sites
3) Improved resource management capability

4) A set of baseline functional capabilities consistent with VA contest requirements

Both the application, and the web service layer that provides integration, are released to the Open Source Electronic Health Record Agent (OSEHRA) and its community for incremental refinement and continual support.

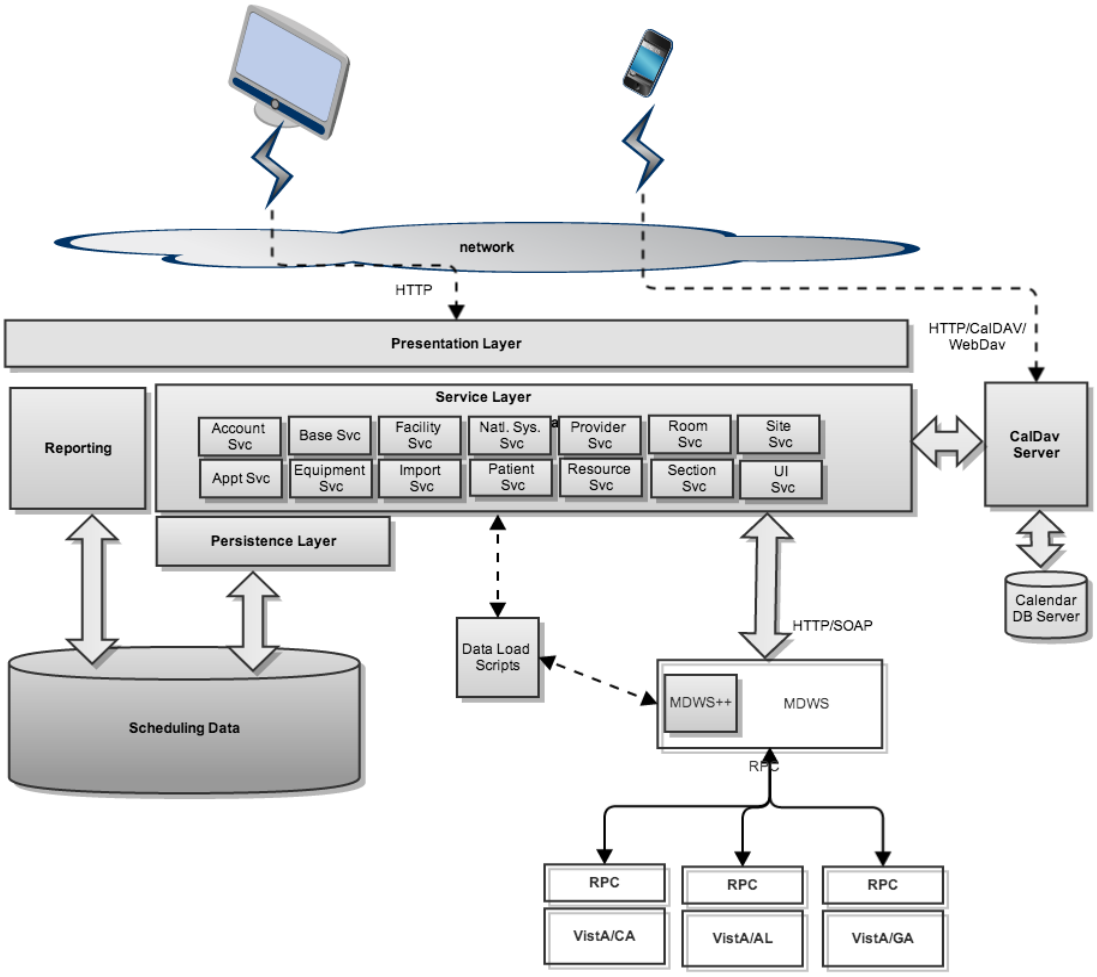

Figure 1.1: Health eTime Application Architecture

1.1.2. About Our Approach

We see the contest as an opportunity to forward an operationalized concept of VistA as a Service Oriented Architecture. The fact that the VA, in structuring the contest, provided a set of refactored MDWS APIs and a requirement that any integration components be open source, led us to believe that this concept is in line with VA intent. We see the two principal challenges to this approach as: 1) how to ensure that the functionality of any new VistA modules enhances, rather than disrupts enterprise workflow and productivity and; 2) how to securely and effectively integrate new modules with the diverse patchwork of legacy components in the production

environment. In the case of both these challenges we believe the VA would be well advised to avoid large-scale, waterfall development and deployment strategies in favor of OSEHRA-brokered, open source, agile development, iterative releases and staged deployments. If this approach is correctly implemented, we believe better alignment with current and future VA user-specific requirements can be achieved in combination with lower cost, lower risk incremental deployments.

1.1.3. About the Team

Because of the complementary capabilities of the partners, our team was able to specify, develop, test, deploy and document our prototype scheduling application on time and consistent with VA contest requirements (Step 1 Use Case requirements, Step 2A Attachment A, B, and C requirements, and Step 2B Open Source metrics). Team leader, MedRed LLC, is a small business and past winner of the VAi2 industry innovation competition. MedRed has developed and supports the TBI Toolbox application now in production at the VA Hunter Holmes McGuire VA Medical Center, a Polytrauma site located in Richmond, Virginia. MedRed's understanding of VistA integration, VA user needs and the VA IT environment, along with its relationships with the VistA "hardhat" and open source communities, has been a driving force in our development dynamics. BT brings to the effort the power and talent of an 80,000-person information, communications, and technology corporation that combines global presence and capabilities with healthcare domain expertise, having successfully implemented and managed large-scale health information technology and infrastructure projects across Europe and Asia Pacific. BT is committed to building a long-term trusted partnership with the VA and has embraced the open source medical scheduling competition as the first step in demonstrating this commitment.

1.2. About Our Documentation

Documentation and communication are critical components of effective open source development efforts. We have taken great care, therefore, in designing and authoring documentation for this competition. We have worked to convey a holistic understanding of our scheduling application and overall approach, and believe our documents can be useful to the VA both in the contest evaluation process and in informing the design of a deployment strategy for the next generation scheduling module. The relationships and interconnectivity of the document elements in this volume are explained below.

1.2.1. Installation Guide

In accordance with contest guidance, we have developed an Installation Guide, included as Section 2 of this document, to explain how we have configured the contest VMs and installed the Health eTime application. This guide is designed to help the Step 1 evaluators understand the conditions and environment in which the automated test scripts are being executed.

In accordance with contest requirements, we have provided detailed instructions to aid Step 1 and Step 2 evaluation.

1.2.2. Locating Materials for Step 1 Evaluation in this Document

Detailed instructions for executing Step 1 automated Python test scripts for the eight Use Cases are provided in Section 3 of this document shown in green in Figure 1.2. Section 3 also details test script outputs for each Use Case. If the Step 1 evaluators wish to understand the manual operations of Health eTime, they can refer to the Scheduling Application User Manual in Section 4 and the manual test scripts provided for the 8 Use Cases in Appendix A.

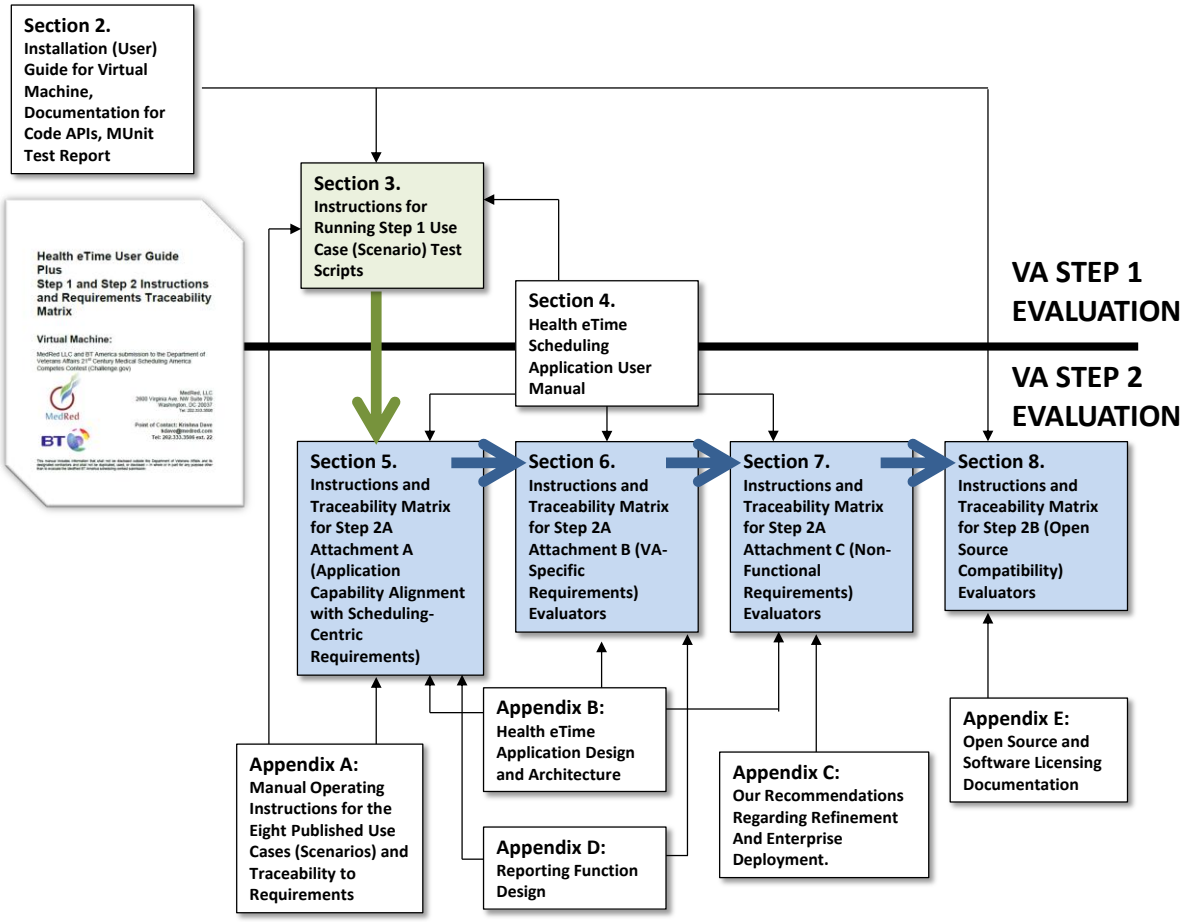

Figure 1.2: Integration of Documentation

1.2.3. Locating Materials for Step 2 Evaluation in this Document

Section 4 of the User Manual provides instructions on how to operate the application. Details regarding the alignment of Health eTime application capabilities, as they relate to Step 2 requirements, are provided in:

- Section 5 (for Attachment A requirements)
- Section 6 (for Attachment B requirements)

- Section 7 (for Attachment C requirements)
- Section 8 (for Step 2B Open Source requirements)

These various sections, highlighted in blue in Figure 1.2, are organized as correlation matrices in order to further describe how to validate capabilities against requirements. This correlation was requested as part of the submission materials. As part of the software development process, MedRed also performed comprehensive manual testing of the application prior to release. A set of manual test scripts are included in Appendix A. They provide application-level detail for following the Step 1 Use Cases, which have been validated by the automated scripts in Step 1.

Appendix B: Application Design and Architecture Overview
To help evaluators better understand the Health eTime application, we have also developed a brief Application Design and Architecture Overview document, which is contained in Appendix B. This overview document is referenced in Sections 5, 6, and 7.

Appendix C: Our Recommendations Regarding Refinement and Enterprise Deployment
Appendix C also contains information outlining how the Health eTime application can progress from a prototype to a class 1 enterprise solution in production and be effectively integrated at multiple VistA sites.

Appendix D: Report Specifications
Because a number of broad reporting requirements are listed in Attachments A and B, we decided, as part of our application development process, to create detailed specification documents for all listed reports. These reporting specification documents have been included in Appendix D of our submission package and a number have been operationalized in the prototype application. Many assumptions were made in producing these specifications, which may not precisely align with VA user preferences. Going forward, we would welcome the opportunity to validate or adjust the assumptions and adjust the specifications and reports to better satisfy VA user needs.

Appendix E: Open Source and Software Licensing Documentation
In accordance with contest requirements pertaining to Step 2B, Open Source evaluation, we have provided, in Appendix E, documentation concerning the applications Web Services Integration Layer and APIs. Authorization letters for commercial and Apache 2 licenses accompanying the submission, along with the Checksum for each VM, are placed in the appropriate individual VM directories, independent of this integrated document.

2. Installation Guide for the Contest Environment

This guide is developed in accordance with the contest submission checklist. The following section describes how we have prepared and configured the three VMs assigned by the VA for this contest. It is important to note that the Health eTime application is designed to run and be managed in production as an enterprise solution. As such, it does not need to be directly installed at each local VistA instance. We believe this approach will minimize the support and maintenance issues connected with installing, patching, upgrading and maintaining the application across the enterprise. It also allows the VA, if it so chooses, to later procure scheduling as a Software as a Service (SaaS). For the purpose of the contest however, we have chosen to install and run the Health eTime application on the VMs inside the contest environment. We made this decision predominantly to control for the connectivity issues that might emerge when an outside application server is connected to the contest environment. The configuration and installation parameters outlined in this guide, therefore, are unique to the contest environment and do not represent the anticipated production state. (For an overview of the recommended configuration of the production system, please see Appendix C.)

2.1. Configuration of the Three VMs for Scheduling Submission

The VA provided three VMs for the contest. Each of these VMs is running an instance of VistA configured to represent a specific site location from the production environment. The three site locations are California, Georgia and Alabama. As mentioned above, the Health eTime application and associated software are also running in the contest environment. In addition to the Health eTime application, the following software is part of the Health eTime framework and is being used for the contest:

- SQL Server Enterprise 2008 (SQL Server Reporting Services)
- Microsoft Server (pre-installed on the VM)
- Bedework (CalDav Server)
- Apache HTTP Server Version 2.2 (used to run Bedework)
- Webdev. Net (Bedework libraries)
- Daypilot Lite 2010
- JQuery
- Log4Net.
- NHibernate

Because the contest environment does not include additional infrastructure, i.e. database and application servers, to host the Health eTime application, we have chosen to deploy components of the applications across the three VMs. Figure 2.1 shows how the three VMs are configured. This is for implementation of the prototype only and does not represent the

recommended system configuration. For an overview of the recommended configuration, please see Appendix C.

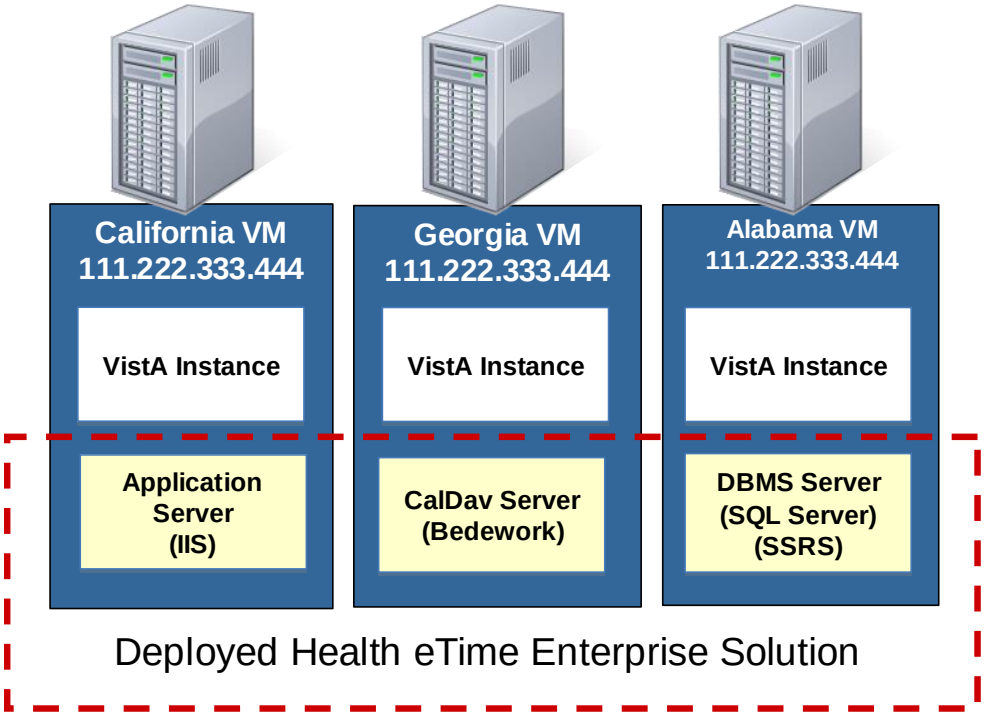

Figure 2.1: Scheduling System Deployment in the Contest Environment

2.2. Preparation of the Assigned VistA instances

The three VistA instances that we received all required varying degrees of configuration, modification and patching. Details of the changes made to each individual VistA image are listed below.

CA Instance

- VistA dat file location c:\CPM
- Instance Name: CPM
- Refresh VistA short cut on Desktop to point to the proper location
- Change firewall in-bound/out-bound ports i.e. 9200
- Applied Ray Group Scheduling Script "SD_5.3_260003_RC4.KID"
- Applied 2nd Ray Group Scheduling Script "SD_6_0_1_T7.KID" - Created by Chris Uhera
- Applied "XUA4A7_FIX_0.0.KID" - Fixes a problem with DIC(0) being undefined when using the updater.
- Applied "sd_5p3_131000rc2.KID"
  - SDAM1: Fixed an extrinsic quit mismatch error fixed by the RGI T4 build
  - SDMAPI2: Commented out code that isn't needed
- Edit HL7 file Protocol VAFC ADT-A04 SERVER. This protocol fires off of the PIMS Registration option, edit Event Driver, removed "Response Processing RTN"

- Modified file 43 “MAS Parameters” added date to “EARLIEST DATE FOR G&L:”
- Modified file “984.1 MASTER PATIENT INDEX” added correct Station Number
- Applied TASKMAN SET-UP ROUTINES - cleans up Taskman global for a new environment
- Modified Taskman Startup delay File 14.7
- Edit taskman XWB LISTENER STARTER, modified “SPECIAL QUEUEING” to STARTUP

GA Instance

- VistA dat file location C:\CACHESYS\Mgr\VISTA
- Instance Name: VISTA
- Refresh VistA short cut on Desktop to point to the proper location
- Taskman Volume Set/Box was not setup correctly
- Change firewall in-bound/out-bound ports i.e. 9200
- Applied Ray Group Scheduling Script “SD_5.3_260003_RC4.KID”
- Applied 2nd Ray Group Scheduling Script “SD_6_0_1_T7.KID” - Created by Chris Uhera
- Applied “XUA4A7_FIX_0.0.KID” - Fixes a problem with DIC(0) being undefined when using the updater.
- Applied “sd_5p3_131000rc2.KID”
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- Modified file 43 “MAS Parameters” added date to “EARLIEST DATE FOR G&L:”
- Modified file “984.1 MASTER PATIENT INDEX” added correct Station Number
- Applied TASKMAN SET-UP ROUTINES - cleans up Taskman global for a new environment
- Modified Taskman Startup delay File 14.7
- Edit taskman XWB LISTENER STARTER, modified “SPECIAL QUEUEING” to STARTUP
- Modified file ZSTU.int file to Change VistA instance name

AL Instance

- VistA dat file location C:\CACHESYS\Mgr\VISTA
- Instance Name: VISTA
- Refresh VistA short cut on Desktop to point to the proper location
- Taskman Volume Set/Box was not setup correctly
- Change firewall in-bound/out-bound ports i.e. 9200
- Applied Ray Group Scheduling Script “SD_5.3_260003_RC4.KID”
- Applied 2nd Ray Group Scheduling Script “SD_6_0_1_T7.KID” - Created by Chris Uhera
- Applied “XUA4A7_FIX_0.0.KID” - Fixes a problem with DIC(0) being undefined when using the updater.
- Applied “sd_5p3_131000rc2.KID”
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2.3. Installing & Configuring SQL Server 2008 Enterprise

Details about the installation and configuration of SQL Server 2008 are beyond the scope of this document. More information can be found here: http://msdn.microsoft.com/en-us/library/bb500395(v=sql.105).aspx

2.4. Installing & Configuring Bedework

Details about the installation and configuration of Bedework are beyond the scope of this document. More information can be found in Appendix B and at: http://www.jasig.org/bedework/

2.5. Configuration Recovery Instructions

Methodology
This section describes how to reset the Health eTime demonstration system to a specific state for testing and demonstration purposes.

In order to provide insight into the system’s baseline and recovery states, a brief overview of methods used to import test data is provided below.

The Health eTime application framework includes data that resides in:

1) The RDBMS Server (the application’s transactional and reporting databases),

2) And each individual VistA instance

In order to accurately restore the Health eTime demonstration system to a given state, data content in each of these two locations must be restored so that it mirrors that found in the desired state. Data is added to system by one of two methods, either data is populated by means of the automated test scripts or it is imported or restored from a pre-recorded copy or “snapshots” of the application framework.

1) **Baseline #0**. In its “ground state” the application framework contains almost no data, with the exception of a few data elements used in reference tables.

2) Importing data via the 8 automated test scripts:

Run UC1
Result: Baseline #1
Run UC2
Result Baseline #2
Run UC3
Result Baseline #3
Run UC8
Result: Baseline #8

We provide “snapshots” of the application data framework as it exists after each of the above scripts have been run. These restoration points allow particular steps to be re-run on demand.

3) **Baseline #9**. We enriched Baseline #8 by manually adding data to the application framework in order to facilitate reporting and demonstration. Data entered to create Baseline #9 has relevance to the demonstration of Users & Roles, UI Menus, Communication Templates, as well as general reporting and system capabilities.

2.6. Data Used for Testing and Demonstrations

To support demonstration of Health eTime in Step 2, additional dummy data has been entered by our development team to show capabilities such as report generation. This data will remain in the above described data bases in preparation for the Step 2 demonstrations.

STEP 1 EVALUATION

3. Instructions for Running Step 1 Use Case (Scenario) Test Scripts

Consistent with contest requirements, and guidelines provided in "*Instructions for the Use of the Test Environment"*, we have developed and submitted automated Python test scripts that execute all the actions listed in the 8 Use Cases provided for Step 1 evaluation. Below are instructions for executing these automated Test Scripts along with a brief explanation regarding how to interpret the expected, system output. We have also included some details regarding the manner in which the Test Scripts execute in order to facilitate clear, comprehensive checkpoint validation.

Machine Setup: The following components are required to run the scripts (Note that these are pre-configured for login "Contestant"):

- Python 2.7;
- suds –soap python client; and
- pytz (python time zone library)

Note on CTEST & CMAKE

We are currently not making use of either CTEST or CMAKE while following the VA's guidance on the subject which stipulated that: *"We do not strictly require that CMake be used,… All submissions will be considered and need to work reliably, even if not compliant with the CMake environment".* Our scripts are very easy to run and do not need anything else.

Directories: After accessing any of the supplied VMs using the account/password combination "Contestant", a link to the test directory should be visible on the user desktop. The name of this directory is: "Step 1 Test Scripts". The directory structure for that folder should appear as:

[Step 1 Test Scripts]
|
|-----[logs] **<- - - - - - Output file for each run is stored here**
|-----[scripts] **<- - - - Python scripts**
|----- run_uc1.bat
|----- run_uc2.bat
|----- run_uc3.bat
|----- run_uc4.bat
|----- run_uc5.bat
|----- run_uc6.bat
|----- run_uc7.bat
|----- run_uc8.bat

|----- run_post_step1_db_reset.bat ←**- - - -Set baseline #9 which includes demo data**

The folders listed above contain all the files required to run the eight automated scripts developed for Step 1 evaluation. A description of the scripts and their method of operation follows.

Design of the Tests Scripts: The overall test suite is composed of eight test scripts that correspond to each use case (UC1, UC2…) Each test script is designed to be run on its own, repeatedly, as many times as desired. In order to accommodate this required functionality, at the end of its run, each script will reset the Health eTime data framework in the following manner:

1. The scheduling application database is reset, from a backup or "snapshot", to the initial state required for that script to run. Snapshots may be located in the script directory and are named: backup_uc1.bak; backup_uc2.bak; etc. Please note that there are a total of eight backup.bak files.

2. The VistA environment is reset to the initial state required for each test script by restoring a baseline copy of the Cache.dat file. These files are also found in the script directory for each of the VMs. The file names indicate both the VistA instance and the use case to which they apply. For example, the Cache.dat file named "ca-cache-uc1.dat", contains the VistA data for the California VistA instance, use case 1. There are eight VistA Cache.dat files (corresponding to the eight use cases) for each of the three VMs, bringing the total number of cache.dat files to 24.

Test Scripts: The following sub-sections provide a high-level description of individual test script execution. In order to allow the VA to clearly understand our integration strategy, we have also provided the following for each use case:

- A list of data items impacted, along with an indication of whether such items are housed within the Health eTime or VistA application.
- Sample log runs for the scripts. (Note: actual logs will vary slightly.)
- Notes explaining decisions made during prototype application design and development.

Data modified in VistA, as a result of its interactions with the Health eTime scheduling application, can be accessed through VistA's "Roll & Scroll" scheduling application and/or through CPRS and checked for consistency. Data modified in the Scheduling Application Database can be manually accessed and validated through the Health eTime user interface.

3.1. Use Case 1 Test Script Execution

User: System Administrator

Goals: Establish, Organize, and Manage the Scheduling Component

Run_uc1.bat

Data added/modified in VistA

- Facility
- Services
- Holidays
- Providers
- Patients

Data added/modified in the Scheduling Application database

- Section/clinics
- Pre-appointment letters
- The following are imported from VistA:
    - Facility
    - Services
    - Holidays
    - Providers
    - Patients
    - Appointment Type Categories

Notes

- Appointment Types Categories are not added to VistA because the VistA instances we received already contained those

Sample Log

```
use case 1
initializing vista and sql db...
please wait...
done with sql reset
done with vista reset
step 1
        step 1 - facility 1 is added:  GA VA HEALTH CARE SYSTEM
step 2
        step 2 - facility 2 is added:  GA VA REGIONAL MEDICAL CENTER
        step 2 - facility 3 is added:  GA VA OUTPATIENT CLINIC
step3
        step 3 - MEDICINE service is added
        step 3 - SURGICAL service is added
        step 3 - PSYCHIATRIC service is added
        step 3 - ANCILLARY service is added
```

step4
- step 4 - REGULAR appointment type is added
- step 4 - COMPENSATION appointment type is added
- step 4 - EMPLOYEE appointment type is added

step5
- step 5 - National VA Organization Day holidays are added
- step 5 - Valentines' Day holidays are added
- step 5 - imported /facilities, service/section, appointment type and holidays from VistA

step 6
- step 6 - primary care clinic is added to GA VA REGIONAL MEDICAL CENTER.
- step 6 - primary care clinic is added to GA VA OUTPATIENT CLINIC.

step 7
- step 7 - pre-appointment communication template is created

step 8
- step 8 - pre-appointment communication template is assigned to primary care section in GA VA REGIONAL MEDICAL CENTER

step 9 - a resource is added to GA VA REGIONAL MEDICAL CENTER and schedule is added for one,provider

checkpoint 1 & 2

step 1 - check facility 1
- matching site id
- matching facility name
- matching street address 1

step 1 - check division 1
- matching site id
- matching division name

step 2 - check facility 2
- matching site id
- matching facility name
- matching street address 1

step 2 - check division 2
- matching site id
- matching division name

step 2 - check facility 3
- matching site id
- matching facility name
- matching street address 1

step 2 - check division 3
- matching site id
- matching division name

step 3 - check service/section
- found SERVICE/SECTION: MEDICINE
- found SERVICE/SECTION: SURGICAL
- found SERVICE/SECTION: PSYCHIATRIC
- found SERVICE/SECTION: ANCILLARY

step 4 - check appointment type
- found Appointment Type: REGULAR
- found Appointment Type: COMPENSATION & PENSION
- found Appointment Type: EMPLOYEE

step 5 - check holidays
- found holiday: NATIONAL VA ORGANIZATION DAY - 20 JULY 2012
- found holiday: NATIONAL VA ORGANIZATION DAY - 22 JULY 2013
- found holiday: NATIONAL VA ORGANIZATION DAY - 21 JULY 2014
- found holiday: VALENTINES' DAY - 13 FEB 2012
- found holiday: VALENTINES' DAY - 14 FEB 2013
- found holiday: VALENTINES' DAY - 14 FEB 2014

step 6 - check section

step 7 - check pre-appointment communication template

step 8 - check pre-appintment communication letter for a section

step 11
- step 11 - deactivated a section

```
checkpoint 3
        section got deactivated
step 12
        step 12 - reactivated a section
checkpoint 4
        section got re-activated
```

3.2. Use Case 2 Test Script Execution

User: Master Scheduler

Goals: Establish and Manage Section Schedules

Run_uc2.bat

Data added/modified in the Scheduling Application database

- Appointment Types
- Several Resources under a section
    - Provider
    - Room
    - Equipment
- Scheduler policy (e.g. slots definitions)

Data added/modified in VistA

- When a resource is added to a section, the schedule for that resource is immediately provisioned. This process also creates a provider/clinic in VistA, which will later be used to ensure that VistA has a record of every patient-provider appointment.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 1
        adding appointment types to primary care sections
checkpoint 1
appointment types are added to primary care section on AL VA REGIONAL MEDICAL CENTER
appointment types are added to primary care section on AL VA OUTPATIENT CLINIC
step 2
        creating resource: adding a provider
        creating resource: adding a room to primary care
        creating resource: adding an equiment to primary care
step 3
        adding scheudling policy to provider in primary care
        adding scheudling policy to equiment in primary care
step 4
        adding scheudling policy to provider in primary care
checkpoint 2
        scheudling policy is added to a provider in primary care
step 5
        create holds on provider in primary care
```

checkpoint 3
there is a hold on the 4 jan 2014
there is a release of the on the 3 jan 2014
step 6
checkpoint 4
there is a hold on the 5 jan 2014
there is a release of the on the 5 jan 2014
step 7
creating a block on a provider in primary care
checkpoint 5
there is a block for 9am - 12pm on the 5 dec 2013
step 8
blocking a exiting scheduled patient appointment
current appointment status: Scheduled
checkpoint 6
scheduled patient appintment is canceled due to a block
appointment after block: Cancelled
step 9
creating communication queue for a canceled appointment
checkpoint 7
there is a communcation queue due block on cancelation of appointment
step 10
creating a group appointment
current appointment status: Scheduled
current appointment status: Scheduled
checkpoint 8
there is a group appointment scheduled
step 11
creating pre appointment patient instructions
checkpoint 9
there is pre appointment patient instructions
step 12
creating mutiple app types on the same day
checkpoint 10
there is multple app types on the same day
step 13
creating a block for multiple days with a reason
checkpoint 11
there is a block for multiple days with a reason
step 14
creating a block with reoccurring period
checkpoint 12
there is a block with reoccurring period
step 15
track appointment cancelation due to shcedules being blocked
checkpoint 13
there is a communcation queue due block on cancelation of appointment
step 16
changing appointment types on a scheduled appointment
checkpoint 14
appointment types are changed on a scheduled appointment
step 17
adding, modifying, and deleting appointment types from a section
checkpoint 15
appintment types got added, modified and deleted from a section
step 18
assigning overbooking privileges to a provider
checkpoint 16
overbooking is assigned to a provider
step 19
assigning a provider to multiple sections
checkpoint 17
a provider is assigned to multiple sections

3.3. Use Case 3 Test Script Execution

User: Scheduler

Goals: Create a Patient Appointment

Run_uc3.bat

Data added/modified in the Scheduling Application database

- Appointment Request
- Regular Appointment
- Group Appointments

Data added/modified in VistA

- Corresponding clinic/provider appointment

Notes

- When an appointment is made within the scheduling application, a corresponding appointment is created in VistA, which ties together the corresponding Clinic/Provider and Patient in VistA.
- For group appointments, each VistA patient will have a corresponding VistA appointment with the corresponding Vista provider.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 1
        receive appointment request
step 2
        enter desired future appointment date
step 3
        register patient
step 4
(Patient){
  ActiveInsurance = "0"
  CaldavResourceId = None
  CurrentMeansStatus = None
  EligibilityCode = None
  HasInsurance = False
  ICN = "500000004"
  Id = 7
  IsVeteran = True
  MilitaryStatus = None
  NeedsMeansTest = False
  Occupation = None
  PatientSites =
    (ArrayOfKeyValueOfstringstring){
      KeyValueOfstringstring[] =
```

```
        (KeyValueOfstringstring){
          Key = "557"
          Value = "4"
        },
        (KeyValueOfstringstring){
          Key = "555"
          Value = "791"
        },
    }
  PatientType = "SC VETERAN"
  Person =
    (Person){
      Address =
        (Address){
          City = None
          Id = 36
          State = None
          Street1 = "834 Ocean Vista Avenue"
          Street2 = "SANTA MONICA CALIFORNIA 90401"
          Street3 = None
          Zip = None
        }
      DateOfBirth = 1968-10-04 00:00:00
      Email = None
      Ethnicity = None
      FirstName = "HUGH"
      Id = 403
      LastName = "BENSON"
      MaritalStatus = None
      MiddleName = None
      Phone = "3105552233"
      SSN = "300000006"
      Sex = "Male"
    }
  Preferences = None
  PreferencesOther = None
  Religion = None
  SCPercent = 100
  ServiceConnected = True
  SpecialNeeds = None
  SpecialNeedsOther = None
 }
step 5
            create appointment for the patient on 23 july 2013 (22 july 2013 is va holiday)
Scheduled
checkpoint 1
            appointment is scheduled on agreed upon date
step 9
            schedule appointments for the same patient and link two appointments
Scheduled
checkpoint 2
            two appointments for the same patient
step 10
            patient pre-appointment notification
checkpoint 3
            patient will receive pre-appointment noticication letter
step 11
schedule a group appointment in multiple time slot
current appointment status:  Scheduled
current appointment status:  Scheduled
current appointment status:  Scheduled
current appointment status:  Scheduled
checkpoint 4
```

```
        group appointment is made in a multiple appointment time slot
step 12
        schedule telehealth appointment
Scheduled
checkpoint 5
        telehealth appointment is created
```

3.4. Use Case 4 Test Script Execution

User: Clinic Coordinator

Goals: Manage a Patient Appointment

Run_uc4.bat

Data added/modified in the Scheduling Application database

- Appointment Request info (particularly status information)
- Appointment (particularly status information – checked-in, checked-out…)
- Notification Queue

Data added/modified in VistA

- When the status of an appointment is changed within the scheduling application, that status change is reflected in the corresponding appointment in VistA.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 1
        enter patient info
step 2
        verify deographics
current appointment status:  Scheduled
current appointment status:  Scheduled
step 3
        checkin appointment to section one
step 4
display patient checkin status
CheckedIn
checkpoint 1
        verified patinet checkin status
step 5
        display patient checkin status on section two
CheckedIn
checkpoint 2
        verified patinet checkin status on section two
step 6
        check-out the appointments
step 7
        display other appointments for the patient

checkpoint 3
        verified patient appointment status
step 8
```

```
repeat step 1-7 for group appointment
current appointment status:  Scheduled
current appointment status:  Scheduled
current appointment status:  Scheduled
current appointment status:  Scheduled
checkpoint 4
        verified checkout status on group appointment
```

3.5. Use Case 5 Test Script Execution

User: Clinic Coordinator

Goals: Manage a Walk-in Patient

Run_uc5.bat

Data added/modified in the Scheduling Application database

- Appointment Request
- Regular Appointment

Data added/modified in VistA

- Corresponding clinic/provider appointment

Notes

- When an appointment is made within the scheduling application, a corresponding appointment is created in VistA, which ties together the corresponding Clinic/Provider and Patient in VistA.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 1 Select Patient
(ArrayOfPatientSearchResult){
  PatientSearchResult[] =
    (PatientSearchResult){
      DateOfBirth = 1962-11-01 00:00:00
      FirstName = "JUANA"
      LastName = "GREER"
      MiddleName = None
      SSN = "300000000"
      Sex = "Male"
      VistaDFN = "6"
      VistaSiteId = "557"
    },
}
Step 2 Display Demographics

(Patient){
  ActiveInsurance = "0"
  CaldavResourceId = None
  CurrentMeansStatus = None
  EligibilityCode = None
```

```
  HasInsurance = False
  ICN = "500000006"
  Id = 13
  IsVeteran = True
  MilitaryStatus = "Veteran"
  NeedsMeansTest = False
  Occupation = None
  PatientSites =
    (ArrayOfKeyValueOfstringstring){
      KeyValueOfstringstring[] =
        (KeyValueOfstringstring){
          Key = "557"
          Value = "6"
        },
    }
  PatientType = "SC VETERAN"
  Person =
    (Person){
      Address =
        (Address){
          City = None
          Id = 42
          State = None
          Street1 = "834 Ocean Vista Avenue"
          Street2 = "SANTA MONICA CALIFORNIA 90401"
          Street3 = None
          Zip = None
        }
      DateOfBirth = 1962-11-01 00:00:00
      Email = None
      Ethnicity = None
      FirstName = "JUANA"
      Id = 409
      LastName = "GREER"
      MaritalStatus = None
      MiddleName = None
      Phone = "3105552233"
      SSN = "300000000"
      Sex = "Male"
    }
  Preferences = None
  PreferencesOther = None
  Religion = None
  SCPercent = 25
  ServiceConnected = True
  SpecialNeeds = None
  SpecialNeedsOther = None
 }
Step 3 Walkin Appt

Step 4 Display and view provider schedule

(Appointment){
  Activity =
    (ArrayOfAppointmentActivity){
      AppointmentActivity[] =
        (AppointmentActivity){
          ActivityReason = None
          ActivityType = "WalkIn"
          Id = 98
          Time = 2013-06-06 23:45:25
        },
    }
```

```
AppointmentType =
  (AppointmentType){
    AppointmentTypeCategory =
      (AppointmentTypeCategory){
        Id = 25
        Name = "COMPENSATION & PENSION"
        VistaId = "1"
        VistaSiteId = "557"
      }
    DSSCreditStopCode = "450 BRONCHOSCOPY"
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Duration = 30
    Id = 17
    Name = "C&P"
    PatientInstructions = None
  }
CaldavId = None
ChildAppointments = None
HighPriorityReschedule = False
Id = 51
Length = 30
Patient =
  (Patient){
    ActiveInsurance = None
    CaldavResourceId = None
    CurrentMeansStatus = None
    EligibilityCode = None
    HasInsurance = False
    ICN = "500000006"
    Id = 13
    IsVeteran = False
    MilitaryStatus = None
    NeedsMeansTest = False
    Occupation = None
    PatientSites =
      (ArrayOfKeyValueOfstringstring){
        KeyValueOfstringstring[] =
          (KeyValueOfstringstring){
            Key = "557"
            Value = "6"
          },
      }
    PatientType = None
    Person =
      (Person){
        Address =
          (Address){
            City = None
            Id = 42
            State = None
            Street1 = "834 Ocean Vista Avenue"
            Street2 = "SANTA MONICA CALIFORNIA 90401"
            Street3 = None
            Zip = None
          }
        DateOfBirth = 1962-11-01 00:00:00
        Email = None
        Ethnicity = None
        FirstName = "JUANA"
        Id = 409
        LastName = "GREER"
        MaritalStatus = None
        MiddleName = None
```

```
        Phone = "3105552233"
        SSN = "300000000"
        Sex = "Male"
       }
     Preferences = None
     PreferencesOther = None
     Religion = None
     SCPercent = 0
     ServiceConnected = False
     SpecialNeeds = None
     SpecialNeedsOther = None
   }
 Resources =
   (ArrayOfResource){
     Resource[] =
       (Resource){
         AllowOverbooking = False
         Blocks = None
         CalendarID = None
         FullfillingResourceId = 4
         Holds = None
         Id = 3
         Name = "case1 step 9 test"
         SchedulingPolicies =
           (ArrayOfSchedulingPolicy){
             SchedulingPolicy[] =
               (SchedulingPolicy){
                 DayOfWeek = 2
                 EndEffectDate = 2014-01-15 00:00:00
                 Id = 60
                 Priority = 0
                 Slots =
                   (ArrayOfSlot){
                     Slot[] =
                       (Slot){
                         AppointmentType =
                           (AppointmentType){
                             AppointmentTypeCategory =
                               (AppointmentTypeCategory){
                                 Id = 25
                                 Name = "COMPENSATION & PENSION"
                                 VistaId = "1"
                                 VistaSiteId = "557"
                               }
                             DSSCreditStopCode = "450 BRONCHOSCOPY"
                             DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                             Duration = 30
                             Id = 17
                             Name = "C&P"
                             PatientInstructions = None
                           }
                         Capacity = 1
                         Id = 533
                         Length = 30
                         Time = "PT19H"
                       },
                       (Slot){
                         AppointmentType =
                           (AppointmentType){
                             AppointmentTypeCategory =
                               (AppointmentTypeCategory){
                                 Id = 25
                                 Name = "COMPENSATION & PENSION"
```

```
                        VistaId = "1"
                        VistaSiteId = "557"
                      }
                    DSSCreditStopCode = "450 BRONCHOSCOPY"
                    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                    Duration = 30
                    Id = 17
                    Name = "C&P"
                    PatientInstructions = None
                  }
                Capacity = 1
                Id = 534
                Length = 30
                Time = "PT20H30M"
              },
            }
          StartEffectDate = 2013-01-04 00:00:00
        },
    }
  Section =
    (Section){
      Abbreviation = "PC"
      Active = True
      AppointmentTypes =
        (ArrayOfAppointmentType){
          AppointmentType[] =
            (AppointmentType){
              AppointmentTypeCategory =
                (AppointmentTypeCategory){
                  Id = 25
                  Name = "COMPENSATION & PENSION"
                  VistaId = "1"
                  VistaSiteId = "557"
                }
              DSSCreditStopCode = "450 BRONCHOSCOPY"
              DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
              Duration = 30
              Id = 17
              Name = "C&P"
              PatientInstructions = None
            },
            (AppointmentType){
              AppointmentTypeCategory =
                (AppointmentTypeCategory){
                  Id = 30
                  Name = "REGULAR"
                  VistaId = "9"
                  VistaSiteId = "557"
                }
              DSSCreditStopCode = "450 BRONCHOSCOPY"
              DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
              Duration = 15
              Id = 18
              Name = "REGULAR"
              PatientInstructions = None
            },
        }
      CommunicationTemplates = None
      DSSCreditStopCode = None
      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
      Facility =
        (Facility){
          Address =
```

```
                (Address){
                  City = "MONTGOMERY"
                  Id = 16
                  State = "AL"
                  Street1 = "AL VA OUTPATIENT CLINIC"
                  Street2 = "23 ECKERD AVENUE"
                  Street3 = None
                  Zip = "36109"
                }
              CommunicationTemplates = None
              Hours = "0800-1600"
              Id = 5
              Name = "AL VA OUTPATIENT CLINIC"
              Phone = "(334)272-XXXX"
              ShortName = "AVAOPC"
              Site =
                (Site){
                  Address =
                    (Address){
                      City = "MONTGOMERY"
                      Id = 15
                      State = "AL"
                      Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
                      Street2 = None
                      Street3 = None
                      Zip = "36109"
                    }
                  Id = 3
                  Name = "AL VA HEALTH CARE SYSTEM"
                  Phone = "(334)272-4670"
                  TimeZoneId = "Central Standard Time"
                  VISN = "6"
                  VistaSiteId = "557"
                }
              StationNumber = "557OC"
              VistaId = "2959"
            }
          Hours = "0800-1500"
          Id = 6
          Location = "EAST WING ROOMS 10 AND 11"
          Name = "PRIMARY CARE"
          Service =
            (Service){
              Id = 26
              Name = "MEDICINE"
            }
        }
      ServiceType = None
      Type = "Provider"
      VistaClinicIEN = "3"
    },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
```

```
            Name = "COMPENSATION & PENSION"
            VistaId = "1"
            VistaSiteId = "557"
          }
        DSSCreditStopCode = "450 BRONCHOSCOPY"
        DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
        Duration = 30
        Id = 17
        Name = "C&P"
        PatientInstructions = None
      },
      (AppointmentType){
        AppointmentTypeCategory =
          (AppointmentTypeCategory){
            Id = 30
            Name = "REGULAR"
            VistaId = "9"
            VistaSiteId = "557"
          }
        DSSCreditStopCode = "450 BRONCHOSCOPY"
        DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
        Duration = 15
        Id = 18
        Name = "REGULAR"
        PatientInstructions = None
      },
  }
CommunicationTemplates = None
DSSCreditStopCode = None
DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
Facility =
  (Facility){
    Address =
      (Address){
        City = "MONTGOMERY"
        Id = 16
        State = "AL"
        Street1 = "AL VA OUTPATIENT CLINIC"
        Street2 = "23 ECKERD AVENUE"
        Street3 = None
        Zip = "36109"
      }
    CommunicationTemplates = None
    Hours = "0800-1600"
    Id = 5
    Name = "AL VA OUTPATIENT CLINIC"
    Phone = "(334)272-XXXX"
    ShortName = "AVAOPC"
    Site =
      (Site){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 15
            State = "AL"
            Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
            Street2 = None
            Street3 = None
            Zip = "36109"
          }
        Id = 3
        Name = "AL VA HEALTH CARE SYSTEM"
        Phone = "(334)272-4670"
```

```
            TimeZoneId = "Central Standard Time"
            VISN = "6"
            VistaSiteId = "557"
          }
        StationNumber = "557OC"
        VistaId = "2959"
      }
    Hours = "0800-1500"
    Id = 6
    Location = "EAST WING ROOMS 10 AND 11"
    Name = "PRIMARY CARE"
    Service =
      (Service){
        Id = 26
        Name = "MEDICINE"
      }
  }
 Status = "CheckedIn"
 TelehealthLocation = None
 Time = 2013-05-21 19:00:00
 VistaId = "3130521.14"
}
checkpoint 1
verified patient walkin appointment
Step 5 Display and view patient check-in status

CheckedIn
checkpoint 2
verified patient checkin status
Step 6 Checkout patient appointment

CheckedIn
Step 7 Display other scheduled appointments
(Appointment){
 Activity =
  (ArrayOfAppointmentActivity){
    AppointmentActivity[] =
      (AppointmentActivity){
        ActivityReason = None
        ActivityType = "WalkIn"
        Id = 98
        Time = 2013-06-06 23:45:25
      },
      (AppointmentActivity){
        ActivityReason = None
        ActivityType = "CheckOut"
        Id = 99
        Time = 2013-06-06 23:45:26
      },
  }
 AppointmentType =
  (AppointmentType){
    AppointmentTypeCategory =
      (AppointmentTypeCategory){
        Id = 25
        Name = "COMPENSATION & PENSION"
        VistaId = "1"
        VistaSiteId = "557"
      }
    DSSCreditStopCode = "450 BRONCHOSCOPY"
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Duration = 30
    Id = 17
```

```
    Name = "C&P"
    PatientInstructions = None
  }
CaldavId = None
ChildAppointments = None
HighPriorityReschedule = False
Id = 51
Length = 30
Patient =
  (Patient){
    ActiveInsurance = None
    CaldavResourceId = None
    CurrentMeansStatus = None
    EligibilityCode = None
    HasInsurance = False
    ICN = "500000006"
    Id = 13
    IsVeteran = False
    MilitaryStatus = None
    NeedsMeansTest = False
    Occupation = None
    PatientSites =
      (ArrayOfKeyValueOfstringstring){
        KeyValueOfstringstring[] =
          (KeyValueOfstringstring){
            Key = "557"
            Value = "6"
          },
      }
    PatientType = None
    Person =
      (Person){
        Address =
          (Address){
            City = None
            Id = 42
            State = None
            Street1 = "834 Ocean Vista Avenue"
            Street2 = "SANTA MONICA CALIFORNIA 90401"
            Street3 = None
            Zip = None
          }
        DateOfBirth = 1962-11-01 00:00:00
        Email = None
        Ethnicity = None
        FirstName = "JUANA"
        Id = 409
        LastName = "GREER"
        MaritalStatus = None
        MiddleName = None
        Phone = "3105552233"
        SSN = "300000000"
        Sex = "Male"
      }
    Preferences = None
    PreferencesOther = None
    Religion = None
    SCPercent = 0
    ServiceConnected = False
    SpecialNeeds = None
    SpecialNeedsOther = None
  }
Resources =
```

```
(ArrayOfResource){
  Resource[] =
    (Resource){
      AllowOverbooking = False
      Blocks = None
      CalendarID = None
      FullfillingResourceId = 4
      Holds = None
      Id = 3
      Name = "case1 step 9 test"
      SchedulingPolicies =
        (ArrayOfSchedulingPolicy){
          SchedulingPolicy[] =
            (SchedulingPolicy){
              DayOfWeek = 2
              EndEffectDate = 2014-01-15 00:00:00
              Id = 60
              Priority = 0
              Slots =
                (ArrayOfSlot){
                  Slot[] =
                    (Slot){
                      AppointmentType =
                        (AppointmentType){
                          AppointmentTypeCategory =
                            (AppointmentTypeCategory){
                              Id = 25
                              Name = "COMPENSATION & PENSION"
                              VistaId = "1"
                              VistaSiteId = "557"
                            }
                          DSSCreditStopCode = "450 BRONCHOSCOPY"
                          DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                          Duration = 30
                          Id = 17
                          Name = "C&P"
                          PatientInstructions = None
                        }
                      Capacity = 1
                      Id = 533
                      Length = 30
                      Time = "PT19H"
                    },
                    (Slot){
                      AppointmentType =
                        (AppointmentType){
                          AppointmentTypeCategory =
                            (AppointmentTypeCategory){
                              Id = 25
                              Name = "COMPENSATION & PENSION"
                              VistaId = "1"
                              VistaSiteId = "557"
                            }
                          DSSCreditStopCode = "450 BRONCHOSCOPY"
                          DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                          Duration = 30
                          Id = 17
                          Name = "C&P"
                          PatientInstructions = None
                        }
                      Capacity = 1
                      Id = 534
                      Length = 30
```

```
                Time = "PT20H30M"
              },
            }
          StartEffectDate = 2013-01-04 00:00:00
        },
    }
  Section =
    (Section){
      Abbreviation = "PC"
      Active = True
      AppointmentTypes =
        (ArrayOfAppointmentType){
          AppointmentType[] =
            (AppointmentType){
              AppointmentTypeCategory =
                (AppointmentTypeCategory){
                  Id = 25
                  Name = "COMPENSATION & PENSION"
                  VistaId = "1"
                  VistaSiteId = "557"
                }
              DSSCreditStopCode = "450 BRONCHOSCOPY"
              DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
              Duration = 30
              Id = 17
              Name = "C&P"
              PatientInstructions = None
            },
            (AppointmentType){
              AppointmentTypeCategory =
                (AppointmentTypeCategory){
                  Id = 30
                  Name = "REGULAR"
                  VistaId = "9"
                  VistaSiteId = "557"
                }
              DSSCreditStopCode = "450 BRONCHOSCOPY"
              DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
              Duration = 15
              Id = 18
              Name = "REGULAR"
              PatientInstructions = None
            },
        }
      CommunicationTemplates = None
      DSSCreditStopCode = None
      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
      Facility =
        (Facility){
          Address =
            (Address){
              City = "MONTGOMERY"
              Id = 16
              State = "AL"
              Street1 = "AL VA OUTPATIENT CLINIC"
              Street2 = "23 ECKERD AVENUE"
              Street3 = None
              Zip = "36109"
            }
          CommunicationTemplates = None
          Hours = "0800-1600"
          Id = 5
          Name = "AL VA OUTPATIENT CLINIC"
```

```
                Phone = "(334)272-XXXX"
                ShortName = "AVAOPC"
                Site =
                  (Site){
                    Address =
                      (Address){
                        City = "MONTGOMERY"
                        Id = 15
                        State = "AL"
                        Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
                        Street2 = None
                        Street3 = None
                        Zip = "36109"
                      }
                    Id = 3
                    Name = "AL VA HEALTH CARE SYSTEM"
                    Phone = "(334)272-4670"
                    TimeZoneId = "Central Standard Time"
                    VISN = "6"
                    VistaSiteId = "557"
                  }
                StationNumber = "557OC"
                VistaId = "2959"
              }
            Hours = "0800-1500"
            Id = 6
            Location = "EAST WING ROOMS 10 AND 11"
            Name = "PRIMARY CARE"
            Service =
              (Service){
                Id = 26
                Name = "MEDICINE"
              }
          }
        ServiceType = None
        Type = "Provider"
        VistaClinicIEN = "3"
      },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
                Name = "COMPENSATION & PENSION"
                VistaId = "1"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 30
            Id = 17
            Name = "C&P"
            PatientInstructions = None
          },
          (AppointmentType){
            AppointmentTypeCategory =
```

```
            (AppointmentTypeCategory){
              Id = 30
              Name = "REGULAR"
              VistaId = "9"
              VistaSiteId = "557"
            }
          DSSCreditStopCode = "450 BRONCHOSCOPY"
          DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
          Duration = 15
          Id = 18
          Name = "REGULAR"
          PatientInstructions = None
        },
    }
  CommunicationTemplates = None
  DSSCreditStopCode = None
  DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
  Facility =
    (Facility){
      Address =
        (Address){
          City = "MONTGOMERY"
          Id = 16
          State = "AL"
          Street1 = "AL VA OUTPATIENT CLINIC"
          Street2 = "23 ECKERD AVENUE"
          Street3 = None
          Zip = "36109"
        }
      CommunicationTemplates = None
      Hours = "0800-1600"
      Id = 5
      Name = "AL VA OUTPATIENT CLINIC"
      Phone = "(334)272-XXXX"
      ShortName = "AVAOPC"
      Site =
        (Site){
          Address =
            (Address){
              City = "MONTGOMERY"
              Id = 15
              State = "AL"
              Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
              Street2 = None
              Street3 = None
              Zip = "36109"
            }
          Id = 3
          Name = "AL VA HEALTH CARE SYSTEM"
          Phone = "(334)272-4670"
          TimeZoneId = "Central Standard Time"
          VISN = "6"
          VistaSiteId = "557"
        }
      StationNumber = "557OC"
      VistaId = "2959"
    }
  Hours = "0800-1500"
  Id = 6
  Location = "EAST WING ROOMS 10 AND 11"
  Name = "PRIMARY CARE"
  Service =
    (Service){
```

```
          Id = 26
          Name = "MEDICINE"
        }
    }
  Status = "Closed"
  TelehealthLocation = None
  Time = 2013-05-21 19:00:00
  VistaId = "3130521.14"
 }
```

3.6. Use Case 6 Test Script Execution

User: Scheduler

Goals: Cancel Individual Appointment

Run_uc6.bat

Data added/modify in the Scheduling Application database

- Appointment Info (especially appointment status)
- Appointment Request (used to reschedule the appointment after cancellation)
- Notification Queue

Data added/modify in VistA

- Corresponding clinic/provider appointment status

Notes

- When the status of an appointment is changed within the scheduling application, that status change is reflected in the corresponding appointment in VistA.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 2 select an appointment to cancel
Step 3 Appointment Cancellation:

Appointment Id: 64  has been cancelled

Step 4 Reason for Cancellation:

(CancellationReason){
  Id = 27
  Name = "APPOINTMENT NO LONGER REQUIRED"
  VistaId = "10"
  VistaSiteId = "557"
  Who = "CLINIC"
 }
checkpoint 1
verified appointment is cancelled with reason
Step 5 Review the associated appointments
```

```
Step 6 Cancel Associated Appointment

Associated Appointment Id: 66  has been cancelled

checkpoint 2
verified cancellation of associated appointment
Step 7 High Priority

Step 8 Add Patient to Rescheduling List

Step 9 Cancellation/Reschedule notification

checkpoint 3
verified cancellation/reschedule notification
Step 10 Cancel Ind. Group Appt for Patient ID: 16

checkpoint 4
Individual Group Appointment Id: 69  has been cancelled

Step 11 Cancel Group Appt

checkpoint 5
Group Appointment Id: 68  has been cancelled
```

3.7. Use Case 7 Test Script Execution

User: Scheduler
Goals: Reschedule Individual Appointment

Run_uc7.bat

Data added/modify in the Scheduling Application database

- Appointment Info (especially appointment status)
- Appointment Request (used to reschedule the appointment)
- Notification Queue

Data added/modify in VistA

- Corresponding clinic/provider appointment status

Notes

- When the status of an appointment is changed within the scheduling application, that status change is “echoed” to the corresponding appointment in VistA.
- When an appointment is cancelled within the scheduling application, the existing corresponding appointment is also deleted in VistA, which ties together the corresponding Clinic/Provider and Patient in VistA.

Sample Log

```
initializing vista and sql db...
plesae wait...
Step 1 Search existing individual appointment

Step 2 Identify the appointment to reschedule

An appointment is: Scheduled for: GREER , JUANA On: 2013-05-28 16:00:00

Step 3 Review the associated appointments

(ArrayOfAppointment){
  Appointment[] =
    (Appointment){
      Activity =
        (ArrayOfAppointmentActivity){
          AppointmentActivity[] =
            (AppointmentActivity){
              ActivityReason = None
              ActivityType = "Create"
              Id = 150
              Time = 2013-06-07 01:23:02.000709
            },
        }
      AppointmentType =
        (AppointmentType){
          AppointmentTypeCategory =
            (AppointmentTypeCategory){
              Id = 25
              Name = "COMPENSATION & PENSION"
              VistaId = "1"
              VistaSiteId = "557"
            }
          DSSCreditStopCode = "450 BRONCHOSCOPY"
          DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
          Duration = 30
          Id = 17
          Name = "C&P"
          PatientInstructions = None
        }
      CaldavId = None
      ChildAppointments = None
      HighPriorityReschedule = False
      Id = 81
      Length = 15
      Patient =
        (Patient){
          ActiveInsurance = None
          CaldavResourceId = None
          CurrentMeansStatus = None
          EligibilityCode = None
          HasInsurance = False
          ICN = "500000006"
          Id = 13
          IsVeteran = False
          MilitaryStatus = None
          NeedsMeansTest = False
          Occupation = None
          PatientSites =
            (ArrayOfKeyValueOfstringstring){
              KeyValueOfstringstring[] =
                (KeyValueOfstringstring){
```

```
            Key = "557"
            Value = "6"
          },
      }
    PatientType = None
    Person =
      (Person){
        Address =
          (Address){
            City = None
            Id = 42
            State = None
            Street1 = "834 Ocean Vista Avenue"
            Street2 = "SANTA MONICA CALIFORNIA 90401"
            Street3 = None
            Zip = None
          }
        DateOfBirth = 1962-11-01 00:00:00
        Email = None
        Ethnicity = None
        FirstName = "JUANA"
        Id = 409
        LastName = "GREER"
        MaritalStatus = None
        MiddleName = None
        Phone = "3105552233"
        SSN = "300000000"
        Sex = "Male"
      }
    Preferences = None
    PreferencesOther = None
    Religion = None
    SCPercent = 0
    ServiceConnected = False
    SpecialNeeds = None
    SpecialNeedsOther = None
  }
Resources =
  (ArrayOfResource){
    Resource[] =
      (Resource){
        AllowOverbooking = False
        Blocks = None
        CalendarID = None
        FullfillingResourceId = 4
        Holds = None
        Id = 3
        Name = "case1 step 9 test"
        SchedulingPolicies =
          (ArrayOfSchedulingPolicy){
            SchedulingPolicy[] =
              (SchedulingPolicy){
                DayOfWeek = 2
                EndEffectDate = 2014-01-15 00:00:00
                Id = 72
                Priority = 0
                Slots =
                  (ArrayOfSlot){
                    Slot[] =
                      (Slot){
                        AppointmentType =
                          (AppointmentType){
                            AppointmentTypeCategory =
```

```
                        (AppointmentTypeCategory){
                          Id = 25
                          Name = "COMPENSATION & PENSION"
                          VistaId = "1"
                          VistaSiteId = "557"
                        }
                      DSSCreditStopCode = "450 BRONCHOSCOPY"
                      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                      Duration = 30
                      Id = 17
                      Name = "C&P"
                      PatientInstructions = None
                    }
                  Capacity = 4
                  Id = 570
                  Length = 15
                  Time = "PT16H"
                },
                (Slot){
                  AppointmentType =
                    (AppointmentType){
                      AppointmentTypeCategory =
                        (AppointmentTypeCategory){
                          Id = 25
                          Name = "COMPENSATION & PENSION"
                          VistaId = "1"
                          VistaSiteId = "557"
                        }
                      DSSCreditStopCode = "450 BRONCHOSCOPY"
                      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                      Duration = 30
                      Id = 17
                      Name = "C&P"
                      PatientInstructions = None
                    }
                  Capacity = 4
                  Id = 571
                  Length = 15
                  Time = "PT16H15M"
                },
              }
            StartEffectDate = 2013-01-04 00:00:00
          },
        }
      Section =
        (Section){
          Abbreviation = "PC"
          Active = True
          AppointmentTypes =
            (ArrayOfAppointmentType){
              AppointmentType[] =
                (AppointmentType){
                  AppointmentTypeCategory =
                    (AppointmentTypeCategory){
                      Id = 25
                      Name = "COMPENSATION & PENSION"
                      VistaId = "1"
                      VistaSiteId = "557"
                    }
                  DSSCreditStopCode = "450 BRONCHOSCOPY"
                  DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                  Duration = 30
                  Id = 17
```

```
          Name = "C&P"
          PatientInstructions = None
        },
        (AppointmentType){
          AppointmentTypeCategory =
            (AppointmentTypeCategory){
              Id = 30
              Name = "REGULAR"
              VistaId = "9"
              VistaSiteId = "557"
            }
          DSSCreditStopCode = "450 BRONCHOSCOPY"
          DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
          Duration = 15
          Id = 18
          Name = "REGULAR"
          PatientInstructions = None
        },
    }
  CommunicationTemplates = None
  DSSCreditStopCode = None
  DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
  Facility =
    (Facility){
      Address =
        (Address){
          City = "MONTGOMERY"
          Id = 16
          State = "AL"
          Street1 = "AL VA OUTPATIENT CLINIC"
          Street2 = "23 ECKERD AVENUE"
          Street3 = None
          Zip = "36109"
        }
      CommunicationTemplates = None
      Hours = "0800-1600"
      Id = 5
      Name = "AL VA OUTPATIENT CLINIC"
      Phone = "(334)272-XXXX"
      ShortName = "AVAOPC"
      Site =
        (Site){
          Address =
            (Address){
              City = "MONTGOMERY"
              Id = 15
              State = "AL"
              Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
              Street2 = None
              Street3 = None
              Zip = "36109"
            }
          Id = 3
          Name = "AL VA HEALTH CARE SYSTEM"
          Phone = "(334)272-4670"
          TimeZoneId = "Central Standard Time"
          VISN = "6"
          VistaSiteId = "557"
        }
      StationNumber = "557OC"
      VistaId = "2959"
    }
  Hours = "0800-1500"
```

```
            Id = 6
            Location = "EAST WING ROOMS 10 AND 11"
            Name = "PRIMARY CARE"
            Service =
              (Service){
                Id = 26
                Name = "MEDICINE"
              }
          }
        ServiceType = None
        Type = "Provider"
        VistaClinicIEN = "3"
      },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
                Name = "COMPENSATION & PENSION"
                VistaId = "1"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 30
            Id = 17
            Name = "C&P"
            PatientInstructions = None
          },
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 30
                Name = "REGULAR"
                VistaId = "9"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 15
            Id = 18
            Name = "REGULAR"
            PatientInstructions = None
          },
      }
    CommunicationTemplates = None
    DSSCreditStopCode = None
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Facility =
      (Facility){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 16
            State = "AL"
            Street1 = "AL VA OUTPATIENT CLINIC"
```

```
                Street2 = "23 ECKERD AVENUE"
                Street3 = None
                Zip = "36109"
              }
            CommunicationTemplates = None
            Hours = "0800-1600"
            Id = 5
            Name = "AL VA OUTPATIENT CLINIC"
            Phone = "(334)272-XXXX"
            ShortName = "AVAOPC"
            Site =
              (Site){
                Address =
                  (Address){
                    City = "MONTGOMERY"
                    Id = 15
                    State = "AL"
                    Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
                    Street2 = None
                    Street3 = None
                    Zip = "36109"
                  }
                Id = 3
                Name = "AL VA HEALTH CARE SYSTEM"
                Phone = "(334)272-4670"
                TimeZoneId = "Central Standard Time"
                VISN = "6"
                VistaSiteId = "557"
              }
            StationNumber = "557OC"
            VistaId = "2959"
          }
        Hours = "0800-1500"
        Id = 6
        Location = "EAST WING ROOMS 10 AND 11"
        Name = "PRIMARY CARE"
        Service =
          (Service){
            Id = 26
            Name = "MEDICINE"
          }
      }
    Status = "Scheduled"
    TelehealthLocation = None
    Time = 2013-05-28 16:15:00
    VistaId = "3130528.1115"
  },
}
```

Step 4 Search for available appointment slot.

Step 5 Display the patient pending appointments

```
(Appointment){
  Activity =
    (ArrayOfAppointmentActivity){
      AppointmentActivity[] =
        (AppointmentActivity){
          ActivityReason = None
          ActivityType = "Create"
          Id = 149
          Time = 2013-06-07 00:23:01
        },
        (AppointmentActivity){
```

```
        ActivityReason = None
        ActivityType = "Modified"
        Id = 151
        Time = 2013-06-07 00:23:03
      },
  }
AppointmentType =
  (AppointmentType){
    AppointmentTypeCategory =
      (AppointmentTypeCategory){
        Id = 25
        Name = "COMPENSATION & PENSION"
        VistaId = "1"
        VistaSiteId = "557"
      }
    DSSCreditStopCode = "450 BRONCHOSCOPY"
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Duration = 30
    Id = 17
    Name = "C&P"
    PatientInstructions = None
  }
CaldavId = None
ChildAppointments =
  (ArrayOfAppointmentRelation){
    AppointmentRelation[] =
      (AppointmentRelation){
        ChildAppointment =
          (Appointment){
            Activity =
              (ArrayOfAppointmentActivity){
                AppointmentActivity[] =
                  (AppointmentActivity){
                    ActivityReason = None
                    ActivityType = "Create"
                    Id = 150
                    Time = 2013-06-07 00:23:02
                  },
              }
            AppointmentType =
              (AppointmentType){
                AppointmentTypeCategory =
                  (AppointmentTypeCategory){
                    Id = 25
                    Name = "COMPENSATION & PENSION"
                    VistaId = "1"
                    VistaSiteId = "557"
                  }
                DSSCreditStopCode = "450 BRONCHOSCOPY"
                DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                Duration = 30
                Id = 17
                Name = "C&P"
                PatientInstructions = None
              }
            CaldavId = None
            ChildAppointments = None
            HighPriorityReschedule = False
            Id = 81
            Length = 15
            Patient =
              (Patient){
                ActiveInsurance = None
```

```
      CaldavResourceId = None
      CurrentMeansStatus = None
      EligibilityCode = None
      HasInsurance = False
      ICN = "500000006"
      Id = 13
      IsVeteran = False
      MilitaryStatus = None
      NeedsMeansTest = False
      Occupation = None
      PatientSites =
        (ArrayOfKeyValueOfstringstring){
          KeyValueOfstringstring[] =
            (KeyValueOfstringstring){
              Key = "557"
              Value = "6"
            },
        }
      PatientType = None
      Person =
        (Person){
          Address =
            (Address){
              City = None
              Id = 42
              State = None
              Street1 = "834 Ocean Vista Avenue"
              Street2 = "SANTA MONICA CALIFORNIA 90401"
              Street3 = None
              Zip = None
            }
          DateOfBirth = 1962-11-01 00:00:00
          Email = None
          Ethnicity = None
          FirstName = "JUANA"
          Id = 409
          LastName = "GREER"
          MaritalStatus = None
          MiddleName = None
          Phone = "3105552233"
          SSN = "300000000"
          Sex = "Male"
        }
      Preferences = None
      PreferencesOther = None
      Religion = None
      SCPercent = 0
      ServiceConnected = False
      SpecialNeeds = None
      SpecialNeedsOther = None
    }
  Resources =
    (ArrayOfResource){
      Resource[] =
        (Resource){
          AllowOverbooking = False
          Blocks = None
          CalendarID = None
          FullfillingResourceId = 4
          Holds = None
          Id = 3
          Name = "case1 step 9 test"
          SchedulingPolicies =
```

```
(ArrayOfSchedulingPolicy){
  SchedulingPolicy[] =
    (SchedulingPolicy){
      DayOfWeek = 2
      EndEffectDate = 2014-01-15 00:00:00
      Id = 72
      Priority = 0
      Slots =
        (ArrayOfSlot){
          Slot[] =
            (Slot){
              AppointmentType =
                (AppointmentType){
                  AppointmentTypeCategory =
                    (AppointmentTypeCategory){
                      Id = 25
                      Name = "COMPENSATION & PENSION"
                      VistaId = "1"
                      VistaSiteId = "557"
                    }
                  DSSCreditStopCode = "450 BRONCHOSCOPY"
                  DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                  Duration = 30
                  Id = 17
                  Name = "C&P"
                  PatientInstructions = None
                }
              Capacity = 4
              Id = 570
              Length = 15
              Time = "PT16H"
            },
            (Slot){
              AppointmentType =
                (AppointmentType){
                  AppointmentTypeCategory =
                    (AppointmentTypeCategory){
                      Id = 25
                      Name = "COMPENSATION & PENSION"
                      VistaId = "1"
                      VistaSiteId = "557"
                    }
                  DSSCreditStopCode = "450 BRONCHOSCOPY"
                  DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                  Duration = 30
                  Id = 17
                  Name = "C&P"
                  PatientInstructions = None
                }
              Capacity = 4
              Id = 571
              Length = 15
              Time = "PT16H15M"
            },
        }
      StartEffectDate = 2013-01-04 00:00:00
    },
}
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
```

```
(ArrayOfAppointmentType){
  AppointmentType[] =
    (AppointmentType){
      AppointmentTypeCategory =
        (AppointmentTypeCategory){
          Id = 25
          Name = "COMPENSATION & PENSION"
          VistaId = "1"
          VistaSiteId = "557"
        }
      DSSCreditStopCode = "450 BRONCHOSCOPY"
      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
      Duration = 30
      Id = 17
      Name = "C&P"
      PatientInstructions = None
    },
    (AppointmentType){
      AppointmentTypeCategory =
        (AppointmentTypeCategory){
          Id = 30
          Name = "REGULAR"
          VistaId = "9"
          VistaSiteId = "557"
        }
      DSSCreditStopCode = "450 BRONCHOSCOPY"
      DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
      Duration = 15
      Id = 18
      Name = "REGULAR"
      PatientInstructions = None
    },
}
CommunicationTemplates = None
DSSCreditStopCode = None
DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
Facility =
  (Facility){
    Address =
      (Address){
        City = "MONTGOMERY"
        Id = 16
        State = "AL"
        Street1 = "AL VA OUTPATIENT CLINIC"
        Street2 = "23 ECKERD AVENUE"
        Street3 = None
        Zip = "36109"
      }
    CommunicationTemplates = None
    Hours = "0800-1600"
    Id = 5
    Name = "AL VA OUTPATIENT CLINIC"
    Phone = "(334)272-XXXX"
    ShortName = "AVAOPC"
    Site =
      (Site){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 15
            State = "AL"
            Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
            Street2 = None
```

```
                        Street3 = None
                        Zip = "36109"
                      }
                    Id = 3
                    Name = "AL VA HEALTH CARE SYSTEM"
                    Phone = "(334)272-4670"
                    TimeZoneId = "Central Standard Time"
                    VISN = "6"
                    VistaSiteId = "557"
                  }
                StationNumber = "557OC"
                VistaId = "2959"
              }
            Hours = "0800-1500"
            Id = 6
            Location = "EAST WING ROOMS 10 AND 11"
            Name = "PRIMARY CARE"
            Service =
              (Service){
                Id = 26
                Name = "MEDICINE"
              }
          }
        ServiceType = None
        Type = "Provider"
        VistaClinicIEN = "3"
      },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
                Name = "COMPENSATION & PENSION"
                VistaId = "1"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 30
            Id = 17
            Name = "C&P"
            PatientInstructions = None
          },
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 30
                Name = "REGULAR"
                VistaId = "9"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 15
            Id = 18
            Name = "REGULAR"
```

```
            PatientInstructions = None
          },
      }
    CommunicationTemplates = None
    DSSCreditStopCode = None
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Facility =
      (Facility){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 16
            State = "AL"
            Street1 = "AL VA OUTPATIENT CLINIC"
            Street2 = "23 ECKERD AVENUE"
            Street3 = None
            Zip = "36109"
          }
        CommunicationTemplates = None
        Hours = "0800-1600"
        Id = 5
        Name = "AL VA OUTPATIENT CLINIC"
        Phone = "(334)272-XXXX"
        ShortName = "AVAOPC"
        Site =
          (Site){
            Address =
              (Address){
                City = "MONTGOMERY"
                Id = 15
                State = "AL"
                Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
                Street2 = None
                Street3 = None
                Zip = "36109"
              }
            Id = 3
            Name = "AL VA HEALTH CARE SYSTEM"
            Phone = "(334)272-4670"
            TimeZoneId = "Central Standard Time"
            VISN = "6"
            VistaSiteId = "557"
          }
        StationNumber = "557OC"
        VistaId = "2959"
      }
    Hours = "0800-1500"
    Id = 6
    Location = "EAST WING ROOMS 10 AND 11"
    Name = "PRIMARY CARE"
    Service =
      (Service){
        Id = 26
        Name = "MEDICINE"
      }
  }
Status = "Scheduled"
TelehealthLocation = None
Time = 2013-05-28 16:15:00
VistaId = "3130528.1115"
}
Id = 11
RelationType = "Followup"
```

```
      },
  }
HighPriorityReschedule = True
Id = 80
Length = 15
Patient =
  (Patient){
    ActiveInsurance = None
    CaldavResourceId = None
    CurrentMeansStatus = None
    EligibilityCode = None
    HasInsurance = False
    ICN = "500000006"
    Id = 13
    IsVeteran = False
    MilitaryStatus = None
    NeedsMeansTest = False
    Occupation = None
    PatientSites =
      (ArrayOfKeyValueOfstringstring){
        KeyValueOfstringstring[] =
          (KeyValueOfstringstring){
            Key = "557"
            Value = "6"
          },
      }
    PatientType = None
    Person =
      (Person){
        Address =
          (Address){
            City = None
            Id = 42
            State = None
            Street1 = "834 Ocean Vista Avenue"
            Street2 = "SANTA MONICA CALIFORNIA 90401"
            Street3 = None
            Zip = None
          }
        DateOfBirth = 1962-11-01 00:00:00
        Email = None
        Ethnicity = None
        FirstName = "JUANA"
        Id = 409
        LastName = "GREER"
        MaritalStatus = None
        MiddleName = None
        Phone = "3105552233"
        SSN = "300000000"
        Sex = "Male"
      }
    Preferences = None
    PreferencesOther = None
    Religion = None
    SCPercent = 0
    ServiceConnected = False
    SpecialNeeds = None
    SpecialNeedsOther = None
  }
Resources =
  (ArrayOfResource){
    Resource[] =
      (Resource){
```

```
AllowOverbooking = False
Blocks = None
CalendarID = None
FullfillingResourceId = 4
Holds = None
Id = 3
Name = "case1 step 9 test"
SchedulingPolicies =
  (ArrayOfSchedulingPolicy){
    SchedulingPolicy[] =
      (SchedulingPolicy){
        DayOfWeek = 2
        EndEffectDate = 2014-01-15 00:00:00
        Id = 72
        Priority = 0
        Slots =
          (ArrayOfSlot){
            Slot[] =
              (Slot){
                AppointmentType =
                  (AppointmentType){
                    AppointmentTypeCategory =
                      (AppointmentTypeCategory){
                        Id = 25
                        Name = "COMPENSATION & PENSION"
                        VistaId = "1"
                        VistaSiteId = "557"
                      }
                    DSSCreditStopCode = "450 BRONCHOSCOPY"
                    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                    Duration = 30
                    Id = 17
                    Name = "C&P"
                    PatientInstructions = None
                  }
                Capacity = 4
                Id = 570
                Length = 15
                Time = "PT16H"
              },
              (Slot){
                AppointmentType =
                  (AppointmentType){
                    AppointmentTypeCategory =
                      (AppointmentTypeCategory){
                        Id = 25
                        Name = "COMPENSATION & PENSION"
                        VistaId = "1"
                        VistaSiteId = "557"
                      }
                    DSSCreditStopCode = "450 BRONCHOSCOPY"
                    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
                    Duration = 30
                    Id = 17
                    Name = "C&P"
                    PatientInstructions = None
                  }
                Capacity = 4
                Id = 571
                Length = 15
                Time = "PT16H15M"
              },
          }
```

```
        StartEffectDate = 2013-01-04 00:00:00
      },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
                Name = "COMPENSATION & PENSION"
                VistaId = "1"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 30
            Id = 17
            Name = "C&P"
            PatientInstructions = None
          },
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 30
                Name = "REGULAR"
                VistaId = "9"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 15
            Id = 18
            Name = "REGULAR"
            PatientInstructions = None
          },
      }
    CommunicationTemplates = None
    DSSCreditStopCode = None
    DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
    Facility =
      (Facility){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 16
            State = "AL"
            Street1 = "AL VA OUTPATIENT CLINIC"
            Street2 = "23 ECKERD AVENUE"
            Street3 = None
            Zip = "36109"
          }
        CommunicationTemplates = None
        Hours = "0800-1600"
        Id = 5
        Name = "AL VA OUTPATIENT CLINIC"
        Phone = "(334)272-XXXX"
        ShortName = "AVAOPC"
        Site =
```

```
                (Site){
                  Address =
                    (Address){
                      City = "MONTGOMERY"
                      Id = 15
                      State = "AL"
                      Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
                      Street2 = None
                      Street3 = None
                      Zip = "36109"
                    }
                  Id = 3
                  Name = "AL VA HEALTH CARE SYSTEM"
                  Phone = "(334)272-4670"
                  TimeZoneId = "Central Standard Time"
                  VISN = "6"
                  VistaSiteId = "557"
                }
              StationNumber = "557OC"
              VistaId = "2959"
            }
          Hours = "0800-1500"
          Id = 6
          Location = "EAST WING ROOMS 10 AND 11"
          Name = "PRIMARY CARE"
          Service =
            (Service){
              Id = 26
              Name = "MEDICINE"
            }
        }
      ServiceType = None
      Type = "Provider"
      VistaClinicIEN = "3"
    },
  }
Section =
  (Section){
    Abbreviation = "PC"
    Active = True
    AppointmentTypes =
      (ArrayOfAppointmentType){
        AppointmentType[] =
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 25
                Name = "COMPENSATION & PENSION"
                VistaId = "1"
                VistaSiteId = "557"
              }
            DSSCreditStopCode = "450 BRONCHOSCOPY"
            DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
            Duration = 30
            Id = 17
            Name = "C&P"
            PatientInstructions = None
          },
          (AppointmentType){
            AppointmentTypeCategory =
              (AppointmentTypeCategory){
                Id = 30
                Name = "REGULAR"
```

```
            VistaId = "9"
            VistaSiteId = "557"
          }
        DSSCreditStopCode = "450 BRONCHOSCOPY"
        DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
        Duration = 15
        Id = 18
        Name = "REGULAR"
        PatientInstructions = None
      },
  }
CommunicationTemplates = None
DSSCreditStopCode = None
DSSPrimaryStopCode = "323 TELEPHONE/NEUROLOGY"
Facility =
  (Facility){
    Address =
      (Address){
        City = "MONTGOMERY"
        Id = 16
        State = "AL"
        Street1 = "AL VA OUTPATIENT CLINIC"
        Street2 = "23 ECKERD AVENUE"
        Street3 = None
        Zip = "36109"
      }
    CommunicationTemplates = None
    Hours = "0800-1600"
    Id = 5
    Name = "AL VA OUTPATIENT CLINIC"
    Phone = "(334)272-XXXX"
    ShortName = "AVAOPC"
    Site =
      (Site){
        Address =
          (Address){
            City = "MONTGOMERY"
            Id = 15
            State = "AL"
            Street1 = "HEADQUARTERS AL HEALTH CARE SYSTEM"
            Street2 = None
            Street3 = None
            Zip = "36109"
          }
        Id = 3
        Name = "AL VA HEALTH CARE SYSTEM"
        Phone = "(334)272-4670"
        TimeZoneId = "Central Standard Time"
        VISN = "6"
        VistaSiteId = "557"
      }
    StationNumber = "557OC"
    VistaId = "2959"
  }
Hours = "0800-1500"
Id = 6
Location = "EAST WING ROOMS 10 AND 11"
Name = "PRIMARY CARE"
Service =
  (Service){
    Id = 26
    Name = "MEDICINE"
  }
```

```
    }
  Status = "Scheduled"
  TelehealthLocation = None
  Time = 2013-05-28 15:00:00
  VistaId = "3130528.11"
 }
checkpoint 1
verified patinet's pending appointments
Step 6 Display the patient no-show (unkept) appointment history

Step 7 Select the appointment slot

Step 8 Reassign the patients appointment

checkpoint 2
verified patient's reassigned appointment
Step 9 Reschedule the associated appointments

Step 10 Send the appointment notification

checkpoint 3
verified new patient appointment notification letter
```

3.8. Use Case 8 Test Script Execution

User: Scheduler

Goals: Add Request to Waiting List and Schedule Patient from Waiting List

Run_uc8.bat

Data added/modify in the Scheduling Application database

- Appointment Request (used as the waiting list and transfer queue)
- Appointment Info (especially appointment status)
- Notification Queue

Data added/modify in VistA

- Corresponding clinic/provider appointment status

Notes

- When the status of an appointment is changed within the scheduling application, that status change is reflected in the corresponding appointment in VistA.

Sample Log

```
initializing vista and sql db...
plesae wait...
setp 1
        add a patient to waiting list
step 2
        sending waiting list notification to the patient
checkpoint 1
```

```
            patient is listed on the waiting list and notification letter got created
step 3
            checking open resource for an appointment
checkpoint 2
            patient is listed on the waiting list
step 4
select a patient from the waiting list where SC > 50%
step 5
display patient demographics and contact the patient
(Patient){
  ActiveInsurance = "0"
  CaldavResourceId = None
  CurrentMeansStatus = None
  EligibilityCode = None
  HasInsurance = False
  ICN = "500000004"
  Id = 7
  IsVeteran = True
  MilitaryStatus = None
  NeedsMeansTest = False
  Occupation = None
  PatientSites =
    (ArrayOfKeyValueOfstringstring){
      KeyValueOfstringstring[] =
        (KeyValueOfstringstring){
          Key = "557"
          Value = "4"
        },
        (KeyValueOfstringstring){
          Key = "555"
          Value = "791"
        },
    }
  PatientType = "SC VETERAN"
  Person =
    (Person){
      Address =
        (Address){
          City = None
          Id = 36
          State = None
          Street1 = "834 Ocean Vista Avenue"
          Street2 = "SANTA MONICA CALIFORNIA 90401"
          Street3 = None
          Zip = None
        }
      DateOfBirth = 1968-10-04 00:00:00
      Email = None
      Ethnicity = None
      FirstName = "HUGH"
      Id = 403
      LastName = "BENSON"
      MaritalStatus = None
      MiddleName = None
      Phone = "3105552233"
      SSN = "300000006"
      Sex = "Male"
    }
  Preferences = None
  PreferencesOther = None
  Religion = None
  SCPercent = 100
  ServiceConnected = True
```

```
  SpecialNeeds = None
  SpecialNeedsOther = None
 }
step 6
make the appointment
Scheduled
step 7
remove patient from the EWL
checkpoint 3
verified the patient is removed from EWL
step 8
send the appointment notification to the patient
checkpoint 4
verified the existence of the appointment notification for the patient

-------------------------------------------------------------------------------------------

step 1
add patient request to the transfer list
step 2
        sending transfer request notification to the patient
step 3
        checking transfer request for the new location
step 4
transfer the patient to new location
step 5
create an appointment on new location
Scheduled
step 6
send the appointment notification to the patient on new location
```

3.9. Verbose Output

The scripts can be run with “verbose output” which outputs a great deal of information mainly for debugging purposes. The volume of data output may be difficult to understand for non-developers who are unfamiliar with the scripts. We will offer assistance with Verbose Output analysis if requested.

<script_name>.bat -verbose (i.e. run_uc1.bat –verbose)

STEP 2 EVALUATION

4. Health eTime Scheduling Application User Manual (Version: Alpha)

4.1. Application Description

The Health eTime Medical Scheduling Application (Version Alpha) has been developed as a rapid prototype in response to the America Competes Medical Scheduling Challenge. Health eTime alpha's capabilities are consistent with the Medical Scheduling Challenge requirements. It is broadly intended to facilitate the lifecycle management of individual and group patient appointments from booking, canceling and rescheduling, through to completion and the recording of appointment outcomes.

The Health eTime application is designed to augment, and eventually replace, functionality currently provided through the legacy VistA scheduling module but the application is oriented to, and organically integrated with, VistA as the system of record. In order to maintain data integrity and facilitate VistA integration, a number of basic data elements, such as Patients and Providers, are drawn from the local VistA instances and rendered as "read only" within the Health eTime application (as described in Section 5.1). Health eTime also writes essential data, such as patient appointment information, back to VistA, where it can be accessed by other modules such as CPRS or used for reporting purposes.

Several improvements to the current VA scheduling capability are included in this release. The first is the ability was to extend scheduling capability across VA sites and time zones and consolidate all scheduling activity into a single patient view. The cornerstone of this capability is the applications use of Coordinated Universal Time (UTC) to broker an appointment management between the local VistA sites.

The application always presents appointment times in the user's local time zone (PDT in California, for example), but system date times are held in UTC (Coordinated Universal Time), which the application translates to local time on demand.

Second, Health eTime has a comprehensive data model that allows for the integrated scheduling and management of a variety of resources such as providers, rooms and equipment.

Third, the application framework permits role-based access that can be linked, in the future, to the identity management and role definition within the VistA or MyHealthyVet systems.

Fourth, as part of an extensive set of reporting capabilities, the application creates an audit log of basic actions performed by users. This includes actions such as creating or canceling appointments. This functionality, along with other reporting capabilities, can be readily extended

to provide a comprehensive overview of application and enterprise activity. Finally, Health eTime is a browser-based application, designed to be accessed from the tools menu of CPRS. Aside from configuration changes to the local VistA/CPRS instances it, deployment requires no installation or ongoing upgrades and maintenance at the local level.

The application is based on standard web-based menus and controls and is designed to operate effectively through an application browser. For the purposes of this pilot the recommended browser is Internet Explorer 8 or 9.

It is recognized that schedulers are time constrained, and with patients waiting on a phone or at a reception desk speed is an essential part of delivering a good customer service experience to the patient. The user interface design was undertaken to ensure the application is easy to use and presents to the user only essential information and valid options such as only available slots when making an appointment, and only valid Providers for a chosen clinic.
Within the system configuration menus breadcrumbs have been implemented to aid navigation. At key parts of the application the user is asked to confirm the patient demographics to reduce any risk of invalid patient identification, and the context of that patient is maintained through different menus.

Open source Calendar user controls are deployed within appropriate pages such as the Provider Roster or Clinic Views.

4.2. Overview

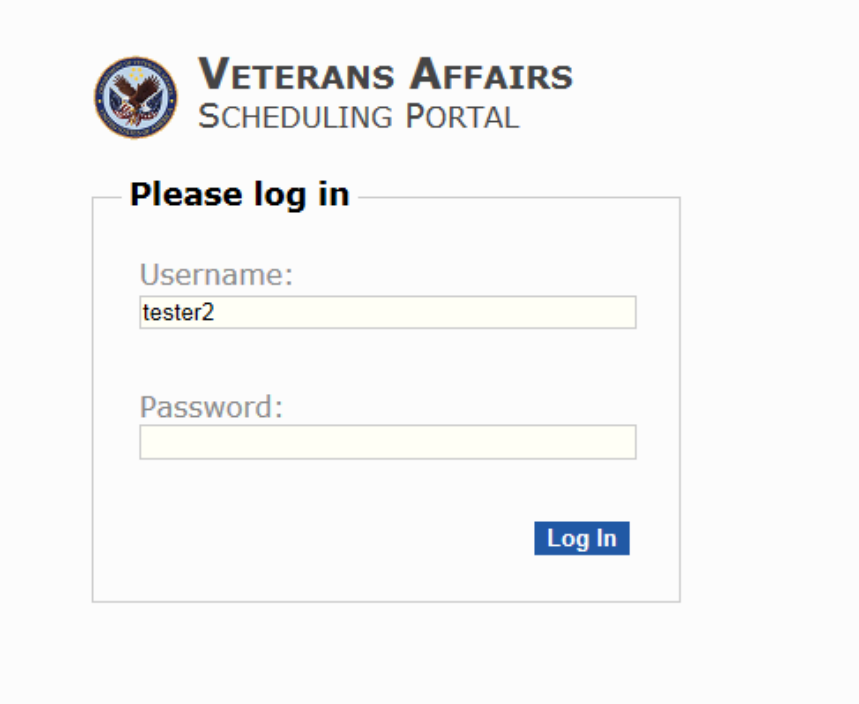
The Health eTime Step by Step User Guide provides users access to patient appointment scheduling as well as other functions based on their user access permission. In this application portal you will be able to complete multiple tasks including but not limited to schedule patient, group, and telehealth appointments for patients along with scheduling for rooms, equipment, and providers. You also have access to create, run, and export reports through the reporting section of the application.

4.3. Getting Started and Sign-on

For the submission we have provided a set of users who have access to all actions within the application. Access can be restricted based on the defined role for each logged-on user.
To log in, open a new Internet Explorer web browser and paste the following URL:
http://166.78.237.187/SchedulingWeb

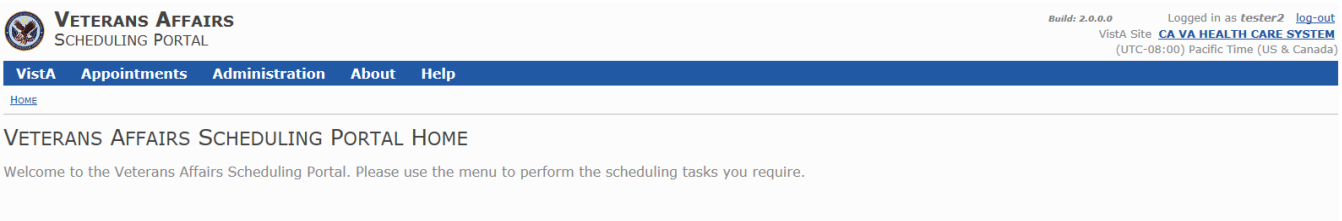
It is preferred that you use Internet Explorer to use the application.
Use the following sign-in information to log in:
Username: tester2

Password: tester2



When you successfully log into the home web page, the application presents the tabs that are available based on your permissions. Currently, the application is set up for the log in role of Administrator.

The below page displays:



The top right of the screen includes a Vista Site drop down. The site selected determines what information will display and what site you are scheduling and viewing appointments for.

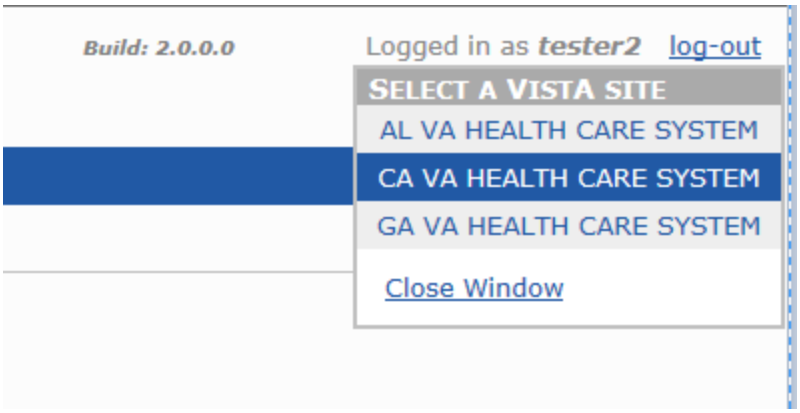
In this manual we will go over each of the sections, VistA, Appointments, Administration, About, and Help and describe how to use all functionality available.

4.4. VistA and VistA Site Selection

This section of the application is for setting up and viewing facilities, clinics, rooms, equipment, providers, resources, slots, and appointment type.

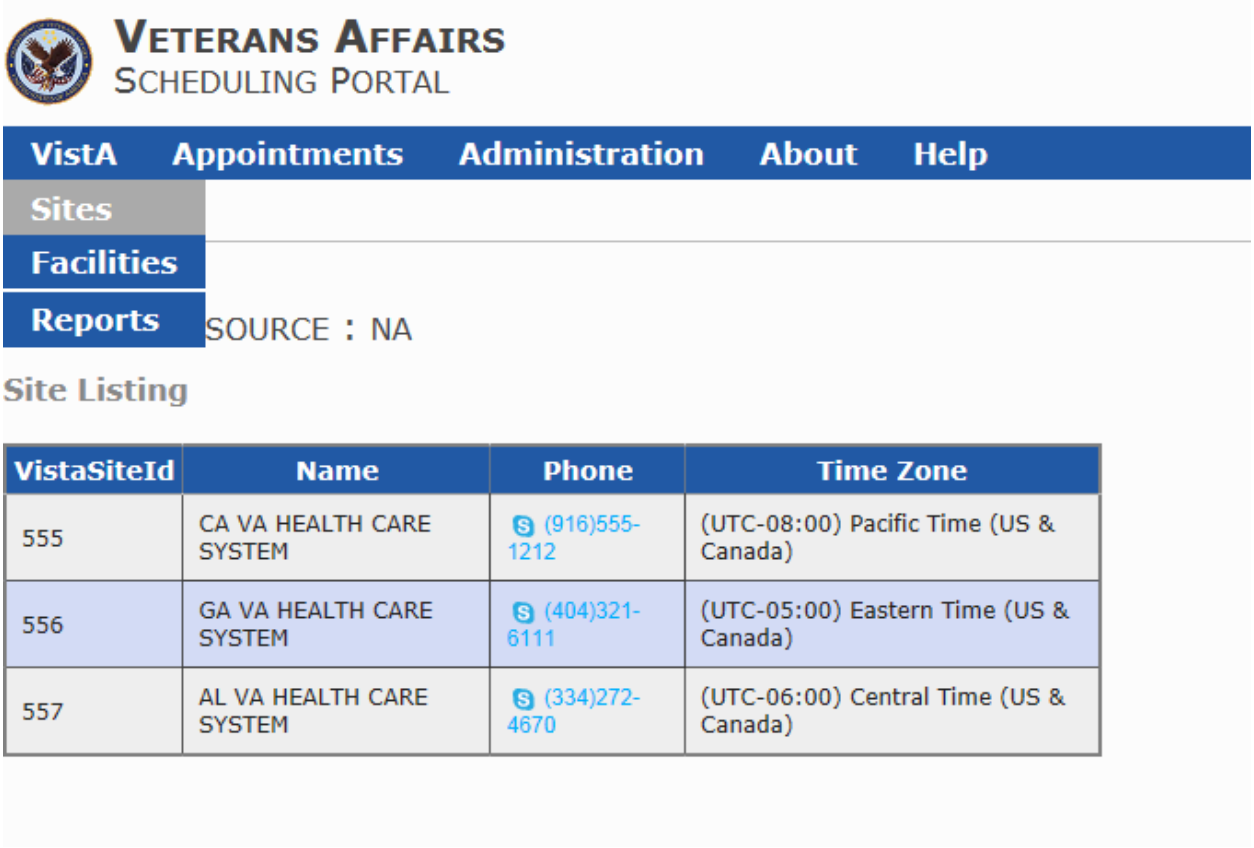
Selecting a Site

The top right of the screen includes a Vista Site drop down. Click on the site name to change your site. You can change your site at any point while in the application. This determines what information will display and what site you are scheduling and viewing appointments for.



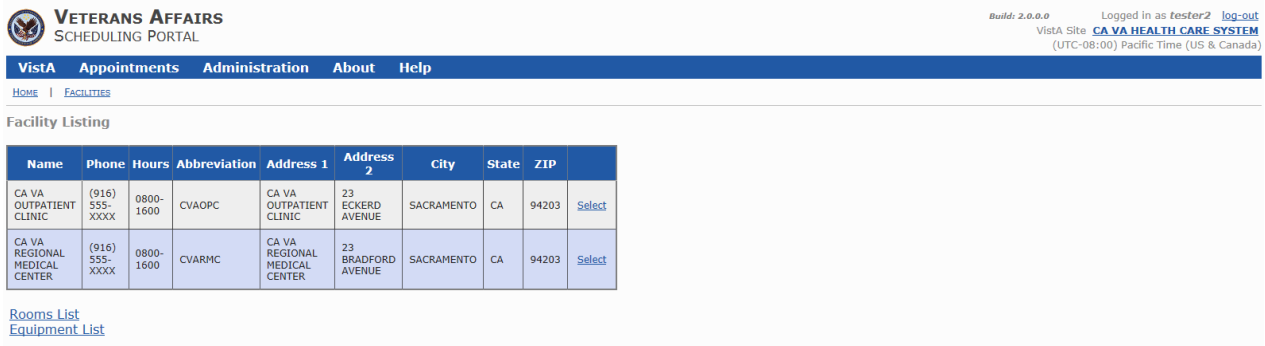
Viewing Site Details

From the home page, select the VistA menu and select Sites. A list of the Sites using Health eTime along with their phone number and time zone display.



Viewing Facilities

From the Welcome page, select the VistA tab and select Facilities. The Facilities will display according to what Site you have selected in the top right toolbar under VistA Sites.



This option shows the facilities that have been created. For the purposes of this contest facilities have been set-up by the automated test scripts.

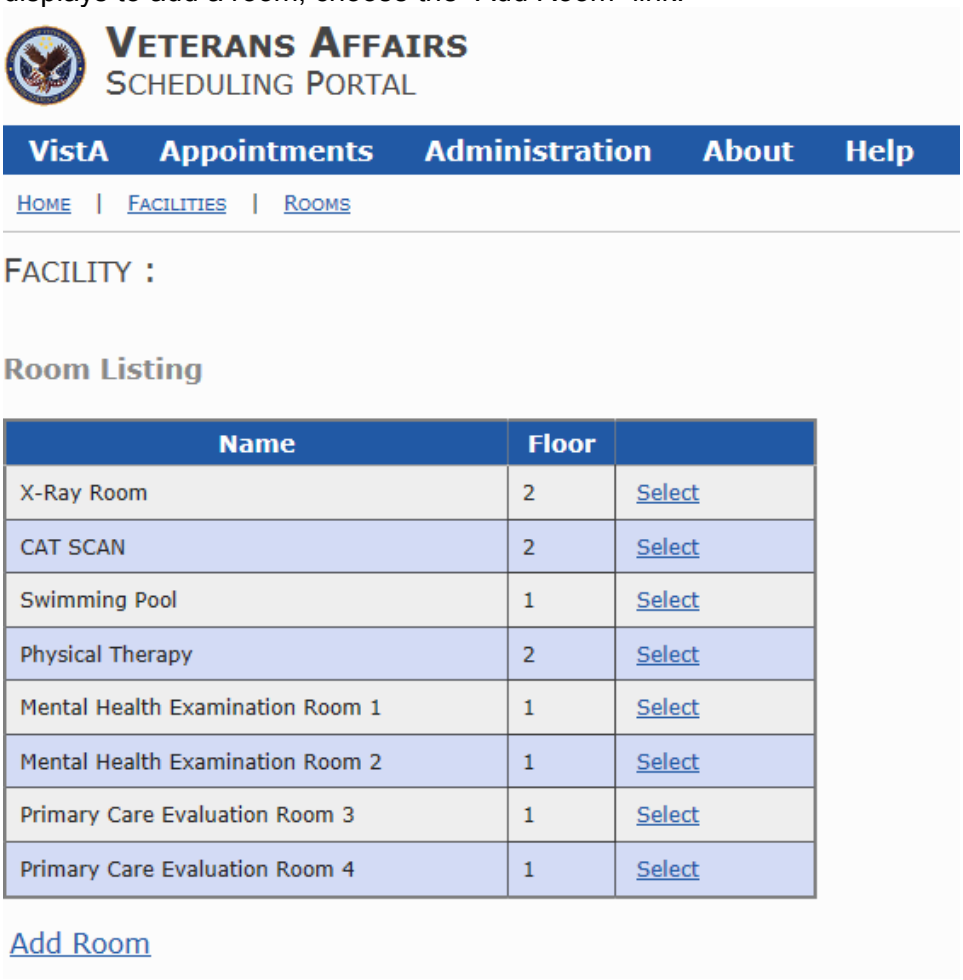
This page allows the users to set-up attributes for each facility which include:

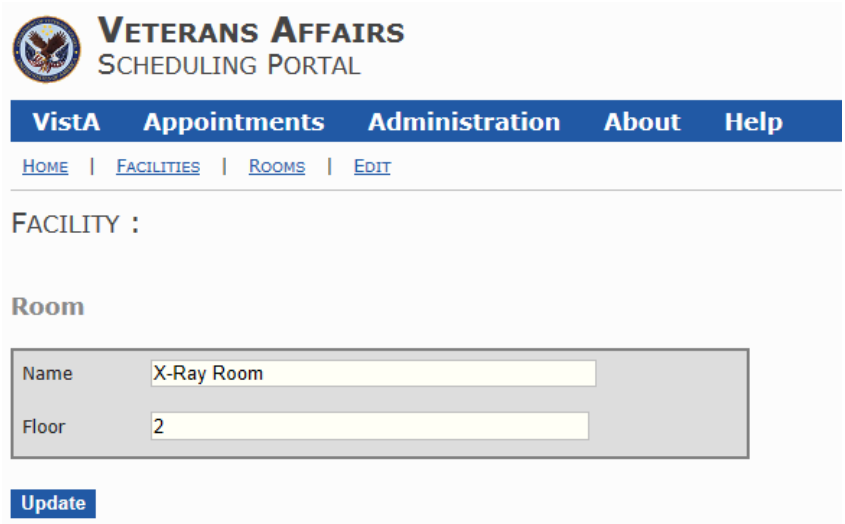
- Facility Rooms, which can be scheduled
- Facility Equipment, which can be scheduled

- Facility wide communication templates – please refer to the section below on how communication templates can be further used

Managing Rooms for a Facility

From the VistA menu, select Facilities then click the link titled “Rooms List”. A list of rooms displays to add a room, choose the “Add Room” link.

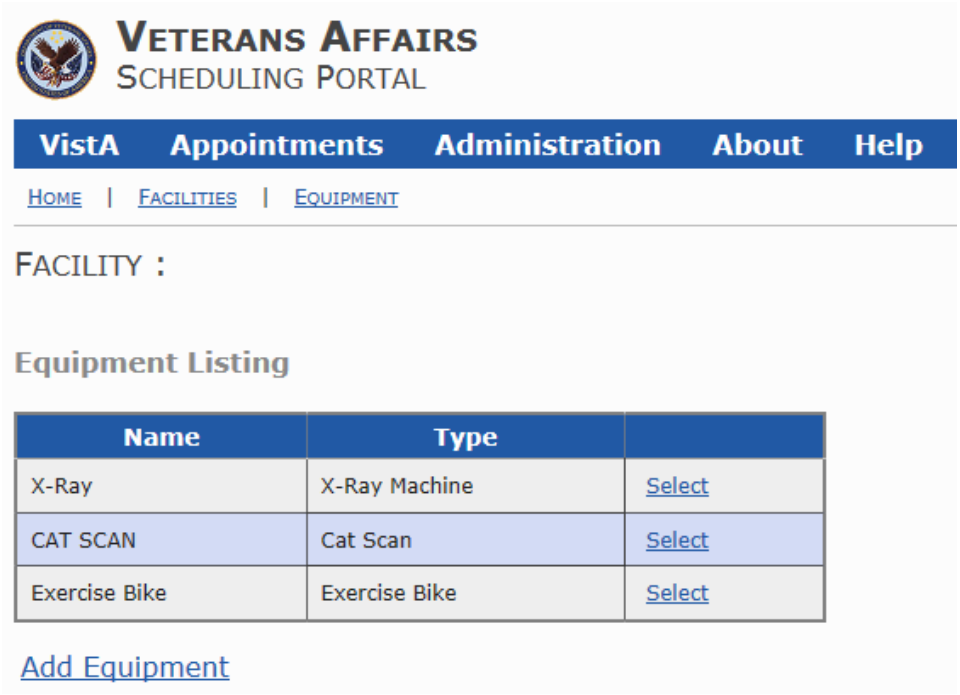




Enter the Name of the room and the floor then select “Add”. To update a room, click Select for that room, edit and click Update.

Managing Equipment for a Facility

From the VistA menu, select Facilities then the link titled “Equipment List” and the following page displays with the list of Equipment.



To add equipment, click the “Add Equipment” link. To manage a piece of Equipment, choose the “Select” link next to the Equipment name in the table. Here you can update the “Name” and “Type” of the Equipment and click “Update”. You are returned to the Equipment Listing table.

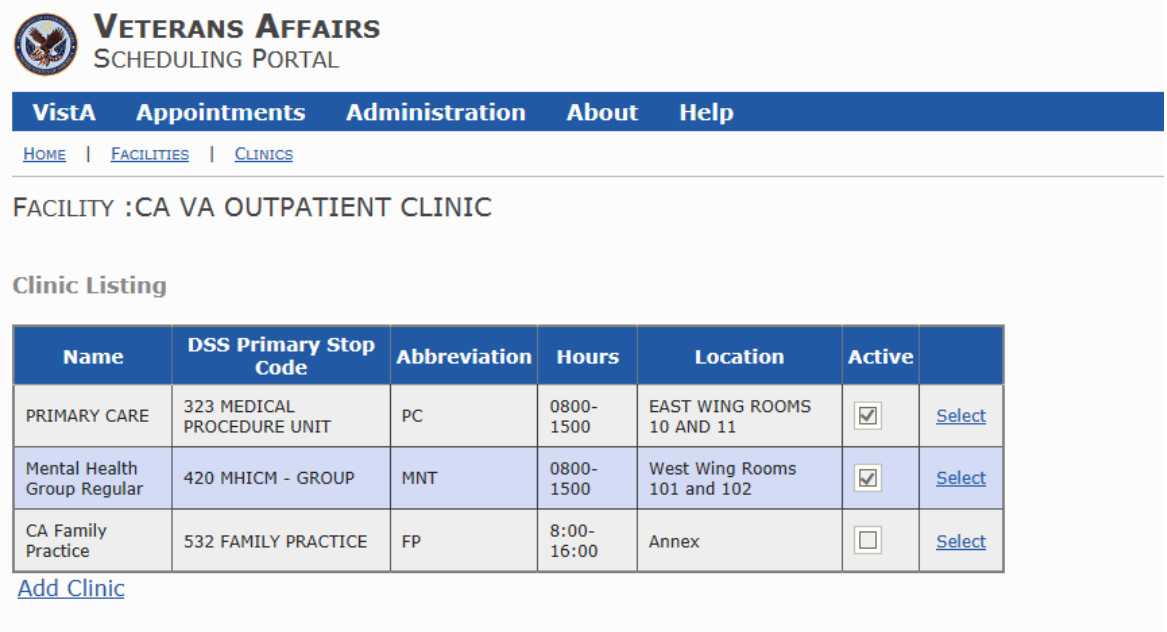
Managing a Facility

From the VistA menu select Facilities then click Select for Facility you want to manage. Here you can choose “View Clinics” to add or manage a clinic or “Template List” to add Communication Templates which apply to the entire Facility.

Managing Clinics

This page enables the user to create clinics, so that providers, staff and/or other essential resources such as rooms and equipment can then be assigned. Policies can be set for scheduling for those resources. Note that setting up Scheduling Application Clinics will create a corresponding clinic within the appropriate VistA systems. Attributes of the clinic include:

Once you select “View Clinics” from a selected Facility, a listing of that Facility’s clinics display as shown below. This listing displays the DSS Primary Stop Code, Abbreviation, Hours, Location, and Active status for that Clinic.



To select a Clinic, select the link titled “Select” next to the Clinic Location and the Clinic Details page displays:

You can select “De-Active” to inactivate a Clinic or if it is not activated you could select “Activate” here.

Select “Edit” within the Clinic table to make changes to the Name, DSS Primary Stop Code, Abbreviation, Hours, and Location. Once complete, select the “Update” button. You will be returned to the Clinic Listing screen.

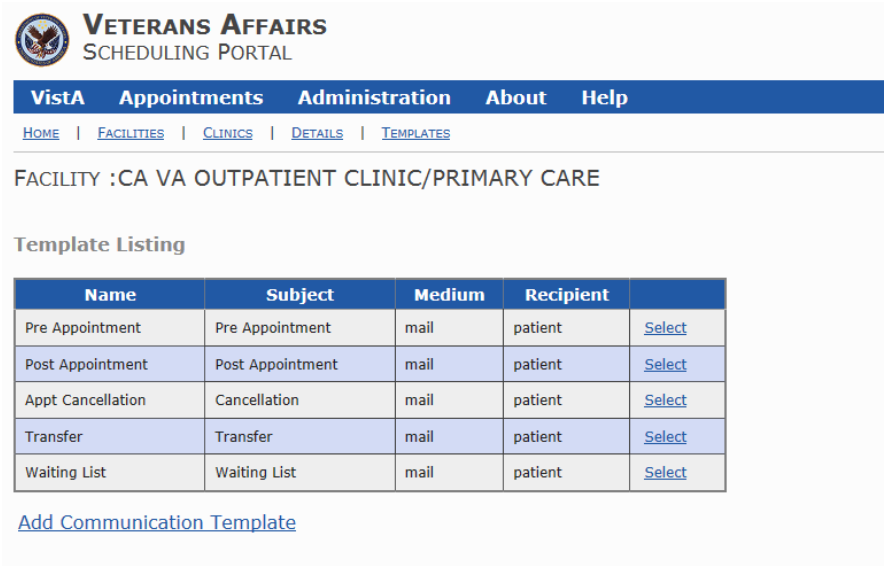
Communications Template List for a Clinic

Communication Templates are templates for letters that can be sent to a patient via email, text message or mail based on the user's choosing. These templates can be added for a Clinic by choosing the Communications Template Listing link from the Clinic Details page. Please refer to Appendix B.15 for more detail on the communication notifications and templates.

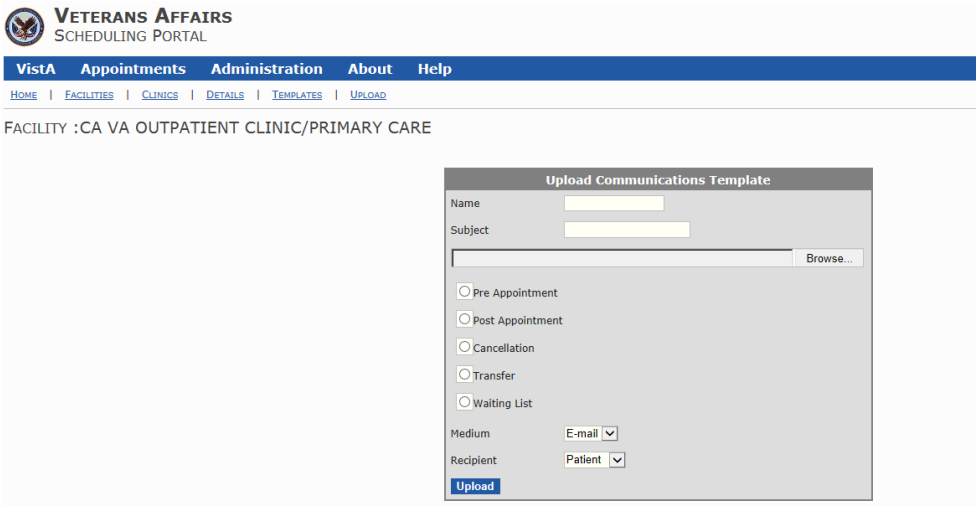
The following fields can be added in a future release to the communication template:

Date Offset – The possible values will be the number of days prior to (-1, -2, -3…) or after the (+1, +2, +3…) date of an appointment that the communication needs to be sent

Select the link and the following displays:



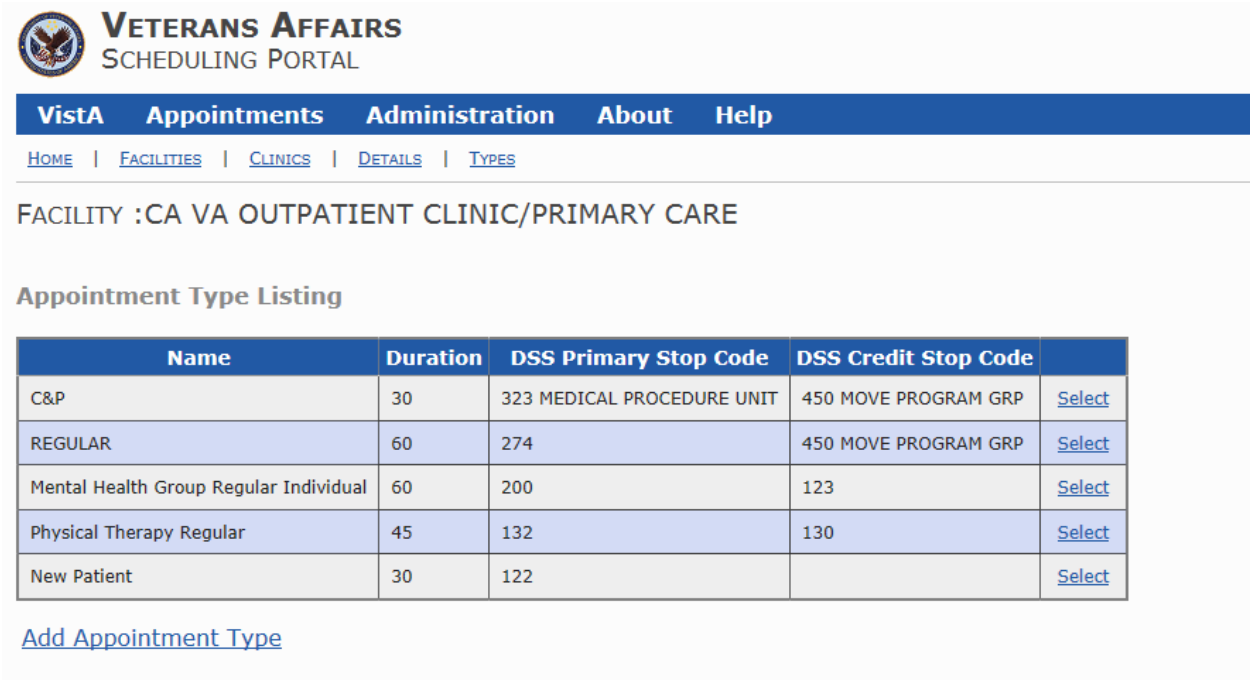
Here you can edit a current template by choosing “Select” on the row of your template. Once complete, select “Update” to return back to the Template Listing page. To add a new template, select “Add Communication Template” and the following displays:



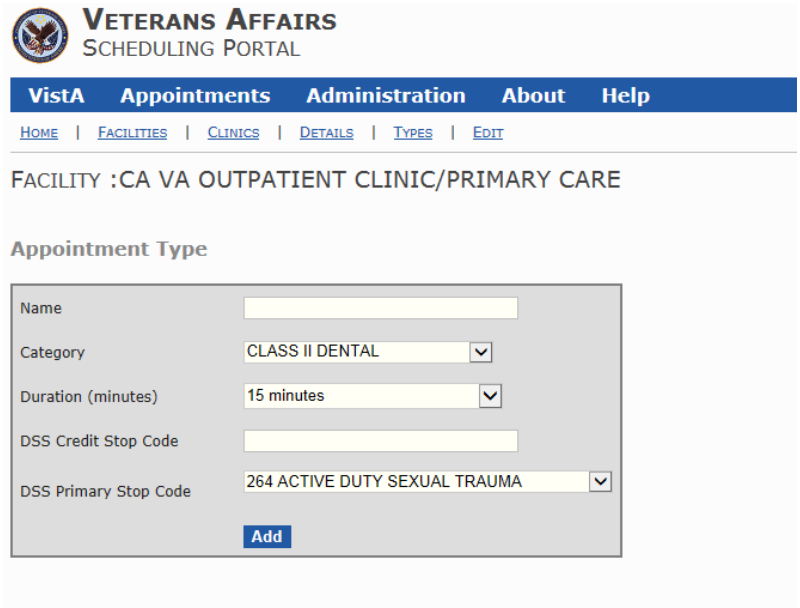
Update the Name, Subject, Type of Template you are uploading (Pre-Appointment, Post-Appointment, Cancellation, Transfer, or Waiting List), Medium, and Recipient. Select “Browse” to locate the template you are uploading from your computer and select it. Repeat this process until all templates for the Clinic have been uploaded.

Appointment Type List

From the Clinic Details page click the Appointment Types List link.



All appointment types created for that Clinic will display to edit one choose the “Select” link. To add an Appointment Type select the “Add Appointment Type” link.

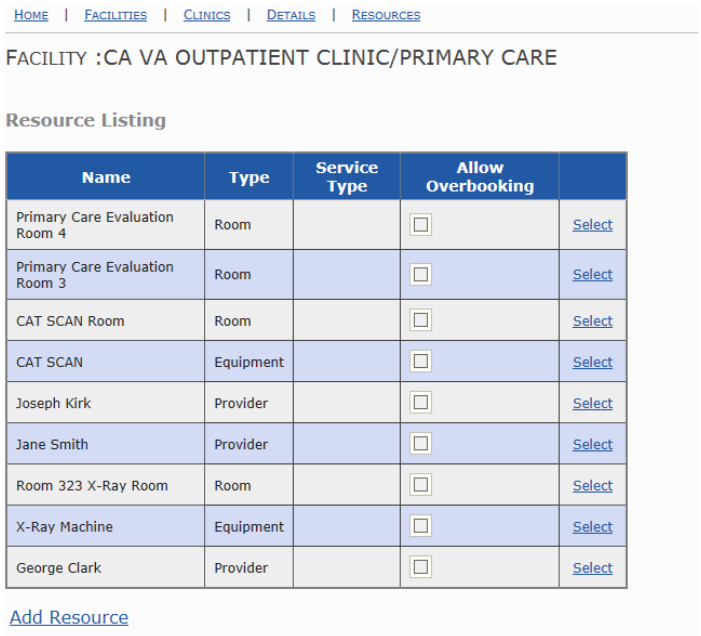


Enter the Name, Category, Duration, DSS Credit Stop Code, and DSS Primary Stop Code then select “Add”. The Category and DSS Primary Stop Code fields are drop downs which are populated from up to date data pulled from Vista.

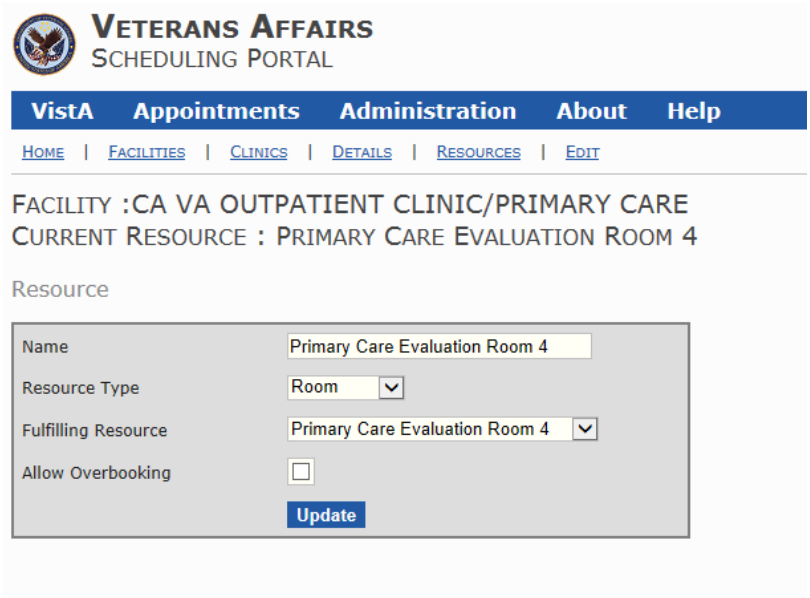
Repeat this process until you have added all Appointment Types for your Clinic.

Clinic Resources List

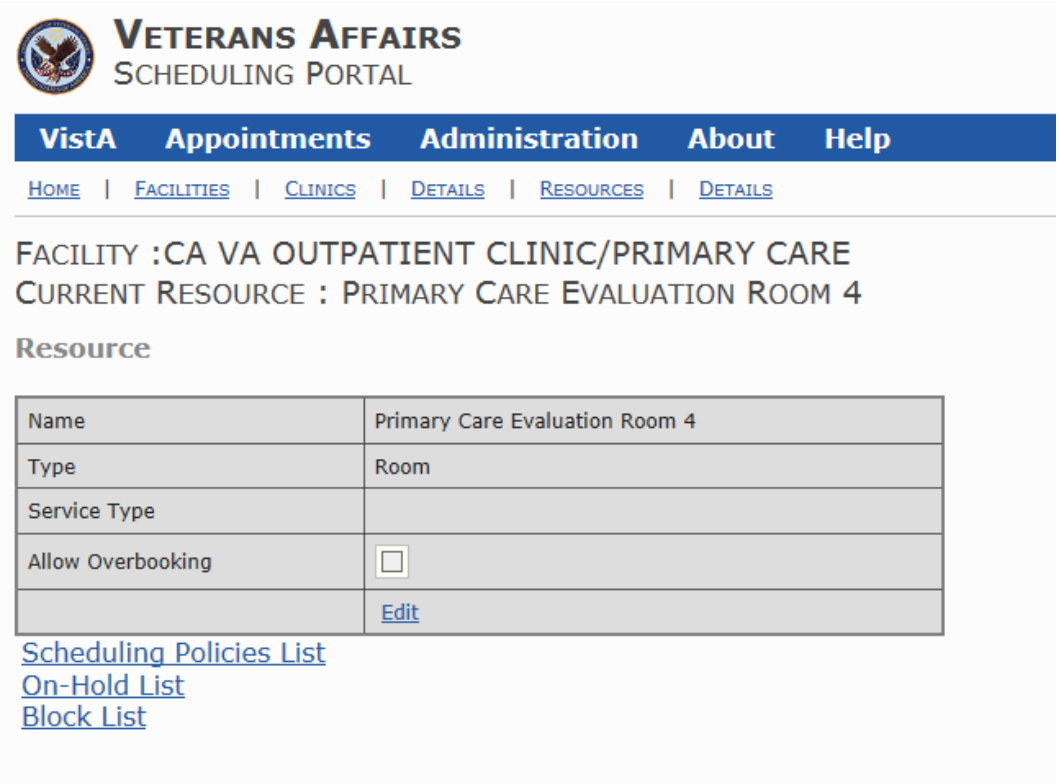
From the Clinic Details page, select the Clinic Resources link to update the resources for a Clinic. Resources include providers, equipment, and rooms. Providers are automatically uploaded from Vista. However, you will only be able to allocate rooms and equipment for the Clinic if they were created under the Facility screen discussed in the Managing Equipment for a Facility and Managing Rooms for a Facility section above.



To edit a resource, choose the “Select” link and choose “Edit”.



You can choose to “Allow Overbooking” for the Resource. Leaving the box unchecked means that the Resource can only have appointments made if they have a Scheduling Time Slot open for the time period. This will be addressed in the next section. Once you have made your changes select “Update”.

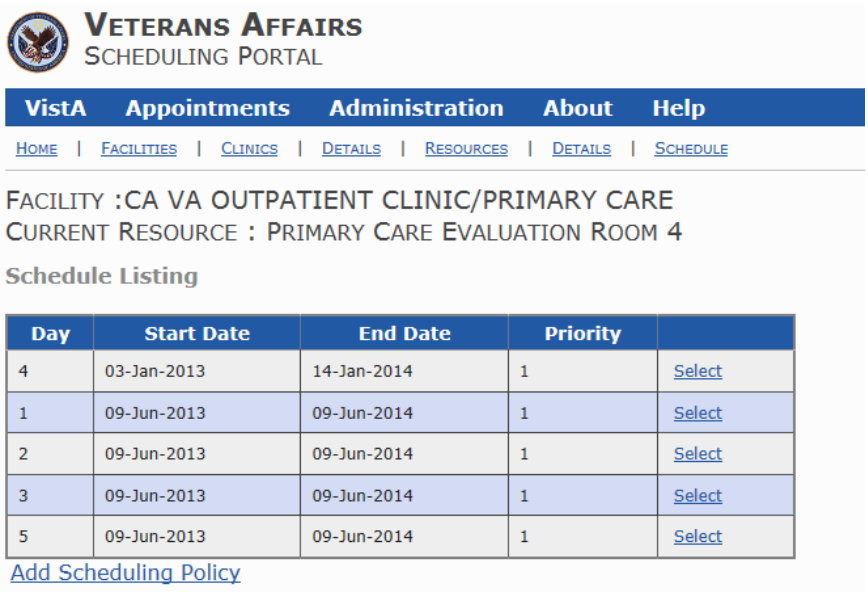


Once Scheduling Policies have been created then there are options which allow the scheduling user to subsequently set block and holds on date ranges. To add, click either the On-Hold List or Block List Link.

Choosing a Block means the resource, whether than is a provider, room or item of equipment is unavailable for that specific time period and any appointment affected are automatically cancelled – and made available for rescheduling.

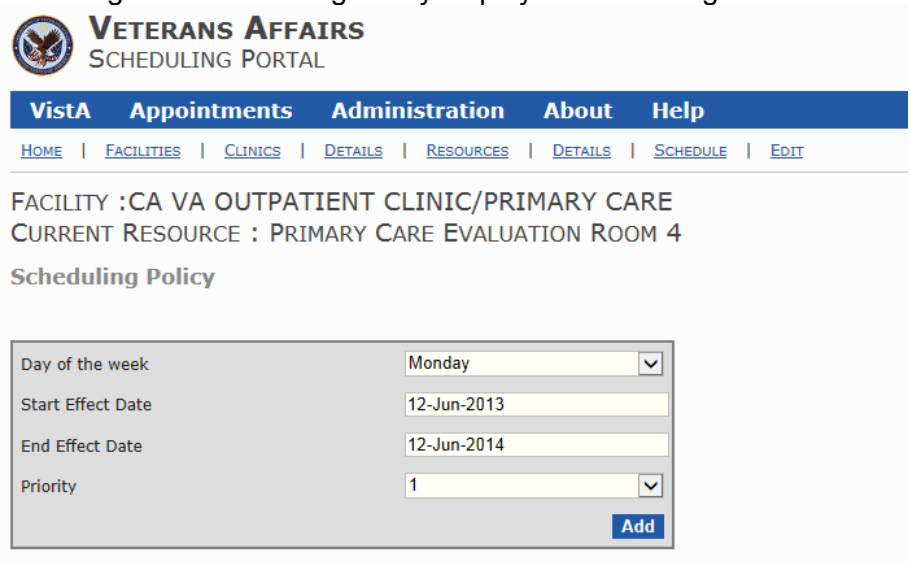
Setting a Hold means that the user cannot add new appointments using that resource during the time period when the hold is in effect.

For every resource you will need to create a scheduling policy in order to make appointments for the resource. Select “Scheduling Policies List”.



The policies that display for the resource are those that a previous user would have made. In this instance this is part of the baseline data we created for you. This displays that the resource is available Monday through Friday. Monday through Friday are listed as days one through five. Choose “Select” to edit a scheduling policy or to add another day to the resource’s availability click “Add Scheduling Policy”.

Choosing “Add Scheduling Policy displays the following:



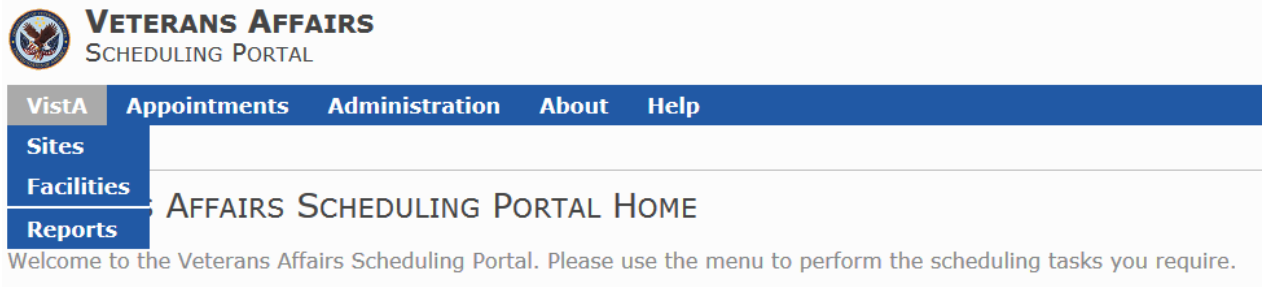
Choose the Day of the Week, Start and End Effect Date, and Priority then select “Add”.

A note will display in red at the top of the screen indicating that the Scheduling policy saved. Then select “View Slots”. Another page will display, select “Add Slots”. From here Slot Edit page displays:

Enter the Start Time, Length, Group Appointment Capacity, Appointment Type, and Add slots until fields. The button will display the number of time slots you are about to add. Select the button to update those time slots for your resource for that day. The Group Appointment Capacity refers to how many patients that provider, room, or piece of equipment can be seen or utilized for a specific appointment time.

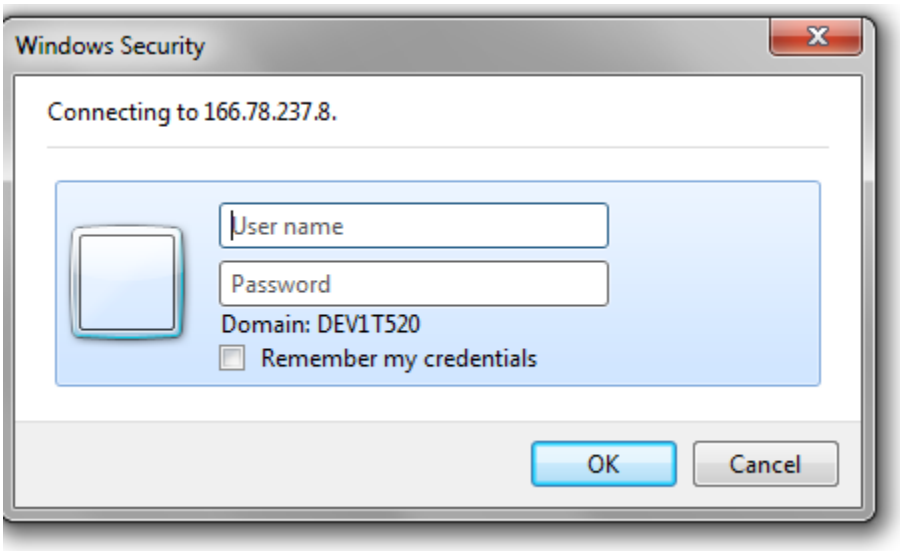
Continue this process until all your resources have a scheduling policy entered for the days and times they are available for appointments.

4.5. Reports



To access reports from the Scheduling Application, select VistA from the menu, and select Reports.

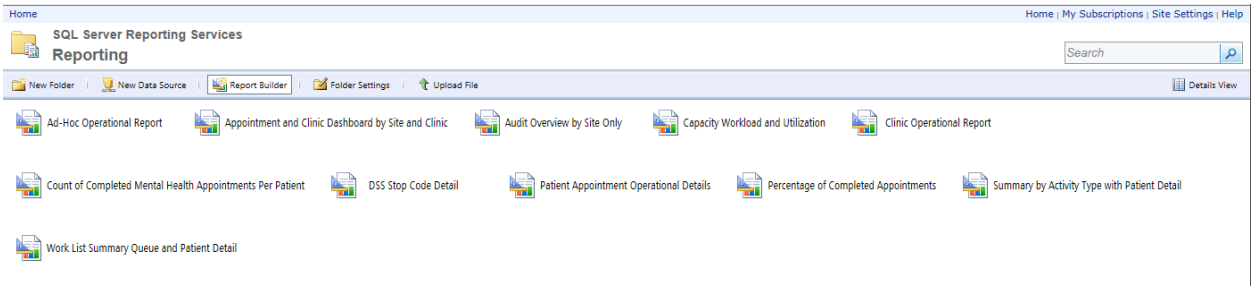
You will be prompted to enter in a user name and password.



Enter User Name: VAContest

Enter Password: Scheduling101!

Once you have entered this, you will be re-directed to our reporting formats on the VA Virtual Machine. These formats are developed through an assessment of VA requirements as presented in Appendix D. (Reporting Requirements). Based on these formats, which can be easily modified through user collaboration, we then used the SQL Server Reporting Service (SSRS) functionality to generate the reports. This functionality is accessed as follows.



From here, you can select each report that you would like to generate, view, and export. The reports included in this link are only a subset of our total reports.

Please note that if needed, reports can be restricted based on user role and permissions. Mock up reports, detailed specifications, and requirements were made to meet each of the requirements outlined in Appendix A and B to ensure all needs were met. This information is stored in Appendix D. of this manual.

Reporting Suites

This section will list all reporting suites and reports they include. If the below report is included in the sample reports, following the report name you will see “Available to View” in bold and italics. Reporting Suites with more than one report have a different name for the Suite. Reporting Suites with only one report have the same name as their Suite except for the Clinic Operations Report. For the Clinic Operations Report the specific report title aligns with the type of data the report is pulling.

The Reporting Suites group similar requirements together to create reports that fulfill more than one requirement whenever possible. For detailed information about each report, its logic, and the requirements it meets please refer to Appendix D.

Suite 1: Provider and Clinic Appointments and Utilization Report

1. Appointment and Clinic Dashboard by Site and Facility- ***Available to View***
2. Notifications and Letters by Site and Facility
3. Audits by User by Site- ***Available to View***

Suite 2: Operational Summary with Patient Detail Reports

4. Wait Time and Operational Metric Scorecard
5. Patient Appointment Operational Details- ***Available to View***

Suite 3: Summary by Activity Type with Patient Detail

6. Summary by Activity Type with Patient Detail- ***Available to View***

Suite 4: Work List Summary Queue and Patient Detail

7. Work List Summary Queue and Patient Detail

Suite 5: DSS Stop Code Detail

8. DSS Stop Code Detail Report- ***Available to View***

Suite 6: Capacity Workload and Utilization Report

9. Capacity Workload and Utilization Report- ***Available to View***

Suite 7: Clinic Operational Report

10. Mental Health Operational Report- ***Available to View***

Suite 8: Consults Summary and Overview

11. Consults Summary and Overview Detail Report

Suite 9: Ad-Hoc Operational Report

12. Ad-Hoc Operational Report- ***Available to View***

Suite 10: Congressional Performance Reports

13. Congressional Report: Count of Completed Mental Health Appointments Per Patient- ***Available to View***

14. Congressional Report: Percentage of Completed Appointments- ***Available to View***

Generating Reports

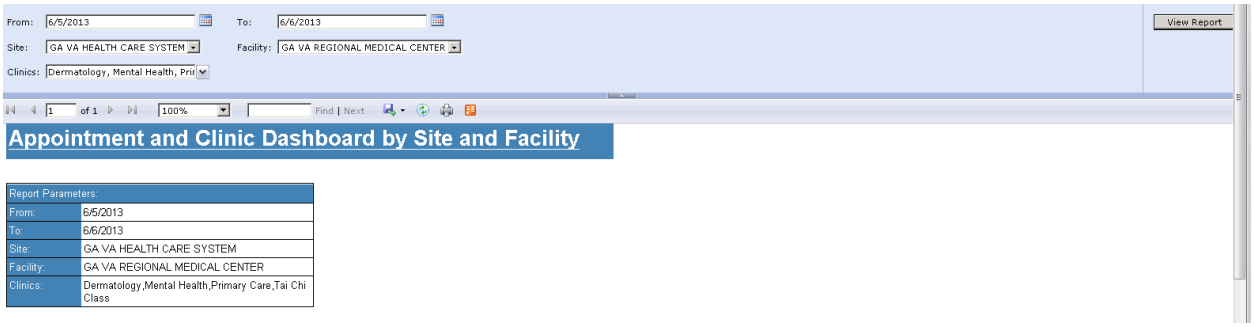
After selecting the link from the reporting tab and choosing a report, you will be presented with parameters at the top of the report. Based on the report's purpose the parameters supplied will vary. This is addressed for each report further below.

You will have the opportunity to select different drop downs which you would like your data presented in. Some of the reports supply you the option to select more than one option from the drop down.

For example, the below report: Appointment and Clinic Dashboard by Site and Facility, allows you to choose a From and To date, Site, and Facility. For the "From" and "To" dates you can click on the calendar to help you to select your dates.

Note: We have created some data for you to run reports for each Site. You can also enter data that you would like to see. You can expand or shrink the time frame for reports. Most data was entered for the timeframe of 5/31/2013 to 6/27/2013. However, some reports are designed for smaller timeframes for example, if you want to see appointments just for that day. You will

only see information in the report based on data entered in the application based on the time frame and other parameters selected.
Once you have entered your parameters, select the “View Report” button on the upper right. The report generates and appears in the bottom pane. Your report will display your parameter selections on the top of your generated report.



You can adjust how large or small you see it on the screen using the zoom feature in the toolbar. To export and save it on your computer, select the diskette icon, options for export are displayed when selected.

Specifications about all reports are included in each of the Report Specification documents which can be found in the appendix. There, each of the reports details and requirements it meets, are outlined. For the “From” and “To” dates you can click on the calendar as shown above to help you to select your dates. These parameters and options are based on data which has been entered.

Many of the reports also allow additional sorting functionality once your report displays. To utilize this, click on the downward or upward arrow next to the column header for the column that you would like to sort data for. Your data will re-display showing the newly sorted data. This allows the user to flexibly decide how he/she would like to view the data all the information presented in the table.

Appointment Overview				
Patient Name (Last Name, First Name, Middle Name)	SSN (last four digits)	Appointment Date	Appointment Start Time	Appointment End Time
RAMIREZ,FRANCIS,	0003	6/7/2013	15:00	16:00
LITTLE,ALICIA,	0004	6/21/2013	15:00	16:00
LITTLE,ALICIA,	0004	6/6/2013	17:45	18:45

Example Reports Available in Scheduling Application

Suite 1: Provider and Clinic Appointments and Utilization Report

1. Appointment and Clinic Dashboard by Site and Facility

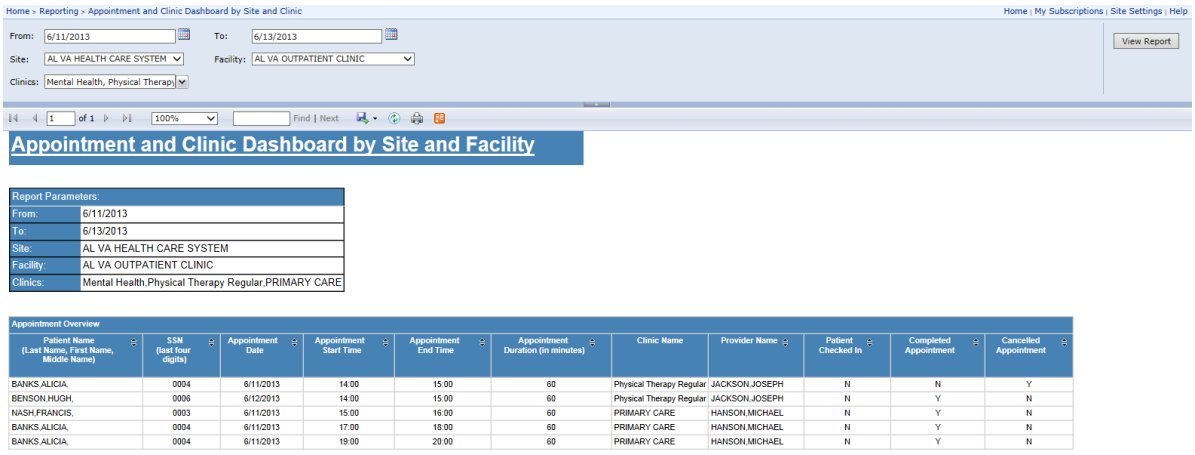
   To generate a report

   Step 1: Select the parameters for your report

   - Select a “From” date- To return a smaller subset of data use date 6/11/2013
   - Select a “To” date- To return a smaller subset of data use date 6/13/2013
   - Select a “Site”- Any Site can be used
   - Select a “Facility”- Any Facility can be used
   - Select one or more “Clinics”- You can let the report default to selecting all Clinics. Or you could limit your report to one Clinic. Please note, that there is only a small set of pre-entered sample data for each Clinic.

   Step 2: Select “View Report” button on far right

   Step 4: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



   Step 5: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Provider Availability

Note: Blocks, holiday's and holds are currently not shown in the above table.

Provider	Date	Available Hours for Appointments (Supplied in 3 Minute Increments)
GEORGE SMITH	6/11/2013	13:00
	6/11/2013	14:00
	6/11/2013	15:00
	6/11/2013	16:00
	6/11/2013	17:00
	6/11/2013	18:00
	6/11/2013	19:00
	6/12/2013	13:00
	6/12/2013	14:00
	6/12/2013	15:00
	6/12/2013	16:00
	6/12/2013	17:00
	6/12/2013	18:00
	6/12/2013	19:00

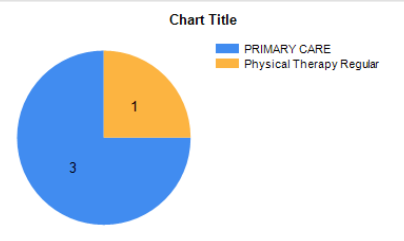
Provider Utilization and Case Load

Provider Utilization Rate is the number of appointments the provider has per day, divided by the total number of appointment slots the provider has alloted for their scheduling policy.

Provider	Date	Utilization Rate
GEORGE SMITH	06/11/2013	0.00 %
	06/12/2013	0.00 %
	06/13/2013	0.00 %
JANE STEWART	06/11/2013	0.00 %
	06/12/2013	0.00 %
	06/13/2013	0.00 %
JOSEPH JACKSON	06/11/2013	1.33 %
	06/12/2013	2.38 %
	06/13/2013	2.38 %
LORY RANDOLPH	06/13/2013	0.00 %
MICHAEL HANSON	06/11/2013	42.86 %
	06/12/2013	0.00 %
	06/13/2013	0.00 %

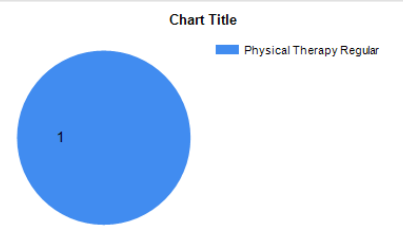
Completed Appointments by Clinic

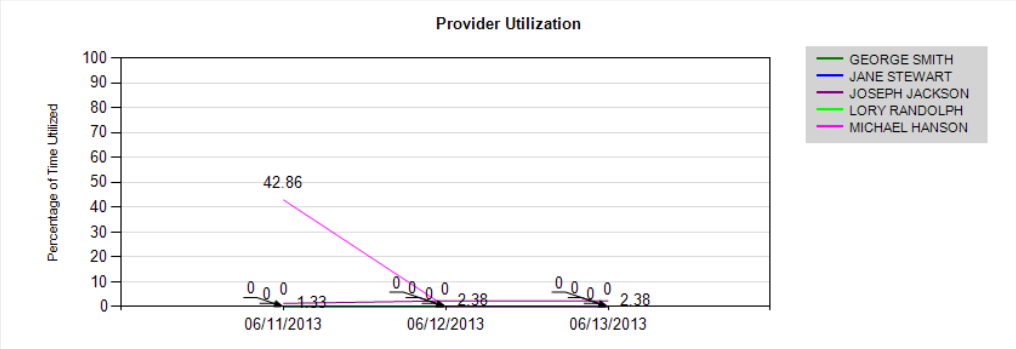
Clinic Name	Appts Completed
Physical Therapy Regular	1
PRIMARY CARE	3



Cancelled Appointments by Clinic

Clinic Name	Appts Cancelled
Physical Therapy Regular	1





Clinic Availability

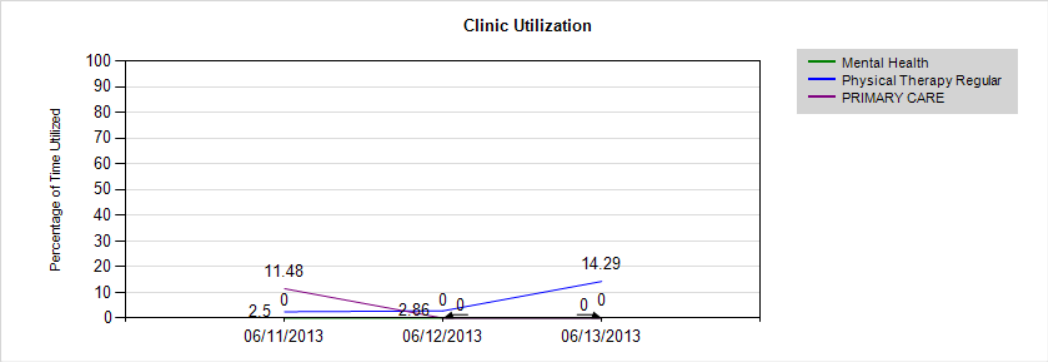
Note: Blocks, holiday's and holds are currently not shown in the above table.d

Clinic	Date	Available Hours for Clinics (Supplied in 30 Minute Increments)
Mental Health	6/11/2013	13:00
	6/11/2013	13:30
	6/11/2013	14:00
	6/11/2013	14:30
	6/11/2013	15:00
	6/11/2013	15:30
	6/11/2013	16:00
	6/11/2013	16:30
	6/11/2013	17:00
	6/11/2013	17:30
	6/11/2013	18:00
	6/11/2013	18:30
	6/11/2013	19:00
	6/11/2013	19:30
	6/12/2013	13:00
	6/12/2013	14:00
	6/12/2013	15:00

Clinic Utilization Based on Appointments

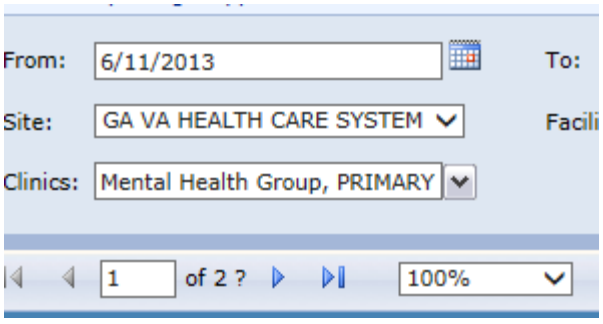
Clinic Utilization Rate is the number of appointments the Clinic has per day, divided by the total number of appointment slots the Clinic Resources have alloted for their scheduling policy.

Clinic	Date	Utilization Rate
Mental Health	06/11/2013	0.00 %
	06/12/2013	0.00 %
	06/13/2013	0.00 %
Physical Therapy Regular	06/11/2013	2.50 %
	06/12/2013	2.86 %
	06/13/2013	14.29 %
PRIMARY CARE	06/11/2013	11.48 %
	06/12/2013	0.00 %
	06/13/2013	0.00 %



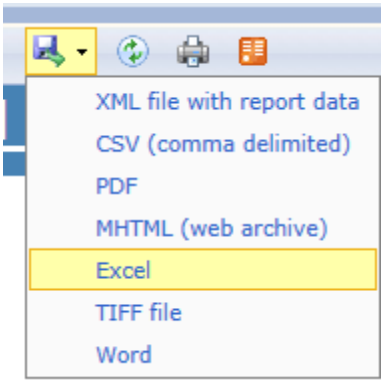
Please Note: Due to the size of this report, only sections of it are included in the snapshot. The larger the time period you select, the longer the report.

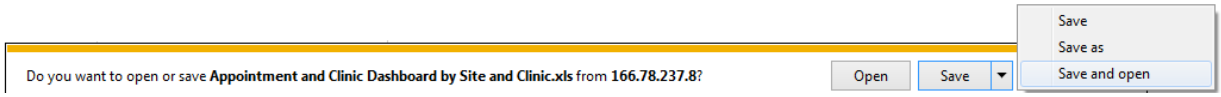
Step 6: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page.



Step 7: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

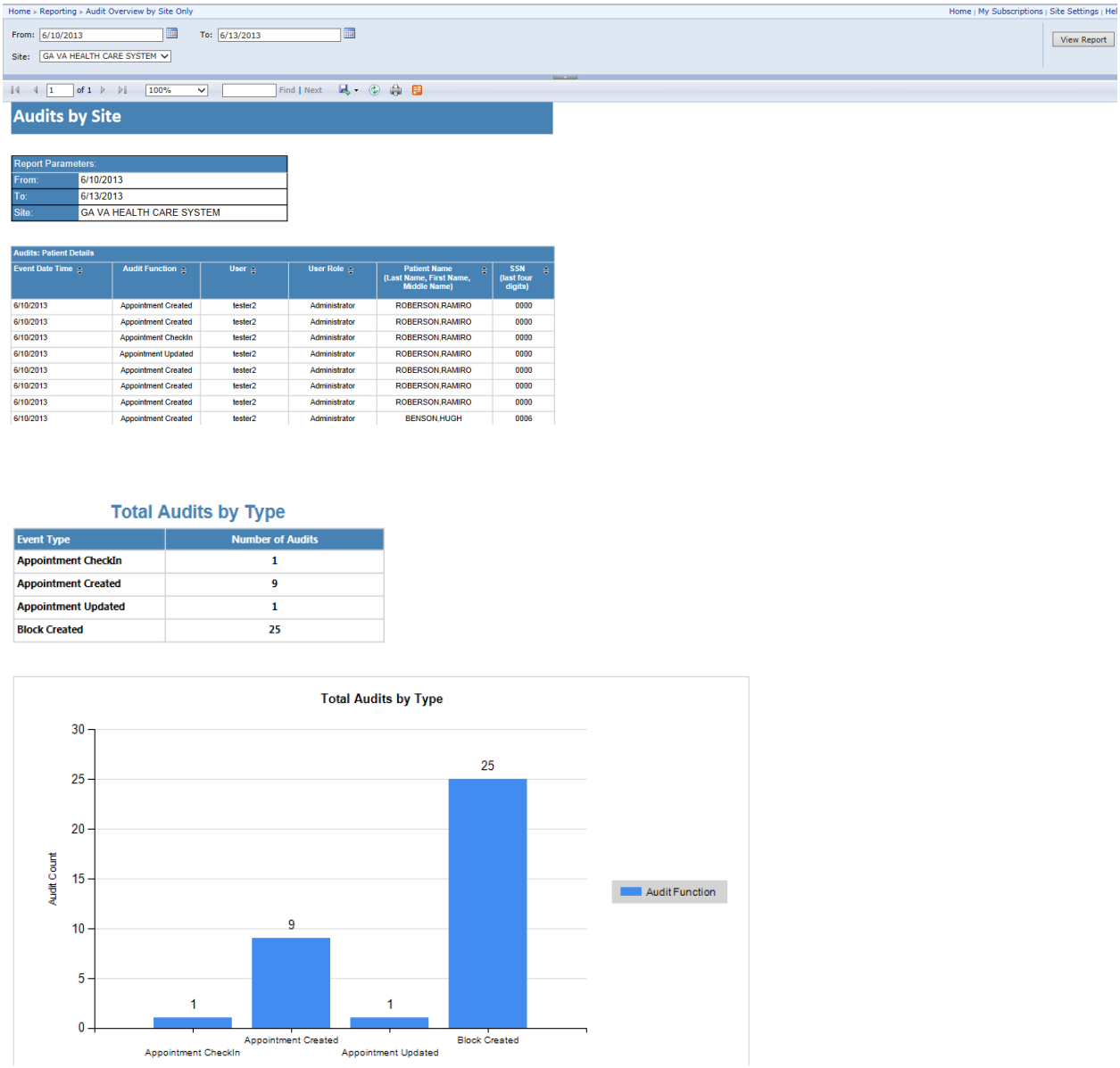
Step 8: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing.





2. Audits by User by Site
   To generate a report
   Step 1: Select the parameters for your report
   - Select a “From” date- To return a smaller subset of data use date 6/11/2013
   - Select a “To” date- To return a smaller subset of data use date 6/13/2013
   - Select a “Site”- Any Site can be used

   Step 2: Select “View Report” button on far right
   Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Note: Due to length of report, snapshots shown above do not reflect the full information you will see when you run the report.

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 2: Operational Summary with Patient Detail Reports

3. Patient Appointment Operational Details

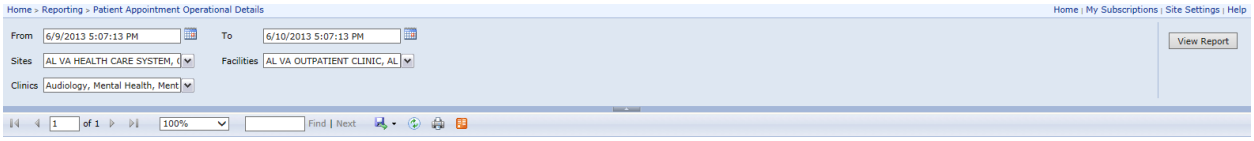
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/10/2013
- Select “Sites”- Any Sites can be used
- Select “Facilities- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Patient Appointment Operational Details

Report Parameters	
From Date	6/9/2013 5:07:13 PM
To Date	6/10/2013 5:07:13 PM
Sites	AL VA HEALTH CARE SYSTEM,CA VA HEALTH CARE SYSTEM,GA VA HEALTH CARE SYSTEM
Facilities	AL VA OUTPATIENT CLINIC,AL VA REGIONAL MEDICAL CENTER,CA VA OUTPATIENT CLINIC,CA VA REGIONAL MEDICAL CENTER,GA VA OUTPATIENT CLINIC,GA VA REGIONAL MEDICAL CENTER
Clinics	Audiology,Mental Health,Mental Health,Mental Health,Mental Health Group,Mental Health Group Regular,Physical Therapy Regular,Physical Therapy Regular,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE

Operational Metrics: Patient Detail

Patient Name	SSN (last 4 digits)	Clinic	Provider	Appointment Created Date	Appointment Desired Date	Initial Scheduled Apointment Date	Rescheduled Appt Date	Cancelled Appointment (Y/N)	Missed Appointment (Y/N)	Completed Appointment (Y/N)
RAMIRO,ROBERSON,	0000	PRIMARY CARE	LORY PETRI	6/7/2013	6/7/2013	6/10/2013		N	N	Y
WADE,STEWART,	0008	PRIMARY CARE	LORY PETRI	6/7/2013	6/7/2013	6/10/2013		N	N	N
HUGH,BENSON,	0006	PRIMARY CARE	JOSEPH KIRK	6/10/2013	6/10/2013	6/10/2013		N	N	N
HUGH,BENSON,	0006	PRIMARY CARE	LORY PETRI	6/7/2013	6/7/2013	6/10/2013		N	N	Y
LULA,FRANKLIN,	0009	Mental Health Group	JANE SMITH	6/7/2013	6/7/2013	6/10/2013		Y	N	N
HUGH,BENSON,	0006	Mental Health	JOSEPH JACKSON	6/10/2013	6/10/2013	6/17/2013	6/10/2013	Y	N	N
JUANA,GREER,	0000	Physical Therapy Regular	JOSEPH JACKSON	6/10/2013	6/10/2013	6/10/2013		N	N	Y

Note: Due to length of report, snapshot shown above does not include the full information you will see when you run the report.

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 3: Summary by Activity Type with Patient Detail

4. Summary by Activity Type with Patient Detail

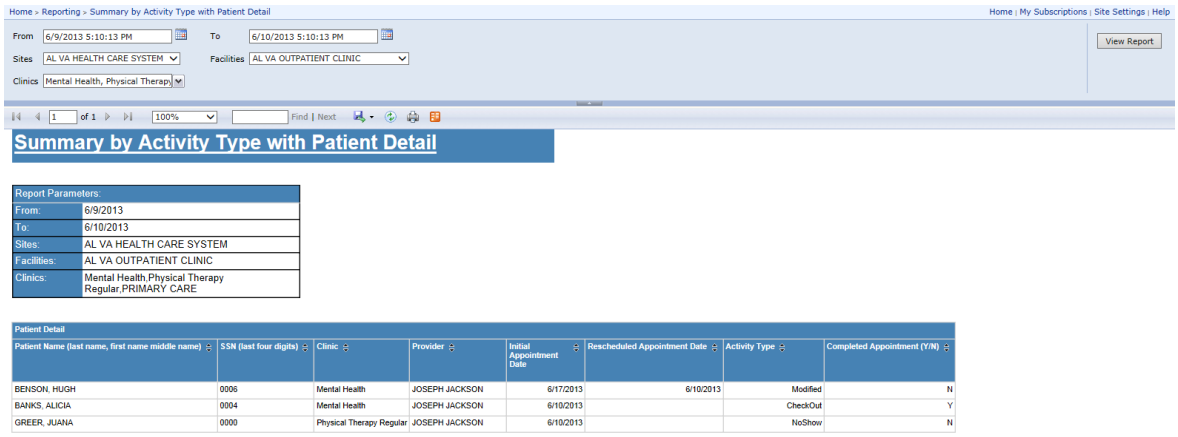
To generate a report

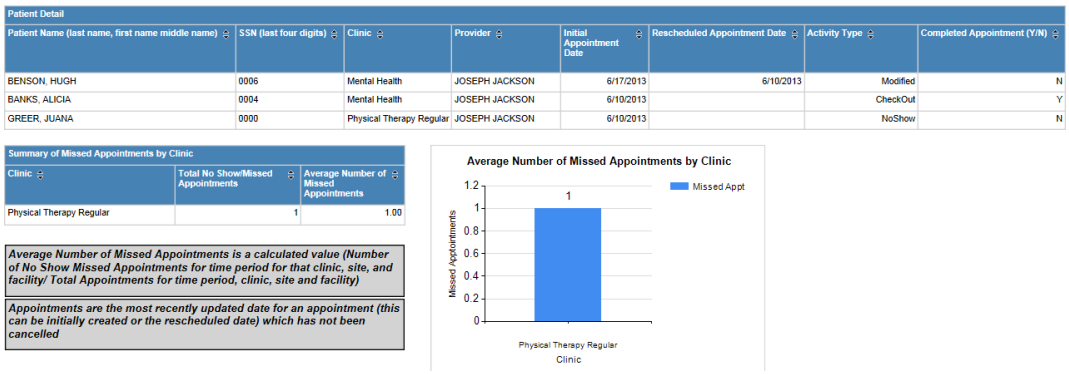
Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/10/2013
- Select “Sites”- Any can be used- Below AL VA Health Care System was used to show a smaller subset of data
- Select “Facilities”- Any can be used- Below AL VA Outpatient Clinic was used to show a smaller subset of data
- Select “Clinics”- Any can be used- Below all Sites for the above Facility was used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.





Patient Detail

Patient Name (last name, first name middle name)	SSN (last four digits)	Clinic	Provider	Initial Appointment Date	Rescheduled Appointment Date	Activity Type	Completed Appointment (Y/N)
BENSON, HUGH	0006	Mental Health	JOSEPH JACKSON	6/17/2013	6/10/2013	Modified	N
BANKS, ALICIA	0004	Mental Health	JOSEPH JACKSON	6/10/2013		CheckOut	Y
GREER, JUANA	0000	Physical Therapy Regular	JOSEPH JACKSON	6/10/2013		NoShow	N

Summary of Missed Appointments by Clinic

Clinic	Total No Show/Missed Appointments	Average Number of Missed Appointments
Physical Therapy Regular	1	1.00

Average Number of Missed Appointments is a calculated value (Number of No Show Missed Appointments for time period for that clinic, site, and facility/ Total Appointments for time period, clinic, site and facility)

Appointments are the most recently updated date for an appointment (this can be initially created or the rescheduled date) which has not been cancelled

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 4: Work List Summary Queue and Patient Detail

5. Work List Summary Queue and Patient Detail

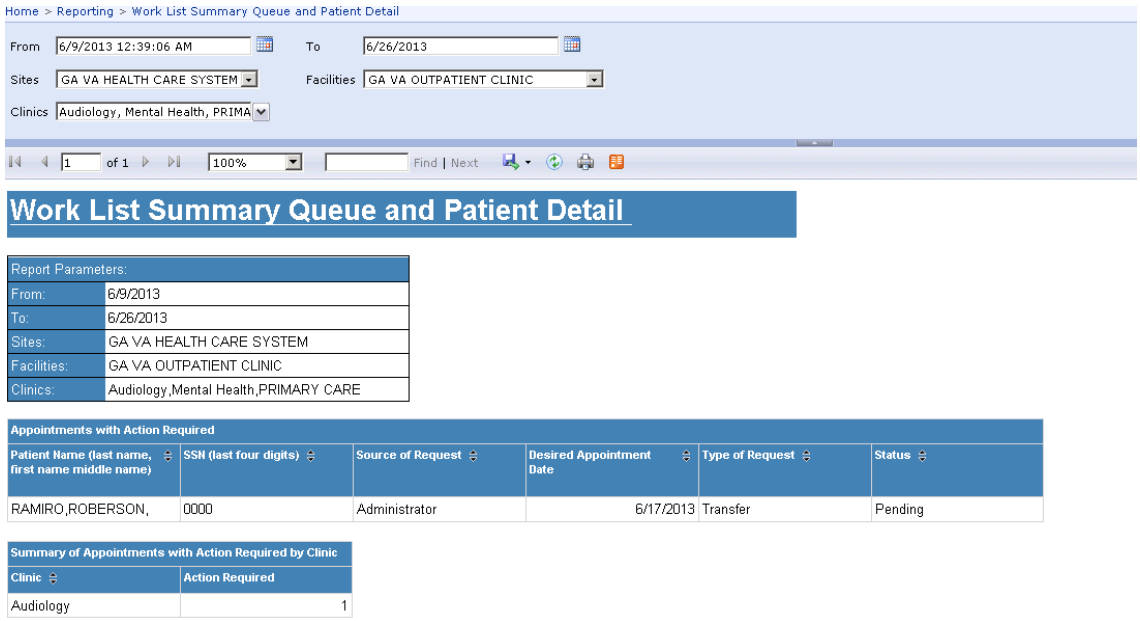
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/26/2013
- Select “Sites”- Any can be used
- Select “Facilities”- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 5: DSS Stop Code Detail

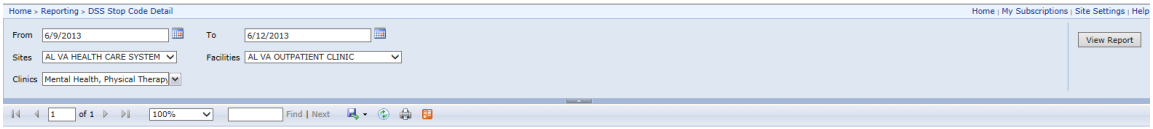
6. DSS Stop Code Detail Report

To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/12/2013
- Select “Sites”- Any can be used- Below AL VA Health Care System was used to show a smaller subset of data
- Select “Facilities”- Any can be used- Below AL VA Outpatient Clinic was used to show a smaller subset of data
- Select “Clinics”- Any can be used- Below all Sites for the above Facility was used

Step 2: Select “View Report” button on far right
Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



DSS Stop Code Detail

Report Parameters:	
From:	6/9/2013
To:	6/12/2013
Sites:	AL VA HEALTH CARE SYSTEM
Facilities:	AL VA OUTPATIENT CLINIC
Clinics:	Mental Health,Physical Therapy Regular,PRIMARY CARE

Patient Detail

Patient Name (last name, first name middle name)	SSN (last four digits)	Clinic	Provider	Initial Appointment Date	Rescheduled Appointment Date	Most Recent Activity Type	Completed Appointment (Y/N)	Primary Stop Code	Primary Stop Code Description	Secondary Stop Code	Secondary Stop Code Description
BENSON, HUGH	0006	Mental Health	JOSEPH JACKSON	6/17/2013	6/10/2013	Modified	N	198	MENTAL HEALTH CLINIC-GROUP	180	PRE-SURG EVAL BY NON-MD
BANKS, ALICIA	0004	Mental Health	JOSEPH JACKSON	6/10/2013		CheckOut	Y	198	MENTAL HEALTH CLINIC-GROUP	180	PRE-SURG EVAL BY NON-MD
BANKS, ALICIA	0004	Mental Health	JOSEPH JACKSON	6/10/2013		NoShow	N	198	MENTAL HEALTH CLINIC-GROUP	180	PRE-SURG EVAL BY NON-MD
GREER, JUANA	0000	Physical Therapy Regular	JOSEPH JACKSON	6/10/2013		NoShow	N	132	PHYSICAL THERAPY	456	MOVE! PGM GROUP
BANKS, ALICIA	0004	Physical Therapy Regular	JOSEPH JACKSON	6/10/2013		NoShow	N	132	PHYSICAL THERAPY	456	MOVE! PGM GROUP
BANKS, ALICIA	0004	Physical Therapy Regular	JOSEPH JACKSON	6/13/2013	6/11/2013	Modified	N	132	PHYSICAL THERAPY	456	MOVE! PGM GROUP
GREER, JUANA	0000	PRIMARY CARE	MICHAEL HANSON	6/10/2013		CheckOut	Y	295	PRIMARY CARE/MEDICINE	507	CHART CONSULT
BENSON, HUGH	0006	PRIMARY CARE	MICHAEL HANSON	6/10/2013		NoShow	N	295	PRIMARY CARE/MEDICINE	507	CHART CONSULT
NASH, FRANCIS	0003	PRIMARY CARE	MICHAEL HANSON	6/11/2013		CheckOut	Y	295	PRIMARY CARE/MEDICINE	507	CHART CONSULT
BANKS, ALICIA	0004	PRIMARY CARE	MICHAEL HANSON	6/11/2013		CheckOut	Y	295	PRIMARY CARE/MEDICINE	507	CHART CONSULT
BANKS, ALICIA	0004	PRIMARY CARE	MICHAEL HANSON	6/11/2013		NoShow	N	295	PRIMARY CARE/MEDICINE	507	CHART CONSULT

Count of Completed Appointments by Primary Stop Code and Clinic

Clinic	Primary Stop Code	Count of Primary Stop Codes	Primary Stop Code Description
Mental Health	198	3	MENTAL HEALTH CLINIC-GROUP
Physical Therapy Regular	132	3	PHYSICAL THERAPY
PRIMARY CARE	295	5	PRIMARY CARE/MEDICINE

Count of Completed Appointments by Secondary Stop Code and Clinic

Clinic	Secondary Stop Code	Count of Secondary Stop Codes	Secondary Stop Code Description
Mental Health	180	3	PRE-SURG EVAL BY NON-MD
Physical Therapy Regular	456	3	MOVE! PGM GROUP
PRIMARY CARE	507	5	CHART CONSULT

The primary stop code designates the main clinical group responsible for the care. The secondary stop code can be used as a modifier to further define the primary work group.

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%
Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.
Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.
Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy

the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 6: Capacity Workload and Utilization Report

7. Capacity Workload and Utilization Report

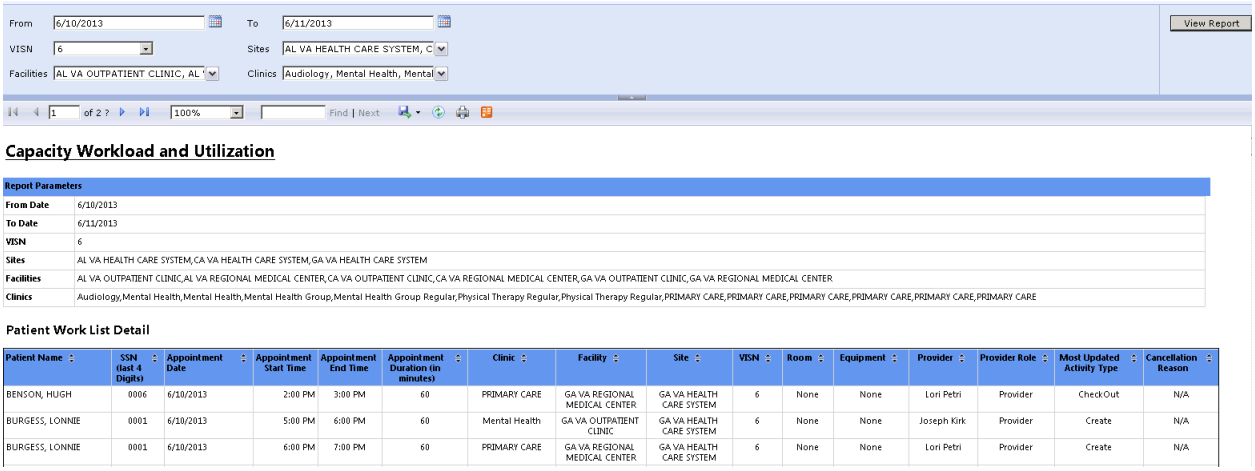
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/10/2013
- Select a “To” date- To return a smaller subset of data use date 6/12/2013
- Select “VISN”- The only VISN for now is 6 and will default to 6
- Select “Sites”- Any can be used- Baseline data would be best to run report for CA VA Health Care System
- Select “Facilities”- Any can be used- Baseline data would be best to run report for CA VA Outpatient Clinic
- Select “Clinics”- Any can be used- Baseline data would be best to use both sites for the Facility of CA VA Outpatient Clinic

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.


From 6/10/2013 To 6/11/2013 View Report
VISN 6 Sites AL VA HEALTH CARE SYSTEM, C
Facilities AL VA OUTPATIENT CLINIC, AL Clinics Audiology, Mental Health, Mental
1 of 2 ? 100% Find | Next

Capacity Workload and Utilization

Report Parameters	
From Date	6/10/2013
To Date	6/11/2013
VISN	6
Sites	AL VA HEALTH CARE SYSTEM,CA VA HEALTH CARE SYSTEM,GA VA HEALTH CARE SYSTEM
Facilities	AL VA OUTPATIENT CLINIC,AL VA REGIONAL MEDICAL CENTER,CA VA OUTPATIENT CLINIC,CA VA REGIONAL MEDICAL CENTER,GA VA OUTPATIENT CLINIC,GA VA REGIONAL MEDICAL CENTER
Clinics	Audiology,Mental Health,Mental Health,Mental Health Group,Mental Health Group Regular,Physical Therapy Regular,Physical Therapy Regular,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE,PRIMARY CARE

Patient Work List Detail

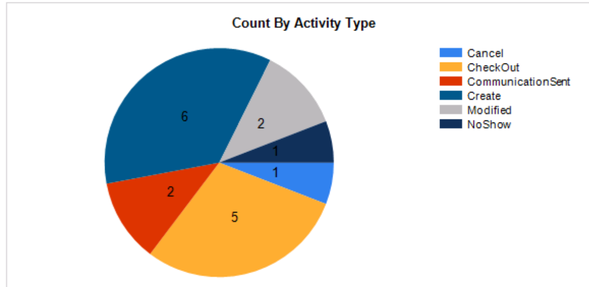
Patient Name	SSN (last 4 Digits)	Appointment Date	Appointment Start Time	Appointment End Time	Appointment Duration (in minutes)	Clinic	Facility	Site	VISN	Room	Equipment	Provider	Provider Role	Most Updated Activity Type	Cancellation Reason
BENSON, HUGH	0006	6/10/2013	2:00 PM	3:00 PM	60	PRIMARY CARE	GA VA REGIONAL MEDICAL CENTER	GA VA HEALTH CARE SYSTEM	6	None	None	Lori Petri	Provider	CheckOut	N/A
BURGESS, LONNIE	0001	6/10/2013	5:00 PM	6:00 PM	60	Mental Health	GA VA OUTPATIENT CLINIC	GA VA HEALTH CARE SYSTEM	6	None	None	Joseph Kirk	Provider	Create	N/A
BURGESS, LONNIE	0001	6/10/2013	6:00 PM	7:00 PM	60	PRIMARY CARE	GA VA REGIONAL MEDICAL CENTER	GA VA HEALTH CARE SYSTEM	6	None	None	Lori Petri	Provider	Create	N/A

Average Activity Type by Clinic

Activity Type	Clinic	Count
Cancel	Mental Health Group Regular	1
CheckOut	Mental Health Group Regular	1
	PRIMARY CARE	4
CommunicationSent	Mental Health Group	1
	PRIMARY CARE	1
Create	Mental Health	1
	Mental Health Group Regular	1
	PRIMARY CARE	4
Modified	Mental Health Group	1
	PRIMARY CARE	1
NoShow	Mental Health Group Regular	1

Average Activity Type

Activity Type	Count
Cancel	1
CheckOut	5
CommunicationSent	2
Create	6
Modified	2
NoShow	1



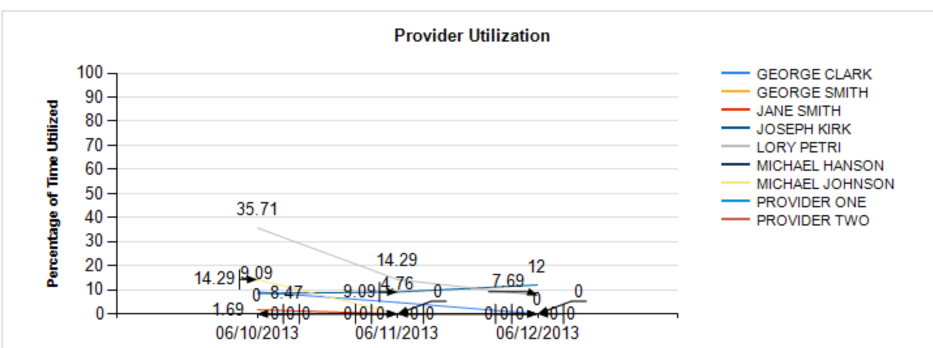
Provider Availability

Name	Date	Available Hours for Appointments (Supplied in 1 hour increments)
GEORGE CLARK	6/10/2013	12:00 PM
GEORGE CLARK	6/10/2013	1:00 PM
GEORGE CLARK	6/10/2013	2:00 PM
GEORGE CLARK	6/10/2013	3:00 PM
GEORGE CLARK	6/10/2013	4:00 PM
GEORGE CLARK	6/10/2013	5:00 PM
GEORGE CLARK	6/10/2013	6:00 PM
GEORGE CLARK	6/10/2013	7:00 PM

Provider Utilization and Case Load

Name	Date	Utilization Rate
GEORGE CLARK	06/10/2013	9.09 %
GEORGE SMITH	06/10/2013	0.00 %
JANE SMITH	06/10/2013	1.69 %
JOSEPH KIRK	06/10/2013	8.47 %
LORY PETRI	06/10/2013	35.71 %
MICHAEL HANSON	06/10/2013	0.00 %
MICHAEL JOHNSON	06/10/2013	14.29 %
PROVIDER ONE	06/10/2013	0.00 %
PROVIDER TWO	06/10/2013	0.00 %
PROVIDER ONE	06/12/2013	0.00 %
PROVIDER TWO	06/12/2013	0.00 %

Provider Utilization Rate is the number of appointments the provider has per day, divided by the total number of appointment slots the provider has alloted for thier scheduling policy.



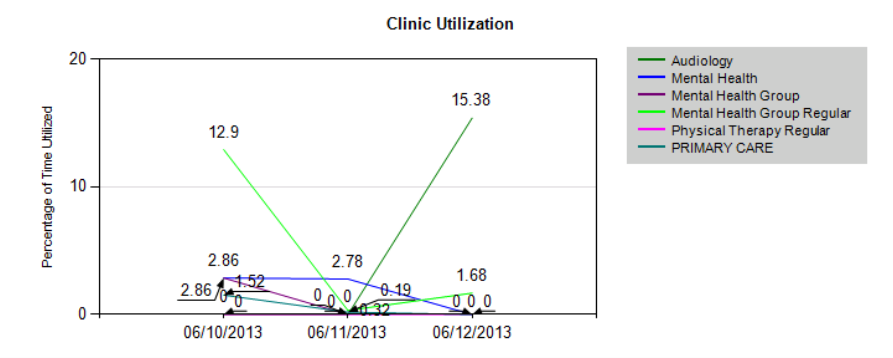
Clinic Availability

Clinic	Date	Available Hours for Clinics (Supplied in 30 Minute Increments)
Audiology	6/10/2013	1:00 PM
	6/10/2013	2:00 PM
	6/10/2013	3:00 PM
	6/10/2013	4:00 PM
	6/10/2013	5:00 PM
	6/10/2013	6:00 PM
	6/10/2013	7:00 PM
	6/11/2013	12:30 PM
	6/11/2013	1:30 PM
	6/11/2013	2:30 PM
	6/11/2013	3:30 PM
	6/11/2013	4:30 PM
	6/11/2013	5:30 PM
	6/11/2013	6:30 PM
	6/12/2013	12:00 PM
	6/12/2013	1:00 PM
	6/12/2013	2:00 PM
	6/12/2013	4:00 PM

Clinic Utilization Based on Appointments

Clinic	Date	Utilization Rate
Audiology	06/10/2013	0.00 %
Mental Health	06/10/2013	2.86 %
Mental Health Group	06/10/2013	2.86 %
Mental Health Group Regular	06/10/2013	12.90 %
Physical Therapy Regular	06/10/2013	0.00 %
PRIMARY CARE	06/10/2013	1.52 %
Audiology	06/11/2013	0.00 %
Mental Health	06/11/2013	2.78 %
Mental Health Group	06/11/2013	0.00 %
Mental Health Group Regular	06/11/2013	0.32 %
Physical Therapy Regular	06/11/2013	0.00 %
PRIMARY CARE	06/11/2013	0.19 %
Audiology	06/12/2013	15.38 %
Mental Health	06/12/2013	0.00 %
Mental Health Group Regular	06/12/2013	1.68 %
Physical Therapy Regular	06/12/2013	0.00 %
PRIMARY CARE	06/12/2013	0.00 %

Clinic Utilization Rate is the number of appointments the clinic has per day, divided by the total number of appointment slots the Clinic Resources have allocated for their scheduling policy.



Equipment Availability

Clinic	Equipment	Date	Available Time Slots for Appointments
Mental Health	Cat Scan	06/10/2013	2:00 PM
Mental Health	Cat Scan	06/11/2013	3:00 PM
Mental Health	Cat Scan	06/12/2013	4:00 PM
Mental Health	Exercise Bike	06/10/2013	5:00 PM
Mental Health	Exercise Bike	06/12/2013	6:00 PM
Mental Health	X-Ray	06/11/2013	7:00 PM

Equipment Utilization Rate

Clinic	Name	Date	Utilization Rate
Mental Health	Cat Scan	06/10/2013	0.00 %
Mental Health	Cat Scan	06/11/2013	0.00 %
Mental Health	Cat Scan	06/12/2013	0.00 %
Mental Health	Exercise Bike	06/10/2013	0.00 %
Mental Health	Exercise Bike	06/12/2013	0.00 %
Mental Health	X-Ray	06/11/2013	0.00 %
Mental Health Group Regular	X-Ray	06/10/2013	0.00 %
Mental Health Group Regular	X-Ray	06/11/2013	0.00 %
Mental Health Group Regular	X-Ray	06/12/2013	0.00 %
PRIMARY CARE	CAT SCAN	06/10/2013	0.00 %
PRIMARY CARE	CAT SCAN	06/11/2013	0.00 %
PRIMARY CARE	CAT SCAN	06/12/2013	0.00 %
PRIMARY CARE	X-Ray	06/10/2013	0.00 %
PRIMARY CARE	X-Ray	06/11/2013	0.00 %
PRIMARY CARE	X-Ray	06/12/2013	0.00 %

Equipment Utilization Rate is the number of appointments the Equipment has per day, divided by the total number of appointment slots the Equipment Resource has alloted for thier scheduling policy.

Note: This report will display more information than run, screen shots have been shortened to fit on the screen. Once you run the report scroll to see entire report using the right vertical toolbar.

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

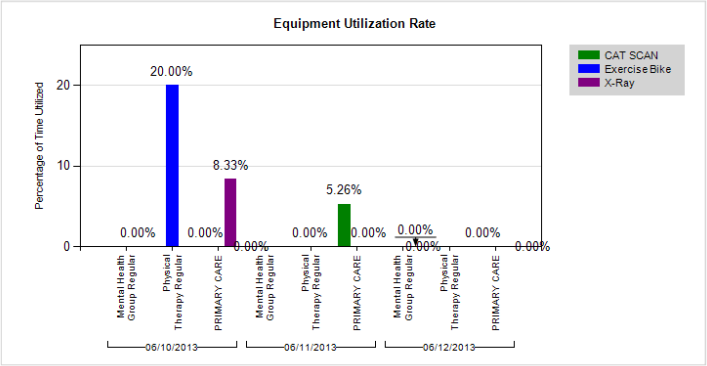
Equipment Availability

Clinic	Equipment	Date	Available Time Slots for Appointments
Physical Therapy Regular	Exercise Bike	6/10/2013	3:00 PM
Physical Therapy Regular	Exercise Bike	6/10/2013	4:00 PM
Physical Therapy Regular	Exercise Bike	6/10/2013	8:00 PM
Physical Therapy Regular	Exercise Bike	6/10/2013	9:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	3:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	4:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	5:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	6:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	7:00 PM
PRIMARY CARE	CAT SCAN	6/11/2013	8:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	3:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	4:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	5:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	6:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	7:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	8:00 PM
Physical Therapy Regular	Exercise Bike	6/11/2013	9:00 PM
PRIMARY CARE	CAT SCAN	6/12/2013	3:00 PM
PRIMARY CARE	CAT SCAN	6/12/2013	4:00 PM
PRIMARY CARE	CAT SCAN	6/12/2013	5:00 PM
PRIMARY CARE	CAT SCAN	6/12/2013	6:00 PM

Equipment Utilization Rate

Clinic	Name	Date	Utilization Rate
Mental Health Group Regular	X-Ray	06/10/2013	0.00 %
Mental Health Group Regular	X-Ray	06/11/2013	0.00 %
Mental Health Group Regular	X-Ray	06/12/2013	0.00 %
Physical Therapy Regular	Exercise Bike	06/10/2013	20.00 %
PRIMARY CARE	X-Ray	06/10/2013	8.33 %
PRIMARY CARE	X-Ray	06/11/2013	0.00 %
PRIMARY CARE	X-Ray	06/12/2013	0.00 %

Equipment Utilization Rate is the number of appointments the Equipment has per day, divided by the total number of appointment slots the Equipment Resource has alloted for thier scheduling policy.



Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 7: Clinic Operational Report

8. Mental Health Operational Report

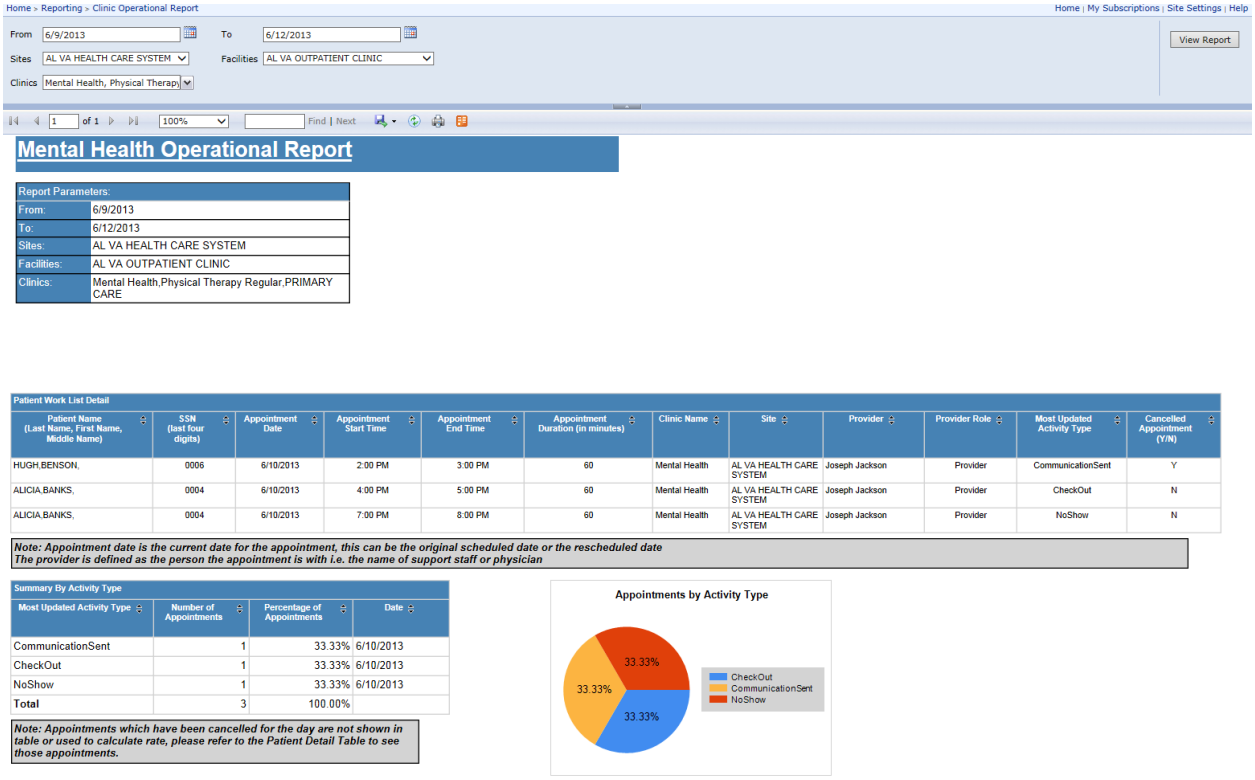
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/12/2013
- Select “Sites”- Any can be used
- Select “Facilities”- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 9: Ad-Hoc Operational Report

9. Ad-Hoc Operational Report

To generate a report

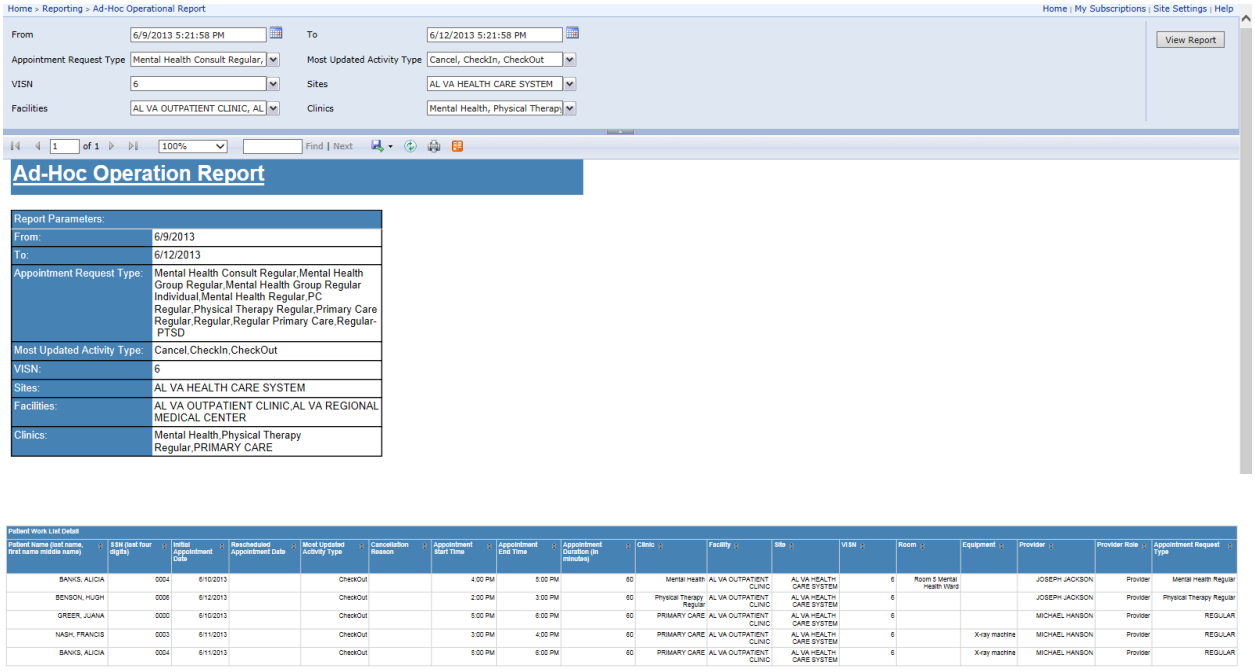
Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/12/2013

- Appointment Request Type- This will default to all and display all values entered in the data, you can select any you wish to include in report.
- Most Updated Activity Type- This will default to all and display all values entered in the data, you can select any you wish to include in report.
- VISN- The only current VISN is 6 and the report will default to show that.
- Select “Sites”- Any can be used
- Select “Facilities”- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort. This is especially valuable in this report since the sorting allows the report more flexibility in terms of viewing information for each column.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

Suite 10: Congressional Performance Reports

10. Congressional Report: Count of Completed Mental Health Appointments Per Patient

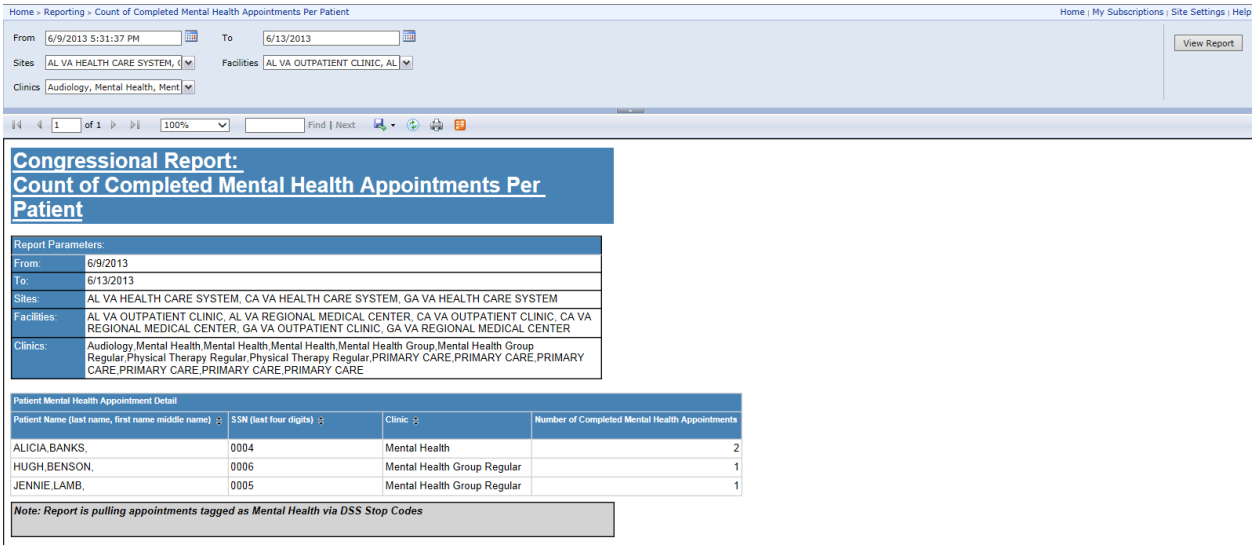
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/13/2013
- Select “Sites”- Any can be used
- Select “Facilities”- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.
Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

11. Congressional Report: Percentage of Completed Appointments

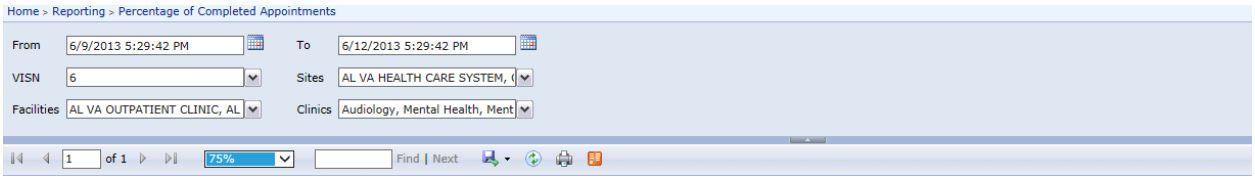
To generate a report

Step 1: Select the parameters for your report

- Select a “From” date- To return a smaller subset of data use date 6/09/2013
- Select a “To” date- To return a smaller subset of data use date 6/13/2013
- Select “VISN”- The only VISN currently available is 6 and the report will default to this
- Select “Sites”- Any can be used
- Select “Facilities”- Any can be used
- Select “Clinics”- Any can be used

Step 2: Select “View Report” button on far right

Step 3: Report displays as shown below. Examine your report and determine if you need a larger or smaller time frame or if you wish to change any of your parameters. If so, begin again at Step 1.



Congressional Report:
Percentage of Completed Appointments

Report Parameters:	
From:	6/9/2013
To:	6/12/2013
VISN:	6
Sites:	AL VA HEALTH CARE SYSTEM, CA VA HEALTH CARE SYSTEM, GA VA HEALTH CARE SYSTEM
Facilities:	AL VA OUTPATIENT CLINIC, AL VA REGIONAL MEDICAL CENTER, CA VA OUTPATIENT CLINIC, CA VA REGIONAL MEDICAL CENTER, GA VA OUTPATIENT CLINIC, GA VA REGIONAL MEDICAL CENTER
Clinics:	Audiology,Mental Health,Mental Health Group,Mental Health Group Regular,Physical Therapy Regular,PRIMARY CARE

Completed Appointments						
Clinic	Facility	Site	VISN	Total Number of Appointments	Number of Completed Appointments	Percentage of Completed Appointments
Audiology	GA VA OUTPATIENT CLINIC	GA VA HEALTH CARE SYSTEM	6	1	0	0%
Mental Health	AL VA OUTPATIENT CLINIC	AL VA HEALTH CARE SYSTEM	6	3	1	33%
Mental Health	AL VA REGIONAL MEDICAL CENTER	AL VA HEALTH CARE SYSTEM	6	2	0	0%
Mental Health	GA VA OUTPATIENT CLINIC	GA VA HEALTH CARE SYSTEM	6	2	0	0%
Mental Health Group	GA VA REGIONAL MEDICAL CENTER	GA VA HEALTH CARE SYSTEM	6	2	0	0%
Mental Health Group Regular	CA VA OUTPATIENT CLINIC	CA VA HEALTH CARE SYSTEM	6	7	3	43%
Physical Therapy Regular	AL VA OUTPATIENT CLINIC	AL VA HEALTH CARE SYSTEM	6	4	1	25%
Physical Therapy Regular	CA VA REGIONAL MEDICAL CENTER	CA VA HEALTH CARE SYSTEM	6	1	0	0%
PRIMARY CARE	AL VA OUTPATIENT CLINIC	AL VA HEALTH CARE SYSTEM	6	5	3	60%
PRIMARY CARE	AL VA REGIONAL MEDICAL CENTER	AL VA HEALTH CARE SYSTEM	6	2	0	0%
PRIMARY CARE	CA VA OUTPATIENT CLINIC	CA VA HEALTH CARE SYSTEM	6	5	1	20%
PRIMARY CARE	CA VA REGIONAL MEDICAL CENTER	CA VA HEALTH CARE SYSTEM	6	2	1	50%
PRIMARY CARE	GA VA OUTPATIENT CLINIC	GA VA HEALTH CARE SYSTEM	6	2	0	0%
PRIMARY CARE	GA VA REGIONAL MEDICAL CENTER	GA VA HEALTH CARE SYSTEM	6	8	3	38%
Total Number of Completed Appointments				46	13	

Performance Measure for Congress: Increase the percent of appointments completed within 14 days

Note: Percentage of Completed Appointments is a calculated field which takes the total number of appointments marked as complete divided by the total number of appointments (for the time period selected)

Step 4: Increase or decrease your viewing size of report if you wish to see more on your screen. The default is 100%

Step 5: You may be required to go to additional pages to view full report. To complete this select the forward or back arrow if the report shows more than one page. A picture of this is shown in the first report.

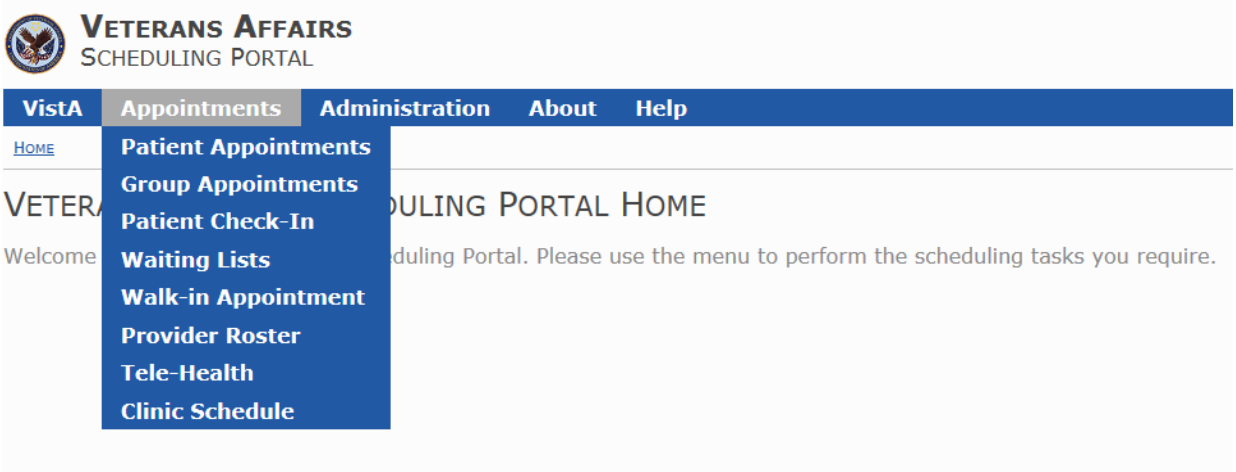
Step 6: The column headers in this report allows additional sorting after the report has been run. To complete this, select the upward or downward arrow on the column header you wish to sort.

Step 7: To export and save it on your computer, select the diskette icon, options for export are displayed when selected. To export to excel, select excel, then save to desktop. Copy the report and then save to your computer to the location of your choosing. Pictures displaying steps are shown in the first example report step by step instructions.

4.6. Appointments

This section of the application manages all patient appointments. A pre-requisite to making appointments is that clinics and resources with their scheduling policies have been set-up as discussed above.

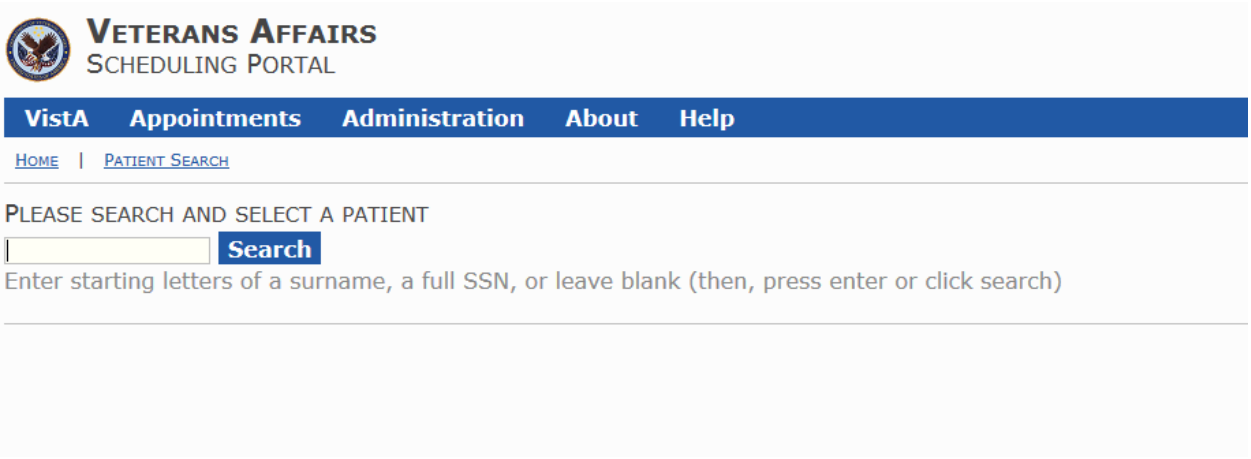
When first using this menu options, the Scheduling User is presented with patient search page below.



Patient Appointments

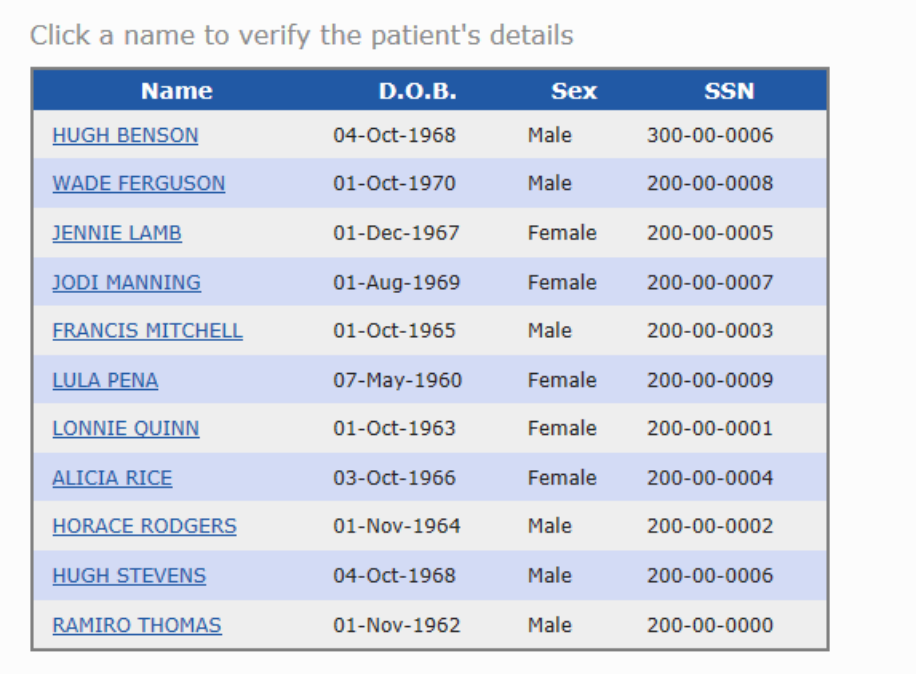
To make or manage an appointment for a patient, select Patient Appointments from the Appointments tab.

The first section when making an appointment for a new patient is the patient search screen.



A variety of search criteria can be used, and that option is automatically detected from what is entered into the patient search box. This includes patient surname and SSN. Enter your patient criteria you want to search by and select “Search”

A list of patients will display. Select your patient. Upon selecting a patient, further demographic details are displayed, such as patient entitlement and service connected attributes, for the Scheduler to confirm the identity of the patient. For this data set, you do not have to enter any information to bring back a patient, leave that field blank and select “Search”. This will return all patients for the site.


Click a name to verify the patient's details

Name	D.O.B.	Sex	SSN
HUGH BENSON	04-Oct-1968	Male	300-00-0006
WADE FERGUSON	01-Oct-1970	Male	200-00-0008
JENNIE LAMB	01-Dec-1967	Female	200-00-0005
JODI MANNING	01-Aug-1969	Female	200-00-0007
FRANCIS MITCHELL	01-Oct-1965	Male	200-00-0003
LULA PENA	07-May-1960	Female	200-00-0009
LONNIE QUINN	01-Oct-1963	Female	200-00-0001
ALICIA RICE	03-Oct-1966	Female	200-00-0004
HORACE RODGERS	01-Nov-1964	Male	200-00-0002
HUGH STEVENS	04-Oct-1968	Male	200-00-0006
RAMIRO THOMAS	01-Nov-1962	Male	200-00-0000

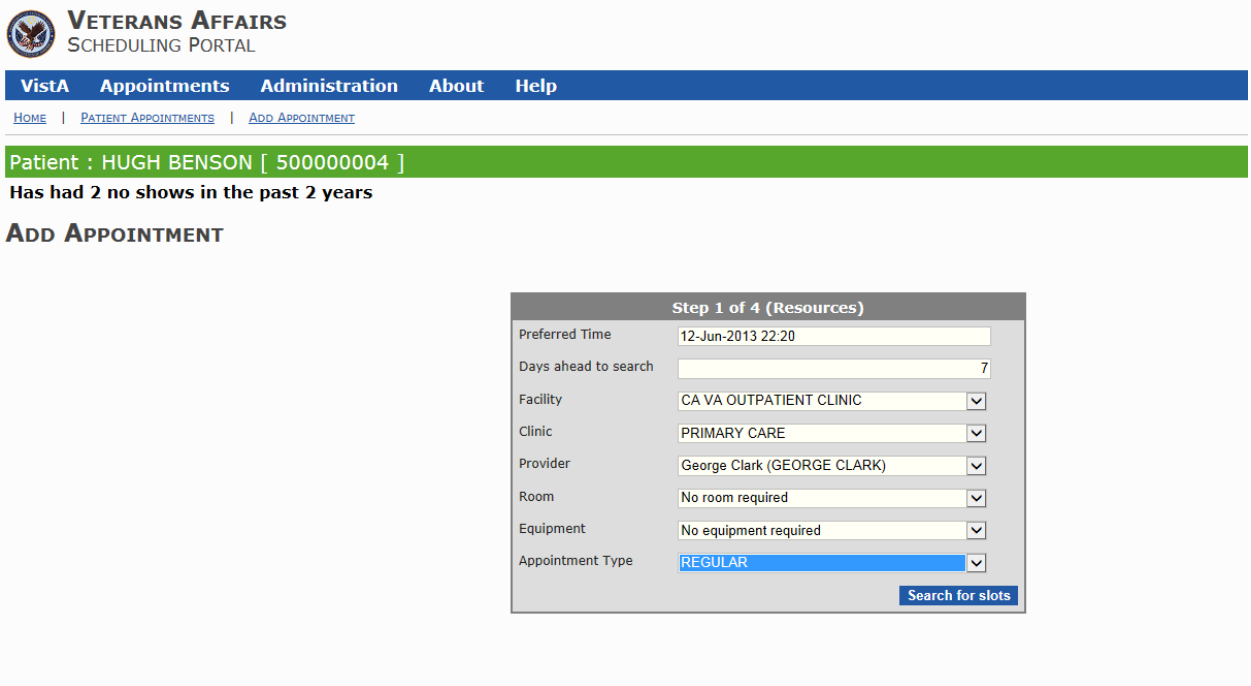
Select the patient by clicking on their name. Verify their demographic information and select the “Select Patient” button.

The patients’ current information for appointments displays.

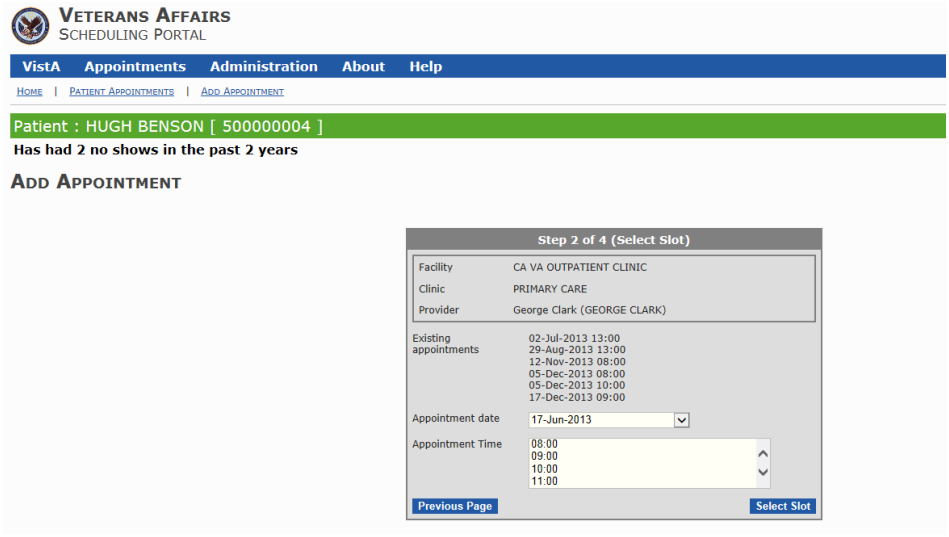
You can “Add Appointment”, “Add Appointment Request” and “Add Telehealth Appointment” from this screen by selecting that button on the top of the screen. In addition, the patients’ current and historical appointments display, this includes all appointments across any Health eTime instance. This patient has scheduled appointments created.

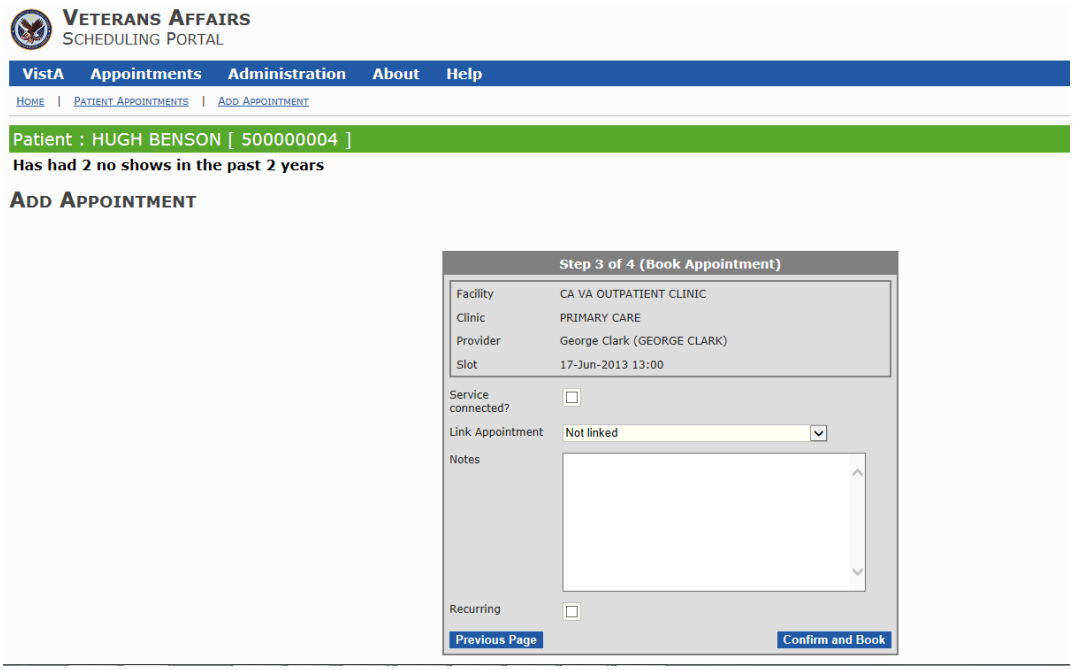
Making an Appointment

To Make an Appointment for a patient select the “Add Appointment” button from the Patient Appointment Screen and complete all fields listed. Equipment, Providers, Rooms, Equipment, and Appointment Types already created will be the only ones which display as options for you. Once complete, select “Search for Slots”



Slots available based on the scheduling policy for the Provider, Rooms, Equipment, and Appointment Types selected will display. Existing Appointments display for that patient. Select the Appointment Date and Time and choose “Select Slot”.





Here if your patient had another appointment on that day which is dependent on this appointment you could choose the Link the appointment. You can also indicate if the appointment is Service connected. Then select “Confirm and Book”. Your appointment is now made and any communication templates for a Pre-Appointment added for that Clinic will automatically generate.

Additional information about automatic notifications for the patient are described in more detail in Appendix B.15.

Note that a provider is allocated at the time of making that appointment. However the Provider can be reallocated at different points during the life-cycle such during Check-in with the Change provider Option.

Recurring Appointments

After selecting add a regular or telehealth appointment, if you select the Recur checkbox and select the same recur criteria as the recurring block page (Frequency, Interval, and End date) then it will do the following:

Create the selected request and appointments for every date/time matching the recur criteria.

If the same resources are available, it will create a new appointment and a completed request for that date.

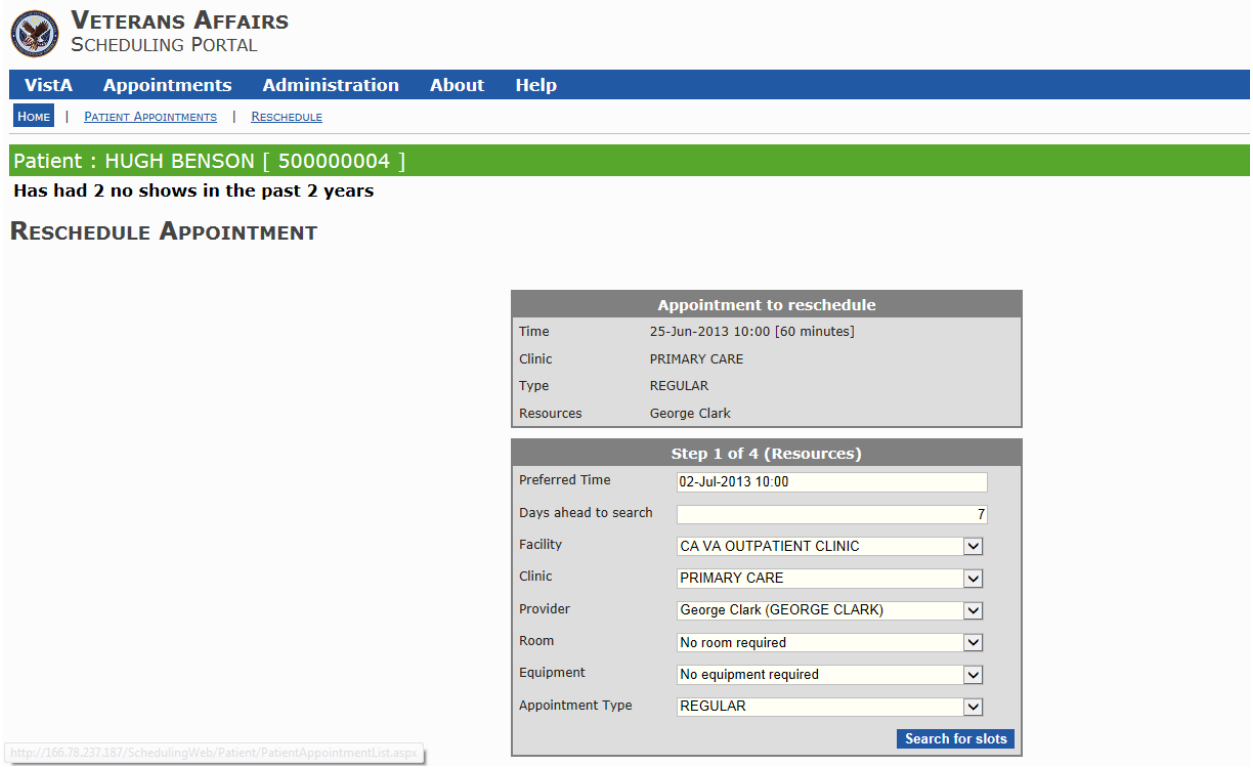
If the same resources are NOT available, it will create a pending appointment request for that date.

All the appointments that are created are linked together with a Recurrence relationship.

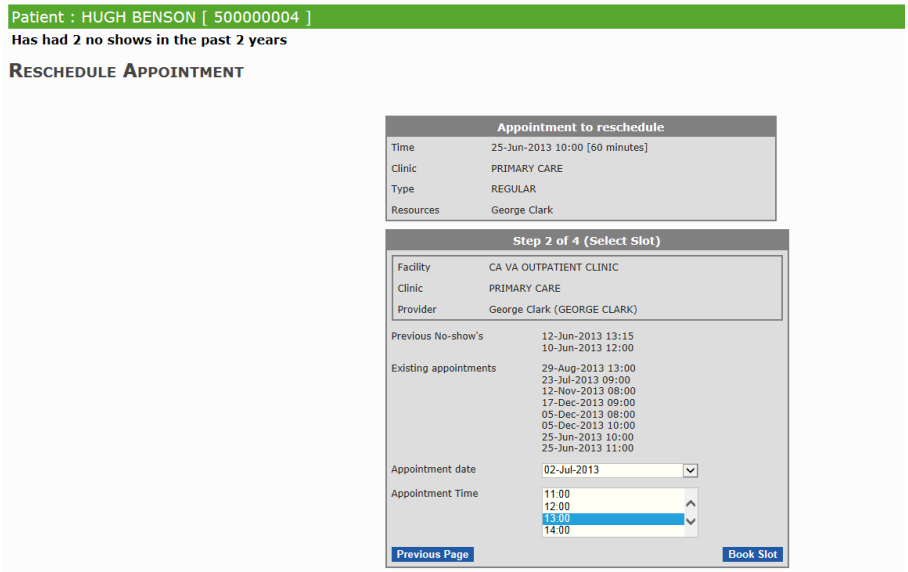
Cancelling or Rescheduling an Appointment

You can choose to Cancel, Reschedule, View in Provider Rooster, and Change the Provider for any of his appointments which display by selecting the link in the appointment list.

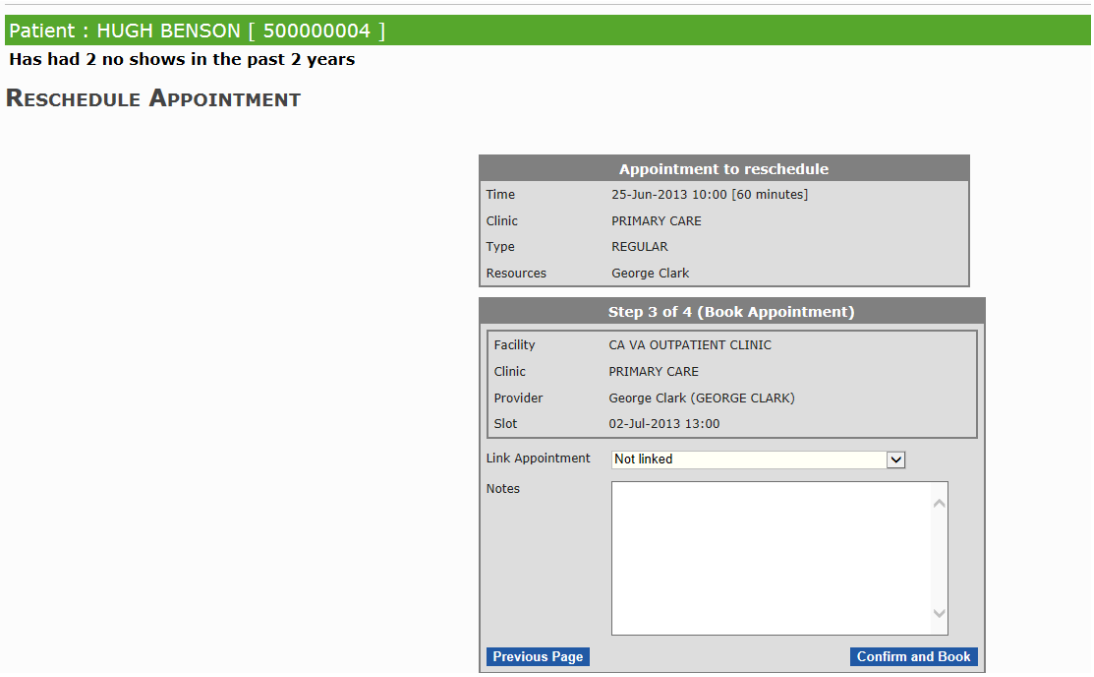
For this example, I am going to reschedule one of Hugh's appointments. Select Reschedule Appointment and the following displays:

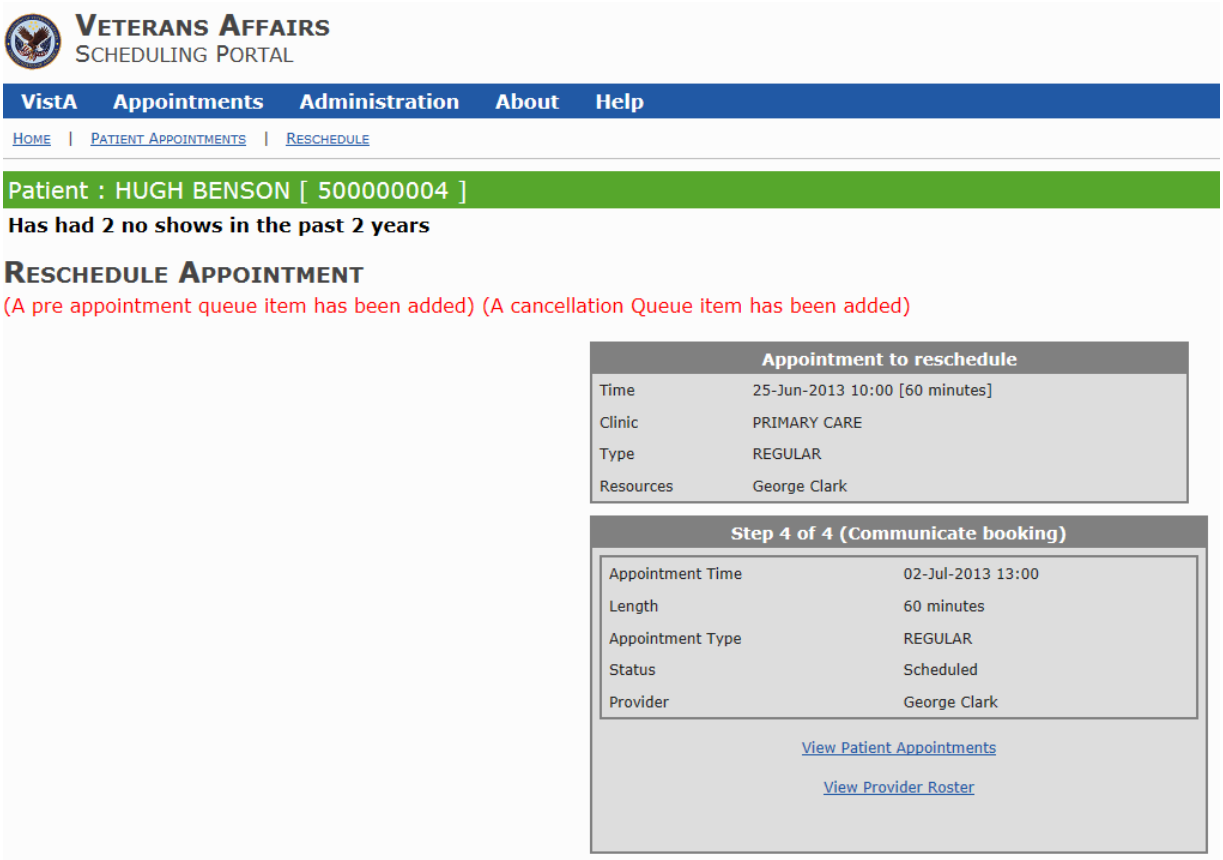


From this page you can change any of the displayed appointment fields then select “Search for slots”. All available time slots (based on the resource scheduling policy) display on the next page.

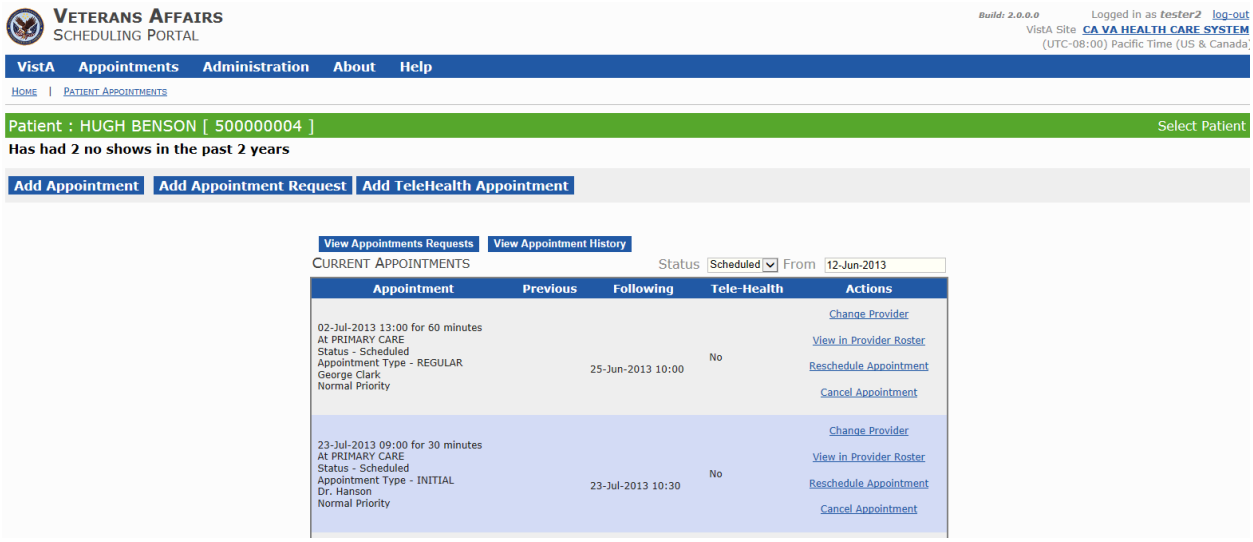


Select “Book Slot” after you have chosen your Appointment Date and Time. Here if your patient had another appointment on that day which is dependent on this appointment you could choose the Link the appointment. If not, select “Confirm and Book”.



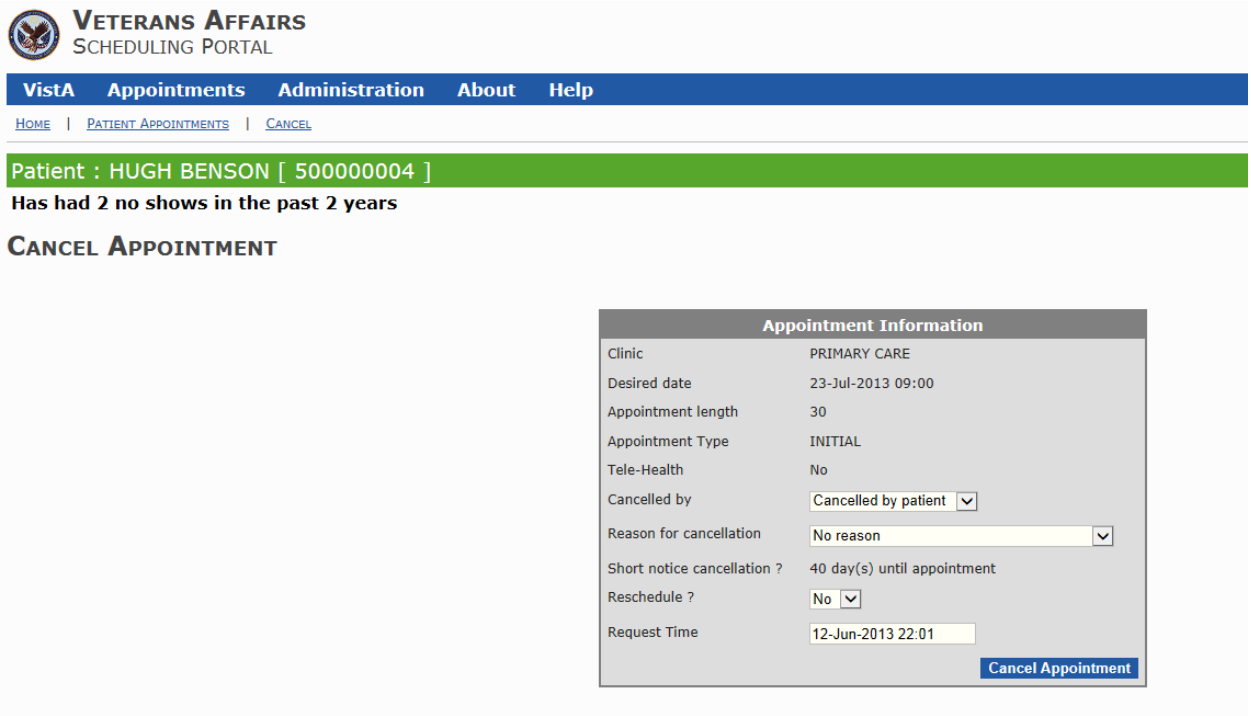


Hugh's appointment is now rescheduled and the application alerts you that due to this a pre-appointment massage and a cancellation message have been scheduled as well as a cancellation. To return to Hugh's appointments select "View Patient Appointments".



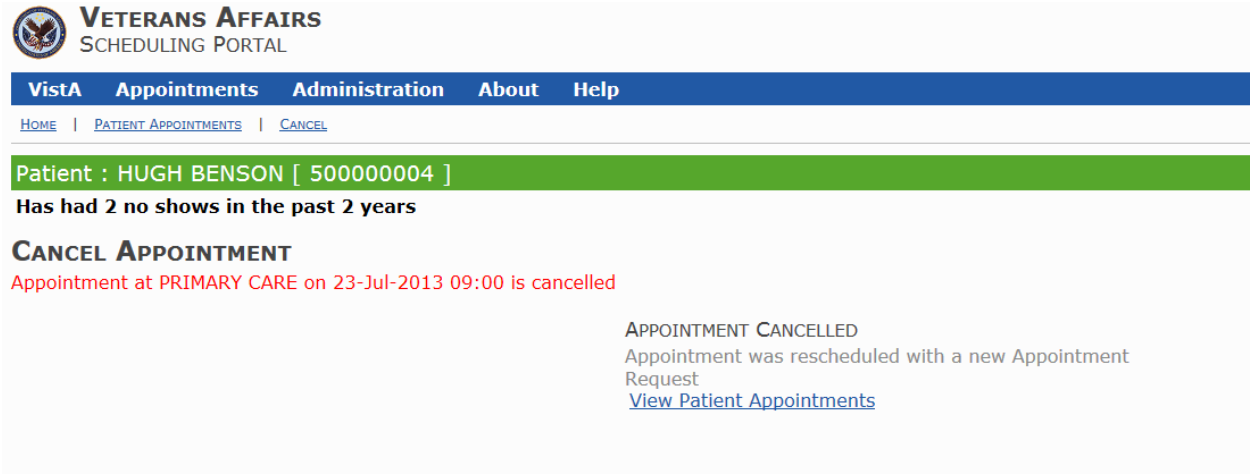
The new date displays under the Appointment column and the previously scheduled appointment appears under column labeled Following.

To Cancel an Appointment, select “Cancel Appointment”.



Provide the Reason for Cancellation from the drop down, Cancelled by, and indicate the Patient’s Requested Time. You could also choose to Reschedule the appointment here by select Yes. Then choose the “Cancel Appointment” button.

If you choose Yes to the Reschedule Appointment field an Appointment Request will automatically by created for the Request Time indicated.

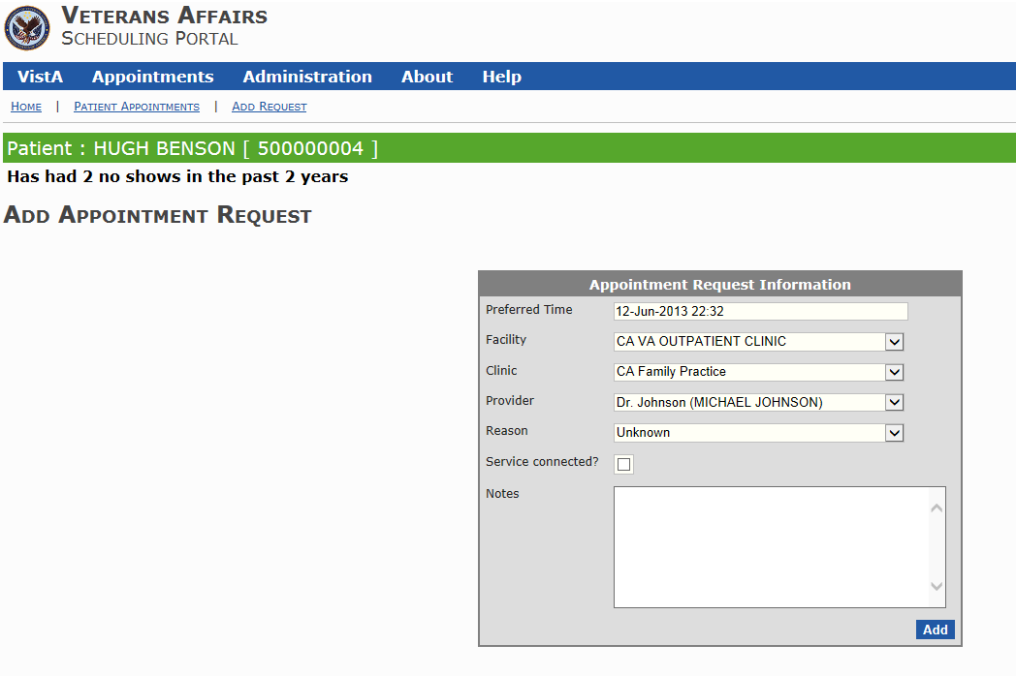


Add Appointment Request

If the patient wishes to make an appointment request, for example if the date is unknown or there is no capacity at a particular clinic, then an Appointment Request can be made.

In addition if Patient Appointments are cancelled due to a Block at a clinic then Appointment Requests will automatically be created, which can then be later fulfilled.

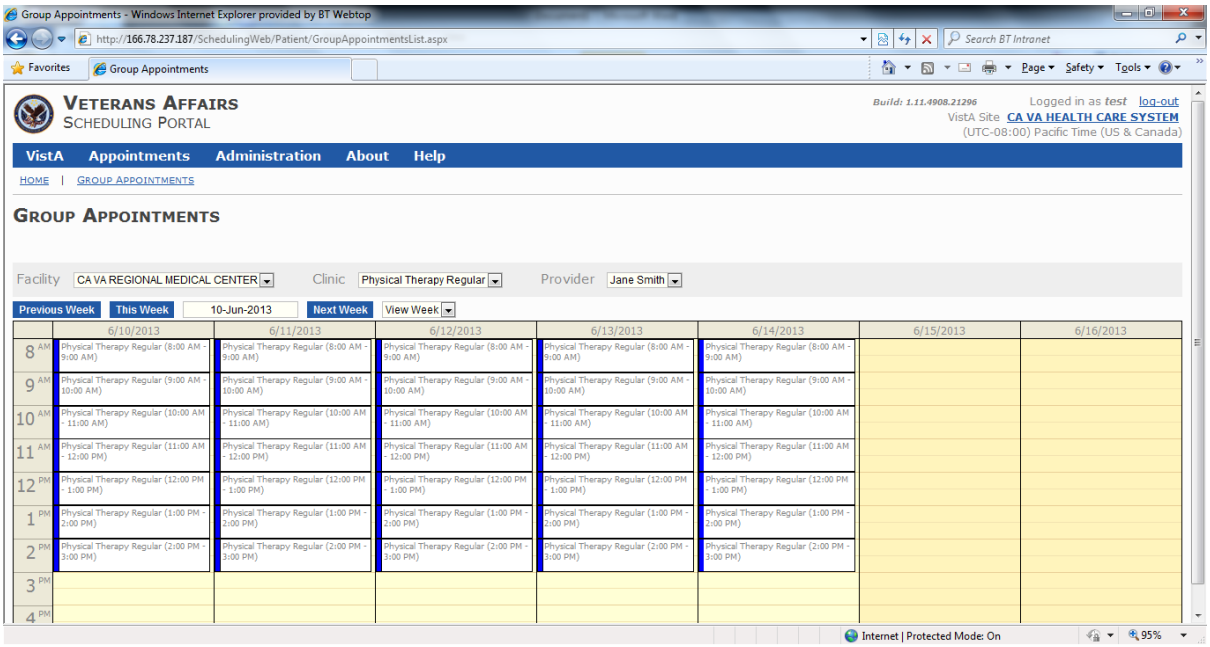
Select Add Appointment Request from the patient appointments screen, update all fields and select “Add”.



Group Appointments

From the Appointments menu, select “Group Appointments”. Then select the “This Week” or “Next Week” button or if you know the group appointment availability you could enter a date to display the group appointments available. The Group Appointments page is presented as a Calendar View. A clinic and provider can also be selected to show the available group appointments that patient can be booked for. These appointment slots are created when the Scheduling Policy for the resource includes slots with capacity > 1.

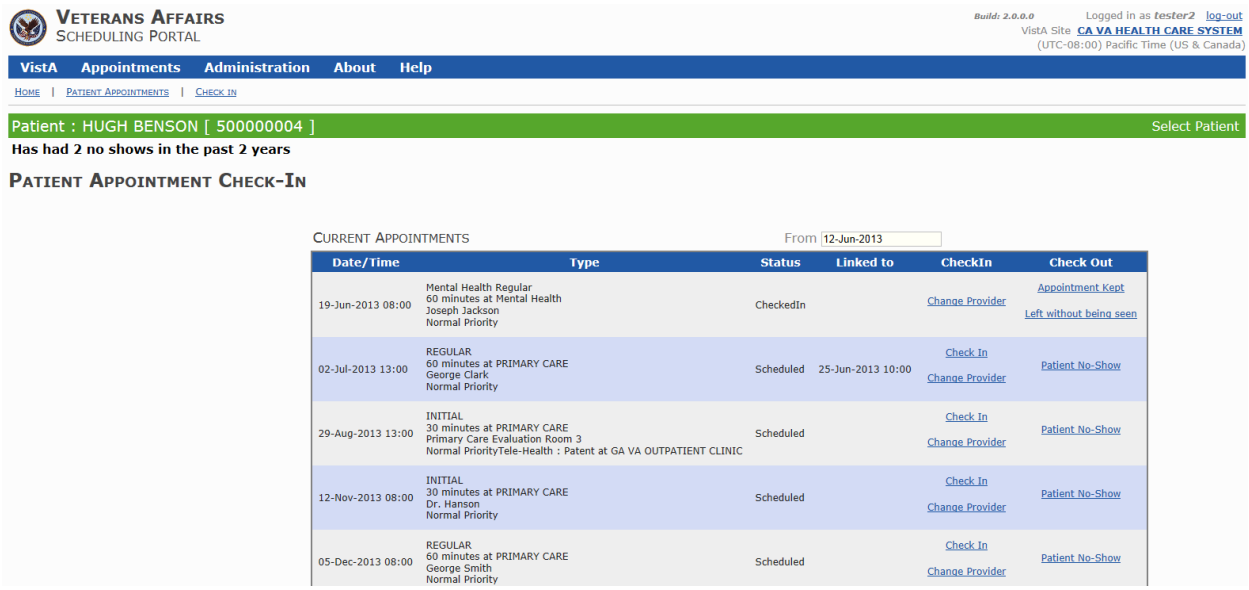
Upon selecting a group appointment from the Calendar, the remaining slots and patients are displayed for Scheduling Management.



Click “Add Patients” to select patients for the group appointment

Patient Check-in

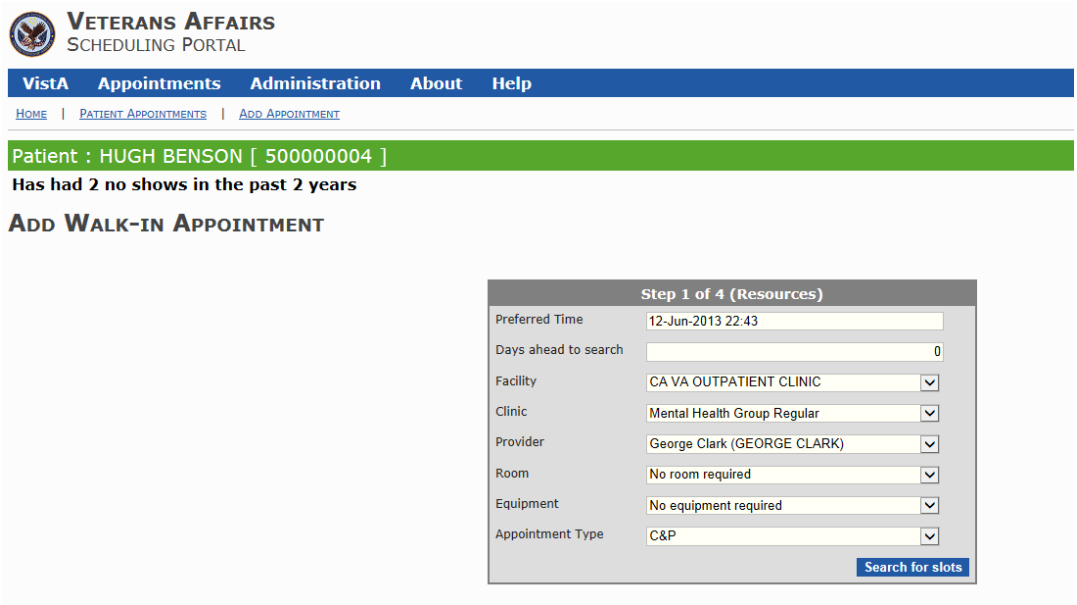
From the Appointments menu, select “Patient Check-In”. This option allows the Scheduling or other user role such as a Front Desk to record the outcome of the appointment. This includes whether the patient is recorded as no-show or left without being seen.



Walk-in Appointment

From the Appointments menu, select “Walk In Appointment”. The set up process for this is the same as Add Appointment described in the previous sections but the desired data is set to today.

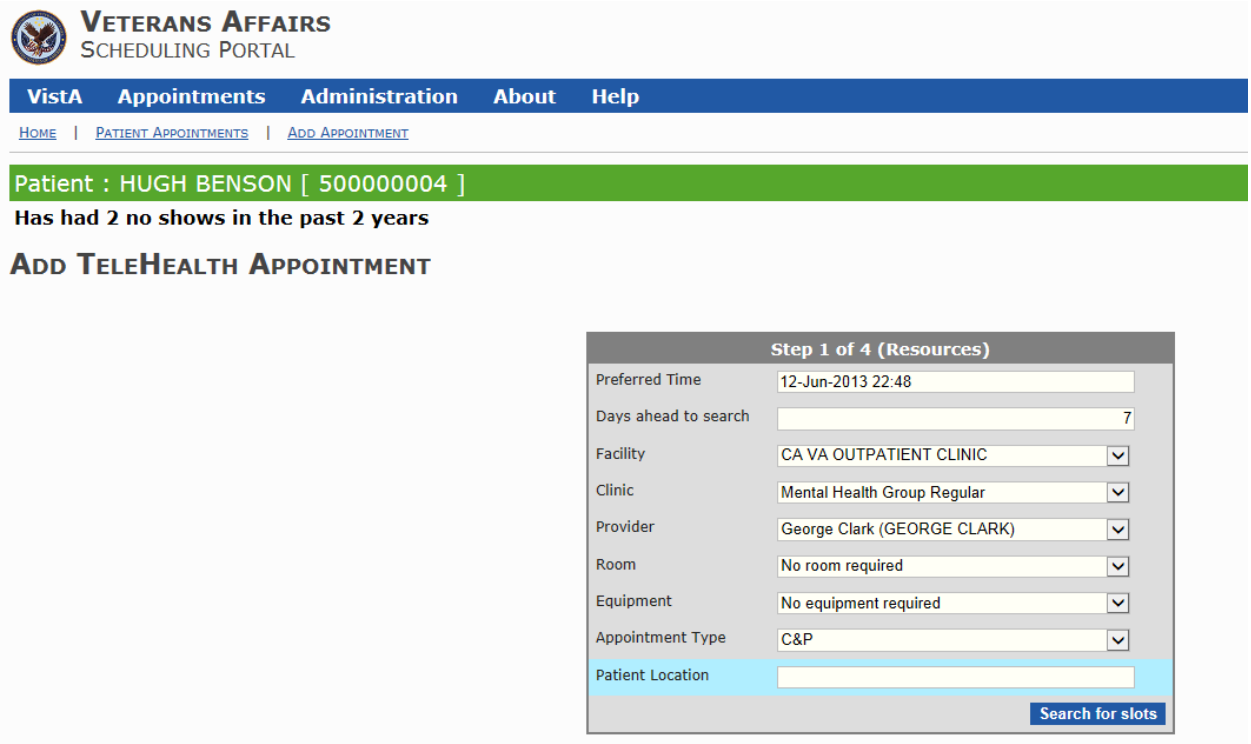
Creating a Walk-In appointment checks the patient in automatically.



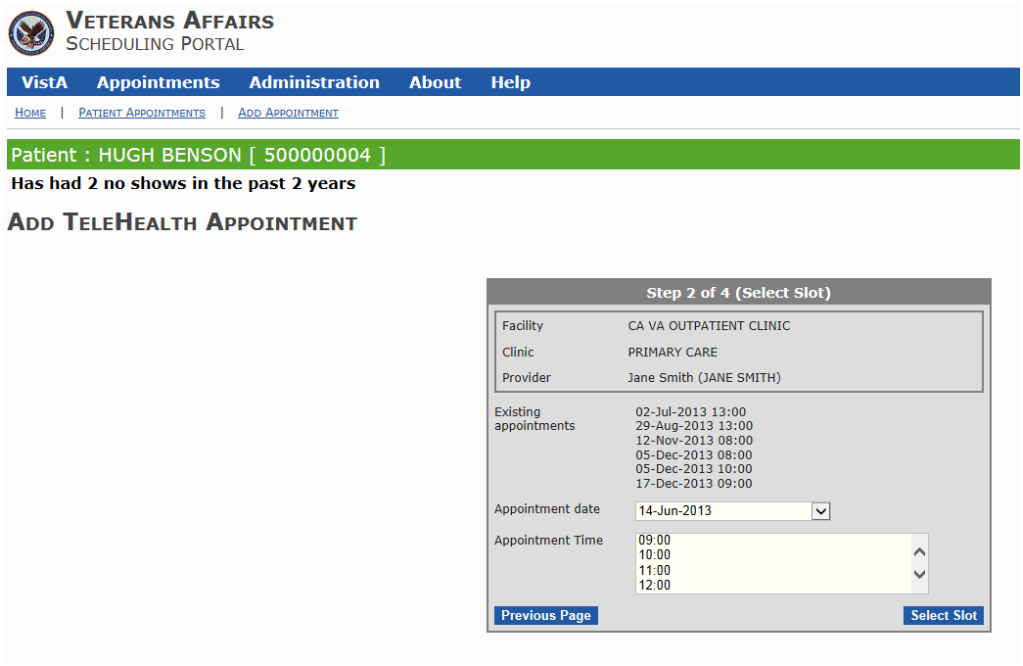
Telehealth Appointment

This functionality is for capturing specific appointments where the patient will not arrive at the provider location and where special communication resource types may be required. Through the Add Appointment page the scheduler can also record the Telehealth appointment patient's location with appropriate time adjustments based on provider and patient UTC times.

From the Appointments menu, select Add TeleHealth Appointment.



Complete all fields including Patient Location then select, "Search for Slots".



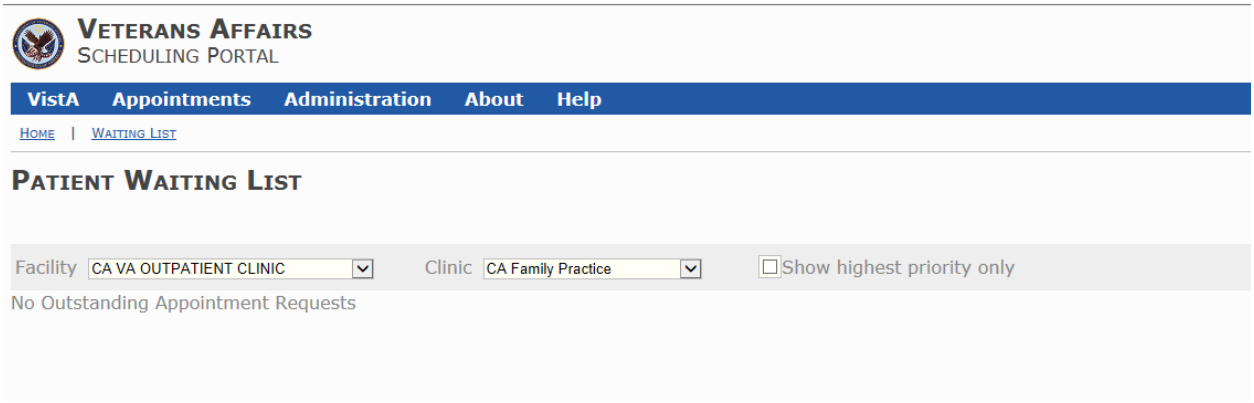
Review the Existing Appointment times for your patient and then select your Appointment Date and Time based on the patient's availability and choose "Select Slot". The next two confirmation screens are identical to Add and Reschedule Appointment. Once complete your TeleHealth Appointment is added to the Patients Appointments screen.

If the provider and patients are at different site, switch to the other site and create a TeleHealth appointment at the second site. Use the appointment time for the second appointment as it appears in the appointment list as the times are adjusted, according to the site.

Patient Waiting List

Patients who have outstanding Appointment Requests or are on a Wait List can be managed through these pages. Priority patients are Service Connected 50-100% or < 50% if the appointment is service connected.

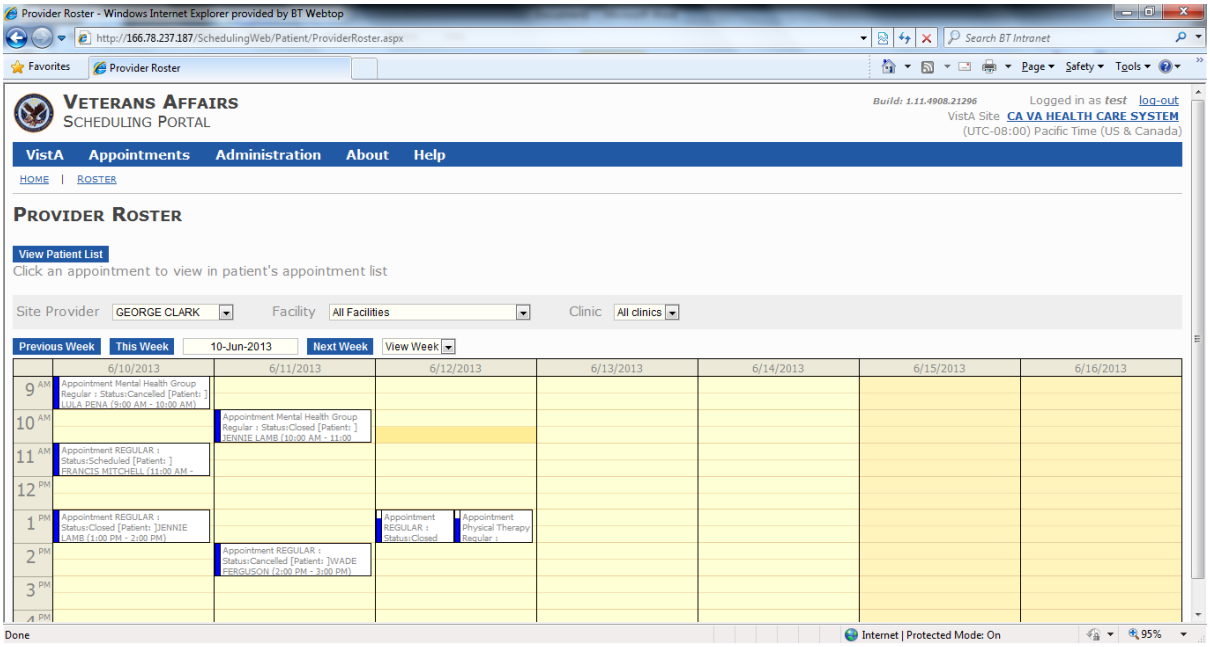
From the Appointment menu, select "Waiting List". You can search waiting lists by Facility, Clinic, and by highest priority as shown below.



Provider Roster View

This option provides a Calendar view of the Provider Roster, for informational purposes. This page allows you to see any appointment scheduled. Tooltips provide appointment details, including status, e.g. Checked in.

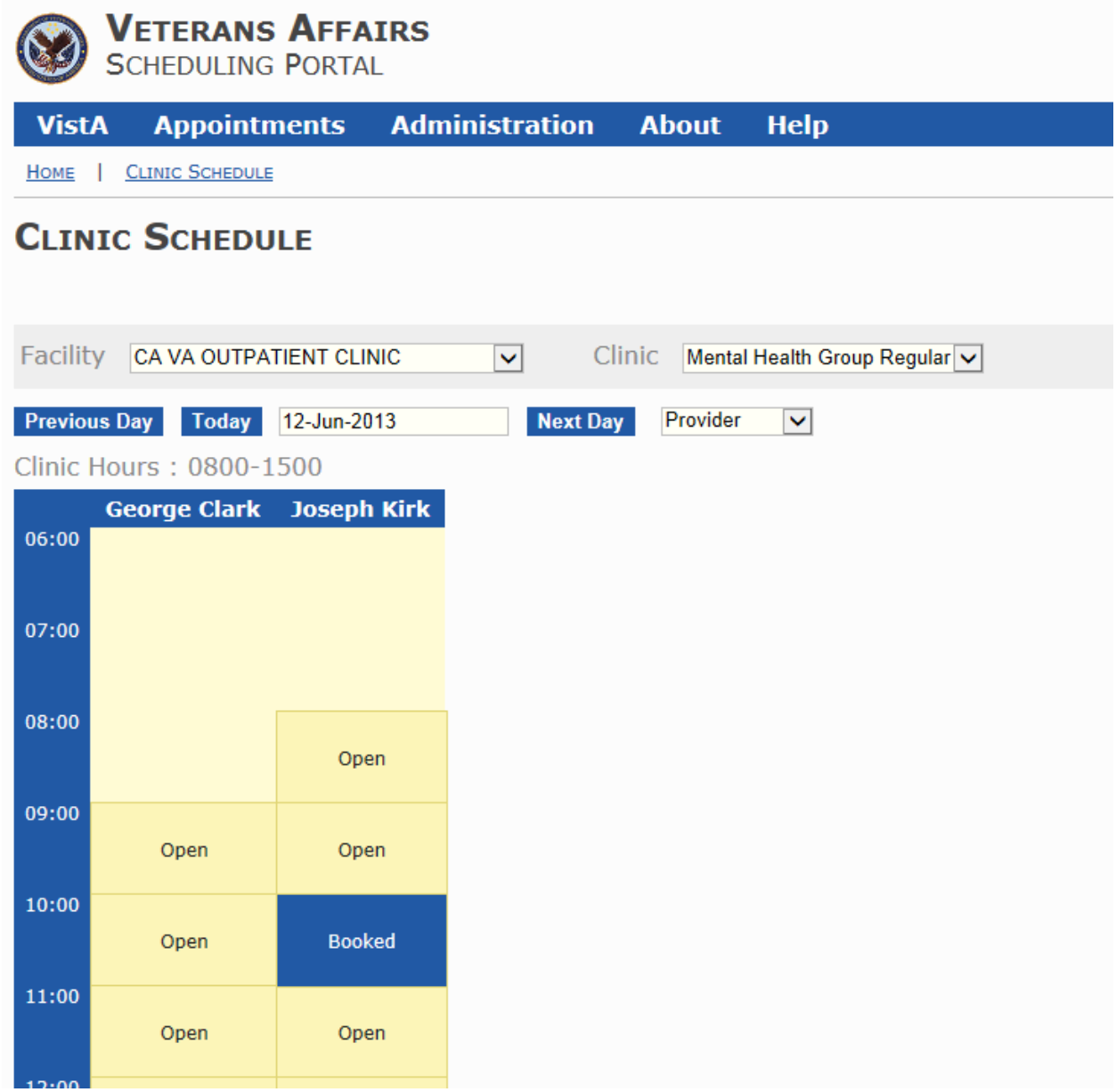
You can get to the Provider Roster by selecting the Appointments menu and then Provider Roster or from the patients appointment screen selecting “View in Provider Roster.



Clinic Schedule

This option is a comprehensive view of the overall Schedule for a Clinic in a Calendar user interface control, and these views can be changed to include other resources such as rooms or equipment.

From the Appointments menu select Clinic Schedule.



4.7. Administration

This section allows for the management and security of users and roles typically this will be performed by a System or User Administrator.

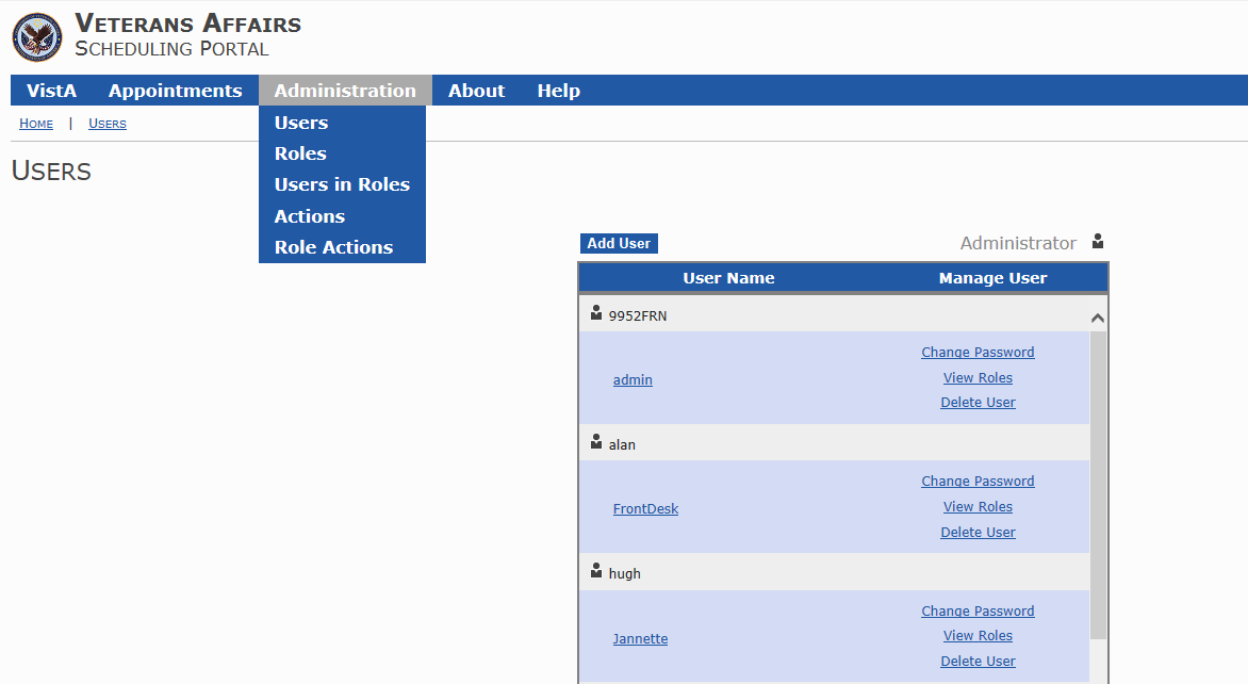
For example users can be enabled or disabled, and set to roles that can perform specific function.

A flexible standard pattern for User Administration is provider and this could also be linked to other user authorization policies as required. Example users are provided with the baseline data set.

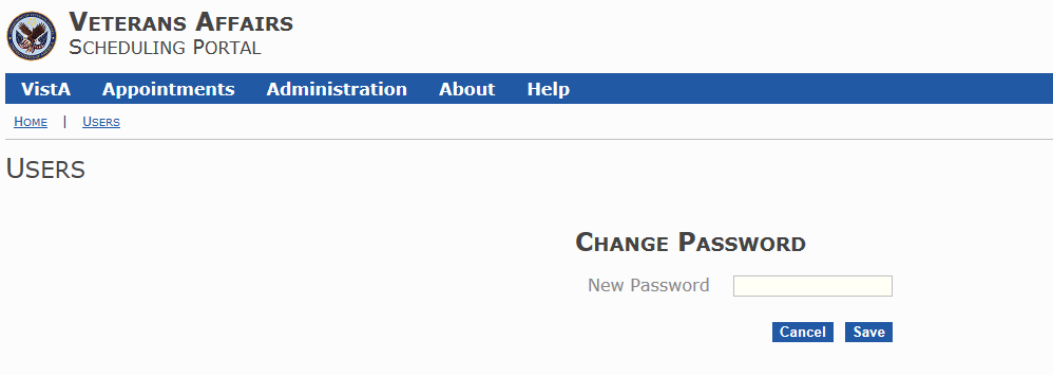
Managing a User

Select the Administration menu then select User. This page is for the management of users. Note that some users cannot be managed through this option.

A list of users displays and shows you your current user role at the top of the table as well as a comprehensive user list. Here you can change the user's password, view roles, and delete a user.



To change a user's password, select the Change Password link to the right of the User Name. Enter a new password and select "Save".

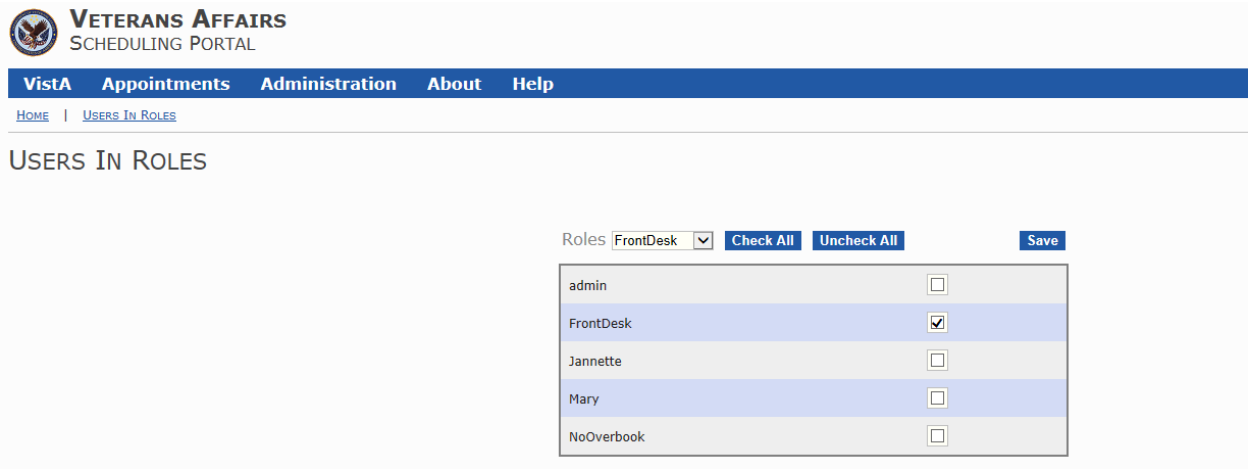


User Roles

Once users and roles are set-up the management of users in roles is performed in this page. For example the username “abrown” could be assigned as a Scheduler.

There are a couple ways to get to the View User Roles section, select Administration then Users and select the User in Roles link or by directly selecting “User In Roles” from the Administration tab.

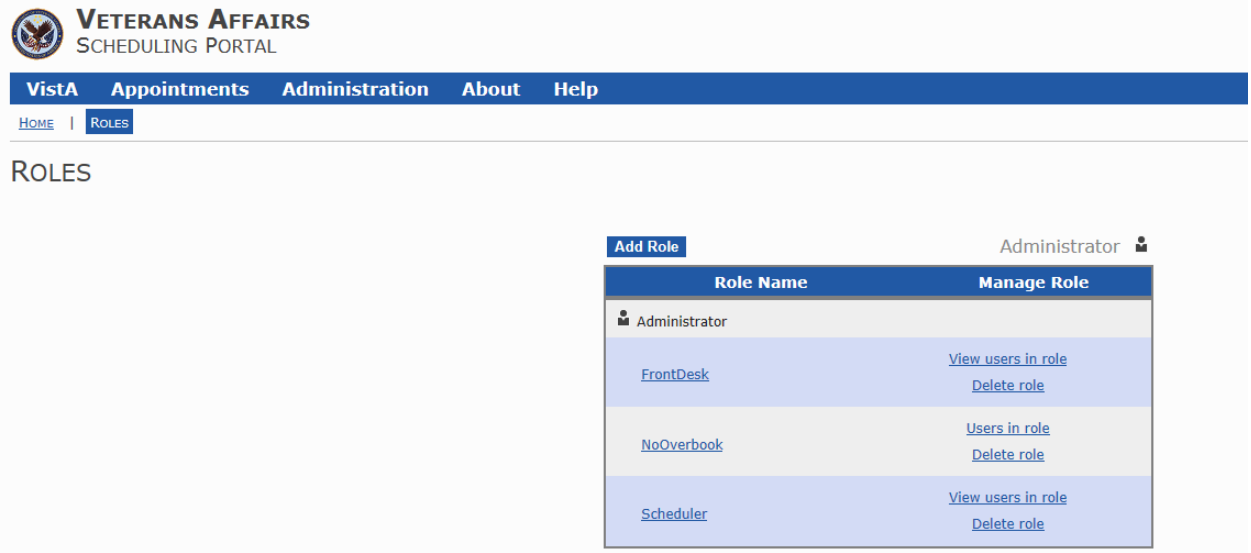
On this page you can filter from the Roles drop down to show which user is assigned to each role. A checked box indicates the user is assigned to that role and all associated permissions for that role. You can also change the user’s role here by checking or unchecking the box.



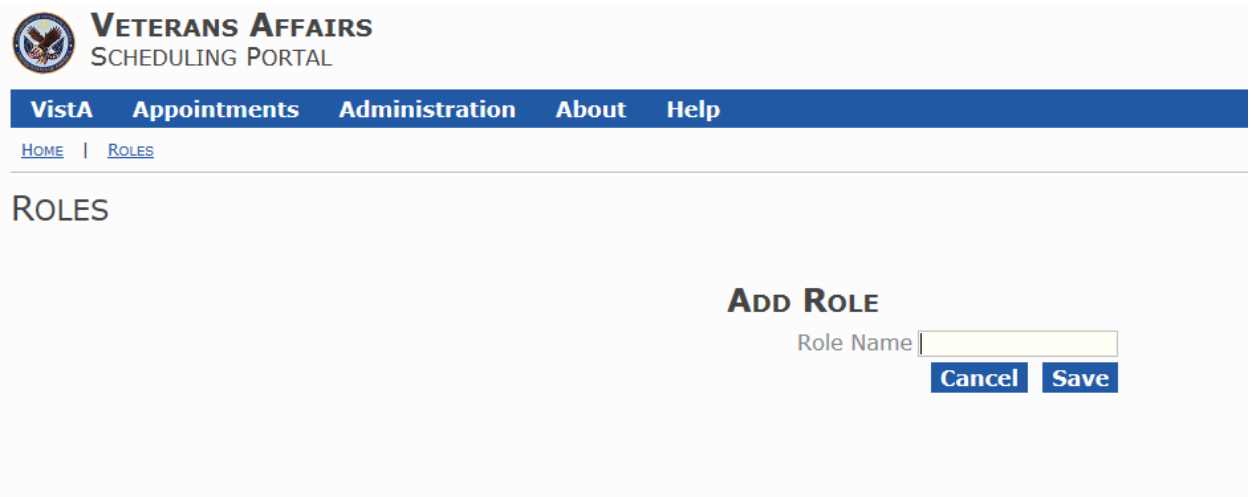
Roles

Roles can be created, which have a configurable set of Role Actions, for example a Front Desk user has a limited set of options including Check-in menu option.

From the Administration tab, select Roles.

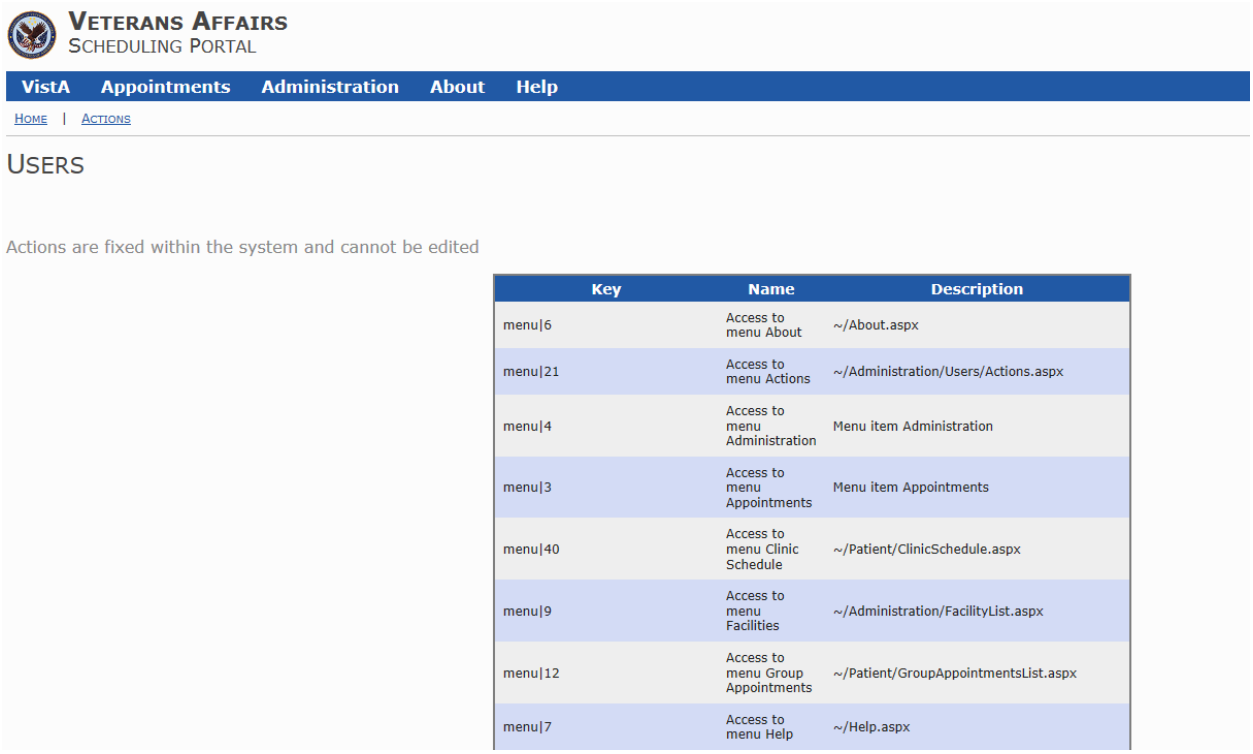


Select “Add Role” located about the Role table then select “Save”.



Actions

Actions are set within the Scheduling system. This page displays the current available actions. These are primarily menu options but the system could be set-up to support the management of any action. For example, the ability to overbook appointments is an action which can be assigned to roles such as a Senior Scheduler within an application.

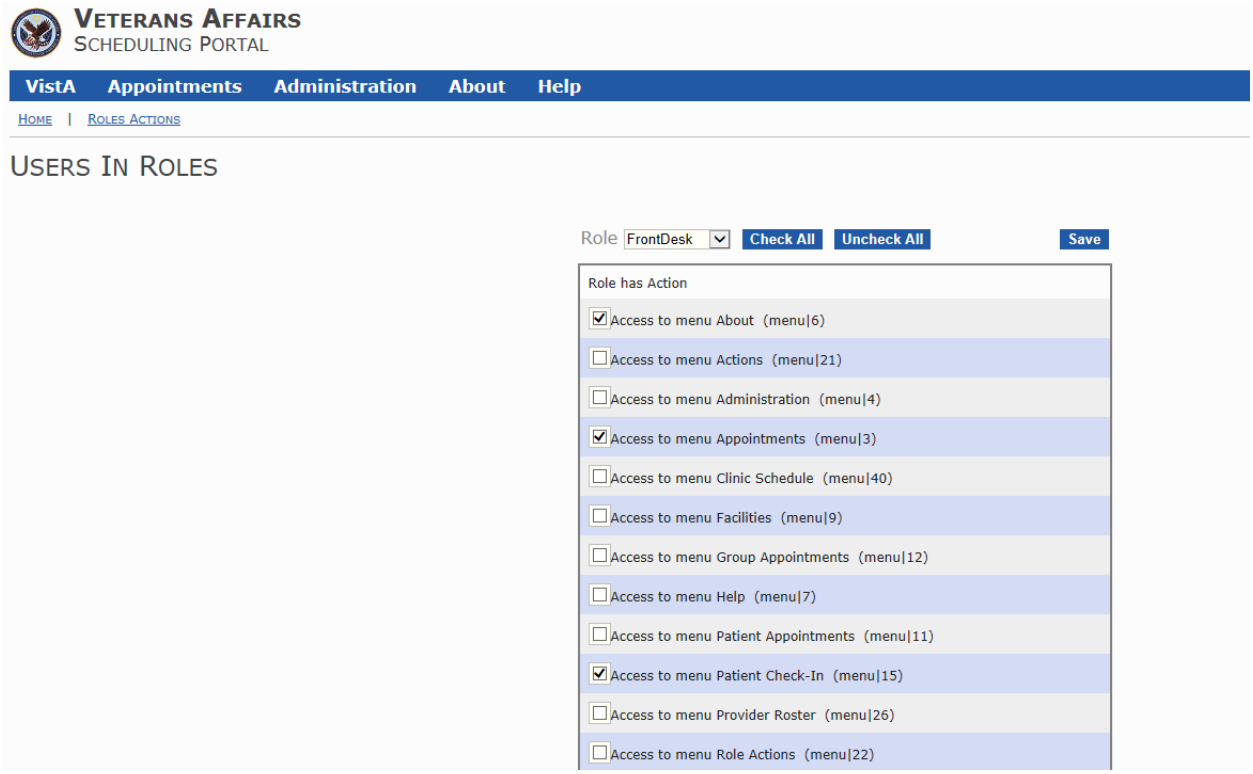


From the Administration page, select Actions. Note due to size of page, only a portion of this page is shown in the screen shot.

Role Actions

The Role Actions page displays a mapping of roles actions available by role. You can assign specific Role Actions the User can complete here. For example, if a Scheduler is supplied permissions to overbook appointments.

To complete this function, select the Role from the drop down you want to edit. Then check or uncheck the action which the role can have access to complete, then select “Save”.



4.8. About

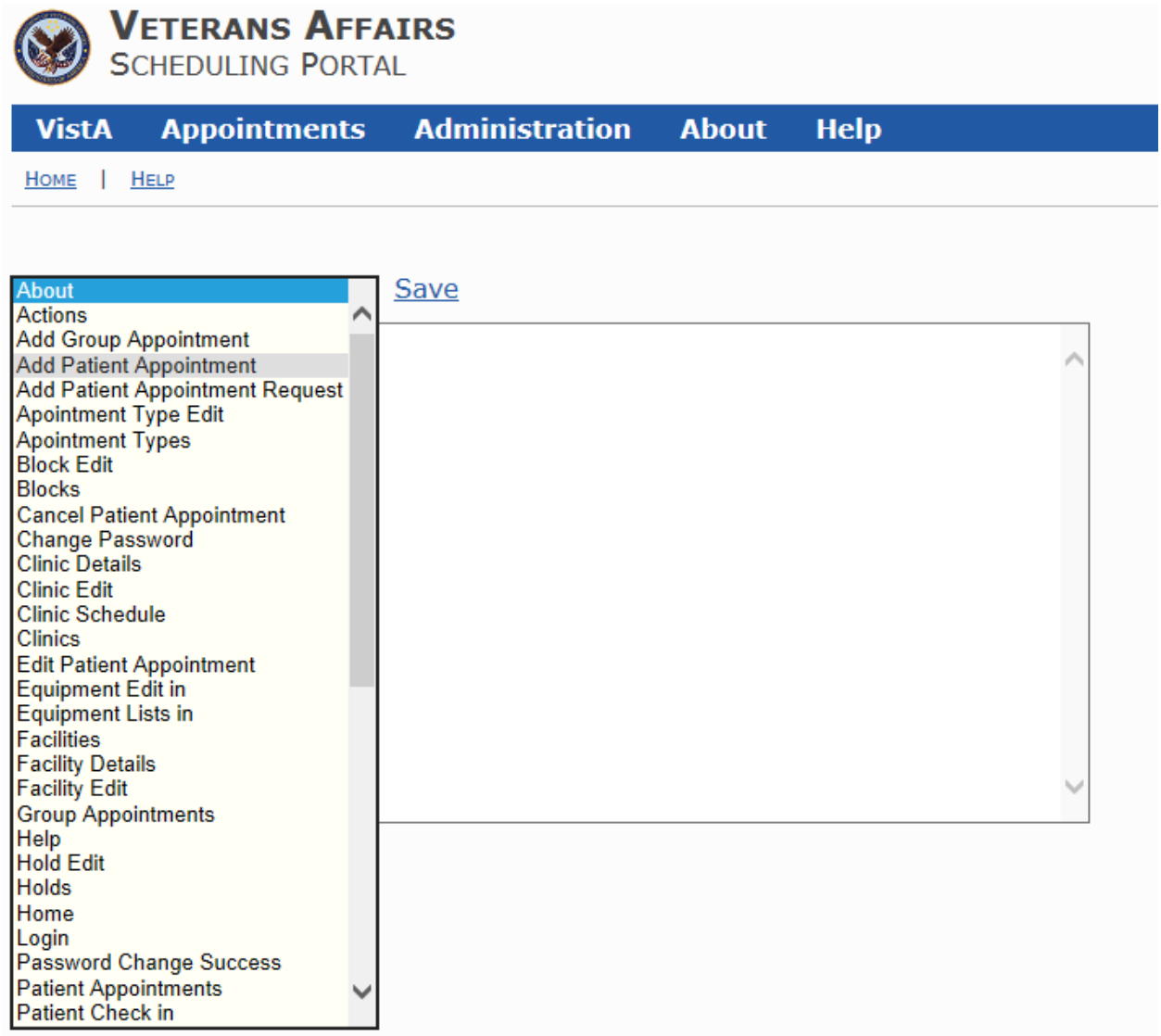
The About tab is located on the top toolbar in the application.

This page displays the deployment application version numbers and any specific messages that need to be published to the Scheduling user community.

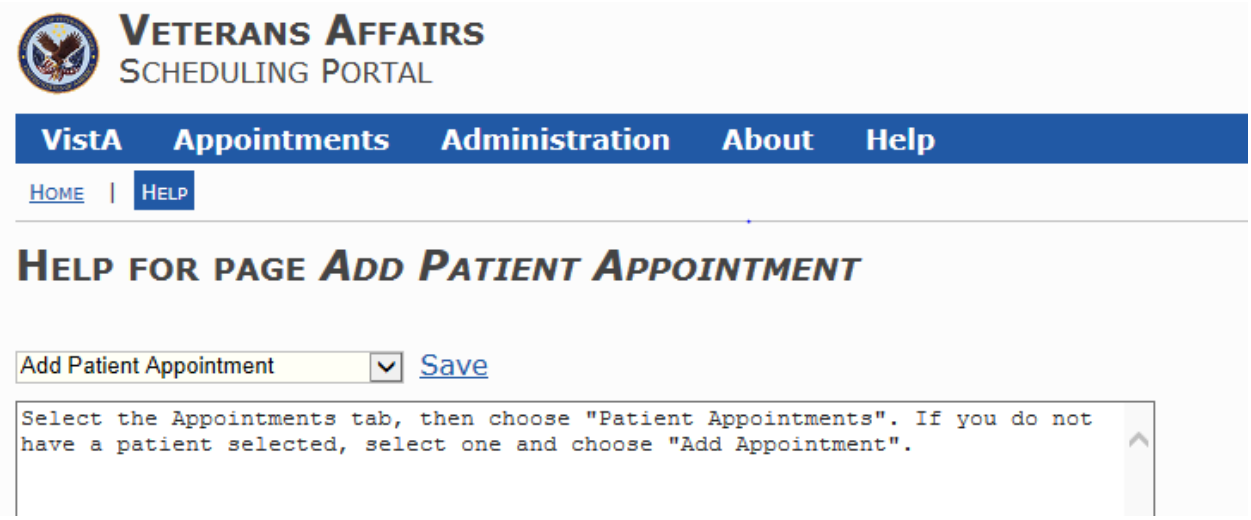
4.9. Help

The application allows for unlimited Help Text which can be fully editable on-line Help for each Menu Option. The ability to edit this Online could be set by the role based access control

described above. Information has already been added to each of the drop down menu options in the Help Text file.



To view one of the topics, select the Help tab, then select a topic from the drop down you want more information about and a summary displays.



5. Instructions and Traceability Matrix for Step 2A Attachment A (Application Capability Alignment with Scheduling-Centric Requirements)

To facilitate validation of our application's capabilities relative to Attachment A metrics, we have endeavored to include as much of these capabilities into the 8 Use Case demonstrations for Step 1 testing as possible. This was done prior to the VA release of new Use Cases for demonstrating Step 2A. However, we believe that such traceability will still help Attachment A evaluators to validate the capability for each metric. If so desired, the Attachment A evaluators can execute the eight Step 1 Use Cases either by the automated scripts described in Section 3 or by manual operations of the UI based on instructions (scripts) provided in Attachment A (Manual Scripts for the 8 Use Cases) to see capabilities relevant to Attachment A.

In the Traceability Matrices below, specific Use Case Steps that demonstrate and validate the capabilities associated with each requirement are presented along with a brief explanation of why the demonstration satisfies the requirement. The explanation may further reference Appendix B (Application Design and Architecture) to help the evaluators understand what is actually occurring in the application when a particular step has been reached in Use Case execution. For those capabilities that are beyond the Use Case demonstrations, we have referred the evaluators to additional UI functions and provided instructions on how to execute those functions in Section 4 of the Application User Manual.

5.1. Evaluating BN 1: Manage National Medical Scheduling Setup

VA Requirement: The scheduling system shall provide the capability to configure and manage business rules and standards at a national level including establishing parameters for role-based user access and security and supporting a process to monitor and evaluate results of audit reports.

VA Requirements	Instructions and Validating Outcomes
1.1 The system shall have the capability to provide integrated, electronic access to and from other VistA applications.	Our integration strategy between the scheduling application and VistA uses a two pronged approach: 1) The application can import reference data from VistA and treating it as "read-only" data within the scheduling application in order to ensure consistency between the scheduling application and VistA. This is validated in the patient search function of the application, which searches patients directly in VistA and pulls a local, read-only copy of the patient data once the patient is selected for scheduling

	purposes **Reference Appendix A.3. instructions for Use Case 3 – Step 3 (Select the Patient)** 2) The application can continuously export data from the scheduling application to VistA to ensure that back-end processes in VistA will continue to function without any knowledge of the new scheduling application. This is validated in the Create A Patient Appointment process, which (automated in Step 1 - UC 3) records appointments in the local scheduling database but also adds these appointments in VistA. **References Appendix A.3. instructions for Use Case 3 – Step 5 (Make Appointment)**
1.2 Maintain and Modify Scheduling Configuration – The system shall provide the capability to establish and maintain national, VISN, VAMC, clinic, provider-level configuration standards. Configuration shall be enabled for facility-level within business rules and parameters.	Reference instructions for 1.2.1 to 1.2.5 below. Our application fully satisfies the requirements for maintaining and modifying scheduling configuration at designate levels of standards and enables facility level business rules and parameters.
1.2.1 The system shall have the capability to provide on-line help.	The UI is designed to be an Online Portal thus enabling the capability for On-line Help. Every page of the User Interface has a context sensitive link to a help screen. This is validated with the help link available on most screens. The help content will be expanded in further development. **Reference Section 4. (Scheduling User Manual) Section 4.9. for instructions on how to use the Help Function in the UI menu.**
1.2.2 The system shall have the capability to maintain an audit trail of changes to resource configuration	The scheduling already maintains a long list of audited events which includes resource related events such as “Schedule Created, Schedule Remove, Schedule Activated, etc.” The delivered functionality can easily be augmented to handle VA specific requirements. The full list of currently audited events is stored in table “dbo.AuditFunction”. This is validated through the full audit trail, which is available in the audit reports. The data can be filtered and sorted in multiple ways. **Reference Section 4. (Application User Manual) - Section 4.5. for**

	instructions on viewing Audit Trail in reporting.
1.2.3 The system shall have the capability to create, modify, and delete configurable business rules that are used in the scheduling process.	Our application is highly configurable as specified by the requirements in Use Case 1 and 2 such as Establishing and Managing Schedules. Each step relies upon creating and modifying business rules, such as setting standard appoint durations, blocking off schedule portions, and holding dates. The ease in which such business rules can be modified in the process validates this capability. **Reference Section 4. (Application User Manual) - Section 4.6. for discussions of business rules in the appointment process.** **Reference Appendix A.2. instructions for Use Case 2 Steps 3 to 19 (establishing and managing schedules).**
1.2.4 The system shall provide the capability to configure resources at the National, VISN, facility, clinic and provider levels.	Different resources are configured at different levels of the organizational structure consisting of National, VISN, facility, clinic and provider. For example, providers are defined at the level of a site while the specific resources representing these entities are created at the level of a clinic or section to logically group them for searches and privilege assignments. This approach permits providing both a global configuration of resources and a local configuration of the resource at the section/clinic level. As an example the “Allow Overbooking” flag is available on the Add Resource screen when a resource of type “Provider” is created at the level of a section. **Reference Section 4. (Scheduling User Manual) Section 4.4. for instructions on selecting Sites, Facilities, and Clinics.** **Reference Appendix A.1. instructions for Use Case 1 Step 6 (configure for multiple facilities).**
1.2.5 The system shall provide synchronization with individual (patient or provider) Office Automation calendar for multiple types of end user devices, including mobile applications irrespective of operating system.	Our scheduling application includes an Open Source module based on the Open Standard “CalDav” which allows any authorized and authenticated CalDav compliant device to synchronize appointment information that the user is authorized to access. The integration approach of this CalDav compliant module is described in the Application Design and Architecture document. The user merely needs to follow instructions on how to synchronize a CalDav compliant device with the CalDav server **Reference Appendix B. (Application Design and Architecture) Section B.10. for explanation of CalDav server in the design**

	Reference Section 4. (Application User Manual) – Section 4.6.
1.3 Flexible Appointment Scheduling – The scheduling system shall provide the capability to configure schedule parameters.	Reference instructions to 1.3.1 to 1.3.7 below. Our scheduling application fully satisfies the requirements for flexible appointment scheduling through the configuration of parameters such as holidays, immediate appointments, time zones, etc.
1.3.1 The system shall allow configuration of scheduling to accommodate holidays.	Currently the standard list of holidays is pulled directly from VistA. Other holidays can easily be added as shown in Use Case 1 Step 1. The holidays are used by the scheduling engine to prevent appointments to be made the day of the holiday. Attempting to create an appointment with a desired date matching one of the holidays created in Use Case 1 (e.g. National VA Organization Day, 20 July 2012, 22 July 2013, 21 July 2014) will show a list of available appointment slots with no slots available on the given holiday. **Reference Section 4. (Application User Manual) – Section 4.6. for detailed instructions on how to make appointments.** **Reference Appendix A.1. discussion for Use Case 1 (setting national and VA specific holidays)**
1.3.2 The system shall allow flexible schedule options for urgent care and walk-in appointments.	The scheduling application contains a menu item used specifically for walk-in patients that takes the user to a screen used to record the request and appointment all at once. Additionally, other functionality supports the concept of urgent care. For example, appointment slots for resources have a particular limit on the number of patients allowed in the slot. Nevertheless, the application supports scenarios such as walk-in appointments by overbooking the slot. Note that the resource must be configured to allow overbooking. **Reference Appendix A.5. instructions for Use Case 5 Steps 1 to 5 (flexibly scheduling walk-in patients).** **Reference Section 4. (Application User Manual) – Section 4.6. for detailed instructions on how to record Walk-in Appointments, and how to configure a resource to accept overbooking.**
1.3.3 The system shall allow scheduling between facilities located in different time	As our application is an enterprise solution (not a local scheduler), the application automatically makes time zone adjustments during communications and coordination across facilities.

zones.	Data is stored in the Scheduling Application in UTC format. Appointment start times are presented in the time of the clinic or provider, for clarity and safety, time zone suffixes are generally always be presented. **Reference Section 4. (Application User Manual) – Section 4.1. for a description of the application.** **Reference Appendix A.1. discussion for Use Case 1 (organize scheduling in locations at multiple time zones).**
1.3.4 The system shall have the capability to allow users to specify timing relationships between activities (eg, coordinate multiple activities in specified order).	Embedded in the linking process are business rules governing sequencing and the user setting of time relationships between appoints. This validates capability and better user definable relationships can be added later for groupings of appointments other than based on a patient. **Reference Appendix A.3. instructions for Use Case 3 Step 9 (scheduling multiple linked appointments).**
1.3.5 The system shall be configurable to display only available resources.	When making an appointment, a user is only presented with appointment slots corresponding to selected resources that have some availability for the desired dates. **Reference Section 4. (Application User Manual) – Section 4.6. for instructions on how to make an appointment.** **Reference Appendix A.3. instructions for Use Case 3 Step 5D (setting patient appointments with available resources).**
1.3.6 The system shall have the capability to allow users to define a standard set of appointment types with default appointment lengths.	After selecting a Section or Clinic a user with the proper privileges can add appointment types and set fields such as appointment type category, duration and stop codes. **Reference Section 4. (Application User Manual) – Section 4.6. for instructions on how to make an appointment.** **Reference Appendix A.1. discussion for Use Case 1 (creating and updating standard appointment types).** **Reference Appendix A.2. instructions for Use Case 2 Step 1 (setting section appointment types based on appoint type categories) and Step 12 (designating time ranges for multiple appointment types).**
1.3.7 The system shall have the capability to search for available appointments using specific parameters and to display results for multiple	These steps include a single view approach for seeing available resources against time spots and appointment openings. The scheduler can search through this view to make appointments and demonstrate capability.

resources in a single view.	**How to validate** – Follow pages X of the User Manual for detailed **Reference Section 4. (Application User Manual) – Section 4.6. for instructions on how to select multiple resources and view their corresponding calendar on a single screen.** **Reference Appendix A.3. instructions for Use Case 3 Step 5 and 5D (setting patient appointments).**
1.4 User Access – The system shall provide the ability to maintain and modify user access.	Reference instructions 1.4.1 to 1.4.5 below. Our scheduling application fully satisfies the requirements for maintaining and modifying user access.
1.4.1 The system shall provide role-based security for access control and provide improved remote access for Veterans to make and view appointments over the internet, email and other mobile devices.	Our application has remote access control capability with security driven by user identity and assigned roles (i.e. sys admin, master scheduler, scheduler). For further validation, our scheduling application includes an Open Source module based on the Open Standard "CalDav" which allows any authorized and authenticated CalDav compliant device to synchronize appointment information that the user is authorized to access. The integration approach of this CalDav compliant module is described in the Application Design Architecture document. For remote access, users need to follow instructions on how to synchronize a CalDav compliant device with the CalDav server **Reference Section 4. (Application User Manual) Section 4.3. for instructions on user password log-on.** **Reference Appendix B. (Application Design and Architecture) Section B.10. for discussion of CalDav module** **Reference Appendix A.3. instructions for Use Case 3 Step 3 (Selection patient to schedule)**
1.4.2 The system shall have the ability to create, configure, and maintain role-based user (staff and veteran) access and authorization.	Our application implements a typical role based security, which consists of users, roles, users-in-roles and actions related to roles. This standard approach to security provides the basic capability required to restrict access to web pages, actions and data elements. **Reference Section 4. (Application User Manual) – Section 4.7. for instructions on how to configure users and roles.**
1.4.3 The system shall allow configuration and tailoring of user access roles at the national, VISN, facility, clinic,	The standard role-based security capability built into the application provides the functionality required to configure security privileges that are required by the VA.

and provider levels based on business rules and policies.	**Reference Section 4. (Scheduling User Manual) – Section 4.7. for detailed instructions on how to configure users and roles.**
1.4.4 The system shall have the capability to enforce rules concerning what roles can overbook appointments for a service or resource.	The application already has the functionality required to manage overbooking and manage users in roles. Therefore the basic capability to enforce rules concerning any function based on roles is already built into the application. The capability to enforce rules and control overbooking is demonstrated in Use Case 2. **Reference Section 4. (Application User Manual) – Section 4.4. and 4.6. for detailed instructions on how to setup users in roles, and how to configure a resource to accept overbooking.** **Reference Appendix A.2. instructions for Use Case 2 Step 18 (configuring for overbooking and assignment of overbooking privileges).**
1.4.5 The system shall have the capability to allow, in certain circumstances, Veterans to schedule appointments via remote access mechanisms such as phone, internet, email and other mobile devices.	Our scheduling application includes an Open Source module based on the Open Standard "CalDav" which allows any authorized and authenticated CalDav compliant device to synchronize appointment information that the user is authorized to access. The integration approach of this CalDav compliant module is described in the Application Design Architecture document. We currently implemented synchronization from the scheduling application to a CalDav compliant client device. The capability for allowing the client device to send schedule updates to the scheduling back-end server is also present and requires additional integration work. Users need to follow instructions on how to synchronize a CalDav compliant device with the CalDav server **Reference Appendix A.3. instructions for Use Case 3 Step 1 (receiving appointment request by phone, email, and internet).** **Reference Appendix B. (Application Design and Architecture) Section B.10. for discussion of the CalDav module.**
1.5 Resources and Groups – The system shall provide the capability to create, modify, manage, delete, and report on resources and groups.	The management of resources and groups are fully validated in the use cases. The changes in resources and groups overtime are then captured in the reporting formats in Attachment B metrics. The report functionality is further explained in the Application User Manual. The provider resource can be changed using the dedicated function when viewing existing appointments. **Reference Appendix A.2. instructions for Use Case 2 Step 2 (configuring resources), Step 3 (converging resources), Steps 4 – 9 (managing resources).**

	Reference Appendix A.6. instructions for Use Case 6 Step 6 (cancelling and freeing up resources). **Reference Section 4. (Application User Manual) Section 4.5. for explanation of reporting functions.**
1.6 Audit Trails – The system shall have the capability to display business and technical audit trails.	Reference instructions for 1.6.1 below. Our scheduling application has the capability to display business and technical audit trails.
1.6.1 The system shall provide the ability to record data to produce audit trails for items including: user access activities, modifications to schedules	The scheduling application maintains a list of audited user activities that includes events such as login and logout events. The delivered functionality can easily be augmented to handle additional VA-specific requirements. The full list of currently audited events is stored in table "dbo.AuditFunction". The full audit trail is available through the audit report. The data can be filtered and sorted in multiple ways. **References Section 4. (Application User Manual) - Section 4.1. and 4.5. for instructions on viewing Audit Trail reports.**
1.7 Templates – The system shall have the capability to create, modify, change status, and manage of templates which include notifications, letters, and scheduling events. The system shall allow the templates to be shared and saved.	Reference instructions for 1.7.1 and 1.7.2 below to validate our application's capability to share and save templates. Reference Appendix A.3 instructions for Use Case 3 Step 10 to validate that our templates includes notifications / letters and scheduling events.
1.7.1 The system shall allow the templates to be shared.	Templates that will support some form of text-based token substitution (text, html, xml) can be uploaded and tied at a specific facility level and shared by sections, which are configured under that specific facility. When the template exists at the section/clinic it naturally overrides the one at the higher level of the hierarchy. This is validated through the use cases. **Reference Appendix A.1. instructions for Use Case 1 Step 7 & 8 (Create/update one pre-appointment communication template).** **Reference Section 4. (Application User Manual) Section 4.7. for detailed instructions on how to configure users and roles.**
1.7.2 The system shall allow the templates to be saved.	Templates that will support some form of text-based token substitution (text, html, xml) can be saved (uploaded) and tied at a specific facility level and shared by sections, which are configured

	under that specific facility. When the template exists at the section/clinic it naturally overrides the one at the higher level of the hierarchy. This is validated through the use cases. **Reference Appendix A.1. instructions for Use Case 1 Step 7 & 8 (Create/update one pre-appointment communication template).** **Reference Section 4. (Application User Manual) Section 4.7. for detailed instructions on how to configure users and roles.**
1.8 The system shall allow for the configuration of notifications, flags and alerts for scheduling process.	The use case actions as referenced below validate a configurable communication process for notifications, flags, and alerts. The integrated notification functionality is explained in the application design. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**

5.2. Evaluating BN 2: Manage Veteran Information

VA Requirement: The system shall have the ability to access and manage, update and maintain accurate Veteran information. Veteran special needs and preferences shall be accessible and able to be updated in "real-time".

VA Requirements	Instructions and Validating Outcomes
2.1 The system shall have the capability to provide alerts if patient information is missing, out of date, or requires verification (e.g., eligibility, means test, demographics)	We have designed and implemented our scheduling application to import most Patient's data from VistA, making the assumption that VistA will remain the system owner of most patient's data. The current import mechanism uses MDWS for accessing the patient information, and essentially, any patient data can be displayed for verification and eligibility reasons. **Reference Appendix A.3. Instructions for Use Case 3 Step 4 (verifying patient information)**

	References Section 3 (Application User Manual) - Section X for instructions on searching, selecting and displaying patient data
2.2 The system shall have the capability to maintain and present appointment information (past and future) within a specified date range (e.g., including appointments kept, providers, cancellations and no-show history)	While making an appointment and after having selected a patient the application will present the user with past patient appointment history including statistics such as no-shows, cancellations, etc. **Reference Appendix A.3. to Appendix A.7. instructions for Use Cases 3, 4, 5, 6, 7** Use Case 7 also shows that all manner of past appointment information can easily be tracked based on our applications data model. **Reference Appendix A.7. instructions for Use Case 7 Step 6 (displaying patient's no-show history).** **Reference Appendix B. (Application Design and Architecture) Section B.4.** Explanation of the data model
2.3 The system shall have the capability to display eligibility information necessary for appropriate scheduling	We have designed and implemented our scheduling application to import most Patient's data from VistA, making the assumption that VistA will remain the system owner of most patient's data. The current import mechanism uses MDWS for accessing the patient information, and essentially, any patient data can be displayed for verification and eligibility reasons. **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verifying patient information).**
2.4 The system shall have the ability to notify/inform schedulers of patient preferences	Our application has the requisite data structures to maintain an unlimited list of Preferences and Special needs linked to Patients. Having said that, we have actually not implemented the UI to these entities but this is a fairly trivial **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verifying patient information).**
2.5 The system shall have the capability to receive notification of deceased patients and allow the authorized user to cancel future appointments/ancillary services/orders once notification has been received from an	Cancellation process demonstrated in Use Case 6 can receive death notices through VistA when given a VistA data to pull from. Once an official death notice matching patient identity in the scheduling data base has been confirmed, all the patent's appointments can be cancelled through a process similar to Use Case 6. **Reference Appendix A.6. instructions for Use Case 6 Step 2 (selecting appointments to cancel).**

authoritative source	
2.6 The system shall have the capability to establish and update patient information (enrollment status, eligibility, demographics, preferences and special needs, means test status, provider assignments, etc.)	Our application has the capability to update any information in the scheduling application database. The same is true with updating VistA. We use the current MDWS interface or extend it. We have already demonstrated that our application has both of these capabilities in previous steps/requirements. However, the basic philosophy that we opted for, in this proof of concept, is that VistA will remain the system owner of most patient's data. Therefore, we do not provide screens to update the patient's demographics data. Nevertheless, adding those is a fairly trivial exercise. **Reference Appendix A.3. instructions for Use Case 3 Steps 3 and 4 (registering and verifying patient information).**
2.7 The system shall have the capability to allow patient appointments with multiple providers at multiple facilities	Our enterprise approach allows the scheduler from any location to select appointment spots with different providers from multiple facilities. Multiple appointments can be set-up with linked relationships. Further, the telehealth function can connect patients to essentially any provider anywhere. **Reference Section 4. (Application User Manual) Section 4.6. for instructions on ways to make appointments.** **Reference Appendix A.3. instructions for Use Case 3 Steps 9 (scheduling multiple linked appointments)** **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling telehealth appointments between patient and provider locations).**
2.8 The system shall provide the ability to identify and verify the identification of the Veteran	We have designed and implemented our scheduling application to import most Patient's data from VistA, making the assumption that VistA will remain the system owner of most patient's data. The current import mechanism uses MDWS for accessing the patient information, and essentially, any patient data can be displayed for verification and eligibility reasons. **Reference Appendix A.3. instructions for Use Case 3 Steps 3 and 4 (registering and verifying patient information).**

	References Section 3 (Application User Manual) - Section X for instructions on searching, selecting and displaying patient data
2.9 The system shall support user configuration preferences for data display and entry screens within security and standards constraints	Our application UI is designed to enable secure entry and user control of displays from setting-up scheduling for a site / facility, to scheduling data displays, to reporting displays. As explained in response to BN 1.4.1, our role-based access via user identity and password then restricts what screens can be seen and what information can be changed by the user. **Reference Appendix A.1. instructions for Use Case 1 (organizing a scheduling component).** **Reference Appendix B. (Application Design and Architecture) for explanation of UI and data structures.** **Reference Section 4. (Application User Manual) for explanation of all UI functions.**

5.3. Evaluating BN 3: Manage Request

VA Requirement: Through the use of a calendar view, the scheduler is able to view all providers, services, facilities, and Veterans from a variety of calendar views such as: daily, weekly, monthly with multiple providers, services or facilities in view on a single screen. The scheduling system shall accommodate appointment requests from multiple inputs sources, including Veterans and providers via different sources such as MyHeatheVet, walk-ins, email and other communication modes. This forms the basis of non-solicited demand. Solicited demand emerges in the form of unfulfilled appointments based on missed opportunities or requests outside the scheduling appointment horizon.

VA Requirements	Instructions and Validating Outcomes
3.1 Variable Appointment Types and Lengths – The system shall have the capability to allow variable appointment types and variable appointment lengths [e.g., Compensation & Pension (C&P), Mental Health Clinic (MHC), Primary Care Clinic (PCC), New, Follow-up, Pre-op, Post-op)].	Reference responses for 3.1.1 to 3.1.4 below to validate that the capability to allow variable appointment types and lengths fully exists.

3.1.1 The scheduling system shall display any other scheduled or requested appointments for the patient when an appointment is requested.	Each patient's total scheduled appointments can be pulled up as it is inherently stored to support scheduling. The patient appointments list includes relationships / links between appointments. **Reference Appendix A.3. instructions for Use Case 3 Step 5 (making appointments).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation for displaying patient specific schedules.**
3.1.2 The system shall have the capability to allow users to schedule an appointment for a specific, user-defined, length of time, based on role-based access rules;	The use case steps of setting up multiple appointments with time ranges and making appointments highlight the role difference between master scheduler who can set time slots and appointment types for facility schedules and the schedulers who are making appointments for patients to the set time slots. **Reference Appendix A.2. instructions for Use Case 2 Step 12 (setup multiple appointments with time ranges).** **Reference Appendix A.3. instructions for Use Case 3 Step 5 (making appointments).**
3.1.3 The system shall have the capability to establish recurring appointments.	The capability to link appointments is the foundation for establishing recurring appoints and the scheduler can schedule a series of appointments by selecting Recur in the add appointment or add telehealth appointment function. If the same timeslot is always open extending into future, then setting recurring appoints is a very simple business rule that we have implemented. In very busy schedules, however, automatically searching for openings at set intervals is a complex operation for the application. Our application current does not have artificial intelligence that automatically searches for appointment openings at set intervals and will thus note schedule conflicts as pending appointments. **Reference Section 4. (Application User Manual) Section 4.6. for explanation of recurring appointment capability.** **Reference Appendix A.3. instructions for Use Case 3 Steps 9 (scheduling other linked appointments).**
3.1.4 The system shall provide the ability to verify patient information, display eligibility, and display a warning if there is an inconsistency between service requested and eligibility.	We have designed and implemented our scheduling application to import most Patient's data from VistA, making the assumption that VistA will remain the system owner of most patient's data. The current import mechanism uses MDWS for accessing the patient information, and essentially, any patient data can be displayed for verification and eligibility reasons..

	Reference Appendix A.3. instructions for Use Case 3 Steps 3 and 4 (registering and verifying patient information). Inconsistency between the request and the eligibility can be identified through a simple business rule between Step 4 and Step 5 with associated alerts. **Reference Appendix A.3. instructions for Use Case 3 Steps 5 (making an appointment based on patient request).**
3.2 Appointment Selection – The system shall have the capability to manage the appointment selection process.	Use Case 3 steps validate the management of the appointment selection process. **Reference Appendix A.3. instructions for Use Case 3 Step 5 (making appointments).**
3.3 Providers Per Schedule – The system shall have the capability to coordinate appointment scheduling based on resource availability.	Use Case 3 steps show the identification of resource availability based on convergence of providers, rooms, and equipment. Then, it demonstrates the committing of those resources to the appointment. **Reference Appendix A.3. instructions for Use Case 3 Step 2 (enter desired future appointment date / time) and Step 5D (selecting appointment and reserving resources).**
3.4 Access Restrictions for Scheduling Appointments – The system shall have the capability to filter available appointments based on patient preferences, appointment availability, geographic considerations, facility, date range, resource type, and other special needs.	Patient preferences and special needs are captured and can be used as filters for selecting appointments in Use Case 3. The filters in the application can be adjusted to match VA's objective process for scheduling. **Reference Appendix A.3. instructions for Use Case 3 Step 4 (identifying patient preferences and special needs).** **Reference Appendix A.3. instructions for Use Case 3 Step 5C and 5D (selecting and setting appointments based on filters).**
3.5 Waiting Lists - The system shall provide the capability to process various lists.	Reference responses for 3.5.1 to 3.5.5 below to validate that our application fully satisfy the capability for waiting lists.
3.5.1 The system shall have the capability to provide a waiting list that appears when making or canceling appointments.	Our application implements this requirement through the use of a queue of requests that includes priority sorting. For example, when appointments are cancelled, a request is generated in the request queue for rescheduling. The user can similarly display the entries of the request queue to decide which request has the highest priority and schedule that request based on the new availability. **Reference Appendix A.8. instructions for Use Case 8 Step 1 (add**

	patient to electronic wait list). **Reference Section 4. (Application User Manual) Section 4.6. for instructions on how to use the waitlist function.**
3.5.2 The system shall apply configurable business rules to the management of a long-term appointment request list.	Business rules are applied throughout the scheduling process and demonstrated across the use cases. One business rule that can be adjusted / configured is the selecting of patients based on service connected disability levels. **Reference Appendix A.8. instructions for Use Case 8 Step 4 (selecting patient from 50 – 100% service connected veterans).**
3.5.3 The system shall have the capability to maintain a list of patients that can fill a cancelled appointment on short notice.	The waitlist process in Use Case 8 validates that patients from the electronic waitlist can fill openings identified by schedulers on a daily basis in short notice. The Application User Manual explains how to use the waitlist functionality. **Reference Appendix A.8. instructions for Use Case 8 Step 5 (displaying patient demographics and assigning waitlist patients).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of the waitlist function.**
3.5.4 The system shall have the capability to provide users the ability to view available appointments beyond one year.	Our application does not limit how far beyond one year appointments can be made. Thus, the capability to view beyond one year exists. However, the scheduler must first establish resource schedules beyond one year to allow appointments to be made. **Reference Appendix A.1. instructions for Use Case 1 Step 9 (creating a schedule for a provider).**
3.5.5 The system shall have the capability to maintain an electronic waiting list.	Our application implements this requirement through the use of a queue of requests that includes priority sorting. For example, when appointments are cancelled, a request is generated in the request queue for rescheduling. The user can similarly display the entries of the request queue to decide which request has the highest priority and schedule that request based on the new availability. **Reference Appendix A.8. instructions for Use Case 8 (add to waitlist and schedule from waitlist).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of the waitlist function.**

3.6 Appointment Rescheduling –The system shall identify appointments to be rescheduled and route them automatically to the reschedule status or pending list	Reference responses for 3.6.1 to 3.6.5 to validate our capability for rescheduling appointments.
3.6.1 The system shall have the capability to disposition rebooking of no-shows.	Use Case 4 demonstrates how no-shows are tracked and Use Case 7 shows how rebooking can be made based on operational procedures to include procedures for no-shows. The Application User Manual further explains how no-shows are tracked in appointment execution. **Reference Appendix A.4. instructions for Use Case 4 Step 6 (disposition of appointment to include no-shows).** **Reference Appendix A.7. instructions for Use Case 7 (reschedule individual appointments).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of appointment process.**
3.6.2 The system shall have the capability to link associated appointments so that if one is cancelled, all linked appointments can be dispositioned together.	Use Case 3 validates that appointments can be linked. Based on this linking the capability exists for the scheduler to cancel or adjust all associated appointments. **Reference Appendix A.3 instructions for Use Case 3 Step 9 (making multiple linked appointments).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of how to cancel all linked appointments.**
3.6.3 The system shall be capable of finding and displaying available appointment slots due to appointment cancellations, additional resources, etc. based upon configuration parameters	In the application there is a handshake between the process of canceling appointments which frees up timeslots and making appointments shows available timeslots. Use Case 6 and Use Case 5 show that slots for cancelled appointments are freed-up for schedulers to select as new appointments. **Reference Appendix A.6. instructions for Use Case 6 (cancelling appointments).** **Reference Appendix A.5. instructions for Use Case 3 Step 5 (making appointments).**
3.6.4 The system shall have the capability to permit automatic rebooking of patients into comparable	Use Case 7 steps show that appropriate filters / business rules can be added or adjusted in the presentation of available appointments slots for rebooking, but the final selection and rebooking must still be made a scheduler.

appointment slots	**Reference Appendix A.7. instructions for Use Case 7 Steps 4 and 7 (searching for and selecting appointment slots for reschedule / rebook).**
3.6.5 The system shall have the capability to merge, purge, or distribute scheduled appointments from one resource to another.	Our application creates appointments by converging patient, provider, equipment, and room schedules. The application allows changing the provider of an appointment by selecting the dedicated function when viewing existing appointments. **Reference Appendix A.3. instructions for Use Case 3 Step 5D (reserving resources for specific patient appointment).**
3.7 Optimize Resource Utilization – The system shall incorporate mechanisms that support optimization of resources.	Reference response for 3.7.1 to 3.7.6 below to validate that our application has the capability to optimization of resources.
3.7.1 The system shall have the capability to capture the coded reason for cancellations /no-shows, e.g., death of patient, lack of transportation, snow day.	Use Case 6 validates our application's capability to capture reasons for cancellations. This is done through a comment block in the cancellation process. VA specific reason codes can be added to this documentation process. **Reference Appendix A.6. instructions for Use Case 6 Step 4 (document the reasons for the cancellation).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of cancellation and documentation.**
3.7.2 The system shall have the capability to book or cancel recurring appointments (e.g., recurring appointments to same resource) all at once.	The capability to link appointments is the foundation for establishing recurring appoints and the scheduler can schedule a series of appointments by selecting Recur in the add appointment or add telehealth appointment function. If the same timeslot is always open extending into future, then setting recurring appoints is a very simple business rule that we have implemented. In very busy schedules, however, automatically searching for openings at set intervals is a complex operation for the application. Our application current does not have artificial intelligence that automatically searches for appointment openings at set intervals and will thus note schedule conflicts as pending appointments. To canceling a series of appointments the scheduler should follow the displayed link relations and individually select the appointments to cancel. **Reference Section 4. (Application User Manual) Section 4.6. for**

	explanation of recurring appointment capability. **Reference Appendix A.3. instructions for Use Case 3 Step 9 (scheduling multiple linked appointments).**
3.7.3 The system shall have the capability to provide users the capability to view available appointments based on configuration parameters	As shown in Use Case 3, the display of available / open appointment slots can be filtered against configuration parameters based on business rules. **Reference Appendix A.3. instructions for Use Case 3 Step 5D (reserving resources for specific patient appointment).**
3.7.4 The system shall have the capability to receive notification of expired/deceased patients from authoritative source and take appropriate action such as cancel future appointments/ancillary services/orders, etc.	Because our application is integrated with VistA the cancellation process shown in Use Case 6 can receive expiration or death notices through VistA. Once an official notice matching patient identity in the scheduling data base has been confirmed, all the patent's appointments can be cancelled through processed similar to Use Case 6. **Reference Appendix A.6. instructions for Use Case 6 Step 2 (selecting appointments to cancel).**
3.7.5 The system shall have the capability to detect and notify users if patients have similar appointments (service; provider) scheduled close together (e.g., possible duplicate or both can be seen at one time).	Use Case 3 shows that appointment information for all manner of scheduling events is maintained in an integrated manner to enable presentation on total patient or resources activities across time. Filters or searches can be conducted on patient, provider, equipment, and room schedules based on business rules to identify redundant appointments. **Reference Appendix A.3. to Appendix A.7. instructions for Use Cases 3, 4, 5, 6, 7.** **Reference Appendix B. (Application Design and Architecture) Section B.4. for explanation of the data model.**
3.7.6 The system shall check availability and status of all resources, including telecommunications system availability, for a clinical video telehealth session.	Our application can define resource types which then have a scheduled and can then be used in the making of appointments, **Reference Appendix A.3. instructions for Use Case 3 Step 5D (reserving resources for specific patient appointment).** Use Case 3 further demonstrates that telehealth resources are checked as a specific process in the application. **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling for telehealth).**

3.8 Appointment Requests – The system shall have the capability to manage appointment requests.	Reference response for 3.8.1 to 3.8.3 below to validate that our application has the capability to manage appointment requests.
3.8.1 The system shall have the ability to place Veterans on an appointment list which is accessible throughout the scheduling process.	Because our application is an enterprise solution as explained in the Application Design and Architecture veteran appointments are accessible throughout all locations. Further, Use Case 3 demonstrates that the application places appointment requests in a list structure that is satisfied in the scheduling process. Our application implements this requirement through the use of a queue of requests that includes priority sorting. For example, when appointments are cancelled, a request is generated in the request queue for rescheduling. The user can similarly display the entries of the request queue to decide which request has the highest **Reference Appendix A.3. instructions for Use Case 3 Step 1 (receive appointment request) and Step 2 (enter desired appointment day / time).**
3.8.2 The system shall have the ability to merge, purge, or distribute scheduled appointments from one resource to another when emergency scheduling changes occur.	Our application creates appointments by converging patient, provider, equipment, and room schedules. The appointments can be modified (merge, purge, distribute) by realigning any the schedules with the set appointment time or with a new appointment time. For example, the emergency loss of resource such as provider cancellation or failed equipment could automatically trigger a reschedule notification to schedulers and then to patients. **Reference Appendix A.3. instructions for Use Case 3 Step 5D (reserving resources for specific patient appointment).** **Reference Appendix A.7. instructions for Use Case 7 (rescheduling appointments)**
3.8.3 The system shall have the ability to capture attempts to contact patient.	There is a flexible and expandable integrated notification process within our application. This process further captures patient notification attempts as a function of transmission and patient response. **Reference Appendix A.3. instructions for Use Case 3 Step 10 (pre-appointment notification).** **Reference Appendix A.6 instructions for Use Case 6 Step 9 (cancellation notification).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (rescheduled appointment notification).**

	Reference Appendix A.8 instructions for Use Case 8 Step 2 (waiting list notification). **Reference Section 4. (Application User Manual) Section 4.4. for explanation of notification function.** **Reference Appendix B. (Application Design and Architecture) Section B.15. for explanation of notification process.**

5.4. Evaluating BN 4: Manage Appointment

VA Requirement: Through the use of a calendar view, the scheduler is able to view all providers, services, facilities, and Veterans from a variety of calendar views such as: daily, weekly, monthly with multiple providers, services or facilities in view on a single screen.

VA Requirements	Instructions and Validating Outcomes
4.1 The system shall have the ability to display co-pay requirements	The responses from 4.1.1. to 4.1.7. show that information associated with the determination of co-pay requirements are being captured and managed in our application. Thus, co-pay requirements based on such information can be displayed when co-pay rules have been provide by VA.
4.1.1 The scheduling system will display patient special needs and preferences when an appointment is requested and made.	Use Case 3 specifically demonstrates create / display / verify patient preferences and special needs as well as patient priorities to validate this capability. **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verifying patient information).**
4.1.2 The system should allow configuration to require approved authorizations prior to processing an appointment request.	The verification process in Use Case 3 includes demographics, insurance information, and primary care provider designation. If any of these parameters does not align with the appointment type requested, the application could filter and deny authorization to appointment requests. **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verifying patient information).**
4.1.3 The system shall have the capability to create and manage various appointment types.	Use Case 1 shows the establishment of appointment type categories and Use Case 2 shows the creation of appointment types across the Use Cases validate the capability create and manage appointment types. **Reference Appendix A.1. discussion for Use Case 1 (Create standard**

	appointment type categories) **Reference Appendix A.2. instructions for Use Case 2 Step 1 (Create section appointment types).**
4.1.4 The system shall have the capability to manage scheduling process, such as overbooking, no shows, cancels, re-schedules, etc…	Different functions in the scheduling process are demonstrated throughout the Use Cases. The following Use Case steps show that our application can manage the scheduling process. **Reference Appendix A.2. instructions for Use Case 2 Step 18 (Assignment of overbooking privileges).** **Reference Appendix A.6. instructions for Use Case 6 (Canceling appointments).** **Reference Appendix A.7. instructions for Use Case 7 (Rescheduling appointments).** **Reference Appendix A.7. instructions for Use Case 7 Step 6 (Tracking no show history).**
4.1.5 The system shall support the ability to change or edit appointments as necessary.	A scheduler can directly start with the step of making appointments and place a new appointment with the correct information in the same time slot and then delete the existing incorrect appointment. This is enabled through temporary overbooking privileges. **Reference Appendix A.3. instructions for Use Case 3 Step 5 (Making appointment).**
4.1.6 The system shall have the capability to configure and enforce business rules at the clinical service level, clinic level, provider, and appointment type level (e.g., females in Obstetrics/Gynecology clinic).	Many business rules exist in the application to converge resource schedules with appointment types and patient request. For example, resource availability, patient eligibility, appointment type requirements, and clinic level association with appointment types are governed by business rules in order to make appoints possible. Female patients only for Ob/Gyn is simply another filter in allowing for appointments that we can apply the application. **Reference Appendix A.1. instructions for Use Case 1 Step 9 (Creating provider schedule in section and region).** **Reference Appendix A.3. instructions for Use Case 3 Step 5 (Making appointment).**
4.1.7 The system shall provide the ability for providers to request appointments.	The provider can initiate an appointment request for a patient or act as the scheduler in Step 3 to make the appointment. If so desired, we can grant providers role-based access to schedule a select group of

	patients under their care. **Reference Appendix A.3. instructions for Use Case 3 Step 1 (Receive appointment request).**
4.2 Linking – The system shall have the ability to automatically link relevant appointments/resources.	Reference response for 4.2.1 to 4.2.7 below to validate that our application has the capability to automatically link appointments / resources.
4.2.1 The system shall have the capability to provide alerts when ancillary tests/specialty consults have been scheduled/missed.	Ancillary tests and specialty consults can be set as another type of appoint that links to primary appointments. This would give such tests a check-in process and allow dependent appointments to be cancelled / rescheduled when they are missed. The alerts can be set as a type of notification in the integrated notification process. **Reference Appendix A.3. instructions for Use Case 3 Steps 9 (scheduling other linked appointments).** **Reference Section 4. (Application User Manual) Section 4.4. for explanation of notification function.** **Reference Appendix B. (Application Design and Architecture) Section B.15. for explanation of notification process.**
4.2.2 The system shall have the capability to search for the available appointment across multiple resources.	The search function in our application is explained in the Application User Manual **Reference Section 4. (Application User Manual) Section 4.5. for explanation of the search function in the application.**
4.2.3 The system shall have the capability to provide information to assist schedulers to consolidate appointments in one day when possible (e.g., flag the fact that a patient is scheduled to show up +X days of desired new appointment date).	Information to support the consolidation of appointments is displayed in the weekly views for a section or clinic. This view shows vacancies for consolidation opportunities. The view of all the appointments for a patient then shows how spread out the appointments have become and whether it makes sense for some appointments to be rescheduled for the same day. **Reference Section 4. (Application User Manual) Section 4.4. and 4.6. for explanation on how to access the calendar views**
4.2.4 The system shall have the capability to create, re-schedule, or cancel recurring appointments all at once with appropriate desired date	The capability to link appointments is the foundation for establishing recurring appoints and the scheduler can schedule a series of appointments by selecting Recur in the add appointment or add telehealth appointment function. If the same timeslot is always open extending into future, then setting recurring appoints is a very simple business rule that we have implemented. In very busy schedules, however, automatically searching for openings at set intervals is a complex operation for the application. Our application current does

	not have artificial intelligence that automatically searches for appointment openings at set intervals and will thus note schedule conflicts as pending appointments. **Reference Section 4. (Application User Manual) Section 4.6. for explanation of recurring appointment capability.** **Reference Appendix A.3. instructions for Use Case 3 Steps 9 (scheduling other linked appointments).**
4.2.5 The system shall have the capability to define individual schedules in terms of a single resource or as a pre-defined set of multiple resources	Use Case 3 shows that our application permits scheduling when all the required resources converge for a desired appointment time. However, since resources each have their own calendar, the alignment of individual schedules against a specific resource or multiple resources schedule can be easily presented as overlaps. The UI functionality for such display will have to be refined based on user needs. **Reference Appendix A.3. instructions for Use Case 3 Step 5D (setting patient appointments with available resources).**
4.2.6 The system shall have the capability to create groups of resources for scheduling a single event (e.g., room, equipment, and ancillary staff).	Use Case 3 shows that our application permits scheduling when all the required resources converge for a desired appointment time. This convergence can be regarded as a grouping process. **Reference Appendix A.3. instructions for Use Case 3 Step 5D (setting patient appointments with available resources).**
4.2.7 The system shall have the capability to cancel/restore resources and all linked appointments over multiple days (not just one day at a time).	Once links between appointments are established as validated by the Use Case 3, the cancelling of a series of appointments will free up the resources. In linked appointments, one appointment cannot be cancelled without an application query regarding the disposition of other appointments. **Reference Appendix A.3. instructions for Use Case 3 Steps 9 (scheduling other linked appointments).**
4.3 Assign and Configure Time Slots – The system shall provide the capacity to assign and configure time slots for appointments.	Reference response for 4.3.1 to 4.3.6 below to validate that our application has the capability to configure timeslots.
4.3.1 The system shall have the capability to block time slots in user-defined increments	Use Case 2 validates the capability to block time slots on the schedule. The procedures for blocking are explained in the Application User Manual.

	Reference Appendix A.2. instructions for Use Case 2 Step 8 (Block a portion of a schedule). **Reference Section 4. (Application User Manual) Section 4.4. and 4.6. for explanation on how to block time slots.**
4.3.2 The system shall have the capability to present alerts and reminders for a variety of reasons (e.g., eligibility not verified, means test or insurance information out of date).	Currently, our application treats alerts and reminders as a part of the integrated notification process as demonstrated in Use Cases 6,7, and 8. When an alert or reminder is required, a business rule for sending notification is established and a notification format is designed to meet user requirements. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**
4.3.3 The system should have the capability to support automated coordination and consolidation (e.g., onto one day) of multiple appointments per patient.	Information to support the consolidation of appointments is displayed in the weekly views for a section or clinic. This view shows vacancies for consolidation opportunities. The view of all the appointments for a patient then shows how spread out the appointments have become and whether it makes sense for some appointments to be rescheduled for the same day. **Reference Section 4. (Application User Manual) Section 4.4. and 4.6. for explanation on how to access the calendar views**
4.3.4 The system shall be capable of changing appointment types for an appointment or a request at any time (within business constraints).	The appointment types are constrained by the resources that must be configured to satisfy them. If the resources are available or if the resources are the same as the existing appointment type, then the appointment type can be changed. This can be done by allowing double booking, setting the new appointment type and cancelling the old appointment and type. **Reference Appendix A.2. instructions for Use Case 2 Step 2 (Configure resources).** **Reference Section 4. (Application User Manual) Section 4.7. for control of booking privileges.**

4.3.5 The system shall have the capability to configure the amount of time allowed between appointments for a patient with multiple appointments.	The linking relationship between multiple appointments as demonstrated in Use Case 3 can contain business rules to include time between appointments. **Reference Appendix A.3. instructions for Use Case 3 Step 9 (Scheduling multiple linked appointments).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of linking appointments.**
4.3.6 The system shall not permit booking appointments into invalid time slots based upon configured business rules.	The process of selecting appointment slots has business rules that prevent invalid appointments. Resources cannot be assigned to multiple appointments with overlapping time slots unless double booking is allowed. Double book can be used to change appointments, manage the risk of no-shows, and allow providers to run between multiple patients in scheduling demanding scenarios. **Reference Appendix A.3. instructions for Use Case 3 Step 5c (Select appointment slot).**
4.4 System Prompt Patient Notifications – The system will provide the ability to establish and provide appointment notifications.	Reference response for 4.4.1 to 4.4.5 below to validate that our application has the capability patient notifications.
4.4.1 The system shall have the capability to generate a list of future appointment reminders.	Use Case 6, 7, and 8 actions validate a configurable communication process for notifications, flags, and alerts. This notification process can be connected with all future scheduled appointments via business rules. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**

4.4.2 The system shall have the capability to produce appointment notifications in a variety of formats (e.g., letter, phone, e-mail, text messaging, pending appointment list, or card). Each option shall be capable of being enabled or disabled based upon patient preferences.	Use Case 6, 7, and 8 actions validate a configurable communication process for notifications, flags, and alerts via email. This notification process can have tailored in later post contest refinement to address all VA preferred notification methods. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**
4.4.3 The system shall have the capability to filter/select appointment notifications based on user defined criteria	The rules for notifications currently in the application can be changed based on user defined criteria. This is the advantage of our open source application being developed specifically for VA scheduling. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**
4.4.4 The system shall have the capability to tailor appointment notifications to meet specific clinic needs.	The rules for notifications currently in the application can be changed based on specific clinic needs. This is the advantage of our open source application being developed specifically for VA scheduling. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).**

	Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.
4.4.5 The system shall have the capability to provide configurable notification requests such as: alerting staff when to contact patients about upcoming appointments.	The rules and recipients for notifications currently in the application can be changed based on staff alert needs. This is the advantage of our open source application being developed specifically for VA scheduling. **Reference Appendix A.6. instructions for Use Case 6 Step 9 (sending cancellation / reschedule notifications).** **Reference Appendix A.7. instructions for Use Case 7 Step 10 (sending reschedule appointment notifications).** **Reference Appendix A.8. instructions for Use Case 8 Step 2 (sending notification of continued care).** **Reference Appendix B. (Application Design and Architecture) Section B.15. for discussion on integrated notification process.**

5.5. Evaluating BN 5: Coordinate Associated and Occasions of Service

VA Requirement: The scheduling system shall provide schedulers the ability to coordinate medical services throughout the VA, for other agencies, with private practices, and for various delivery modes and causes.

VA Requirements	Instructions and Validating Outcomes
5.1 External Data Exchange - The system shall have the capability to provide secure, automated interfaces with external systems for data exchange.	Reference response for 5.1.1 to 5.1.3 below to validate that our application has the capability for external data changes.
5.1.1 The system shall have the ability to allow inter-facility scheduling, including non-VA facilities	All medical facility schedules organized using our application can conduct integrated scheduling as demonstrated in Use Case 1. Even non-VA facilities can set-up a schedule and that schedule will be accessible from other facilities in the system. This is the strength of our enterprise solution / application when compared with locally deployed applications. **Reference Appendix A.1. instructions for Use Case 1 (Create / update two medical facilities).**

	Reference Section 4. (Application User Manual) for overall instructions on scheduling and schedule access.
5.1.2 The system shall have the capability to link unscheduled CPRS consults to the scheduling system for viewing.	New patient records (CPRS) can be entered into VistA and the associated information imported. Once a new patient has been entered as demonstrated in Use Case 3, unscheduled patient same day needs can be addressed as walk-in and long range needs can be addressed through the appointment process. **Reference Appendix A.3. instructions for Use Case 3 Step 3 (entering new patient).**
5.1.3 The system shall have the capability to support coordinating multiple appointments (e.g., provide information helpful in scheduling all appointments on one day, multidisciplinary team appointments).	Multiple appointments are managed through link relationships as demonstrated in Use Case 3. The business rules for appointment linkage can be adjusted. For example, the linkage can constrain resources to those that match both linked points and the time period to be within 24 hours. **Reference Appendix A.3. instructions for Use Case 3 Step 9 (setting multiple linked appointments).**
5.2 The system shall provide the ability to allow display of primary and associate providers designated by facilities	Reference response for 5.2.1 to 5.2.4 below to validate that our application has the capability to coordinate display of providers across locations.
5.2.1 Ability to schedule a patient and resource on both the VistA system where the health care resource is located and the VistA system where the Veteran is located. This combination should be handled across VistA systems and time zones as appropriate as a synchronized event.	The telehealth appointment process demonstrates scheduling a patient in one VistA location with resources at a different location and time zone. This is enabled through our enterprise solution that synchronizes all appointments as all instances against Coordinated Universal Time (UTC). **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling a telehealth appointment).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of telehealth appointments.**
5.2.2 The system shall provide the capability to capture and to select locations of patient and healthcare resources, including non-VA facilities (e.g., Veteran home, DoD,	The schedule of the patient can be for any location / time zone. That schedule will be aligned with providers and resources at the treatment location either as a telehealth or physical appointment. Non-VA facilities can use our application by creating its own entity down to the section / clinic level. We have established Home Health Care Clinic through the UI to demonstrate making appointment at a non-VA

academic affiliate, contract provider, etc.).	facility. **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling a telehealth appointment).** **Reference Appendix A.3. instructions for Use Case 3 Step 5 (making appointments).**
5.2.3 The system shall provide the ability to create, cancel and update Clinical Video Telehealth (CVT) appointment sets (patient and provider) as a single event (to prevent creation of orphans), including the following resources: •CVT Rooms •CVT Equipment •Telepresenter	Telehealth resources such as CVT Rooms and equipment are treated as other resource types that must be converged with the provider and patient schedules to create a telehealth appointment. Patient and all resources, including providers, for the telehealth appointment are treated as a single event in our application. **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling a telehealth appointment).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of telehealth appointments.**
5.2.4 The system shall provide the ability to modify a CVT appointment pair (patient and provider) as needed to prevent creation of orphans or to correct errors.	CVT resources are anchored to the patient and provider at both ends of a single telehealth appointment. If either end is broken, then the CVT resource is freed for that time slot. **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling a telehealth appointment).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of telehealth appointments.**
5.3 Ancillary Services – The system shall have the capability to accommodate different service types such as C&P, ancillary services and specialty services.	Reference response for 5.3.1 to 5.3.4 below to validate that our application has the capability link different service types.
5.3.1 The system shall have the capability to link ancillary tests to appointments (if they are changed, ancillary tests can be updated without canceling order and re-ordering).	Ancillary tests can be scheduled along with appointments as additional resources. The business rules for these resources would allow the appointment to be sustained even when tests are removed. In post contest development, we will work with user groups to determine exact ancillary tests that should be associated with each type of appointment. **Reference Appendix A.2. instructions for Use Case 2 Step 2 and Step 3 (configuring and scheduling resources).**

5.3.2 The system shall have the capability to link ancillary tests to appointments.	Ancillary tests can be scheduled along with appointments as additional resources. The business rules for these resources would allow the appointment to be sustained even when tests are removed. In post contest development, we will work with user groups to determine exact ancillary tests that should be associated with each type of appointment. **Reference Appendix A.2. instructions for Use Case 2 Step 2 and Step 3 (configuring and scheduling resources).**
5.3.3 The system shall provide the capability to establish links to activities that require coordination with appointments (e.g., ancillary services).	Activities can be treated as another type of appointment that is linked to a patient appointment through the process demonstrated in Use Case 3. If the activity is to occur with the appointment, such as an ancillary test, the activity can be treated as a resource. For example, a blood test could be a resource to be aligned with appointments and a CT Scan would be a linked appointment which the patient must separately go to. **Reference Appendix A.3. instructions for Use Case 3 Step 9 (linking multiple appointments).**
5.3.4 The system shall have the capability to coordinate appointments with related ancillary services.	Ancillary services linked to an appointment will have its own schedule. Thus, they can be treated as resources and be coordinated as rooms and equipment are coordinated with an appointment. In post contest development, we will work with user groups to determine exact ancillary services that should be associated with each type of appointment. **Reference Appendix A.2. instructions for Use Case 2 Step 2 and Step 3 (configuring and scheduling resources).**
5.4 The system shall have the capability to provide a patient preference field that informs clerks to special transportation concerns or other issues that limit availability (e.g., specific days and times).	As demonstrated in Use Case 3, special patient needs can be tracked along with patient preferences to be addressed appropriately. Business rules can be added to provide notification of appropriate parties. **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verify patient information).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of gathering patient information.**

5.6. Evaluating BN 6: Manage Encounter of Care

VA Requirement: The system will have the capability to differentiate between encounter data and appointment data. The encounter data is not tracked by the scheduler, but by providers in the electronic health record.

VA Requirements	Instructions and Validating Outcomes
6.1 The system shall have the capability to provide check-in, check-out, cancellation reasons, and no-show data.	As demonstrated in Use Case 6, cancellation reasons are specifically tracked. Encounter data at check-in or no-show, as shown in Use Case 4, can be tracked in a similar manner. **Reference Appendix A.6. instructions for Use Case 6 Steps 3 to 6 (cancellation data and reason tracking).** **Reference Appendix A.4. instructions for Use Case 4 Steps 3 to 6 (patient check-in, status, check-out, no-shows).**
6.2 The system shall have the capability to provide facility-wide visibility for a patient (i.e. checked-in or out, in treatment room etc.).	As demonstrated in Use Case 4, the patient's status from check-in to check-out can be tracked through this application via provider and admin log-in to see and update appointment event details. **Reference Appendix A.4. instructions for Use Case 4 Steps 3 to 6 (patient check-in, status, check-out, no-shows).**
6.3 The system shall provide statistics for appointments such as: no-shows, left without being seen, etc.	The end result of a patient encounter or no-show can be collected and integrated across the patient base for a clinic or large group for statistical analysis and process optimization. This is captured in our reporting design and functionality. **Reference Appendix A.4. instructions for Use Case 4 Steps 3 to 6 (patient check-in, status, check-out, no-shows).** **Reference Section 4. (Application User Manual) Section 4.5. and 4.6. for explanation of encounter tracking** **Reference Appendix D.3. (Summary by Activity Type with Patient Detail)**

5.7. Evaluating BN 7: Reporting

VA Requirement: The system should have the capability to produce, display and format reports, and should be able to be saved in various formats such as PDF, CSV, etc. Reports containing personally identifiable information that are required to be transmitted, retrieved, viewed, or printed meet all VA Handbook 6500 requirements. These reports represent the as-is process. It

is expected that report requirements will be further defined with the business owners throughout the system development and acquisition process.

VA Requirements	Instructions and Validating Outcomes
7.1 General Reporting Needs	Our application generates reports from the databases described in Section 4. (Application User Manual). The formats for these reports are developed through an assessment of VA requirements as presented in Appendix D. (Reporting Requirements). Based on these formats, which can be easily modified through user collaboration, we then used the SQL Server Reporting Service (SSRS) functionality to generate the reports. This functionality is accessed through the UI under the VistA Menu.
7.1.1 Ad Hoc Reports – The system shall have the capability to support user-created ad hoc report generation (without re-programming) and provide the capability to save the report definition for future use and to save the reports in various standard exportable formats.	**Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** The Ad-Hoc operational reporting formats will pull current data from the database. These formats can be tailored to user needs. **Reference Appendix D.9. (Ad-Hoc Operational Report) for explanation of how to Ad-Hoc reports can be organized.**
7.1.2 The system shall have the capability to report on scheduling measures and metrics across the VHA at many levels, including but not limited to National, VISN, Facility/Station/Clinic/Community-Based Outpatient Clinic (CBOC), and shall have the capability to "roll-up" data from the most granular level (i.e. clinic or station level) to the highest level for reporting purposes (i.e. National level) as defined by the business.	Our application's reporting function matches the enterprise scope of our scheduling solution. As scheduling data from across the VA enterprise will be deployed on centralized databases through our application, reports at all levels from national to clinics and from cross sections of the database can be generated. As our database is a rational database, a roll-up of data for reporting can be achieved as demonstrated in the reporting formats in Appendix D. The database relational model and precise fields can be redesigned to match VA needs in the production system.
7.1.3 The system shall have the capability to establish and ensure the use of consistent metrics and measures across different areas of the VHA; i.e., ensure that all business level facilities measure,	Our relational database embodies a centralized structured approach for managing and utilizing scheduling and scheduling activity data. Our reporting functionality supports all manners of evaluations, operational / efficiency analysis, and performance analysis based on the structured data. This process enforces a consistency in metrics for all reporting across the enterprise.

capture and report the same data in the same ways.	
7.2 Operational reports are generated by a facility, VISN, station or clinic to facilitate day to day operations. These can range from printing daily appointment lists for a clinic to printing a listing of patients who missed appointments or who left without being seen. Operational reports are also generated to track performance metrics, access to care metrics, utilization of staff, workload measurement/workload leveling and workload planning.	Operational data is contained in the centralized database to support all manner of reporting. Sample report formats that show operational activities are presented in Appendix D. New report formats can be easily developed in a similar manner. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.6. (Capacity Workload and Utilization Report) for examples of reports that show operational information.**
7.2.1 The system shall have the capability to generate and display a work list based on unfulfilled appointments at the operational level to capture the source of a request, type of request, and status of a request along a timeline. Work list (queue) is automatically updated based on tasks that need to be completed by the scheduler.	Unfilled appointments at the operational level are tracked and constantly updated in our application database. Work list reporting based on this data is done through the reporting function. **Reference Section 4. (Application User Manual) Section 4.6. for directions on how to access reporting function.** **Reference Appendix D.4. (Work List Summary Queue and Patient Detail) for how the report format is formulated.**

6. Instructions and Traceability Matrix for Step 2A Attachment B (VA-Specific Requirements) Evaluators

As many metrics in Attachment B involved reporting from the application, we have adopted the design approach of fully identifying the reporting requirements and formats to enable our developers to build an integrated and flexible reporting capability that can expand to the number and types of reports ultimately needed by current and future VA users. These requirements are presented in Appendix D. with reporting formats placed into the following ten categories.

Appendix D.1. (Provider and Clinic Appointments Utilization Reports)
Appendix D.2. (Operational and Wait Time Summary with Patient Detail Reports)
Appendix D.3. (Summary by Activity Type with Patient Detail)
Appendix D.4. (Work List Summary Queue and Patient Detail)
Appendix D.5. (DSS Stop Code Detail)
Appendix D.6. (Capacity Workload and Utilization Report)
Appendix D.7. (Clinic Operational Report)
Appendix D.8. (Consults Summary and Overview)
Appendix D.9. (Ad-Hoc Operational Report)
Appendix D.10. (Congressional Performance Reports)

The reporting requirements process further validated that data to generate these reports is available from the application. Thus, further development would create different data presentation formats based on additional VA feedback and needs.

VA Requirements	Instructions and Validating Outcomes
1 The system shall have the capability to provide for the enforcement and modification of national-level data standards including procedure and diagnosis codes as currently defined in VistA. 3	Our application is designed for VistA integration and is able to pull and push data into the VistA environment. Thus, we are able to pull specific data and format standards from VistA as specified by the VA users. The orchestration between VistA, our rational database, and CalDav server is done at the service layer. Further, because our application is a tailored open source solution for the VA, we can easily create or adjust data format with our rational database to enforce VA standards. **Reference Appendix B. (Application Design and Architecture) Section B.1. for explanation of VistA integration.**
2 Flexible Schedule Component Organization – The solution shall have a mechanism to oversee and manage potential impacts to the system as a result of policies, directives, etc. 5	Because our application is a tailored open source solution for the VA which has been demonstrated through only two months of agile development, we are confident that we can make all appropriate system changes to align with changes in statutes, regulations, and policies. This can be done with minimal schedule impact and marginal cost in the future to show that our solution has maximum flexibility and change management capability. **Reference Appendix B. (Application Design and Architecture) for explanation total application design.**

3 The system shall provide the flexibility to accommodate new functional requirements based on business needs (e.g., primary care home (PACT) based care appointments, telehealth, etc.). 5	Because our application is a tailored open source solution for the VA which has been demonstrated through only two months of agile development, we are confident that we can easily add new functions based on business needs. This can be done with minimal schedule impact and marginal cost in the future to show that our solution has maximum flexibility and change management capability. For example, we have established Home Health Care Clinic as a new point of care where additionsal functional requirements can be added. **Reference Appendix B. (Application Design and Architecture) for explanation total application design.**
4 The system shall have the capability to alert VA staff when appointments are scheduled about patient scheduling reliability (show/no-show rate) averaged over a period of time configured by the authorized end user. 3	Patient schedule satisfaction rate and resource utilization are captured in the design of our reports. Objective scheduling standards can be established based on such statistics and appropriate alerts can be established when the scheduling process moves beyond objective ranges. **Reference Appendix D.3. (Summary by Activity Type with Patient Detail)** **Reference Appendix D.6. (Capacity Workload and Utilization Report)**
5.1 The system will, when managing the appointment selection process, shall have the capability to capture the desired date for the appointment. 5	The verification of patient information along with collecting appointment preferences is a core functionality that is demonstrated in Use Case 3. **Reference Section 4. (Application User Manual) Section 4.6. for explanation on capturing desired date in appointment requests.** **Reference Appendix A.3. instructions for Use Case 3 Step 4 (verifying patient information)**
5.2 The system shall allow for administrative closure of consults. 1	Our application currently has a functional place holder for administrative actions. We envision that specific VA schedule closure procedures will be added to this area in addition to removing either a patient or resource completely from the process. **Reference Section 4. (Application User Manual) Section 4.7. for discussion of administrative actions.**
5.3 The system shall have the ability to integrate unscheduled CPRS consults with the scheduling system. 2	New patient records (CPRS) can be entered into VistA and the associated information imported. Once a new patient has been entered as demonstrated in Use Case 3, unscheduled patient same day needs can be addressed as walk-in and long range needs can be addressed through the appointment process.

	Reference Appendix A.3. instructions for Use Case 3 Step 3 (entering new patient).
6 The system shall associate each appointment type with the correct DSS stop code/credit stop; see:http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=1788. 5	DSS stop codes are associated with appointment types in our application. This is explained in our Integration Code documentation and support the generation of DSS Stop Code reporting. **Reference Appendix E. (Open Source Documentation) Section E.2.4. for explanation of stop codes.** **Reference Appendix D.5. (DSS Stop Code Detail) for reporting format.**
7.1 Telehealth – The scheduling system shall provide the capability for national Clinical Video Telehealth (CVT) scheduling which ensures resources at multiple ends of a telehealth visit are coordinated with the patient across different VistA systems and capture workload data. 5	Telehealth resources such as CVT Rooms and equipment are treated as other resource types that must be converged with the provider and patient schedules to create a single telehealth appointment. Our enterprise solution can schedule across multiple VistA instances and time zones as all resources and patient schedules as anchored to UTC and accessible across all scheduling domains. Workload data is captured in the individual resource schedules. **Reference Appendix A.3. instructions for Use Case 3 Step 12 (scheduling a telehealth appointment).** **Reference Section 4. (Application User Manual) Section 4.6. for explanation of telehealth appointments.**
7.2 The system shall have the ability to capture whether appointment is scheduled vs. unscheduled to support travel reimbursement determination. 3	Currently, our application only treats walk-in patients as unscheduled appoints. Walk-in appointments can be separated out for reimbursement determination. If so desired, we can designate other appointment types as unscheduled appointments, or we can added a specific tracker with associated reimbursement rules for each appointment. **Reference Appendix A.5. (Manage a Walk-in Patient) for explanation of such appointment are different than scheduled appointments.**
7.3 The system shall provide reports for consults obtained outside of VHA. 5	Appointments made based on requests external to the VA are tracked as consults. Ways to present this type of activity are explained in Appendix D. and actual consult reports can be seen through the UI. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.8. (Consults Summary and Overview) for an**

	explanation of the consult reporting format.
8 The system shall have the ability to disposition for travel reimbursement. 3	Our application currently has a functional place holder for administrative actions. We envision that specific VA travel reimbursement procedures will be added to this area and connected with the notification function. **Reference Section 4. (Application User Manual) Section 4.7. for discussion of administrative actions.** **Reference Section 4. (Application User Manual) Section 4.4. for explanation of notification function.** **Reference Appendix B. (Application Design and Architecture) Section B.15. for explanation of notification process.**
9.1 The system shall have the capability to generate reports containing scheduling data from both the solution application and legacy systems. 3	As demonstrated in the UI reporting function with formats explained appendix D, our system can clearly report on scheduling activities within the system. Because our system is fully integrated with VistA, we can further pull data from the legacy system (MSP) for reporting but have not been given a data source in this contest to demonstrate this capability. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports) for example of reporting on scheduling data.**
9.2 The system will collect currently used wait time metrics including create date and desired date, scheduled appointment date and completed appointment date. 5	Please refer to Appendix D. for an explanation of how these metrics can be presented and the User Manual on how to execute this reporting function. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.2. (Operational and Wait Time Summary with Patient Detail Reports) for example of how metrics can be presented.**

9.3 National Reports: National reporting is generated by national program managers, VISN management and by facility management to review performance, trends, analytics, as well as access to care and payment issues. National reports are populated by "rolling up" information from the various stations, clinics, and facilities across VHA. ---	As our scheduling database is designed to be an integrated enterprise wide database, numerous scheduling reports can be rolled up to the national level. This roll-up does not require any data integration or retranslation. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.2. (Operational and Wait Time Summary with Patient Detail Reports) for example of metrics can role-up to national level.** **Reference Appendix D.6. (Capacity Workload and Utilization Report) for example of metrics can roll-up to national level.**
9.3.1 The system shall have the ability to capture and provide the data necessary to conduct capacity planning through complete visibility into supply (provider, equipment, facility, support staff) and demand (enrolled and/or empaneled Veteran requests for appointments). 3	Data allowing complete visibility into supply, to include providers, equipment, rooms, resides in our database and is presented through the reporting function. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.6. (Capacity Workload and Utilization Report) for example of how metrics can be presented.**
9.3.2 The system shall have the capability to generate wait time metrics and measures based on clinic operational metrics 5	Data on wait time resides in our database and is presented through the reporting function. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.2. (Operational and Wait Time Summary with Patient Detail Reports) for example of how metrics can be presented.**
9.3.3 The system shall have the capability to generate reports based on cost reporting metrics and measures (i.e. DSS stop codes and other financial metrics and measures as defined by the business) that are tied to	Data on DSS stop codes connected with appointment activities resides in our database and is presented through the reporting function. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.5. (DSS Stop Code Detail) for example of how**

the scheduling appointment. Examples of existing reports include, but are not limited to the following: • DSS Outpatient Encounter and Workload 3	**metrics can be presented.**
9.3.4 The system shall have the capability to generate reports based on provider utilization and provider credentialing. 3	Data on provider utilizing as a part of scheduling resides in our database and is presented through the reporting function. We, however, are not given a provider credentialing source through VistA to validate against appointment types / credential requirements. Credentials validation reports can be easily generated as a part of the product system. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports) for example of how metrics can be presented.**
9.3.5 The system shall have the capability to generate performance reports. Performance measures include access measures, clinical measures and scheduling measures. 5	Performance level information exists through the scheduling process and is stored in our database. Reports are generated base on types of performance metrics with examples shown in the following references. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports)** **Reference Appendix D.2. (Operational and Wait Time Summary with Patient Detail Reports)** **Reference Appendix D.6. (Capacity Workload and Utilization Report)**

9.3.6 The system shall have the capability to generate patient complaint tracking and status metrics and measures reports. Examples of existing reports which work now and must continue to work include (but are not limited to) the following types of reports: • Survey of Healthcare Experiences of Patients (SHEP) Inpatient and Outpatient Survey Reports • Patient Advocate Profiles • Number of Complaint Issues by Type of Care Patient Advocate Tracking System (PATS) • Summary of Responses to Patient Complaint Data in Outpatient SHEP (OQP) • Compliments/ Complaints as % of Total (PATS) Report • All Complaint Issue Trending (PATS) • Complaint Clinical Appeal Data (PATS) 3	Patient complaints based on appointment experience are treated as encounter data and currently not tracked with the scheduling database. In a deployed environment, the schedules in our application will be associated with survey data, self-reporting data, and scheduler documentation. Thus, the schedule can be used to pull data sets from the sources identified in the requirements to generate reports for such metrics. If given the stated external data sources from the VA, we would have configured this reporting capability. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.**
9.3.7 The system shall have the capability to generate reports based on metrics and measures related to Clinic Resources as defined by the business. 4	The utilization of resources within clinics is tracked with our scheduling database and can easily be presented in a variety of report formats. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports) for an example of reports with resource utilization**
9.3.8 The system shall have the capability to generate on-demand reports containing current data to be presented to Congress. 5	Reports responding to recurring Congressional requirements can be pre-formatted based on our reporting process. More important, our process allows for the development of new report formats within 24 to 48 hours in cases of ad hoc Congressional inquiries. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.**

	Reference Appendix D.10. (Congressional Performance Reports) for example of Congressional Reports.
9.3.9 The system shall have the capability to generate reports based on metrics and measures related to Mental Health appointments. 5	Our data is matched to appointment types, which include mental health appointments with associated stop codes. Mental health metrics are also in our reports to Congress. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.7. (Clinic Operational Report) for example of reporting requirements associated with mental health.** **Reference Appendix D.10. (Congressional Performance Reports) for example of Congressional Reports.**
9.3.10 The system shall have the capability to generate reports based on Workload and Utilization Management metrics. 5	The density of appointments, cancellations, reassignments, and unused appointment slots are all captured the tracking of appointment activities. These metrics are all important to workload management and easily be reported at all level of operations. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports) for examples of how workload can be captured in reporting.**
9.3.11 The system shall have the capability to generate reports based on unfulfilled appointment request. 5	Unfilled appointments among other metrics are tracked within each patients work lists and can be reported individually or at a summary level. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.9. (Ad-Hoc Operational Report) for how reports can be tailored against specific operational metrics.**
9.4.1 The system shall have the capability to generate reports based on metrics and measures related to Workload management at the local	Workload management is conducted at the clinic specific level and the stored data from management activities can be reported on using metrics traceable to the relational database. **Reference Section 4. (Application User Manual) Section 4.5. for**

level. 3	**directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports) for an example of how work load metrics can be presented.**
9.4.2 The system shall have the capability to generate reports based on metrics and measures related to patient information relevant to supporting the episode of care, the continuity of care, and missed opportunities of all patients. 5	All activities associated with a patient are organized in the relational database to support metrics-based reporting. A variety of reports can be generated from patient information and we have merely provided some examples are a demonstration of capability. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Appendix D.3. (Summary by Activity Type with Patient Detail) for an example of how a specific activity type can be reported.**
9.4.3 The system shall have the capability to generate reports based on metrics and measures related to appointments and clinics, including availability and utilization, case load, cancellations, check-ins, general/random appointment information, notifications and letters, and audits by supervisors. 5	Currently, clinic utilization data is integrated from appointments and specific resource assignment activities. This information can be presented in a variety of formats, and we have provided some formats as a demonstration of capability. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.1. (Provider and Clinic Appointments Utilization Reports)**
9.4.4 The system shall have the capability to generate QA reports to ensure the proper disposition of incomplete appointment information. Examples of current reports that rely upon this data and must be maintained include, but are not limited to, the following: • Encounter Activity Report • Encounter 'Action Required' Report • Means	Our reporting process has shown that it can create reporting formats rapidly in response to data sets. For scheduling related data, the reporting format will pull information from our relational database. For data that reside in VistA, such data can be pulled into our application for the purpose of reporting. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.** **Reference Appendix D.4. (Work List Summary Queue and Patient Detail)**

Test/Eligibility/Enrollment Report • Outpatient Encounter Workload Statistics • Performance Monitor Summary Report • Performance Monitor Detailed Report • Trend of Facility Uniques by 12 Month Date Ranges • Error Listing • Transmission History Report - Full • Transmission History for Patient • Scheduling/PCE Bad Pointer Count • Alpha List of Incomplete Encounters • Incomplete Encounter Error Report • Summary Report - IEMM • Correct Incomplete Encounters • Provider/Diagnosis Report • Visit Report by Transmitted OPT Encounter 5	
9.4.5 The system shall have the capability to generate reports based on metrics and measures related to diagnostic and procedural information that ranks each by frequency and for a specific date range. Examples of current reports that must be maintained include, but are not limited to, the following: • Outpatient Diagnosis/Procedure Frequency Report • Management Report for Ambulatory Procedures 3	Diagnostic outcomes at appointments are treated as encounter data and currently not tracked with the scheduling database. In a deployed environment, the schedules in our application will be associated with diagnostic information and supporting services. Thus, the schedule can be used to pull data sets from VistA to generate reports for such metrics. If given such external data set from the VA, we would have configured this reporting capability. **Reference Section 4. (Application User Manual) Section 4.5. for directions on how to access reporting function.**

7. Instructions and Traceability Matrix for Step 2A Attachment C (Non-Functional Requirements) Evaluators

7.1. Evaluating Functionality

VA Requirements	Instructions and Validating Outcomes
1.1 The Scheduling Solution shall be capable of providing configurable error messages, work flows, and alerts.	Error messages and alerts are built into our application to support development and testing. Development and testing is done both at the module level and the integrated system level of the application, and end-to-end testing has shown that all errors have been resolved. Because of our modular open source design, the process follow and functionality of the application can be adjusted and expanded through modular realignments and adding new modules. The error messages and alerts will be reconfigured appropriately. **Reference Appendix B. (Application Design and Architecture) for understanding of process flow and modular design.**
1.2 Accuracy	
1.2.1 The Scheduling Solution shall display appointment time with appropriate time zones.	We use UTC times as the base time for all appointments and this then displayed at the local of VistA instances. This enables integrated scheduling across VistA / facilities. **Reference Appendix A. (Manual Execution of Use Cases) for validation for time display across the appointment process.**
1.3 Interoperability	
1.3.1 The Scheduling Solution shall support content transportation standards and implementation specifications set forth in 45 CFR 170.205.	Our application is designed to be fully compliant with 40 CFR 170.205 *Content exchange standards and implementation specifications for exchanging electronic health information*. MedRed LLC has fielded a HIPAA compliant VistA integrated system (TBI Toolbox) in the past and brings to Health eTime this understanding of transportation standards. In an actual VistA deployment, we will include transport encryption capability that we have deployed in the TBI

	Toolbox.
1.3.2 The Scheduling Solution shall be capable of navigating seamlessly among related modules throughout the end-to-end scheduling process.	Our application is built according to a coherent modular design that enables seamless operations with a UI. Our UI, which will be improved upon through post contest user involvement, enables an end-to-end scheduling process. We demonstrate this by manually testing all the Step 1 Use Cases with the UI. **Reference Appendix B. (Application Design and Architecture) for understanding of process flow and modular design.** **Reference Appendix A. (Manual Execution of Use Cases)**
1.4 Security	
1.4.1 The Scheduling Solution shall be able to support secure messaging	Our application is designed to enable database level encryption and transport encryption for data uploads to the VistA environment, transmitted notifications, and transmitted reports. We have implemented such encryption capability in the capability in the MedRed TBI Toolbox deployed as VA McGuire Medical Center, Richmond.

7.2. Evaluating Usability

VA Requirements	Instructions and Validating Outcomes
2.1 Understandability	
2.1.1 The Scheduling Solution shall be self-descriptive and explain itself through cues (e.g., screen, area, and group titles indicating the purpose of the respective interface element; on-screen instructions/diagrams; explanations/answers that are available on request; no implicit assumptions about how users are expected to behave that would contradict users' expectations; and feedback is given on user actions, system actions, and the system state	Our application is operated by a web-based User Interface that can be easily tailored to user display preferences. All the functionality is accessed through dropdown menus that are based on stated titles and a simple functional hierarchy. Specific tasks are executed in pop-up blocks with clearly labeled fields for data entry. Different calendar displays are used to support the scheduling process. Usability is further supported by the development of a User Manual. **Reference Section 4. (Application User Manual) for an understanding of the usability of the application.**
2.1.2 The Scheduling Solution shall be usable across multiple operating systems, browsers,	Designed as an enterprise system, our application can operate across all VistA instances / platforms. The UI

and platforms.	can be operated under standard browsers (Internet Explorer, Chrome, FireFox) but currently, we recommend using Internet Explorer 9.0. **Reference Appendix B. (Application Design and Architecture) for understanding of architecture.** **Reference Appendix C. (Application Refinement & Enterprise Deployment) for understanding of application's potential.**

7.3. Evaluating Maintainability

VA Requirements	Instructions and Validating Outcomes
3.1 Analyzability	
3.1.1 The Scheduling Solution shall be capable of providing transaction logs, error logs and audit trails for pertinent scheduling transactions.	As shown in the design and architecture of the application, all the transactions in the scheduling process are very transparent and captured for auditing, error analysis, and process refinement. The auditing of specific activities is captured in the current design of reports. **Reference Appendix B.6. (Audit Relations) for understanding of audit trails.** **Reference Appendix D.1. (Provider and Clinics Appointment Utilization Report) for an example of audit trail.**
3.2 Testability	
3.2.1 The Scheduling Solution shall provide criteria to enable the measurement to test pieces of code or functionality, or a provision added in software so that test plans and scripts can be executed systematically.	As shown in Step 1 Use Cases, we have the ability to develop automated test scripts for the application against 8 use cases. We further conducted manual end-to-end operational test of our application prior to every release. Our development effort and post deployment support processes follow very rigorous testing procedures and

	result tracking for bug fixes. These procedures are enabled through error documentation as a part of the application coding that aligns with the test plan taxonomy. This will enable our application to successfully follow a full Test and Evaluation Master Plan (TEMP) in the system acquisition process. **Reference Section 3. (Instructions for Running Step 1 Test Scripts) for validating the capability for automated testing.** **Reference Appendix C. (Application Refinement & Enterprise Deployment) for understanding of how the application will fit into a VA acquisition process.**

8. Instructions and Traceability Matrix for Step 2B (Open Source Compatibility) Evaluators

The following responses and supporting references show that our solution is fully open source and compatible with VistA. We have published the Health eTime Open Source codes as requested by the VA in each of the VMs **(C:\Users\contestant\OSEHRA\Dashboards\OSEHRA-Automated-Testing**).

VA Requirements	Response and Validating Outcomes
1. Open Source License & Apache 2.0 Alignment	**Yes – Open Source Apache 2.0 aligned license placed in each VM directory** C:\Users\contestant\ContestantDocuments
2. Open Source codes for App and VistA integration	**Yes – App and VistA integration codes are Open Source along with entire Health eTime application source code placed in VMs** C:\Users\contestant\OSEHRA\Dashboards\OSEHRA-Automated-Testing
3. Descriptive Documentation for Integration Code	**Yes – Reference Appendix E.1**
4. Documentation of Code (APIs) and Install Instructions	**Yes – Reference Appendix E.2**
5. XINDEX SAC Checker	**a. No new F (failure) messages were found** **b. No new W-(warning) messages were found**
6. Headers of modified M Routines have been updated	**Routine headers of all modified M routines have been updated using the given convention. See**

	Section 2.2 for a list of modified M routines.
7. VistA mods have MUnit tests	**MUNIT tests were created for all the routines that were modified.**
8. Did MUnit tests passed?	**Yes– Reference Appendix E.3**
9. VistA mods have install methods into Vista-FOIA	sd_5p3_131000rc2.KID XUA4A7_FIX_0.0.KID
10. Does mods install cleanly	**Yes**

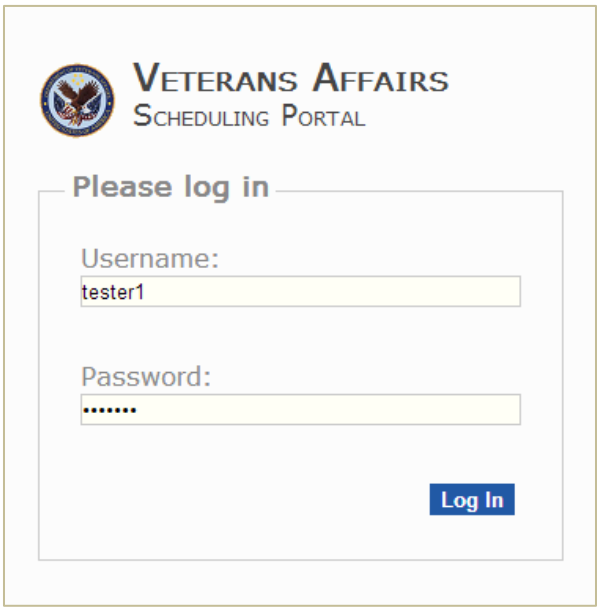
A. Appendix A: Manual Operating Instructions for the Eight Published Use Cases (Scenarios) and Traceability to Requirements

The following are manual scripts we used to test Health eTime against the eight Use Cases. The steps in testing are further referenced in our Step 2 requirements traceability matrix to explain the capabilities of our application.

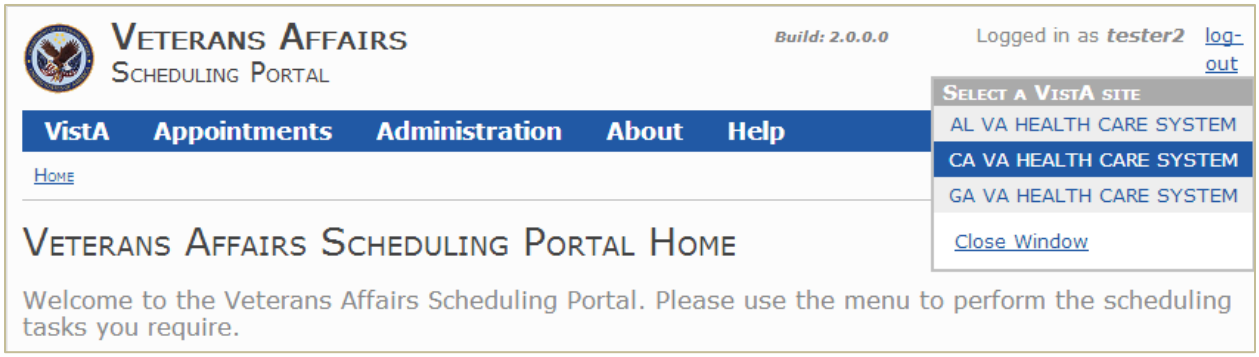
We Start by Logging into the Health eTime Application

Prior to completing any of the Use Case steps detailed in this document, you must log in to the application as an Administrator. The log-in information is as follows:

1. Open browser to: http://166.78.237.187/SchedulingWeb/Account/Login.aspx
2. Enter Username: tester1
   Enter Password: tester2
3. Select **Log In**



Note: Note: Demonstration data in the test system has been loaded to support execution of these scripts in VistA site: **CA VA Health Care System**. The user will find the active site location displayed in the upper right corner of the application, just below the **Username** field.



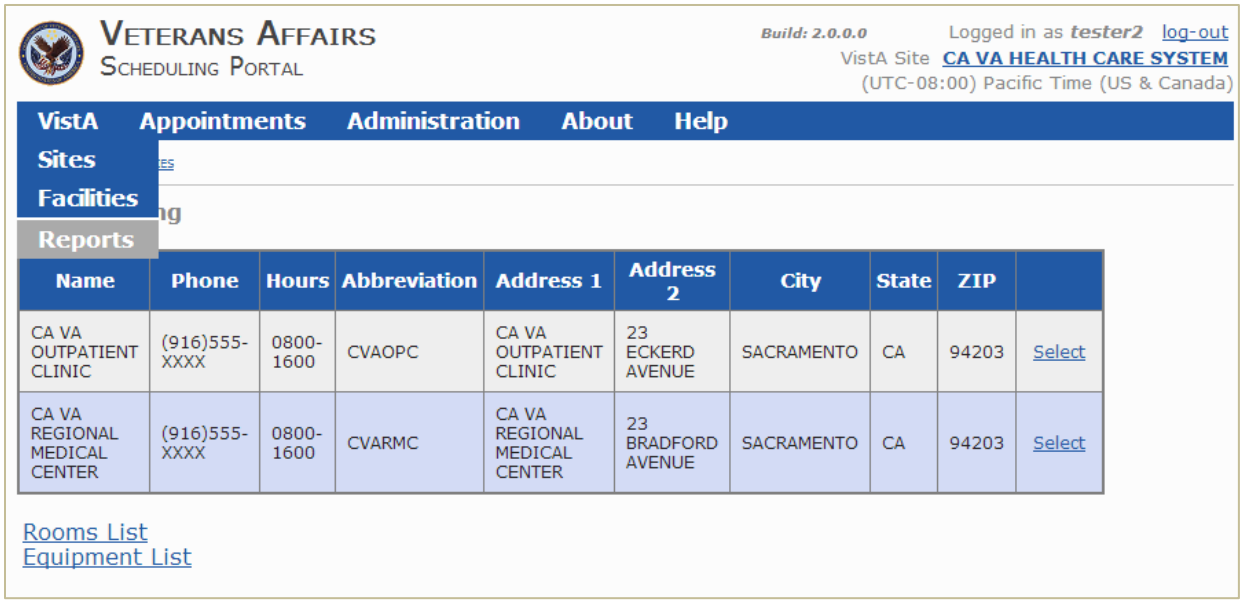
A.1. USE CASE 1: Establish, Organize, and Manage the Scheduling Component

User: System Administrator

A note about our application architecture and design choices:
Our analysis of VistA architecture led our application design team to the conclusion that, for the purposes of the contest, a number of key scheduling variables should be configured using the legacy VistA UI, and not directly through our scheduling application. We made this decision for two primary reasons: the first is that these application settings, once implemented, are fairly stable and not subject to change by scheduling personnel on a regular basis. The second is that these settings are so fundamental, to so many VistA backend systems, that we felt it would be unwise to try to integrate their management into the user interface of a rapid prototype. A list of these variables is:

- top-level management entities,
- facilities,
- standard services,
- standard Appointment type categories,
- standard national and VA specific holidays

For this reason, information regarding these variables in our application is drawn from VistA and presented as “read only” in Health eTime and instructions for configuring these variables, which again is done using the legacy VistA terminal application, is not detailed in this document. Detailed instructions for use case 1, therefore, start with step 6.

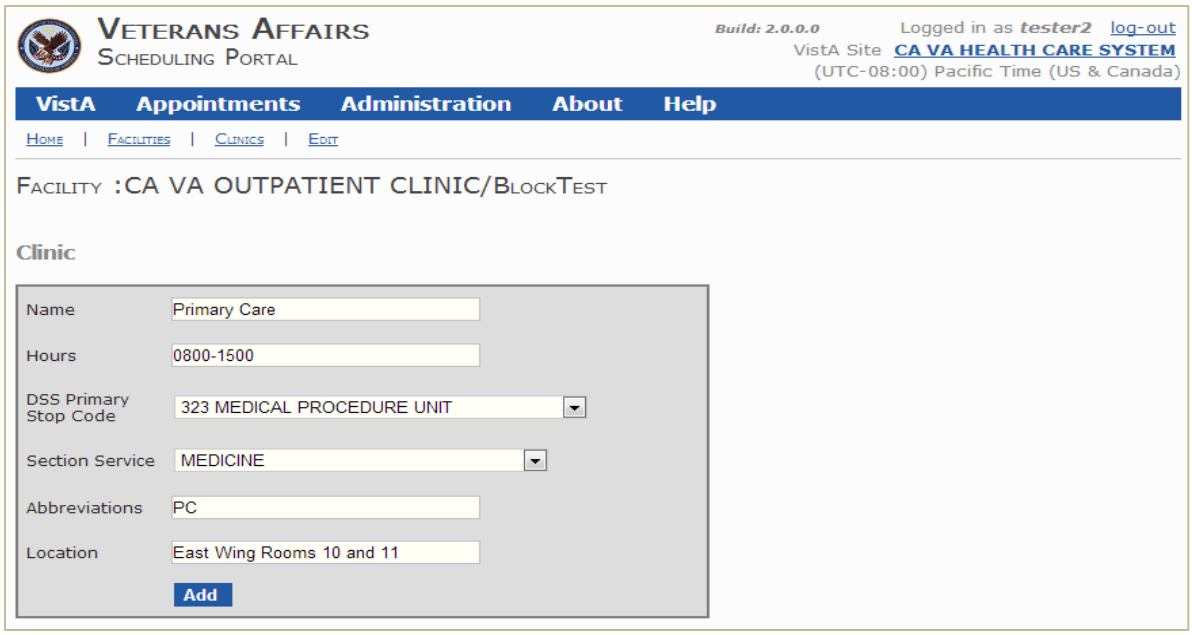


Use Case 1, Step 6: Create a section (clinic/section) within each MTF

Walkthrough:

1. Select **VistA** in the upper left
2. Select **Facilities**
3. For either the Outpatient or the Regional Medical Center, click on the **Select** link (right column).
   - ➢ This action opens the Facility Profile Information page
4. To view the Clinics for the selected Facility, click on the link for **View Clinics.**

5. To add a Clinic, click on the **Add Clinic** link and populate the Primary Care Section Profile.
   - The CA VA Outpatient Clinic profile below has been populated with the information provided in Table 8: Primary Care Section Profile (California Outpatient Clinic) in the VA Scheduling Contest Use Cases information.
   - The DSS Primary Stop Code information has been pre-populated from VistA and may therefore vary slightly from the provided codes.



6. Once the profile has been completed, select **Add** at the bottom of the screen.
   - This action returns the user to Clinic Listing page. The recently added clinic is listed in a table with the information presented as entered.
   - At this point the Clinic has been added to the Facility, but has not yet been activated.
7. To activate an added clinic, click the **Select** link to the right of the clinic to be activated.
   - The Clinic details are displayed as read-only Activate button is available
8. Select the **Activate** button in the clinic details table.
   - Once the **Active** check box is selected, the **Activate** button is relabeled as **De-Activate**
   - This page also contains an **Edit** option to allow clinic profiles to be modified as needed.

Use Case 1, Step 7: Create/update one pre-appointment communication template for the overall health care system that can be modified and utilized at the facility section level.

Walkthrough:

1. Select **VistA** on the upper left of the Home page
2. Select **Facilities**
3. Click on the **Select** link next to a particular Facility (e.g. VA Regional Medical Center)
   - ➢ The Facility Details will be displayed
4. Select **Template List** at the bottom of the page
   - ➢ The Template List includes all of the possible template types for a facility
5. Click **Select** for a previously created template
6. Click extract template to prompt the Save As window. Choose an appropriate location to save the file locally.
7. Open the saved file with Notepad and edit the text as needed for the new facility-wide template you will be creating.
8. Select **Facilities** link at the top of the screen
9. Select the same Facility as previously selected
10. Click **Template List**
11. Next, select **Add Communication Template**
12. Enter Name, Subject, Template Type, Medium, and Recipient for the New Template
13. To upload the previously edited template, click **Choose File**

14. This will open a new window prompting the user to selected the locally edited and saved file
15. Click **Upload**

Use Case 1, Step 8: Create a pre-appointment letter for a section based on the pre-appointment communication template created in step 7

Walkthrough: (Continued from previous step)

1. Select **VistA** on the upper left of the Home page
2. Select **Facilities**
3. Click on the **Select** link next to a particular Facility (e.g. VA Regional Medical Center)
   - The Facility Details will be displayed
4. Select **Template List** at the bottom of the page
   - The Template List includes all of the possible template types for a facility
5. Next, select **Add Communication Template**
6. Click **Select** for the Pre-appointment template
   - This will prompt the Upload Communications page.
7. Click extract template to prompt the Save As window. Choose an appropriate location to save the file locally.
8. Open the saved file with Notepad and edit the text as needed. (Replace "Section Name here" with Primary Care and Save as PreAppointmentPC.txt)
9. Click Select for Primary Care clinic to display the Clinic details
10. Select Template List at the bottom of the page
11. Click Communications Templates List
12. Click Add Communication Template to upload Communication Template page displays
13. Once the Template information has been entered (see sample below) click Upload to add the new template to the list of Clinic templates
    - Sample: Type Name: PC Pre-appointment
      Subject: Before your visit
      Click Choose File and browse to the location of the file saved in step 7
      Select Pre Appointment
      Medium: Mail
      Recipient: Patient
14. Click **Upload**

Use Case 1, Step 9: Create a schedule for a provider in the Primary Care Section of the Regional Medical Center

Walkthrough:

1. Select **VistA** on the upper left of the Home page
2. Select **Facilities**

3. Click on the **Select** link next to a particular Facility (e.g. VA Regional Medical Center)
    - The Facility Details will be displayed
4. **Click View Clinics**
5. Click the **Select** link for the Primary Care Clinic
6. Click the **Clinic Resources List** link
7. Click **Add Resource**
8. Enter the following information:
    - Type Name: Jane Smith
      Select Resource Type: Provider
      Fulfulling Resource: SMITH JANE
      Check: Allow Overbooking
9. Click **Add**
10. Click **Resources** (top of the screen under blue toolbar)
11. Click **Select** for Jane Smith
12. Click **Scheduling Policies List**
13. Click **Add Scheduling Policy**
    - Select Day of the week: Monday
      Start Effect Date: use today
      End Effect Date and Time: use same day, month and time, use 2015 for the year
      Priority: 1
14. Click **Add**
15. Click **View Slots**
16. Click **Add Slots**
    - Length: 15 minutes
      Start time: 08:00
      End time: 12:00
      Appointment type: Regular PTSD
17. Click **Add 16 Slots**
18. Return to the clinic resources page and select **Jane Smith**
19. Click **Scheduling Policies List**
20. Click **Add Scheduling Policy**
    - Select Day of the week: Monday
      Start Effect Date: use today
      End Effect Date and Time: use same day, month and time, use 2015 for the year
      Priority: 1
21. Click **Add**
22. Click **View Slots**
23. Click **Add Slots**

- Length of slot: 30 minutes
  Start time: 13:00
  End time: 16:00
  Appointment type:

24. Click **Add Slots**
    - A Monday work day scheduling policy has now been added. This procedure can be repeated for additional workdays and modified to accommodate different time slot lengths

Use Case 1, Step 10: Repeat steps 6-9 for Georgia and California. These sites will have different Providers

Walkthrough:

1. Follow the procedure in the previous Step 9 (Use Case 1). The Site can be changed in the upper right corner of the screen.

Use Case 1, Step 11: Deactivate a section and schedules

Walkthrough:

1. Select **VistA > Facilities>VA Regional Medical Center**
2. Click **View Clinics**
3. Click the **Select** link for the Primary Care Clinic
4. Click the **De-Activate** button to deactivate a section/clinic

Use Case 1, Step 12: Re-activate a section and schedules

Walkthrough:

1. Select **VistA > Facilities>VA Regional Medical Center**
2. Click **View Clinics**
3. Click the **Select** link for the Primary Care Clinic
4. Click the **Activate** button

A.2. USE CASE 2: Establish and Manage Section Schedules

Use Case 2, Step 1: Create section appointment types that map to existing appointment type categories and appointment type duration.

Walkthrough:

1. Select **VistA** in the upper left
2. Select **Facilities**
3. For the VA Regional Medical Center, click on the **Select** link (right column).
   - This action opens the Facility Profile Information page
4. To view the Clinics for the selected Facility, click on the link for **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view Clinic Details

6. Select **Appointment Types List** to view a table of previously created appointment types
7. Select **Add Appointment Type** to create new Appointment Type 1.
   - The following page will allow the user to enter the Name, Section Category, Duration, and DSS codes of the new appointment type.
   - Per the Contest Use Case Information, enter:
     Type Name: Initial
     Category: Regular
     Duration: 30 minutes
     DSS Credit Code:
     DSS Primary Stop Code: 323 (or 275 for Primary Care) (numbers populated from VistA)
8. Click **Add**
   - This will add the Appointment Type 1 to the VA Medical Center and return the user to the Appointment Types List
9. To add Appointment Type 2 to the VA Medical Center, repeat items 1-8, but after selecting Add Appointment Type (item 7), enter the following information:
   - Type Name: Follow-up
     Category: Regular
     Duration: 15 minutes
     DSS Credit Code:
     DSS Primary Stop Code: 323 (or 275 for Primary Care) (numbers populated from VistA)
   - Following this procedure will add the Appointment Type 2 to the VA Medical Center and return the user to the Appointment Types List.

10. To add Appointment Types 1 and 2 to the VA Outpatient Clinic, as detailed in Table 2 of the Contest Use Case 2 documentation, repeat items 1-8, but after selecting Add Appointment Type (item 7), enter the following information:
    - Appointment Type 1:
      Type Name: C&P
      Category: Compensation & Pension
      Duration: 30 minutes
      DSS Credit Code: 450
      DSS Primary Stop Code: 323 (numbers populated from VistA)
    - Appointment Type 2:
      Type Name: Regular
      Category: Regular
      Duration: 15 minutes
      DSS Credit Code: 450
      DSS Primary Stop Code: 323 (numbers populated from VistA)
    - Appointment Type 1 and 2 have been added as entered.

11. Repeat these steps for the Georgia and Alabama sites by changing the sites in the upper right of the page

Use Case 2, Step 2: Configure resources for a section (i.e., providers, rooms, equipment)

Walkthrough:

Rooms:

1. Select **VistA > Facilities** from the menu bar
2. Click **Rooms List** to display the current list of rooms
3. Click **Add Room** to display the Room Details page
    - Type **Name: Conference Room A, Floot: East Hall, 7**
4. Click **Add**
    - Conference Room A is now listed in the Room Listing

Equipment:

1. Select **VistA> Facilities** link from the toolbar in the upper left to view all Facilities for a Site
2. Click **Equipment List** to view a current list of equipment
3. Click **Add Equipment** to view the equipment details page
    - **Type Name: Oximeter, Type: Fingertip**
4. Click Add
    - Oximeter is listed in the Equipment List

Provider:

1. From the toolbar in the upper left select **VistA>Facilities**
2. Click **Select** for the VA Regional Medical Center
3. Click **View Clinics** to view the clinics associated with a facility
4. Click the **Selec**t link for the Primary Care Clinic
5. Click the **Clinic Resources List** link
    - The associated clinic resources will be listed here
6. Click **Add Resource** to view the resources details page
    - Type Name: Jane Smith
      Select Resource Type: Provider
      Fulfilling Resource: SMITH JANE
        - This is a list of providers populated from VistA
7. Check: **Allow Overbooking**
8. Click **Add**

Adding a Room or Equipment as a Resource to be scheduled for a particular Clinic:

Room: *(Pre-requisite – User must have added Room to the Facility Room Listing (above)*

1. From the toolbar in the upper left select **VistA>Facilities**
2. Click **Select** for the VA Regional Medical Center
3. Click **View Clinics** to view the clinics associated with a facility
4. Click the **Selec**t link for the Primary Care Clinic

5. Click the **Clinic Resources List** link
6. Click Add Resource
   - Type Name: Conference Room
     Select Resource Type: Room
     Fulfilling Resource: Conference Room A
7. Click **Add**
   - The Room has now been added to the list of resources

Equipment: *(Pre-requisite – User must have added equipment to the Facility equipment list (above)*

1. From the toolbar in the upper left select **VistA>Facilities**
2. Click **Select** for the VA Regional Medical Center
3. Click **View Clinics** to view the clinics associated with a facility
4. Click the **Selec**t link for the Primary Care Clinic
5. Click the **Clinic Resources List** link
6. Click **Add Resource**
   - Type Name: Oximeter
     Select Resource Type: Equipment Resource: Oximeter
7. Click Add
   - The Oximeter has now been added to the list of resources
8. Repeat as needed

Use Case 2, Step 3: Create schedules for multiple resources that are assigned to one section.

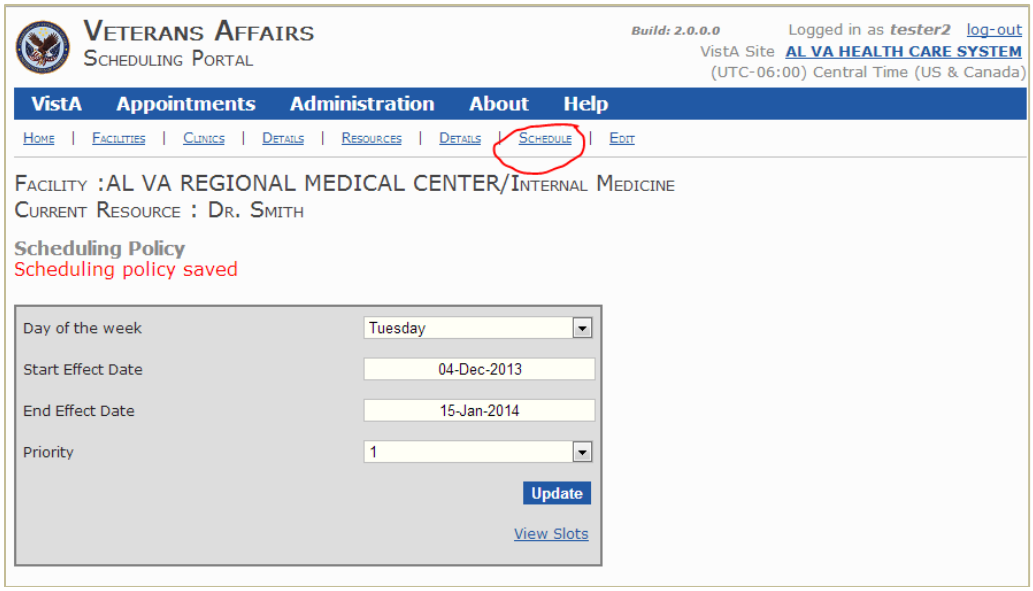
Walkthrough:

1. Select **VistA > Facilities** from the menu bar
2. Click Select for the **VA Regional Medical Center** to view facility details
3. Select **View Clinics** at the bottom of the page
4. Click the **Select** link for the Primary Care Clinic to view clinic details
5. Click the **Clinic Resources List link** to view previously created resources
6. Click **Select** for an existing resource
7. Click **Scheduling Policy List**
   - Policy list table includes policies for weekdays with time slots and capacities
8. Click **Add Policy**
   - Enter desired Policy information: Day of the week, Start Effect Date, End Effect Date, Priority
9. Click **Add**
   - Policy selected is added to the policy list for this resource

Use Case 2, Step 4: Create a schedule for a provider from 4 December 2013 to 15 January 2014

Walkthrough:

1. Select **VistA > Facilities** from the menu bar
2. Click **Select** for the VA Regional Medical Center to view facility details
3. Click **View Clinics**
4. Click the **Select** link for the Primary Care Clinic to view clinic details
5. Click the **Clinic Resources List** link to view previously created resources
6. Click **Select** for the resource Lory Petri
7. Click **Scheduling Policy List**
   - The next page displays all of the existing scheduling policies for this resource
8. Click **Add Scheduling Policy**
   - Scheduling policy details displays
   - Enter the following:
     Select Day of the week: Monday
     Type Start Effect Date: 04-Dec-2013
     End Effect Date: 15-Jan-2014
     Priority: 1
9. Once added, a red notification will appear above the Scheduling Policy table stating "Scheduling Policy Saved". Once saved, select Schedule at the top of the screen under the main toolbar.



10. Repeat the previous 2 items for the rest of the week as required

Use Case 2, Step 5: Hold the 4 January 2014 date and set it to automatic release scheduling on 3 January 2014.

Walkthrough:

1. Select **VistA > Facilities** from the menu bar
2. Click **Select** for the VA Regional Medical Center to view facility details

3. Click **View Clinics** to view all clinics for a particular facility
4. Click the **Select** link for the Primary Care Clinic to view clinic details
5. Click the **Clinic Resources List** link to view previously created resources
6. Click **Select** for the resource Lory Petri to view resource details
7. Click **On-Hold List** to view a table of On-Hold dates
8. Click **Add On-Hold** to display On-hold details page
    - Period Start: 04-Jan-2014 08:00
      Period End: 04-Jan-2014 17:00
      Auto Release At: 03-Jan-2014 08:00
    - On-Hold created time stamp is shown in UTC
9. Click **Add**
    - Hold is added and the is user is returned to the Hold Listing page for a resource

Use Case 2, Step 6: Hold the 5 January 2014 date and manually release it for scheduling.

Walkthrough:

First create a Hold:

1. Select **VistA > Facilities** from the menu bar
2. Click **Select** for the VA Regional Medical Center to view facility details
3. Click **View Clinics**
4. Click the **Select** link for the Primary Care Clinic to view clinic details
5. Click the **Clinic Resources List** link to view previously created resources
6. Click **Select** for the resource Lory Petri to view resource details
7. Click **On-Hold List** to view a table of On-Hold dates
8. Click Add On-Hold to display On-hold details page
    - Type Period Start: 05-Jan-2014 0708:00
      Period End: 05-Jan-2014 1817:00
      Auto Release At: 04-Jan-2014 8:00
    - On-Hold just created time stamp is shown in UTC
9. Click **Add**
    - Hold is added and the is user is returned to the Hold Listing page for a resource

Releasing the Hold:

10. On the Hold Listing page, select the hold you wish to release (**click Select**)
11. Set **Auto Release At** to current date and time or click **Remove**

5-January-2014 is released or Hold no longer appears in the Hold List

Use Case 2, Step 7: Block 9 a.m.-12 noon on 5 December 2013 for a meeting.

Walkthrough:

1. Select **VistA > Facilities** from the menu bar
2. Click **Select** for the VA Regional Medical Center to view facility details
3. Click **View Clinics**
4. Click the **Select** link for the Primary Care Clinic to view clinic details

5. Click the **Clinic Resources List** link to view previously created resources
6. Click **Select** for the resource George Clark to view resource details
7. Click **Block List** to view the table of blocked dated
8. Click **Add Block** to view block details page
    - Enter the following information:
      Type Period Start: 05-Dec-2013 09:00
      Period End: 05-Dec-2013 12:00
      Reason: Meeting
9. Click **Add**
    - Return to list of Blocks for George Clark

Use Case 2, Step 8: Block a portion of a schedule or a schedule that has existing scheduled patient appointments.

Prerequisite: George Clark has an appointment scheduled for December 5, 2013 at 10 AM. (patient Hugh Benson)

Walkthrough:

1. Ensure that VistA site on the upper right of the screen is CA
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Click the **Clinic Resources List** link to view previously created resources
7. Click **Select** for the resource George Clark to view resource details
8. Click **Block List** to view the table of blocked dated
9. Click **Add Block** to view block details page
    - Enter the following information:
      Type Period Start: 05-Dec-2013 09:00
      Period End: 05-Dec-2013 12:00
      Reason: Meeting
10. Click **Add**
    - Conflicting Appointment information will appear to alert user of a scheduling appointment during the block period
11. Click **Add Block**
    - Block is added

Use Case 2, Step 9: Demonstrate the cancellation process for the appointments that were scheduled when the schedule was blocked to include reason for the cancellation

Walkthrough: (Continue from step 8 above)

12. Click **Appointments > Patient Appointments** to view patient search
    - This will take the user to the Current Appointments page for Hugh Benson
13. Click **View Appointment Requests** on the upper left

- Appointment requests are displayed (cancellation is automatic)

14. To reschedule the blocked/cancelled appointment, click **Add Appointment** for the Dec 5, 2013 appointment
    - Fulfill Appointment opens and shows that the appointment was cancelled due to the block. Appointment Request Information shows Notes: Existing appointment was automatically cancelled due to following reason. (George Clark Block)

Use Case 2, Step 10: Create a group appointment slot on a schedule.

Walkthrough:

1. Ensure that VistA site on the upper right of the screen is CA
2. Select VistA > Facilities from the menu bar
3. Click Select for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Click the **Clinic Resources List link** to view previously created resources
7. Click **Select** for the resource George Clark
8. Click **Scheduling Policy List**
    - Table of policies displays
9. Click **Add Scheduling Policy**
    - Scheduling policy details displays
    - Policy is listed in the Schedule table
    - Enter the following:
      Start Effect Date and Time: use today's date
      End Effect Date and Time: use same day and month, use 2015 for the year
      Priority: 1
10. Click **Add**
11. Click **Select** for the Monday policy
    - Edit Scheduled Policy includes a link for Slots
12. Click **View Slots**
13. Click **Add Slot**
    - Type Time: 0800-1200
      Length: 30
      Group Appointment Capacity: 10
      Select Appointment type: Select desired option
14. Click **Add**
    - Group appointment policy is added to the table

Use Case 2, Step 11: Associate pre-appointment patient instructions with appointment types that can be displayed to the scheduler and given to the patient when the appointment is scheduled.

Walkthrough:

1. Select **VistA** on the upper left of the Home page
2. Select **Facilities**
3. Click on the **Select** link next to a particular Facility (e.g. VA Regional Medical Center)
   - The Facility Details will be displayed
4. Click **Template List**
5. Next, select **Add Communication Template**
6. Enter Name, Subject, Template Type, Medium, and Recipient for the New Template
7. To upload the previously edited template, click **Choose File**
8. This will open a new window prompting the user to selected the locally edited and saved file
   - Upload previously create text file with instructions (See Use Case 1, Step 7)
9. Click **Upload**

Use Case 2, Step 12: Set up multiple appointment types with designated time ranges on the same day. Example, a morning schedule may consist of only medication refill appointment types and the afternoon schedule may consist of only new patient appointment types. Prerequisite: Create Appointment type Refills, set to 15 minutes.
Walkthrough: This process shows how to set up 15 min Consult appointments in the morning and 30 min Follow Up appointments in the afternoon for a designated period of time.

1. Ensure that VistA site on the upper right of the screen is CA
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Outpatient Clinic to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the CA Dermatology Clinic to view clinic details
6. Click the **Clinic Resources List** link to view previously created resources
7. Click **Select** for the resource Dr. OP
8. Click **Scheduling Policies List**
   - Table of policies displays
9. Click **Add Scheduling Policy**
   - Scheduling policy details displays
   - Policy is listed in the Schedule table
   - Enter the following:
     Day of the week: Monday
     Start Effect Date: use today's date
     End Effect Date: use same day, month, use 2015 for the year
     Priority: 1

10. Click **Add**
11. Click **Select** for the Monday policy
    - Edit Scheduled Policy includes a link for Slots
12. Click **View Slots**
13. Click **Add Slot**
    - Type Time: 0800-1200
      Length: 15
      Group Appointment Capacity: 1
      Select Appointment type Consult
14. Click **Add Slots**
    - Type Time: 1300-1600
      Length: 30
      Capacity: 1
15. Select **Appointment type** Follow Up
16. Click **Add**
    - New policy is added to the table
17. **Click Appointments > Clinic Schedule** to view Clinic Schedule page
    - Select Facility: VA Outpatient Clinic
      Clinic: CA Dermatology
      Enter Tuesday July 2, 2014
    - Calendar page displays with 15 minute slots in the morning and 30 minute slots in the afternoon.

Use Case 2, Step 13: Block or make unavailable multiple days of a schedule and include the reason for blocking.

Walkthrough:

1. Ensure that VistA site on the upper right of the screen is CA
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the CA VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Click the **Clinic Resources List** link to view previously created resources
7. Click **Select** for the resource Joseph Kirk
8. Click **Block List** to view the table of blocked dates
9. Click **Add Block** to view block details page
    - Enter the following information:
      Type Period Start: 05-Aug-2013 07:00
      Period End: 09-Aug-2013 17:00
      Reason: Vacation
10. Click **Add**
    - Block just created time stamp is shown in UTC

Use Case 2, Step 14: Block or make unavailable a recurring period of time and include the reason for blocking.

Walkthrough:

1. Ensure that VistA site on the upper right of the screen is CA
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Click the **Clinic Resources List** link to view previously created resources
7. Click **Select** for the resource Joseph Kirk
8. Click **Block List** to view the table of blocked dated
9. Click **Add Block** to view block details page
    - Enter the following information:
      Type Period Start: 11-Jun-2013 09:00
      Period End: 11-Jun-2013 17:00
      Reason: Vacation
10. Click **Add**
11. Check the **Reccurring?** option
    - Recurrence configuration opens
12. Select Weekly and enter the following:
    - Interval =1
    - Period End : 31-Aug-2013
13. Click **Add**
    - Recurring block is added to the provider's schedule.

Use Case 2, Step 15: Track and manage the patients that were cancelled due to schedules being blocked. Prerequisite: appointments scheduled for George Clark on Fridays, July 5 (Hugh Benson), July 12 (Alice Rice – 2 appts). Each date has a different patient scheduled. Block is added for dates of appointments.

Walkthrough:

1. Ensure you're on the CA VistA site.
2. Click **Appointments** in the top blue toolbar, the select **Waiting Lists**
    - This action will open the Waiting List page with default values
3. Select **the VA Regional Medical Center,** Clinic: **Primary Care**
    - Waiting list is automatically updated.
4. Click **Add Appointment** for one of the patients in the report
    - Fulfill Appointment Request page opens. Request Information is at the top
5. Set the fields to match the request
6. Click **Search for slots**
    - List of available slots in the time frame requested are listed

7. Select a **date and time**
8. Click **Select** slot to view the Book Appointment page
9. Select **Urgency**: Not urgent, Link Appointment: Not linked
    - Communicate booking screen displays with appointment details
    - Communication template is used to send a pre-appointment message
10. Click **Confirm and Book**

Use Case 2, Step 16: Change, modify, and update appointment types that are already on a schedule, on the fly. Prerequisite: Appointment for Alicia Rice for August 13, 2013 at 11:00 type Initial.

Walkthrough:

1. Ensure that VistA site on the upper right of the screen is CA
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Select **Appointment Types List** to view a table of previously created appointment types
7. Select **Appointment type Initial**
    - Details of 'Initial' appointment type display
8. Type **Initial Comp & Pension** for the Name
9. Click **Update**
    - Return to list of Appointment types
    - New name is displayed

Use Case 2, Step 17: Add, modify, and delete appointment types from a section.

Walkthrough:

1. CA VistA Site
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
5. Click the **Select** link for the Primary Care Clinic to view clinic details
6. Select **Appointment Types List** to view a table of previously created appointment types
7. Click **Select** for the New Patient appointment type
    - New Patient appointment type details displays
    - Enter the following information:
      Type Name: New Study Patient
      Select Category: RESEARCH
      DSS Credit Code: 442
8. Click **Update**
    - Return to Appointment type table.

- ID 4 shows Name: New Research Patient and DSS Credit Code 442

9. By clicking **Select** next to an appointment type, the user has the option to update the information or delete the appointment type.
    - Appointment Type can only be deleted if it's not in use

Use Case 2, Step 18: Configure schedules for overbooking and assignment of overbooking privileges to users.

Walkthrough:

1. Select **VistA > Facilities** from the menu bar
2. Click **Select** for the VA Regional Medical Center to view facility details
3. Click **View Clinics**
4. Click the **Select** link for the Primary Care Clinic to view clinic details
5. Click the **Clinic Resources List** link to view previously created resources
6. Click **Select** for a provider **Joseph Kirk** to display resource details
7. Click **Edit**
8. Check **AllowOverbookin**g and click **Update**
    - This will return the user to the Resource details page with AllowOverbooking checked
9. Select **Administration** (top blue toolbar) > **Role Actions**
    - This page allows the Administrator to define Roles by Actions
10. In the Role drop-down in the upper left, select **Scheduler**
11. Select Role Action **Overbook Appointments** at the bottom of the list and click **Save** (top right)
    - Scheduler now lists Overbook Appointments

Use Case 2, Step 19: Assign a provider to multiple sections

Prerequisites: Each facility must include at least 2 clinics

Walkthrough:

1. CA VistA site (upper right)
2. Select **VistA > Facilities** from the menu bar
3. Click **Select** for the VA Regional Medical Center to view facility details
4. Click **View Clinics**
    - Clinics for the VA Regional Medical Center are listed
5. Click **Select** for the CA Dermatology
6. Click Clinic Resource List to display resource table
7. Click Add Resource
    - Add Resource page displays
    - Type Name: Jane Smith
      Service Type: CA Dermatology
      Select Resource Type: Provider
      Select Provider: SMITH JANE

8. Click Add
    - Jane Smith has been added to the CA Dermatology clinic resource table

A.3. USE CASE 3: Create a Patient Appointment

UseCase3, Step 1: Receive an appointment request (also demonstrate request through telephone, e-mail, and internet/form is available).

Walkthrough:

1. Open browser using this link
    - This action opens the Gmail sign in page
2. Type schedulingcontest2593@gmail.com for the sign in email and $ch3dul1ng as the password
3. Click **Sign In**
    - Inbox is displayed
4. Click email **"Appointment request"**
    - Body of the email is: I need a follow up appointment with XXXX on July 3. I would prefer afternoon, if available.
      Hugh Benson

UseCase3, Step 2: Enter the desired future appointment date/time. Step 3: Enter, register and select the patient to schedule.

Walkthrough:

1. Click **Appointments** then **Patient Appointments** to open the patient search page
    - If you were previously working on a particular patient, click **Select Patient** on the upper right of the screen (green toolbar)
2. Type: Benson then click **Search**
    - Search results include Hugh Benson
3. Click Hugh Benson
    - Patient details opens
4. Click **Select Patient**
    - Patients current appointments are listed
5. Click **Add Appointment**
    - Step 1 of Add Appointment includes selection of desired date and time
6. Select the date July 3, 13:00
7. Select **Search for slots** to Schedule the future appointment

UseCase3, Step 4: Verify patient information. Display/verify demographics, insurance, primary care provider, patient preferences and special requests, Create/display patient priority.

1. Click **Appointments** then **Patient Appointments** to open the patient search page
   - If you were previously working on a particular patient, click **Select Patient** on the upper right of the screen (green toolbar)
2. Type: Benson then click **Search**
   - Search results include Hugh Benson
3. Click Hugh Benson
   - Patient details opens

UseCase3, Step 5: Make appointment using data from Table 1 and guidance from Back Story Scenario Table 2.

1. CA VistA Site
2. Click **Appointments** > **Patient Appointments** to open the patient search page
3. Search for desired patient (e.g. Alicia Rice) (See Step 2 for help)
4. Click **Select Patient**
   - Patients current appointments are listed
5. Click **Add Appointment**
   - Step 1 of Add Appointment process includes selection of desired date and time
   - Preferred Date is entered as July 8, 2013
     Days to search: 30
     Select Facility: CA VA REGIONAL MEDICAL CENTER
     Clinic: Physical Therapy Regular
     Provider: Dr. Kirk (JOSEPH KIRK)
     Room: No room required
     Equipment: No equipment required
     Appointment type: Physical Therapy Regular
6. Click **Search for slots**
   - Next available slot(s) start on July 17
7. Select an Appointment time on 7/23/13 for patient (July 22 is a holiday, created in Use Case 1)

UseCase3, Step 5c: Select the appointment slot

8. Select 11 AM on July 23
   - Select Slot button is activated

UseCase3, Step 5d Assign the patient to the selected appointment, record desired date and reserve resources.

9. Click **Select Slot**
   - Step 3 of Add Appointment displays
10. Click Confirm and Book Appointment
    - Step 4 of Add Appointments displays

UseCase3, Step 9: Schedule another appointment for the same patient and demonstrate the linking of the two appointments.

Walkthrough:

1. If the user is on step 4 of 4 of the Book Appointment process you may select **Add another Appointment** and skip to item 4. If not, please proceed to item 2
2. Click **Appointments** then **Patient Appointments** to open the patient search page
3. Click **Add Appointment**
4. Step 3 of 4 of the Book Appointment process allows the user to create another appointment and then link it to an existing appointment by utilizing the **Link Appointment** drop down.
5. Click **Confirm and Book**
   - ➢ Communication booking page displays with new appointment details
6. Click the link to **Patient Appointments**
   - ➢ Patients Current Appointments shows both appointments with the relationship shown

UseCase3, Step 10: Create/schedule/initiate patient pre-appointment notification

In our application, the notification is sent automatically based on the template created in use case 1.

UseCase 3, Step 11: Schedule a group of patients in a multiple appointment time slot (e.g., group therapy)

Walkthrough:

1. Create a group appointment type as details in Use Case 2 (step 10)
2. Select **Appointments** > **Group Appointments**
   - ➢ Group Appointment Calendar displays
3. Select the same Facility, Clinic and Provider as used to create the appointment type
4. Select the scheduled group appointment on the calendar.
   - ➢ Appointment capacity is displayed
5. Click **Add Patients**
6. Add Patients shows list of all patients not already scheduled for the group appointment.
7. Select 3 additional patients to join the group appointment
8. Select the appropriate Appointment Type
   - ➢ Confirm that the appointment type matched that listed at the top of the page.
9. Click **Add Patients to Group**
   - ➢ Return to group appointment detail page
     i. The number of available slots will now be reduced by 3

Step 12 Schedule telehealth appointment where the patient locations is in one VistA instance (California VM) and the provider location is in a different VistA instance (Alabama

1. Select Appointments>TeleHealth

2. Search Benson to locate and select patient Hugh Benson
3. On the Patient Demographics page, click Select Patient
4. This action takes the user to the Add TeleHealth Appointment page for a selected patient
5. Select Facility: CA REGIONAL MEDICAL CENTER, Clinic: CA Dermatology, Provider: Dr. OP, Appointment type: Consult, Patient Location: Alabama
6. Click Search for Slots
7. Select the desired date and time and click Select Slot
8. Click Confirm and Book
9. Select the Site AL VA HEALTH CARE SYSTEM
10. Select Appointments>TeleHealth
11. Select Preferred Time: Use date of appointment created above. Facility: AL VA Outpatient Clinic, Clinic: Primary Care, Provider: Dr. OP, Appointment type: TeleHealth, Patient Location: Alabama
12. Select Search for Slots
13. Select the appointment time to match the existing appointment (time will be adjusted for the site), click Select Slot
14. Click Confirm and Book > appointment is created at the second site

A.4. USE CASE 4: Manage a Patient Appointment

UseCase 4, Step 1: Enter patient information and select patient to check in.

Walkthrough

1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Search patient page loads
2. Type Ben in the search box and click **Search.** If already in a patient record, click **Select Patient** (upper right, green toolbar) and then type Ben and **Search**.
   - List of patients with BEN are listed with their upcoming appointments
3. Click the name HUGH BENSON
   - The patient demographics stored in VistA displays
4. Click **Select Patient**
   - Both appointments for CA VA Outpatient Clinic/Primary Care on June 25 at 10:00 and Mental Health Group at 11:00 are listed listed with Status Scheduled

UseCase 4, Step 2: Display/verify patient demographics

1. See Step 3, above

UseCase 4, Step 3: Check-in the patient to section one Select Check In for the 10:00 appointment on July 3

Walkthrough:

1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Search patient page loads
2. Type Ben in the search box and click **Search.** If already in a patient record, click **Select Patient** (upper right, green toolbar) and then type Ben and **Search**.
   - List of patients with BEN are listed with their upcoming appointments
3. Click the name HUGH BENSON
   - The patient demographics stored in VistA displays
4. Click **Select Patient**
   - Both appointments are listed with Status Scheduled
5. Select **Check In** for the appointment on June 25 at 10:00
   - Appointment status is changed to Checked in

UseCase 4, Steps 4 and 5: Display and view patient check-in status by section two.

Walkthrough:

1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Search patient page loads loads (If already in a patient record, click **Select Patient** in the upper right, green toolbar)
2. Type Ben in the search box and click **Search.**
3. Click the name HUGH BENSON
   - The patient demographics stored in VistA displays
4. Click **Select Patient**
   - The 11:00 appointments is listed with Status Scheduled
5. Select **Check In** for the appointment on June 25, at 11:00
   - appointment is listed with Status Checked-in

UseCase 4, Step 6: Disposition (check-out) the appointment (i.e., kept, no-show, or left without being seen).

6. From Patient Check-In page, click **Appointment Kept** for 10:00 and 11:00 appointments checked-in above.
7. Click **Appointments** > **Patient Check-In**
   - Return to Patient Search
8. Type Fer and click **Search.** If already in a patient record, click **Select Patient** first (upper right, green toolbar)
   - Search results include Wade Ferguson
9. Click on the name WADE FERGUSON
   - The patient demographics stored in VistA displays
10. Click **Select Patient**
    - Current Appointments are listed with Status
11. Click **Check-In** if there are no appointments already checked in
    - Appointment status is changed to Checked in
12. Click **Left without being seen** for the checked in appointment

- Appointment disposition is set as Left without being seen

13. Click **Appointments** > **Patient Check-In> Select Patient**
    - Return to Patient Search
14. Type Lamb and click **Search**
    - Search results include Jennie Lamb
15. Select JENNIE LAMB
    - The patient demographics stored in VistA displays
16. Click **Select Patient**
    - Current Appointments are listed with Status
17. Click **No Show** for a current appointment
    - Appointment disposition is set as No Show

UseCase 4, Step 7: Display other scheduled appointments and convey them to the patient.

1. Click Patient Appointments
   - Patient Appointment screen shows list of upcoming appointments and requests
2. Select the text for appointments, right click and select Print, the list can be printed and handed to the patient.

UseCase 4, Step 8: Repeat steps 1-7 for a patient in a group appointment.

1. Click **Appointments** > **Patient Check-In>Select Patient (if needed)**
   - Return to Patient Search
2. Type Banks and click **Search**
   - Search results include Jennie Lamb
3. Click on the name JENNIE LAMB
   - The patient demographics stored in VistA displays
4. Click **Select Patient**
   - Current Appointments are listed with Status
5. Select Check-In for the patient's group appointment, continue as above
   Wade Ferguson and Jodi Manning can be used for the other 2 appointment dispositions

A.5. USE CASE 5: Manage a Walk-in Patient

UseCase 5, Step 1: Enter patient information and select the patient to check in.

1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Search patient page loads, if not, click **Select Patient** to start new search
2. Type Manning in the search box and click **Search**
   - List of patients named Manning are listed

UseCase 5, Step 2: Display/verify demographics

1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Search patient page loads, if not, click **Select Patient** to start new search
2. Type Manning in the search box and click **Search**
   - List of patients named Manning are listed
3. Click JODI MANNING
   - Patient details display

UseCase 5, Step 3: Process an unscheduled patient for a walk-in.

1. Select **Appointments** > **Walk-In Appointment**
   - Patient Manning is already selected. To process a different patient, click **Select Patient** and return to Search for patient
     Step 1 of Add Appointment, Date defaults to today, 0 days ahead to search
2. Select Facility: VA REGIONAL MEDICAL CENTER
   Clinic: PRIMARY CARE
   Provider: Lori Petri
   Appointment type: Select Medication Refill
   Click **Search for slots**
   - First available slots display
3. Select a slot and click **Select slot**
   - Book Appointment screen displays
4. Click **Confirm and Book**
   - Check-in status can be viewed from **Appointments** > **Check-In**

UseCase 5, Step 4: Display and view provider schedule and provider roster of patients (used to confirm that the patient has been added to a provider's schedule)

1. Select **Appointments** > **Provider Roster**
   - Provider Roster page displays
2. Select Provider LORY PETRI
   - List of patients for the current week are displayed, appointment for today is listed with status Checked-In
3. Click **View Patient List**
   - All patients with upcoming appointments for provider are listed, with appointment dates and times

UseCase 5, Step 5: Display and view patient check-in status (performed by the provider).

1. See steps 3-5 of Use Case 4.

UseCase 5, Step 6: Check-out patient appointment.

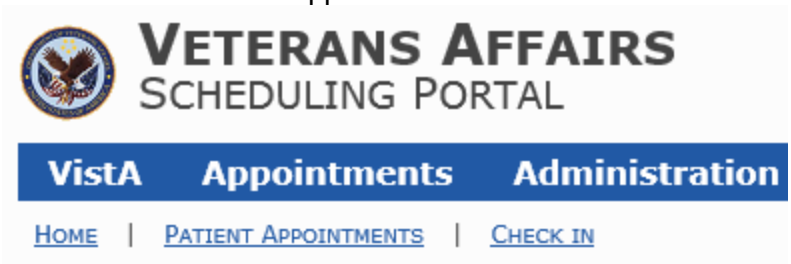
1. Select **Appointments** > **Patient Check-In** from the menu bar
   - Jodi Manning is already selected, current appointments are listed.

- If desired patient is not selected, click **Select Patient** on the upper right, search for patient, and select the patient.

2. Click **Check-In** and then **Appointment kept** for the selected appointment

UseCase 5, Step 7: Display other scheduled appointments and convey them to the patient.

3. Select the link Patient Appointments



- Page includes upcoming appointments

4. Select the appointment text and right click to Print the appointments if desired.

A.6. USE CASE 6: Cancel Individual Appointment

UseCase 6, Step 2: Select the appointment to cancel.

1. Select **Appointments** > **Patient Appointments** from the menu bar
   - Search patient page loads
2. Type Ferguson in the search box and click **Search**
   - List of patients named Ferguson are listed
3. Click WADE FERGUSON
   - The patient demographics stored in VistA displays
4. Click **Select Patient**
   - List of patient's upcoming appointments displays
5. Click **Cancel Appointment** for a particular appointment
   - Cancel Appointment page displays details for this appointment

UseCase 6, Step 3: Cancel the individual appointment. Step 4, Document the reason for the cancellation

1. Select **Appointments** > **Patient Appointments** from the menu bar
   - Search patient page loads
2. Type Ferguson in the search box and click **Search**
   - List of patients named Ferguson are listed
3. Click WADE FERGUSON
4. The patient demographics stored in VistA
5. Click **Select Patient**

- List of patient's upcoming appointments displays

6. Click **Cancel Appointment** for a particular appointment
   - Cancel Appointment page displays details for this appointment
7. Select Cancelled by: Cancelled by patient, Reason: Death in Family, Reschedule? Select Yes, and click **Cancel Appointment**
   - Confirm cancellation message displays
8. Click OK
   - Cancellation message displays

UseCase 6, Step 5: Review the associated appointments.

1. Use the walkthrough in step 9 of Use Case 3 to create linked appointment.
2. Follow the walkthrough for Step 2 of Use Case 6 to cancel ONE of the linked appointments
3. Click **link** to return to Patient appointments
   - Remaining linked appointment still shows the relationship to the canceled appointment.

UseCase 6, Step 6: Cancel the associated appointments, if appropriate.

1. View Patient Appointments and select the remaining associated appointment to be cancelled.
2. Click **Cancel Appointment**
   - Cancel Appointment page displays details for this appointment
3. Select Cancelled by, Reason, Reschedule?, and click **Cancel Appointment**
   - Confirm cancelation message displays
4. Click **OK**
   - Cancellation message displays

UseCase 6, Step 7: View the Reschedule Notification for high-risk patients, if necessary.

1. **Appointments>Patient Appointments>Search Patient or Select Patient and Search**
2. Click **Select Patient**
   - This screen, on the upper left of the screen, shows the number of no-shows in the past 2 years. There is no special notification for 'high-risk' patients.

UseCase 6, Step 8: Add patient to the reschedule list, if necessary.

1. Patient is added to the reschedule list if Reschedule? is selected during Cancellation process, detailed in step 3 of Use Case 6.

UseCase 6, Step 9: Send the Cancellation/Reschedule notification to the patient.

1. Notification is sent automatically when cancellation/rescheduling takes place.

UseCase 6, Step 10: Cancel individual group member appointment for group appointments.

Pre-requisite: Create a group appointment

1. If user is already reviewing the desired patient, select: **Appointments>Patient Appointments**
2. Otherwise, click **Search Patient or Select Patient and Search** (e.g. Francis Mitchell)
   - Search and select patient for whom appointments will be cancelled
3. Regular and Group appointments for the patient are listed
4. Click **Cancel Appointment** for a scheduled group appointment
   - Select Cancelled by: Cancelled by patient, Reason: Death in Family, Reschedule? Select Yes, and click **Cancel Appointment**
   - Confirm cancellation message displays
5. Click OK
   - Cancellation message displays

UseCase 6, Step 11: Cancel group appointments.

6. Click **Appointments** > **Group Appointments**
   - Group Appointment Calendar displays
7. Select Facility: CA VA REGIONAL MEDICAL CENTER, Clinic Physical Therapy Regular, Provider Jane Smith, Date: June 21
   - Group appointments for that week are displayed
8. Select the 11:00 slot
9. Click **Cancel all appointments**
   - Cancellation reason page opens
10. Select Reschedule No, Reason for cancellation: Weather, Click **Cancel all Appointments**
    - Appointments cancelled message displays

A.7. USE CASE 7: Reschedule Individual Appointment

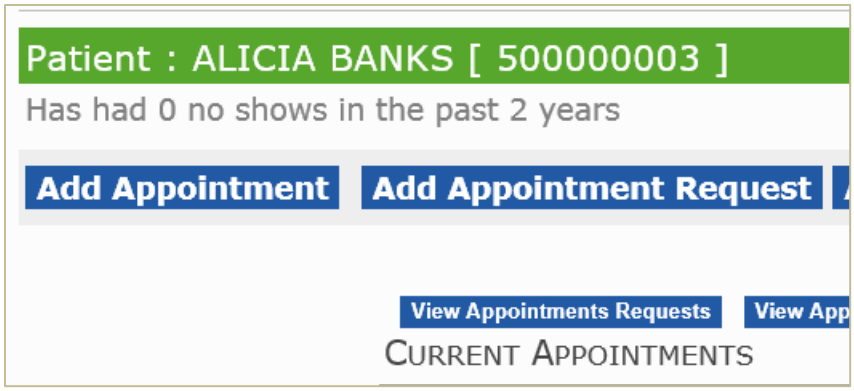
UseCase 7, Step 1: Search for an existing individual appointment. Step 5: Display the patient's pending appointments. Step 6: Display the patient's no-show (unkept) appointment history.

1. Select **Appointments** > **Patient Appointments** from the menu bar
   - Search patient page loads
2. Type MANNING in the search box and click **Search**
   - List of patients named MANNING are listed
3. Click JODI MANNING
   - The patient demographics stored in VistA display
4. Click **Select Patient**
   - List of patients upcoming appointments display

- Patient's no show history for past 2 years is displayed in the upper left of the screen
- Individual appointments can found by selected the Status dropdown in the upper right as **Scheduled** and populating the From date.

UseCase 7, Step 2: Identify the appointment to reschedule. Step 3: Review the associated appointments.

1. Follow the walkthrough items 1-5 above in Step 1 of Use Case 6 to view patient's upcoming appointments.
   - All linked appointments appear in the columns to the right of a particular appointment.
   - The **Status** and **From** fields in the upper right can be used to filter appointments.



UseCase 7, Step 4: Search for available appointment slot.

1. Follow the walkthrough items 1-5 above in Step 1 of Use Case 6 to view patient's upcoming appointments.
2. Click **Reschedule Appointment** for a particular appointment
3. Change appointment date as needed, Set the days to search to the timeframe available
4. Select a reason for the rescheduling. then click **Search for slots**
   - First available slots display

UseCase 7, Step 7: Select the appointment slot.

1. Follow the walkthrough items 1-5 above in Step 1 of Use Case 6 to view patient's upcoming appointments.
2. Click **Reschedule Appointment** for a particular appointment
3. Change appointment date as needed, Set the days to search to the timeframe available

4. Select a reason for the rescheduling. then click **Search for slots**
   - ➢ First available slots display
5. Select the desired available slot and click **Book Slot**
   - ➢ Book Appointment page opens

UseCase 7, Step 8: Reassign the patient's appointment to the newly selected appointment and reserve the resources for the appointment.

1. Follow the walkthrough items 1-5 above in Step 1 of Use Case 6 to view patient's upcoming appointments.
2. Click **Reschedule Appointment** for a particular appointment
3. Change appointment date as needed, Set the days to search to the timeframe available
4. Select a reason for the rescheduling. then click **Search for slots**
   - ➢ First available slots display
5. Select the desired available slot and click **Book Slot**
   - ➢ Book Appointment page opens
6. Click **Confirm and Book**
   - ➢ Resources are automatically updated

UseCase 7, Step 9: Reschedule the associated appointments.

1. Follow the walkthrough items 1-5 above in Step 1 of Use Case 6 to view patient's upcoming appointments.
2. Select **Reschedule Appointment** for the appointment linked to the appointment in Step 4
3. Change appointment date as needed, Set the days to search to the timeframe available
4. Select a reason for the rescheduling. then click **Search for slots**
   - ➢ First available slots display
5. Select the desired available slot and click **Book Slot**
   - ➢ Book Appointment page opens
6. If this appointment needs to be linked to the rescheduled appointment in step 7 and 8 of Use Case 7, select the appropriate item from the Link Appointment drop down.
7. Click **Confirm and Book**
   - ➢ Resources are automatically updated

UseCase 7, Step 10: Send the appointment notification to the patient.

1. Notification is sent automatically

A.8. USE CASE 8: Add Appointment Request to Waiting List and Schedule Patient from Waiting List

UseCase 8, Step 1: Add a new patient request to Electronic Waiting List.

1. Select **Appointments** > **Patient Appointments** from the menu bar
   - ➢ Search patient displays or click **Select Patient** and then search
2. Type Benson and click **Search**
   - ➢ Search returns HUGH BENSON
3. Click **Select Patient**
   - ➢ List includes HUGH BENSON
4. Click the name HUGH BENSON
   a. The patient demographics stored in VistA display
5. Click **Select Patient**
   - ➢ Patient Appointments are listed
6. Click **Add Appointment Request**
   - ➢ Appointment request information page opens
7. Select Preferred Time: July 25, 2013 10:00, Facility: CA VA REGIONAL MEDICAL CENTER, Clinic: CA Dermatology, Provider: Dr. OP, Reason: Wait List and click **Add**

UseCase 8, Step 2: Send a waiting list notification to the patient.

1. Waiting List notification is automatically added to the communication queue

UseCase 8, Step 3: On a daily basis, schedulers must review the clinic grids for open capacity.

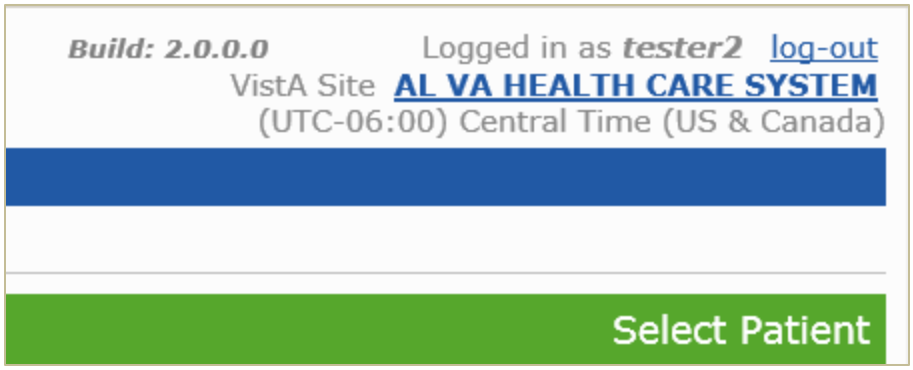
1. Click **Appointments** > **Clinic Schedule** from the menu bar
   - ➢ Clinic Schedule search page includes Facility and Clinic
2. Select Facility: CA VA REGIONAL MEDICAL CENTER, Clinic: Primary Care, Date: July 10, 2013
   - ➢ Providers with slots configured for that day show Open and Booked slots

UseCase 8, Step 4: Select a patient from the waiting list. 50-100% Service Connected Veterans or those Veterans < 50% but connected for the injury.

1. Click **Add Appointment** > **Waiting Lists**
   - ➢ Patient Waiting List allows filtering for Facility, Clinic and Priority
2. Click Add Appointment for the patient appointment with priority 1
   - ➢ Fulfill Appointment page opens

UseCase 8, Step 5: Display/verify the patient's demographics. Contact the patient with the date of the opening.

1. Click **Select Patient** and search for patient, then click the Patient's name to see their details



UseCase 8, Step 6: Make the appointment.

To schedule an appointment for a waitlisted patient:

1. **Appointments>Waiting List**
2. Select the appropriate **Facility** and **Clinic** to filter waiting list results
3. For the selection waitlisted patient, click **Add Appointment**
4. Enter the appropriate appointment information and follow the create new appointment procedure outlined earlier.

UseCase 8, Step 8: As a reminder, send the appointment notification to the patient if time allows. For example: If the opening is the next day, there would be enough time for the letter to go out.

1. The notification for the appointment creation is automatically sent to a queue

UseCase 8, Step 1b: Add patient request to transfer list

1. Select **Appointments** > **Patient Appointments** from the menu bar
   - Search Patient displays
2. Type Lamb and click **Search**
   - Search returns JENNIE LAMB
3. Click **Select Patient**
   - The patient demographics stored in VistA display
4. Click the name JENNIE LAMB
   - Patient details display
5. Click **Add Appointment Request**
   - Appointment request information displays
6. Select the Facility: CA VA OUTPATIENT CLINIC, Clinic CA Family Practice, Reason: Transfer, then click **Add**
   - Appointment request added notification is shown

UseCase 8, Step 2b: Notify patient that he/she will continue to receive care until the new location is available.

1. Notification using the Transfer Communication Template is created automatically

- When developing the communication template, users can specify means of communication such as SMS or email.

UseCase 8, Step 3b: If referral for Primary Care, scheduler or supervisor to check on progress for the new location.

Scheduler selects patient for a view of appointments and status across sites

UseCase 8, Step 4b: Once capacity is available and the clinic is built, transfer of patients to the new location is the next step: Involve Primary Care Coordinator and/or Administrative Officer.

User selects “Reschedule” for existing patient appointments at old location

UseCase 8, Step 5b: Patient is contacted negotiate an appointment date at the new location.

(Clinic must be active and have resources configured before an appointment can be made.)

1. Contact would be manual (phone call) Would probably be editing current appointments
2. Click **Appointments** > **Waiting List** from the menu bar
   - Waiting list search screen opens
3. Select the Facility and Clinic
   - Fulfill Appointment Request page opens, Click **Add Appointment**
4. Select the Facility, Clinic and resource and click **Search for slots**
   - Dates and times available are presented
5. Select a date and time and click **Select Slot**
   - Confirm Appointment step displays
6. Click **Confirm and Book**
   - Confirmation message displays

B. Appendix B: Health eTime Application Design and Architecture

Health eTime is built with a modular architecture to allow the VA to change and/or swap specific components without affecting the entire application. The application can easily be scaled up for enterprise wide deployment.

Health eTime also implements open standards whenever practical in order to enhance the VA's ability to foster interoperability.

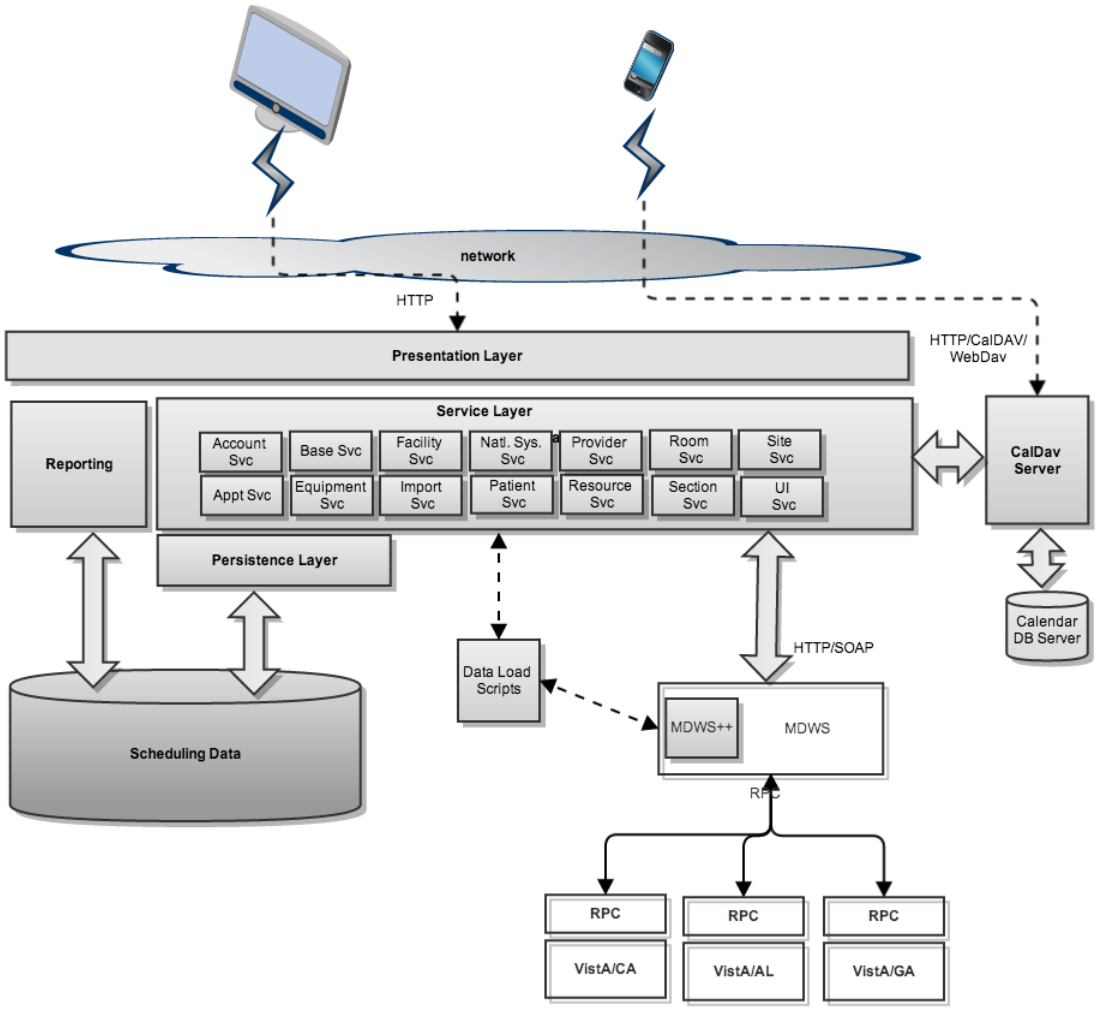


Figure B1: Health eTime Architecture

The Health eTime technical architecture stack currently includes the .Net and Java platform. The application can also run on a totally open source stack by converting the .Net portion of the application to Open Source Mono applications.

Finally, Health eTime integrates with VistA mainly through a set of VistA web services in order to reduce upgrade issues and re-use functionality that can be leveraged.

The following sections describe the main component of the Health eTime depicted in Figure B1: Health eTime Architecture.

B.1. Health eTime Service Layer

The Service Layer applies a service-orientation design paradigm, and organizes the various functions, into a set of logically grouped services. Services that are categorized into a particular layer share functionality. Theoretically, this helps to reduce the workload related to managing the service inventory, since services belonging to the same group are only responsible for a subset of related activities in the application.

This layer orchestrates all the back-end interactions between VistA, the relational database, and the CalDav server therefore enhancing re-use and freeing the application developer from having to understand the subtleties of the interaction with the back-end components.

The services currently in existence are listed in the table below.

Service	Description
Account Service	Provides basic user management functionality such as managing users, roles, user in roles and logging
Appointment Service	Provides functionality to manage (add, retrieve, delete, and modify) appointments.
Equipment Service	Provides functionality to manage (add, retrieve, delete, and modify) equipment .
Facility Service	Provides functionality to manage entities referenced as services.
Import Service	Imports data from VistA into the scheduling application database (e.g. Providers, Patients)
National System Service	Façade for entities that are available and defined at the national level (e.g. Appointment Type Categories)
Patient Service	Provides access to patient information
Provider Service	Provides access to provider information
Resource Service	Manages resources which tie together entities such as

	providers, equipments and rooms with section and clinics for the purpose of scheduling them
Room Service	Provides access to room information
Section Service	Provides access to section information
Site Service	Provides access to site information
UI Service	Miscellaneous utility functions for the presentation layer

For additional details related to the service layer please see Appendix E.2. which provides a listing of the service layer public API.

Technical Card:
Source Code: C#
Frameworks: .Net, WebDav.net, Log4Net

B.2. Health eTime Persistence Layer

The Persistence Layer provides a complete abstraction of the database management system, which makes it possible for the application to change the DBMS provider with no effect on the application itself.

As an example, the Health eTime is currently deployed using the MS SQL Server but with fairly simple configuration changes we could redeploy the application using other commercial products such as Oracle or an open source one such as MySQL.

Technical Card:
Frameworks: NHibernate

B.3. Health eTime Integration Web Services

A set of web services is available to integrate third-party applications and modules in the overall process. The web services are currently mainly used to expose functionality required by the data load scripts; nevertheless, additional API functionality can easily be exposed using this mechanism therefore making Health eTime easy to integrate with third-party applications.

Technical Card:
Frameworks: .Net web services

B.4. Health eTime Scheduling Database

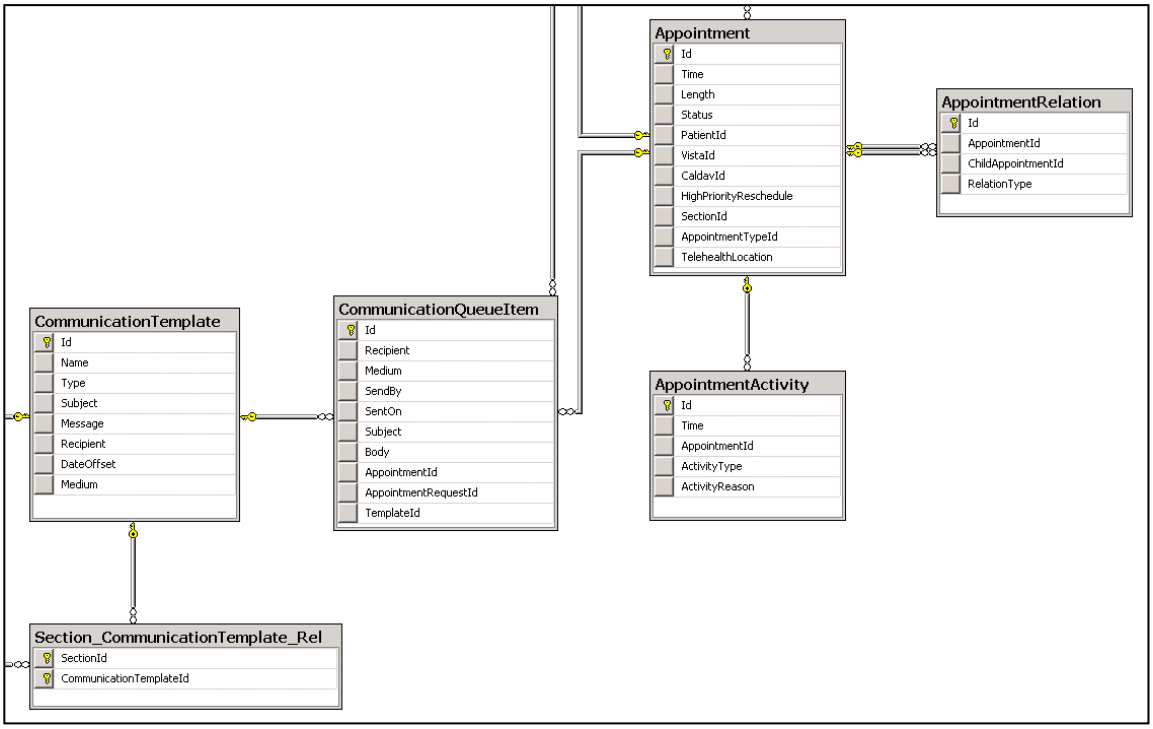
Our scheduling database maintains all the scheduling data including patient, provider, clinic, section, facility, resources, schedule, and accounts.

The following Entity relationship diagram provides a high level view of the major entities in the model.

Technical Card:
Products: Microsoft SQL Server 2008 – Standard edition

B.5. Health eTime Appointment Relations

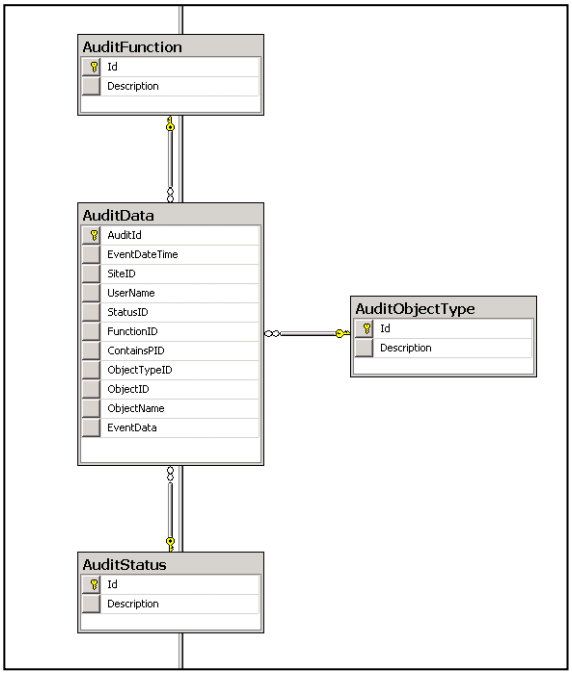
Appointment data is maintained in the following database relations



The Appointments relation is as the center of the scheduling process. Appointments can be linked to each other through the AppointmentRelation table. All actions taken on an appointment are recorded in the AppointmentActivity table. Appointments are also linked to CommunicationQueueItem which represent notifications sent out regarding the appointment.

B.6. Health eTime Audit Relations

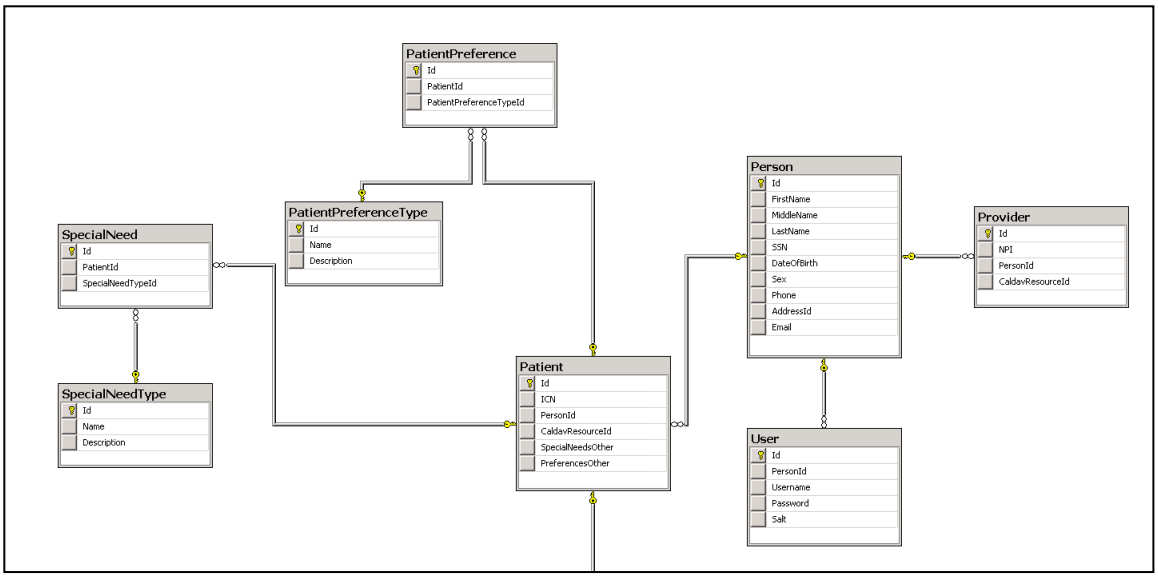
The following relations maintain audit related information



All actions throughout the application can be tracked through the AuditData table. All auditing entries have a type of audit (AuditObjectType) and are tied to a specific function of the system (AuditFunction).

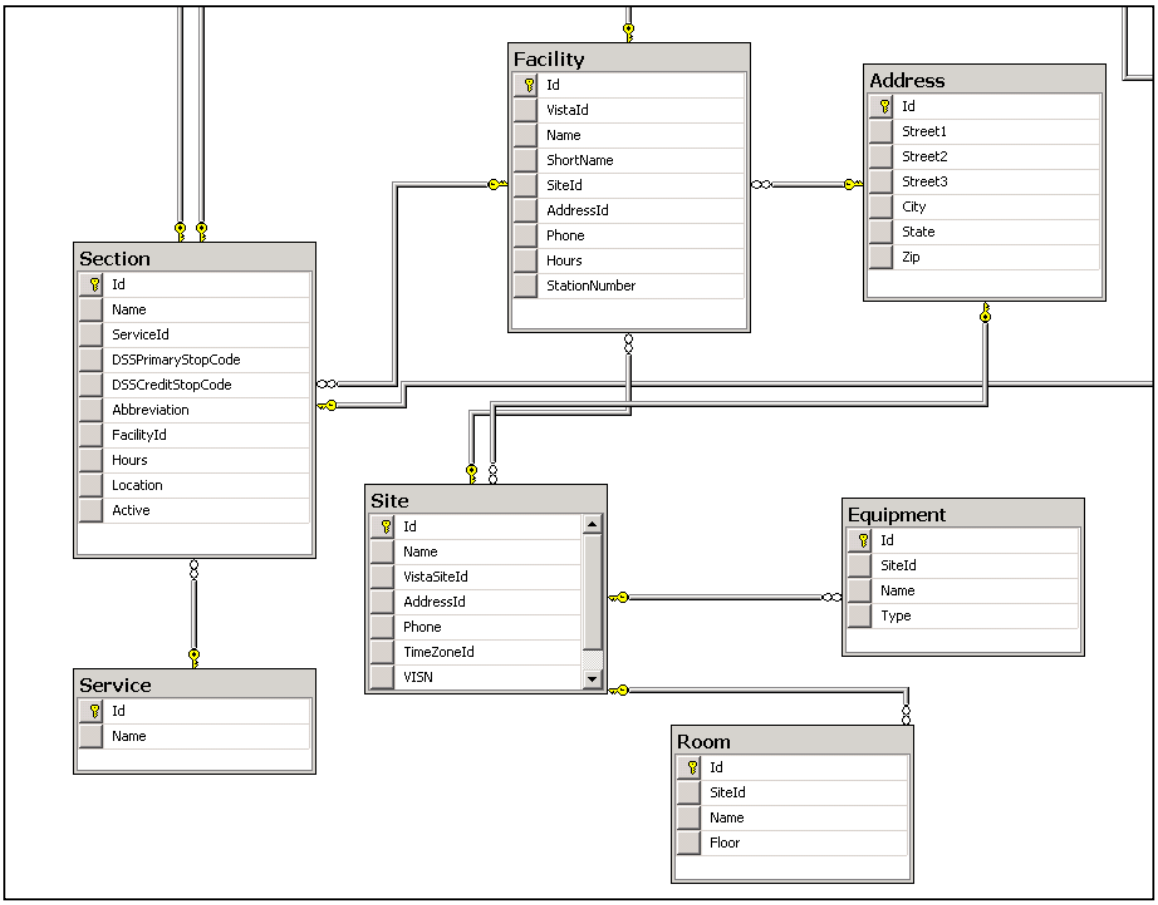
B.7. Health eTime Patient Relations

These relations maintain most patient level information.



This set of tables is used to represent the information related to the patient. The data is originally derived from VistA. The Patient can have multiple patient preferences and special needs based on standard special need types and patient preference types. Biographic information about the patient is stored in the Person table that also links the person to a user of the system or a provider when necessary.

B.8. Health eTime Resources and Miscellaneous Entities



This set of tables is used to represent the organizational structure of the VA including the Top Level Management Facility (Site) which has multiple Facilities. Each Facility can have multiple Section/Clinics and each Section/Clinic can have a Service Type. Finally, lists of equipment and rooms are defined at the Site level.

B.9. Health eTime Reporting

Health eTime persists most of its data to a relational database system using more than 50 tables to represent everything from patient data to scheduling policies and audit data.

Real-time reports can be scheduled and *ad-hoc* queries can be easily designed to report operational and management level information. Current reporting formats to demonstrate capability are presented in Appendix D. and the explanation of how to generate reports is presented in Section 4. (Application User Manual)

Technical Card:
Products: MS SQL Server Reporting Services (SSRS)

B.10. CalDav Server

Health eTime integrates a full CalDav server to provide full access to schedules and calendars to authorized third-party applications. For example, the CalDav server allows the synchronization of a CalDav compliant server with a smart phone calendaring application or a calendaring client such as Outlook or Firebird.

Technical Card:
Products: Bedework

B.11. MDWS

Health eTime uses MDWS as a conduit to the data owned by VistA instances. For example, the Service Layer obtains Patient data, Provider information and Appointment Category Types through the MDWS interfaces.

In some instances the MDWS functionality had to be patched or enhanced. It is depicted on the architect diagram as MDWS++. In all instances, changes to MDWS strictly follow the coding standards established by the VA.

Technical Card:
Source Code: C#
Frameworks: .Net

B.12. Health eTime Data Load Scripts

The Scheduling Contest Health eTime submission includes a set of data load routines implemented in python that trigger the loading of various data entities from VistA into the scheduling application database. For example, in the test environment, provider information is imported from VistA to the Health eTime application using this approach.

B.13. Health eTime Presentation Layer

The presentation layer of Health eTime provides the user with a browser-based interface to perform all the required scheduling tasks required by Schedulers, Patients and Providers.

The UI utilises standard Microsoft C# ASP.Net controls and industry standard, open-source modules from the JQuery and DayPilot libraries. This platform provides a consistent approach using renowned and well-tested components allowing a more reliable development environment.

The underlying Microsoft Web Project uses Master-Pages, Web User Controls and Classes, within specific web site folders, in order to encapsulate common functionality. Process messages are presented to the user as required during system operation, with any issues such as exception messages stored on file which allows further offline investigation.

The UI presents a traditional design with minimal colours and icons. It deliberately relies on few colour tones and displays text for actions in order to convey information in a way that is pertinent, consistent, and less liable to misinterpretation. Where business processes are long, the UI splits the data entry process into more manageable and visually less-confusing steps.

The system provides user authentication and allows users and business roles to be managed (created, updated, deleted). Users may be added to business roles (for authorisation), with each role defining actions which can be performed within the system. These mainly relate to menu access (visibility), allowing the required test roles to be simulated.

Technical Card:
Source Code: C#
Frameworks: .Net, jQuery, CSS, DayPilot

B.14. Health eTime Role-based User Security

(Note: The following simplified user model is incorporated in Health eTime, Version Alpha, to demonstrate capability for the scheduling contest. It would not be used in a production system.)

Each user is assigned roles relative to the sites and clinics they work for. Each role is configured to perform a number of actions (functions).

Data Model

User table		(Already Exists)	
	Id	int	
	PersonId	int	
	Username	Nvarchar(50)	
	Password	Nvarchar(50)	
	Salt	Nvarchar(50)	

Role table			
	RoleId	int	
	RoleName	nVarchar(50)	
Action			
	ActionId	int	
	ActionName	nVarchar(255)	
	ActionDesc	Nvarchar(255)	Additional text to explain function
	ActionKey	Nvarchar(255)	Unique key used when checking for function in UI.
UserRole table	UserRoleId	int	
	UserID	int	
	RoleID	int	
	SiteID	int	A Role must link to either a site
	SectionID	int	OR a clinic
RoleAction table			
	RoleActionID	int	
	RoleId	int	
	ActionID	int	

The following table contains examples of “Roles” and “Actions”. This is for illustrative purposes only. Additional analysis is required to define the actual roles and actions for any true production system.

The UI will reflect the particular roles, actions and options available to an individual user based on their role.

Example Actions for Proof of Concept – This is a limited set to demonstrate capability.

Administer Facilities	**VistA Menu**
Administer Clinic	**VistA Menu**
Administer Users	**Administration Menu**
Manage Appointments	**Appointments menu**
Patient Check-in	- **Part of appointments menu**
Override Slot Group Capacity	- **Function within make appointment**
Record Attendance	- **Part of appointments menu**

Example Roles

Super User	**All**
User Administrator	**Administer Users**
Clinic Administrator	**Administer Clinic** **Administer Facilities** **Manage Appointments**
Scheduler	**Manage Appointments**
Clinic Receptionist	**Record Attendance**
Scheduler Manager	**Manage Appointments** **Override Slot Group Capacity**

Example roles

Business Role	System Access	Description	System Role
VistA Site Administrator	VistA Menu	Can edit presented aspects of the VistA site with regard to facilities and clinics and schedules.	VistaSiteAdministrator
User Administrator	Administration Menu	Except for system administrator users and the system administrator role, can add and edit users, roles, and actions in roles. Actions are fixed	UserAdministrator
Schedule Manager	VistA Menu (limited change/save access)	Can access the appointment override configurations (i.e. Override Slot Group Capacity)	ScheduleManager
Scheduler (Appointment Manager)	Appointments menu	Can add, cancel, reschedule, and check-in/out appointments	Scheduler
Clinic Receptionist	Patient Check-in and check-out	Can view (but not reschedule or cancel) appointments. Can check-in and check-out appointments	ClinicReceptionist

Actions

Note – In the contest environment, limitations to a user's actions are implemented only through revealing, or hiding, a user's menu items – manual URL redirect is possible (this would not be the case in a production system)

Action name	Used in role	Notes
ManageUsers	**UserAdministrator**	**Show/hide menu option**
ManageSItes	**VistaSiteAdministrator**	**Show/hide menu option**
ManageSchedule	**ScheduleManager**	**Show/hide menu option**
PerformClinicReception	**ClinicReceptionist**	**Show/hide menu option**

B.15. Notification Process (Communication Templates)

Overview of templates

There are 5 communication templates. These will cover the notification of the transfer of a patient, assignment to a waiting list, offer of an appointment, attendance of an appointment, and cancellation of an appointment.

Templates have been created as text files. This Mechanism can be extended to cover complex documents such as Microsoft Word documents.

The templates allow for pre-defined fields. The notification process scans the selected template for these fields and exchanges them with the appropriate value.

The pre-defined fields are:

Field Code	Definition
[PATIENT NAME]	Name of patient
[PATIENT ADDRESS]	Address of patient
[PATIENT ID NO]	Patient number
[DATE]	Today's date
[FACILITY NAME]	Name of facility
[FACILITY ADDRESS]	Address of facility
[CLINICIAN NAME]	Name of clinician
[CLINIC NAME]	Name of clinic
[DATE OF APPOINTMENT]	Date of the appointment
[TIME OF APPOINTMENT]	Time of the appointment

Adding Communication Templates

Templates are added to the system using the **Template Upload** screen. This screen exists for both Clinics and Facilities. When a notification is generated, the system looks for a Clinic based

communication template and if none exists, it then looks for a Facility based template. When a template is added, the following fields are required -

Name: This contains the name of the template
Subject: This contains the default subject line of the notification
Template Type: This indicates whether the template is a cancellation, pre-appointment, post-appointment, transfer or waiting list
Recipient: This will be either *Patient* or *Provider* and specifies the intended recipient.
Medium: Specifies how the message will be sent, either *email*, *mail* or *sms*.

Processing Notifications

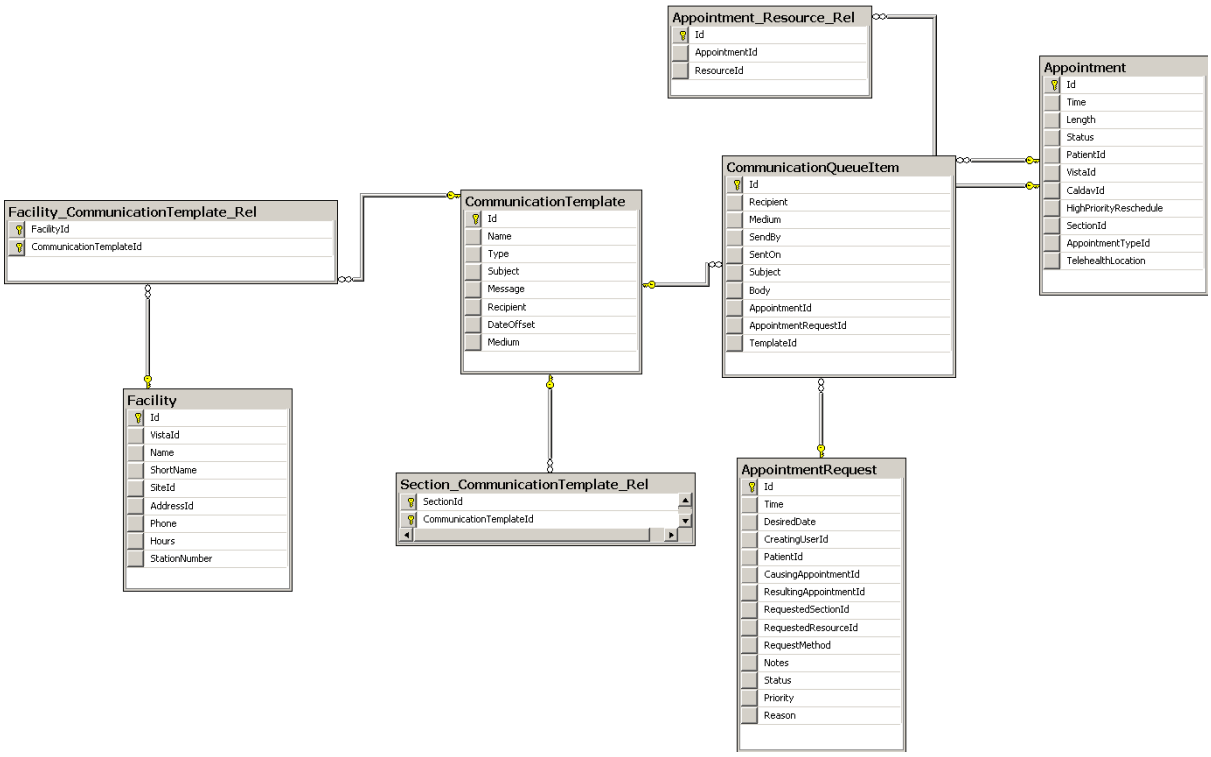
When a notification is required, the system identifies the template to be used from the type of notification needed and whether it is linked to a clinic or facility. The system collects the additional data such as the medium and recipient. Then the system replaces any user defined fields with the correct information and finally sends the notification.

Data Model

The data model for Communication Templates is shown below.

The templates are stored in the *CommunicationTemplate* table. They are associated with either a Facility through the *Facility_CommunicationTemplate_Rel* table or a Clinic through the *Section_CommunicationTemplate_Rel* table. Notifications require a template, appointment or appointment request, and appointment resources.

Notifications are stored in the CommunicationItemQueue, which has links to the *CommunicationTemplate*, *Appointment*, *AppointmentRequest* and *Appointment_Resource_Rel* tables which enable all the required notification data to be obtained.


Appointment_Resource_Rel
Id
AppointmentId
ResourceId
Appointment
Id
Time
Length
Status
PatientId
VistaId
CalDavId
HighPriorityReschedule
SectionId
AppointmentTypeId
TelehealthLocation
CommunicationQueueItem
Id
Recipient
Medium
SendBy
SentOn
Subject
Body
AppointmentId
AppointmentRequestId
TemplateId
Facility_CommunicationTemplate_Rel
FacilityId
CommunicationTemplateId
CommunicationTemplate
Id
Name
Type
Subject
Message
Recipient
DateOffset
Medium
Facility
Id
VistaId
Name
ShortName
SiteId
AddressId
Phone
Hours
StationNumber
Section_CommunicationTemplate_Rel
SectionId
CommunicationTemplateId
AppointmentRequest
Id
Time
DesiredDate
CreatingUserId
PatientId
CausingAppointmentId
ResultingAppointmentId
RequestedSectionId
RequestedResourceId
RequestMethod
Notes
Status
Priority
Reason

C. Appendix C: Our Recommendations Regarding Refinement and Enterprise Deployment.

Since many of the broad performance metrics presented in Step 2A Attachment C are relevant to an enterprise system in the production environment, we wanted to provide this appendix to briefly outline our recommendations as to how, in close consultation with end-users, Health eTime can be further developed into VA's 21st century, enterprise-wide, scheduling solution.

The traceability matrix and supporting documentation in this volume are designed to communicate our approach, to date, in developing this open source application in response to the posted requirements. As a rapid prototype, however, a major function of the Alpha version of the Health eTime application is to allow VA users to provide concrete feedback based on a real working application. As with any agile development project, that feedback is essential to ensuring that Health eTime is fully tailored to VA business processes and needs.

As discussed in this document, the current application, as it stands, has a number of beneficial features including: 1) VistA integration; 2) pan VA scheduling capability; 3) configurable and expandable functionality, and; 4) flexible options in sustainment. These core capabilities provide a basis for continued agile development after the contest ends.

Our first recommendation for moving this application forward to an enterprise solution, is for MedRed and BT to form a lean, integrated, production team to refine Health eTime based on user interaction and feedback. Our organizations have the full range of skills necessary to work with all user groups in refining the product so that it optimizes scheduling processes and user experience. We are also fully able and ready to work with all applicable VA system acquisition organizations and processes to ensure a smooth acquisition lifecycle. Figure C.1. provides a notional description of the phases that we see in reaching a full scale, deployed VA scheduling solution.

Product Refinement

The product refinement phase will show VA how truly flexible the Health eTime application is. Needed functions can be added in weeks, and user groups will be able to interact with and test new functions incrementally during development. The following provides an overview of the principal systems and components we believe will be predominantly impacted by user feedback during the agile development process in the product refinement stage.

User Interface (UI) Design: The flow of the UI needs to be precisely aligned, with objective scheduling processes based on the workflow of VA users across the enterprise. Our subject matter experts can assist in formulating methods for capturing workflow and user experience in a way that may inform, not only application design, but also organizational practice.

Process-Based, Business Rules: Objective scheduling processes need to be implemented through business rules. While Health eTime currently has many configurable business rules enabling the scheduling process, the interaction of the application and the users will continue to refine and expand these through the medium of the agile development process.

Encryption & Access Control: HIPAA compliant database encryption and communications encryption will be implemented. Further, user log-on access control based on actual VA defined use classes will be implemented. This access control capability will be aligned with VistA standard Identity Management processes.

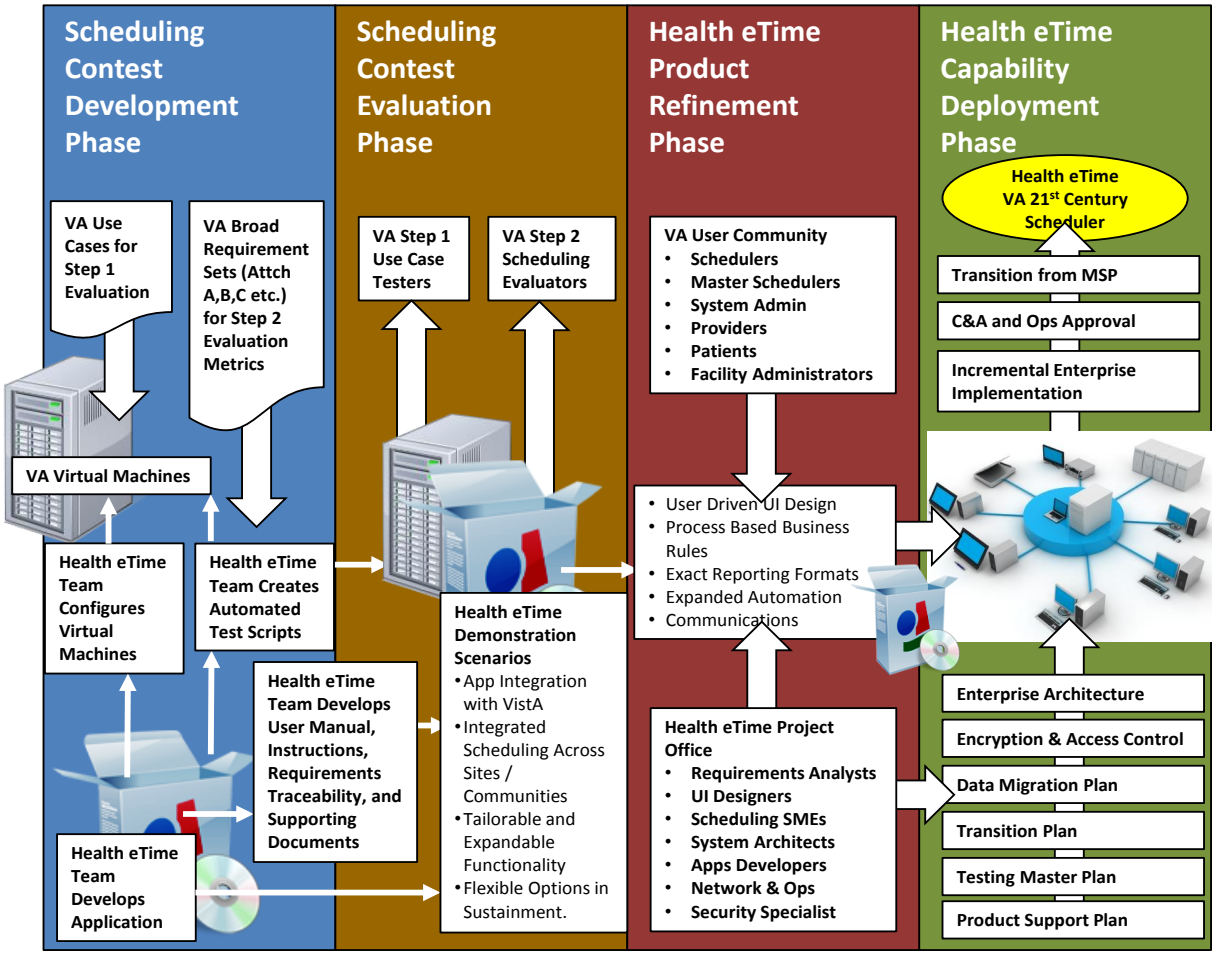


Figure C.1: Notional Steps Toward Deployment to VistA Locations

Reporting Formats: The report formats created for the contest are not intended as the definitive production formats. We can report any data, in any format, provided the data elements

are present in the master database or can be pulled from VistA. Refining the current format would involve working with users to design the look and feel of the reports to support the objective process.

Expanded Automation: Currently, Health eTime's ability to carry-out automated functions without a scheduler "in the loop" is limited because the feature was outside the scope of the contest. Moving forward it is possible to clarify this requirement and incorporate additional application modules to improve automation and optimization.

Communications: As with other components of the scheduling application, the communication functionality must be fully integrated with the objective process of scheduling. The flexibility and modularity of Health eTime enables the expansion of communication capability, which need not be constrained by existing communication modalities.

Initial Deployment Phase

In parallel with, and following completion of, refinement, the necessary deployment preparations will be conducted. These preparations will include:

Enterprise Architecture: We will work with VA to detail hardware and software requirements prior to a staged deployment of the Health eTime application in the production environment.

Data Migration Plan: A precise plan will be formulated for how data residing in the current locally deployed Medical Scheduling Package (MSP) systems can be migrated into Health eTime. Translation functions will be developed as required based on database cross mapping. A data error check process will be further formulated to ensure that no errors have occurred as a part of data migration.

Transition Plan: The transition process will be designed based on VA's schedule and location priorities. At each location, MSP will remain operational as Health eTime schedules are audited against MSP schedules. When system accuracy and reliability has been verified, MSP can be retired.

Testing Master Plan: This plan coordinates all testing activities from developmental testing to operational testing in support of Certification and Accreditation and decision to field capability. As a part of testing, the application's integration with actual VistA instances, readiness to connect to the network, interoperability with other VistA applications, and end-to-end performance will be validated.

Product Support: As an open source product, Health eTime's business model is to provide VA with unsurpassed product support capability over the full lifecycle of the product. This includes 24/7 user support, as needed updates, periodic upgrades, new functional components,

expanded deployment and installation support, and process improvement support based on the application. Our intent is to have Health eTime achieve the highest quality rating by OSEHRA.

Scalability (Configuration of the Production System): The VA schedules more than 70 million visits a year, therefore future scalability of the system was a major requirement when defining the system architecture for Health eTime. The following diagram represents a notional view of such supported, secured, scalable and enterprise-ready architecture. The main point here is that all the components of Health eTime (RDBMS, Application Server, CalDav Server, and Reporting Server) can live in a clustered environment with redundancies that scale horizontally and vertically as required.

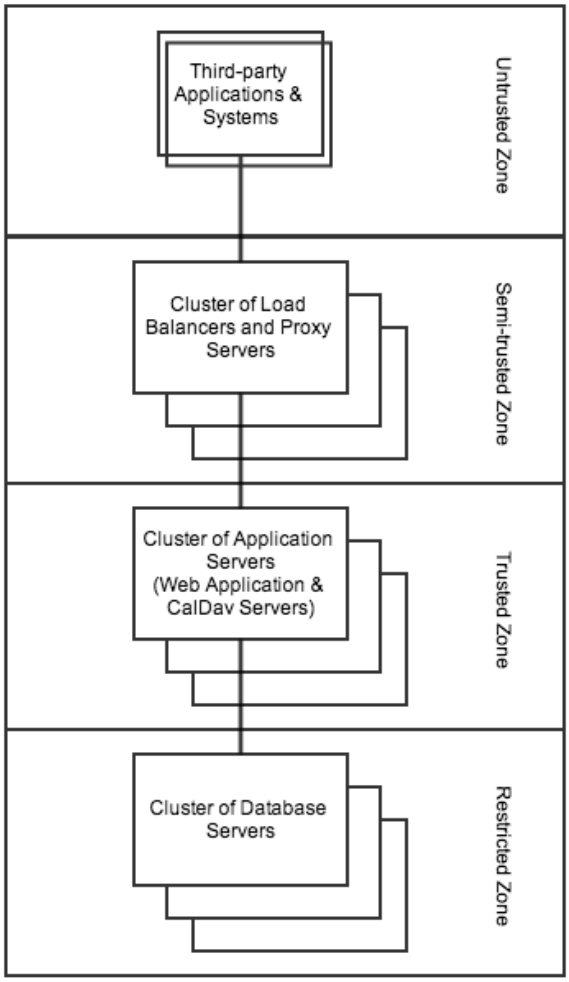


Figure C.2: Notional Configuration of Product System

This brief summary of Health eTime's future potential is meant to illustrate our focus on building Health eTime into a scalable, enterprise-class application that fully meets the VA's requirements for their next generation scheduling solution.

D. Appendix D: Reporting Function Design

The following reporting requirements and presentation formats have been identified by our team to drive the reporting function development. The actual reports are based on data that is available through Health eTime, and our designers and developers will work with the VA users to formulate the exact look and content of the reports during the development period after this contest.

D.1. Provider and Clinic Appointments Utilization Reports

This reporting suite fulfills the following requirements:

B 9.1- System shall have the capability to generate reports containing scheduling data from both the solution application and legacy systems.

B 9.4.3 The system shall have the capability to generate reports based on metrics and measures related to appointments and clinics, including availability and utilization, case load, cancellations, check-ins, general/random appointment information, notifications and letters, and audits by supervisors.

B 9.3.7 The system shall have the capability to generate reports based on metrics and measures related to Clinic Resources as defined by the business.

B 9.3.10 The system shall have the capability to generate reports based on Workload and Utilization Management metrics.

B 9.4 Allow ability to create Local Reports

B 9.4.1 The system shall have the capability to generate reports based on metrics and measures related to Workload management at the local level.

B 9.3.4 The system shall have the capability to generate reports based on provider utilization and provider credentialing. (***Note: The providers licenses and credentials are not stored in the scheduling database since they wouldn't tie to an appointment however we did complete the provider utilization piece of requirement)***

B 9.3.5 The system shall have the capability to generate performance reports. Performance measures include access measures, clinical measures and scheduling measures.

Report 1: Appointment and Clinic Dashboard by Site and Facility
Report Title: Appointment and Clinic Dashboard by Site and Facility
Report Purpose: The purpose of this report is to show appointment related details for a patient, provider and clinic within a user specified time period, Clinic, Site, and Facility. This can be used by schedulers or anyone interested in an identified report, with detail for patients, for a time period to better understand and manage provider and clinic utilization.
Req 1.1: Enable the user to enter in the following parameters:

- From Date- Allow user to select from a calendar
- To Date- Allow user to select from a calendar

- Clinic- Allow single and multiple selections
- Site- Allow single select
- Facility- Allow single select

Req 1.2: For the From and To date, use the appointment table where status=created
Req 1.3: Only bring back data within from and to date, clinic, site, and facility chosen
Req 1.4: Create a table which displays the following headers are columns:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)
- Appointment Date
- Appointment Start Time
- Appointment End Time
- Appointment Duration (in minutes)
- Clinic
- Provider
- Patient Checked In (Y/N)
- Completed Appointment (Y/N)
- Cancelled Appointment (Y/N)

The above fields in Req 4 are listed and defined in Req 5 through Req 15.
Req 1.5: Patient Name column: Concatenate the patient name together with last name first then first name and lastly middle name in this format last name, first name middle name.
Req 1.6: SSN (last four digits) column: Display only the last four digits of the patient's social security number in column two. Column will need to be formatted to return as text in the event that the first digit is a 0.
Req 1.7: Appointment Date: Most updated date of appointment. This can be the date appointment was originally scheduled for, however if appointment has been rescheduled place the rescheduled date here instead.
Req 1.8: Appointment Start Time: Most updated begin time for the most update date of appointment. Date of the appointment can be the date the appointment was originally scheduled for, however if appointment has been rescheduled place the rescheduled date here instead.
Req 1.9: Appointment End Time: Appointment Start Time (found in Req 8) + appointment duration time.
Req 1.10: Appointment Duration (in minutes): Time in minutes that appointment will last for.
Req 1.11: Clinic: Name of the clinic which appointment is located in
Req 1.12: Provider: Name of the provider patient has appointment with
Req 1.13: Patient Checked in (Y/N): Record a Y if Patient has already checked in/registered for appointment that day and N if the Patient has not checked in
Req 1.14: Completed Appointment (Y/N): Record a Y in the Patient has checked out and completed that appointment and N if the appointment is not completed.
Req 1.15: Cancelled Appointment (Y/N): Record a Y if the Patient has cancelled this appointment and a N if the appointment was not cancelled.

Req 1.16: Create a table to summarize completed appointments. Title: Completed Appointments by Clinic. Summarize the amount of completed appointments by Clinic.

Completed Appointments by Clinic

Clinic	Completed Appointments
PNS	2
PTRP	1

Figure D1

Req 1.17: Create a corresponding pie chart graph which graphs clinic by completed appointments. Title the graph: **Completed Appointments by Clinic.**

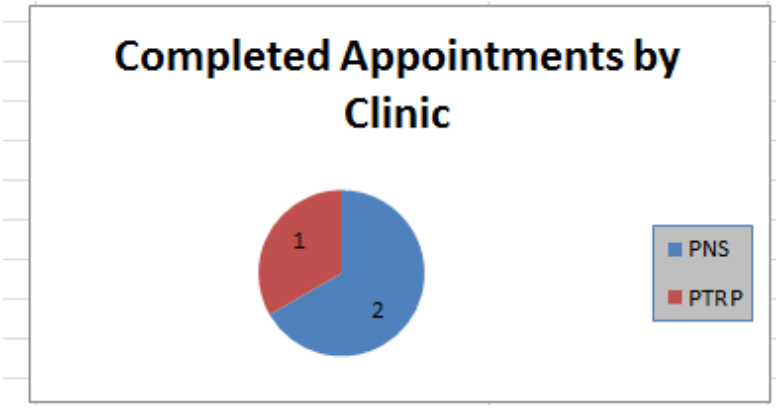


Figure D2

- Show graph as a pie chart
- Show data labels
- Show legend with provider name which indicates what line they are on the graph. Ensure each provider line is a different color in legend and in graph.
  - Outline legend
  - Ensure colors are consistent with report
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report (see Figure D2)

Req 1.18: Create a table to summarize cancelled appointments. Title: **Cancelled Appointments by Clinic**. Summarize the amount of cancelled appointments by Clinic.

Cancelled Appointments by Clinic

Clinic	Cancelled Appointments
PNS	2
PTRP	1

Figure D3

Req 1.19: Create a corresponding pie chart graph which graphs clinic by cancelled appointments. Title the graph: **Cancelled Appointments by Clinic**

- Show graph as a pie chart
- Show data labels
- Show legend with provider name which indicates what line they are on the graph. Ensure each provider line is a different color in legend and in graph.
  - Outline legend
  - Ensure colors are consistent with report
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report (see Figure D4)

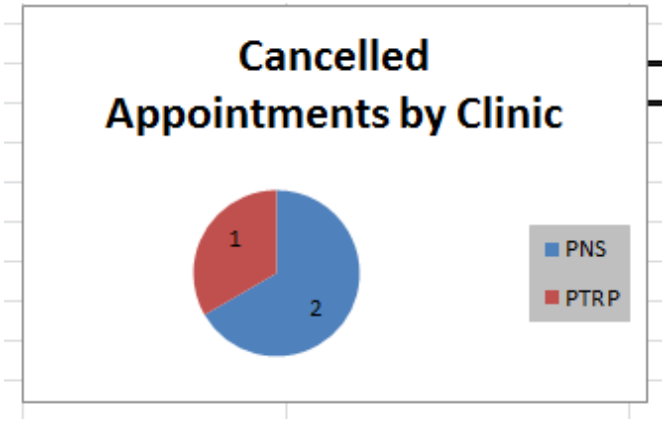


Figure D4

Req 1.20: Create a table for Provider showing provider availability. Title the table: **Provider Availability.** Include the following columns for this table:

- **Provider-** Show the provider name if the provider has an open hour available for scheduling. Do not show the provider as available if the provider is on vacation. May need to add vacation as a field to store. Providers with less than a one hour block of availability should not be shown.
- **Date-** Show the date the provider is booked with an appointment in MM/DD/YYYY format
- **Available Hours for Appointments (Supplied in 1 hour Increments) -** Only show the hours the provider does not have an appointment. Only show in one hour increments.

Req 1.21: Show a note box under the Provider Availability table

- Outline note box
- Fill note box in light grey to match legend
- Italicize and bold the font

Display as shown in Figure D5

Req 1.22: Create a table title the table: Provider Utilization and Case Load
Include the following columns for this table:

- **Provider**- Show the provider name if the provider is included in the Provider Availability table. Provider name should only be shown 1 time per day.
- **Date-** Show the date one time for each provider.
- **Utilization Rate-** Calculated field using the number of hours the provider is booked with appointments which were not cancelled or rescheduled divided by 7.5 hours. * This is not 8 hours since thirty minutes was removed for lunch hour. Show this as a percent field.

Provider Availability

Provider	Date	Available Hours for Appointments (Supplied in 1 hour Increments)
Dr. Hills	2/1/2013	8:00 AM
Dr. Hills	2/1/2013	11:00 AM
Dr. Hills	2/1/2013	1:00 PM
Dr. Hills	2/1/2013	2:00 PM
Dr. Hills	2/1/2013	3:00 PM
Dr. Hills	2/1/2013	4:00 PM
Dr. Thorns	2/1/2013	11:00 AM
Dr. Thorns	2/1/2013	1:00 PM
Dr. Thorns	2/1/2013	2:00 PM
Dr. Thorns	2/1/2013	3:00 PM
Dr. Thorns	2/1/2013	4:00 PM
Dr. Thorns	2/3/2013	8:00 AM
Dr. Thorns	2/3/2013	9:00 AM
Dr. Thorns	2/3/2013	1:00 PM
Dr. Thorns	2/3/2013	2:00 PM
Dr. Thorns	2/3/2013	3:00 PM
Dr. Thorns	2/3/2013	4:00 PM
Note: Blocks, holiday's and holds are currently not shown in the above table.		

Figure D5

Provider Utilization and Case Load

Provider	Date	Utilization Rate
Dr. Hills	2/1/2013	27%
Dr. Thorns	2/1/2013	23%
Dr. Hills	2/2/2013	87%
Dr. Thorns	2/2/2013	0%
Dr. Hills	2/3/2013	87%
Dr. Thorns	2/3/2013	20%

Provider Utilization Rate is the number of appointments the provider has per day, divided by the total number of appointment slots the provider has alloted for their scheduling policy.

Figure D6

Req 1.23: Create a graph for the **Provider Utilization and Case Load** table and title the graph: **Provider Utilization**

- Show graph as a line graph
- Show data labels
- Show legend with provider name which indicates what line they are on the graph. Ensure each provider line is a different color in legend and in graph.
  - Outline legend
  - Ensure colors are consistent with report
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report (see Figure D7 below)

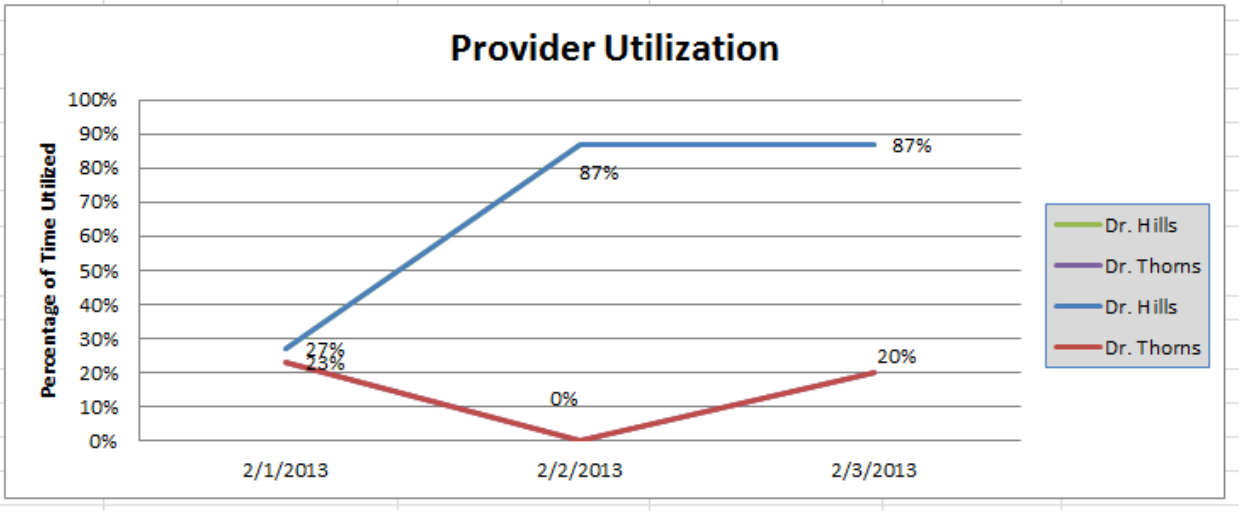


Figure D7

Req 1.23: Create a table title the table: **Clinic Availability**

Include the following columns for this table:

- **Clinic-** Show the clinic name if the clinic is has an open hour available for scheduling. An available hour is classified when an appointment has been scheduled or changed and rescheduled for a particular time. Show hour as available if appointment was cancelled. Clinics with less than a one hour block of availability should not be shown. Clinics can be shown as available even if provider is on vacation or during a provider's lunch break. Providers do not have to tie to the Clinic.
- **Date-** Show the date the clinic is NOT booked with an appointment (that is not cancelled) which has been either scheduled or rescheduled for that date in MM/DD/YYYY format
- **Available Hours for Appointments-** Only show the hours the clinic does not have an appointment booked. A booked appointment is either an appointment which has been scheduled or rescheduled for that date and time and that has not been cancelled. Only show in 1 hour increments.

Req 1.24: Create a table title the table: **Clinic Utilization Based on Appointments**
Include the following columns for this table:

- **Clinic-** Show the clinic name if the clinic is included in the Clinic Availability table. Clinic name should only be shown 1 time per day.
- **Date-** Show the date one time for each Clinic.
- **Utilization Rate-** Calculated field using the number of hours the clinic is booked with appointments which were not cancelled or rescheduled divided by 8 hours. * This is 8 hours since 1 hour is not removed for lunch hour. Show this as a percent field.

Clinic Utilization Based on Appointments

Clinic	Date	Utilization Rate
PNS	2/1/2013	34%
PTRP	2/1/2013	22%
PNS	2/2/2013	81%
PTRP	2/2/2013	0%
PNS	2/3/2013	81%
PTRP	2/3/2013	19%

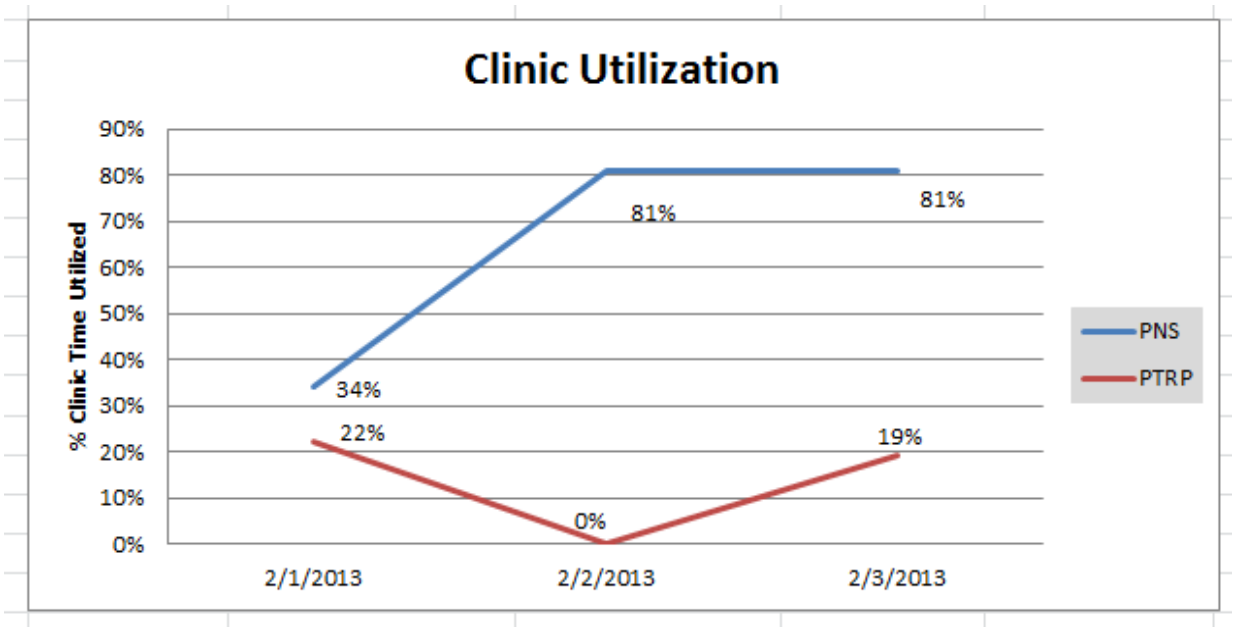
Clinic Utilization Rate is the number of appointments the Clinic has per day, divided by the total number of appointment slots the Clinic Resources have alloted for their scheduling policy.

Figure D8

Req 1.25: Create a graph for the **Clinic Utilization Based on Appointments** table and title the graph: Clinic Utilization

- Show graph as a line graph
- Show data labels

- Show legend with provider name which indicates what line they are on the graph. Ensure each Clinic line is a different color in legend and in graph.
    - Outline legend
    - Ensure colors are consistent with report
    - Fill legend in light grey
    - Ensure font is easy to read and matches style of report (see Figure D9 below)



FFigure D9

Req 1.26: Ensure report displays like shown in Provider and Clinic Appointment and Utilization Mock Up: Appointment and Clinic Dash

Report 2: Notifications and Letters by Site and Facility
Report Title: Notifications and Letters by Site and Facility
Report Purpose: The purpose of this report is to show letters and notifications sent to a patient by date and type and to show summarizations of letters sent by Clinics by time periods, clinic, site, and facility selected by the user. This can be used by schedulers or anyone interested in a report to detail notifications and letters sent to patients as well as present overall summaries of letters sent by clinic by selected time period.
Req 2.1: Enable the user to enter in the following parameters:

- From Date- Allow user to select from a calendar
- To Date- Allow user to select from a calendar
- Clinic- Allow single and multiple selections
- Site- Allow single select
- Facility- Allow single select

Req 2.2: For the From and To date, use the letter notification table which shows if a letter has been generated and sent.
Req 2.3: Only bring back data within from and to date, clinic, site, and facility chosen by the user for the report
Req 2.4: Create a table which displays the following headers as columns:

- **Patient name (Last Name, First Name Middle Name)**
- **SSN (last four digits) -** Ensure that field is displayed in text in the event that the last four digits of the SSN are 0's.
- **Appointment Date-** Date the appointment was **initially** scheduled.
- Letter/Notification Generated- Display the date the letter or Notification was generated as MM/DD/YYYY
- **Letter/Notification Type:** Show the letter or notification type that was generated
- **Clinic:** Name of clinic the appointment is scheduled for
- **Provider:** Name of provider the appointment is scheduled with

Req 2.5: Create table and title it: **Total Generated Letters: By Date and Clinic** which displays the following headers as columns:

- **Number of Letters**- Count and display the total number of letters by type, date, and clinic which were generated
- **Letter/Notification Type**- Display the letter/notification type (i.e. Reminder Postcard, Appointment Cancellation, Lab Reminder)
- **Date Generated**- Display the date as MM/DD/YYYY that the letter or notification was generated
- **Clinic-** Display the name of the clinic which the patient has/had an appointment with which instigated the letter or notification to be generated.

Display like mock up shown in Figure D10

Total Generated Letters: By Date and Clinic

Number of Letters	Letter/NotificationType	Date Generated	Clinic
4	Reminder Postcard	1/21/2013	PNS
5	Reminder Postcard	1/22/2013	PNS
5	Reminder Postcard	1/23/2013	PNS
2	Reminder Postcard	1/21/2013	PTRP
2	Appointment Cancellation	1/21/2013	PNS

Figure D10

Req 2.6: Create table and title it: **Total Generated Letters by Clinic for Time Period** which displays the following headers as columns:
Number of Letters- Count and display the total number of letters by type and clinic which were generated
Letter/Notification Type- Display the letter/notification type (i.e. Reminder Postcard, Appointment Cancellation, Lab Reminder)
Clinic- Display the name of the clinic which the patient has/had an appointment with which instigated the letter or notification to be generated.

Display like mock up shown in Figure D11

Total Generated Letters by Clinic for Time Period

Number of Letters	Letter/NotificationType	Clinic
14	Reminder Postcard	PNS
2	Reminder Postcard	PTRP
2	Appointment Cancellation	PNS

Figure D11

Req 2.7: Create a graph for the **Total Generated Letters by Clinic for Time Period** table and title the graph: **Generated Letters by Clinic**

- Graph Number of Letters by Letter Type for the Clinic Type
- Show graph as a bar graph
- Show data labels
- Show legend with clinic name which indicates what bar they are on the graph. Ensure each Clinic bar is a different color in legend and in graph.
- Outline legend
- Ensure colors are consistent with report
- Fill legend in light grey

Ensure font is easy to read and matches style of report (see Figure D12 below)

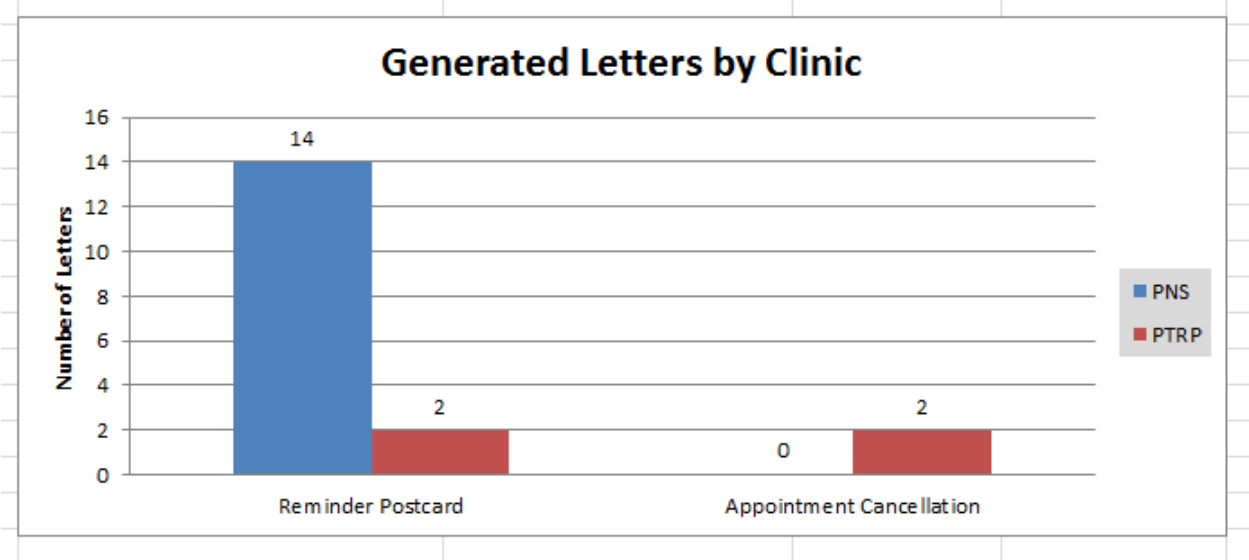


Figure D12

Req 2.8: Ensure report displays like shown in Provider and Clinic Appointment and Utilization Mock Up: Notifications and Letters

Report 3: Audits by User by Site and Facility
Report Title: Audits by User by Site and Facility

Report Purpose: The purpose of this report is to present a patient detail of audits and their status as well as summarize total audits by type. This can be used by supervisors or anyone interested in a report to detail patient chart audits as well as present overall summaries of audits by type in a user specified time period, clinic, site, and facility.

Req 3.1: Enable the user to enter in their own report from and to date through reporting parameters.

- From Date- Required
- To Date- Required
- Clinic- Allow single select
- Site- Allow single select
- Facility- Allow single select

Req 3.2: For the From and To date, use date the audit even took place

Req 3.3: Only bring back data within from and to date, clinic, site, and facility.

Req 3.4: Create a table which displays the following headers as columns:

- **Event Date**- format MM/DD/YYY. Displays the date which the user completed an audit function on.
- **Audit Function**- Format as text. Indicates what activity the user completed.
- **User**- Format as text. Indicates first and last name of user which completed the audit activity.
- **User Role**- Format as text. Indicates the role of the user that completed the audit activity, i.e., provider, admin, or scheduler.
- **Patient name (Last Name, First Name Middle Name)** - Format as text. Indicates the name of the patient (if any), if the audit function is tied to a patient.
- **SSN (last four digits**) - Format as text. Indicates the last four digits of the patient's social security number (if the audit function is tied to a patient). **-** Ensure that field is displayed in text in the event that the last four digits of the SSN are 0's.

Req 3.5: Create a table and title it: **Total Audits by Type** which displays the following headers as columns:

Event Type- Display the audit function that as completed.

Number of Audits- Count and display the total number of audits by type – this is a summarization of the Audits: Patient Detail table. All logic applied to the Audits: Patient Detail table should apply to the summarization table.

Req 3.6: Create a graph and title it: **Total Audits by Type** which graphs the **Total Audits by Type** summary table.

- Ensure the legend displays the number of audits
- Outline legend
- Ensure colors are consistent with report
- Fill legend in light grey
- Ensure font is easy to read and matches style of report (see Figure 13 below)

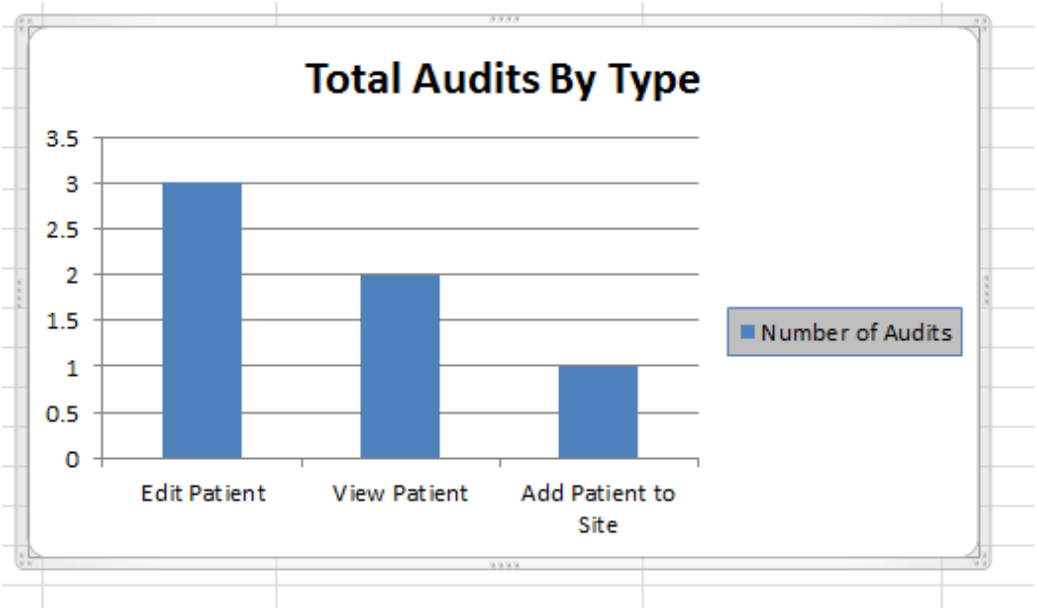


Figure D13

Req 3.7: Ensure report displays like shown in Provider and Clinic Appointment and Utilization Mock Up: Audits by User tab

D.2. Operational and Wait Time Summary with Patient Detail Reports

This reporting suite fulfills the following requirements:

B 9.2 The system will collect currently used wait time metrics including create date and desired date, scheduled appointment date and completed appointment date.

B 9.3 The system shall have the capability to generate wait time metrics and measures based on clinic operational metrics.

B 9.3.5 The system shall have the capability to generate performance reports. Performance measures include access measures, clinical measures and scheduling measures.

Report 4: Wait Time and Operational Metric Scorecard

Report Title: Wait Time and Operational Scorecard

Report Purpose: The purpose of this report is to supply wait time and operational metrics for a designated time period. These metrics can then be analyzed to help in the reduction of patient wait times, managing patient missed appointments, and appointment volume redistribution.

Req 4.1: Enable the user to enter the following parameters:

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to single or select multiples
- Site- Allow user to single or select multiples
- Facility- Allow user to single or select multiples

Req 4.2. For the From and To date, use the appointment table where the date is the most updated appointment. This can be either the scheduled appointment date or the rescheduled appointment date if populated

Req 4.3. Only bring back data within from and to date, clinic, site, and facility chosen by the user under the report parameters.

Req 4.4: Create a table showing three categories in one column with the following headers:

Operational Metrics
Missed Appointments
Cancelled Appointments
Average Wait Time

Req 4.5: Create the following sections under each category:

Operational Metrics
Scheduled Appointments
Completed Appointments

Missed Appointments- header
Number of Missed Appointments
Count of Unique Patients Who Missed an Appointment
% of Missed Appointments

Cancelled Appointments- header
Number of Cancelled Appointments
Count of Unique Patients Who Cancelled an Appointment
% of Cancelled Appointments

Average Wait Time- header
Average Time for a Patient to see a clinician

Req 4.6: Next to the newly created column made from Req 4 and Req 5 create the corresponding headers as shown below:

- Value for Report Time Period is the header for Operational Metrics, Missed Appointments and Cancelled Appointments

Req 4.7: Pull the following fields shown in figure D13 above using the following calculations:

Scheduled Appointments- Number of appointments that are currently scheduled and there is no cancellation date for that appointment and data is within all reporting parameters selected.

Completed Appointments- Number of appointments that are currently marked as completed and all data is within all reporting parameters selected.

Number of Missed Appointments: When the appointment.status=missed and data is within all reporting parameters selected.

Count of Unique Patients Who Missed an Appointment: The number of distinct patients that had an appointment status=missed and all data is within all reporting parameters selected.

% of Missed Appointments: When (appointment.status=missed)/ total number of appointments and all data is within all reporting parameters selected on report.

Number of Cancelled Appointments: Count of appointments where appointment.status=cancelled and data is within all reporting parameters selected.
Count of Unique Patients Who Cancelled an Appointment: Count of distinct patients with appointments where appointment.status=cancelled and data is within all reporting parameters selected.
% of Cancelled Appointments: Calculate percent of cancelled appointments (appointment.status=cancelled)/ total number of appointments created during from and to date entered on report and all selected parameters

Operational Metrics	Value for Report Time Period
Scheduled Appointments	217
Completed Appointments	130

Operational Metrics	Value for Report Time Period
Scheduled Appointments	217
Completed Appointments	130

Missed Appointments	Value for Report Time Period
Number of Missed Appointments	46
Count of Unique Patients Who Missed an Appointment	35
% of Missed Appointments	32%
Cancelled Appointments	**Value for Report Time Period**
Number of Cancelled Appointments	29
Count of Unique Patients Who Cancelled an Appointment	25
% of Cancelled Appointments	14%

Figure D14

Req 4.8: Create a graph for the Missed Appointment category. Show all three of the missed appointment metrics in a bar graph.
Req 4.9: For the Missed Appointment graph, ensure all data labels are displayed like below:

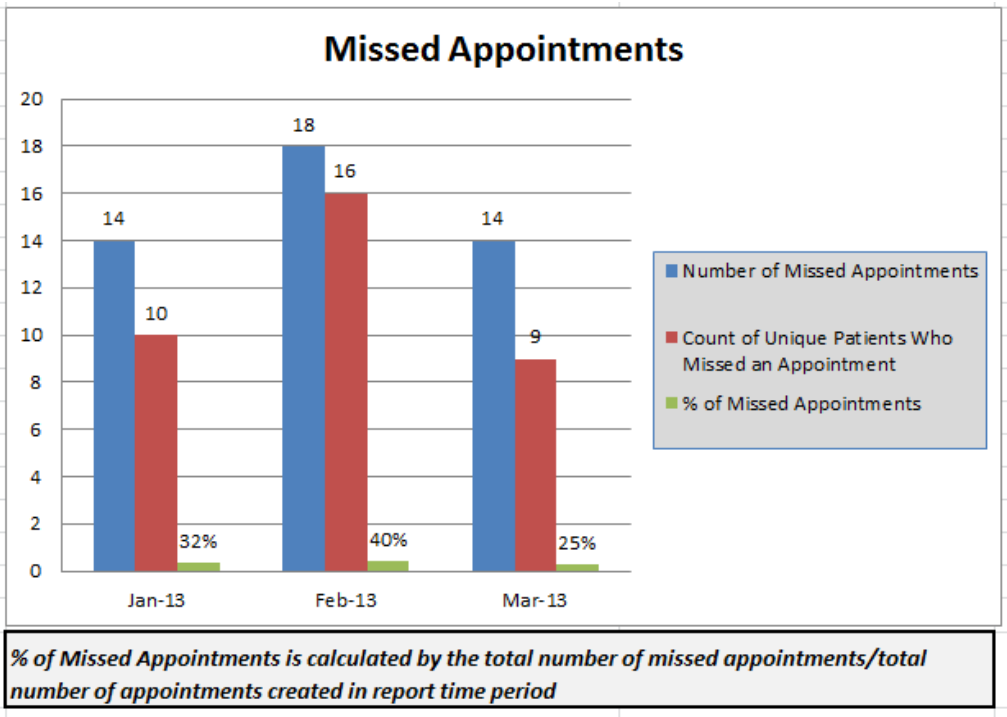


Figure D15

Req 4.10: Create a Legend that displays as in Figure D15

- Outline legend
- Ensure colors are consistent with report
  - Red, Blue, Green
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report

Req 4.11: Create a note box under the Missed Appointment Graph

- Outline note box
- Fill note box in light grey to match legend
- Italicize and bold the font
- Display as shown in Figure D15

Req 4.12: Display data by month for time period selected for from and to date, instead of by total.

Req 4.13: Create a graph for the Cancelled Appointment category. Show all three of the Cancelled Appointment categories

Req 4.14: For the Cancelled Appointment Graph ensure all data labels are displayed like Figure D16 below:

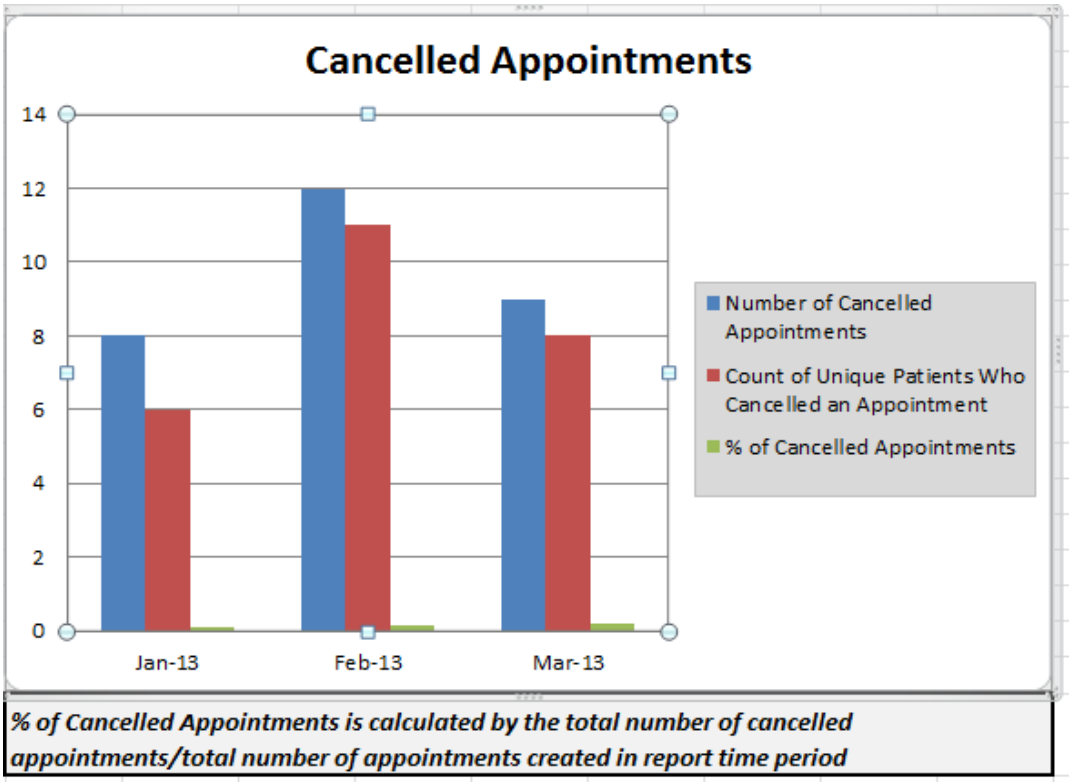


Figure D16

Req 4.15: Create a Legend that displays as in Figure 3.1

- Outline legend
- Ensure colors are consistent with report
    - Red, Blue, Green
    - Fill legend in light grey
    - Ensure font is easy to read and matches style of report

Req 4.16: Create a note box under the Cancelled Appointment Graph

- Outline note box
- Fill note box in light grey to match legend
- Italicize and bold the font
- Display as shown in Figure D16

Req 4.17: Display data by month for time period selected for from and to date entered, instead of by total.

Req 4.18: Display data by month for time period selected for from and to date, instead of by total.

Req 4.19: Ensure created report includes report parameters at the top of the report once report is run and looks as close to the report mock up as possible

Req 4.20: Ensure report can be exported to Excel and displays in the same manner as presented in reporting tool without any additional user manipulation.

Report 5: Patient Appointment Operational Details
Report Title: Patient Appointment Operational Details
Report Purpose: The purpose of this report is to show appointment related details for a patient within a user specified time period, clinic, site, and facility. This can be used by schedulers or anyone interested in an identified operational report with appointment detail for patients.
Req 5.1: Enable the user to enter in the following parameters:

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to single or select multiples
- Site- Allow user to single or select multiples
- Facility- Allow user to single or select multiples

Req 5.2: For the From and To date, use the appointment table where the date is the most updated appointment. This can be either the scheduled appointment date or the rescheduled appointment date if populated
Req 5.3: Only bring back data within from and to date, clinic, site, and facility chosen by the user under the report parameters.
Req 5.4: Create a table which displays the following headers are columns:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)
- Clinic
- Provider
- Appointment Created Date
- Appointment Desired Date
- Initial Scheduled Appointment Date
- Rescheduled Appointment Date
- Cancelled Appointment (Y/N)
- Missed Appointment (Y/N)
- Completed Appointment (Y/N)

Req 5.5: Patient Name column: Concatenate the patient name together with last name first then first name and lastly middle name in this format last name, first name middle name.
Req 5.6: SSN (last four digits) column: Display only the last four digits of the patient's social security number in column two. Column will need to be formatted to return as text in the event that the first digit is a 0.
Req 5.7: Appointment Created Date column: Display the date the appointment was created. Ensure all parameters selected by the user for Clinic, Site, and Facility and appointment was created. The From and To dates are based on the most updated scheduled appointment for that patient. Display date as MM/DD/YYYY
Req 5.8: Clinic column: Display the name of the clinic the patient has an appointment with

Req 5.9: Provider column: Display the name of the provider that will be seeing the patient for that appointment as Provider First Name Provider Last Name format
Req 5.10: Appointment Created Date column: Display the date the appointment was scheduled as MM/DD/YYYY
Req 5.11: Appointment Desired Date column: Display the date the patient supplied as their desired appointment date in MM/DD/YYYY format
Req 5.12: Initial Scheduled Appointment Date column: Display the date the appointment was created in MM/DD/YYYY format
Req 5.13: Rescheduled Appointment Date column: Display the date the appointment was rescheduled for in MM/DD/YYYY format
Req 5.14: Cancelled Appointment (Y/N) column: Display a Y if the appointment was cancelled and N if any other status
Req 5.15: Missed Appointment (Y/N) column: Display a Y if the patient has missed the appointment. N if the appointment date has passed and marked as completed or any other status
Req 5.16: **Completed Appointment column**: Display a Y if the patient has an appointment status as completed or N if the appointment is any other status.

D.3. Summary by Activity Type with Patient Detail

This reporting suite fulfills the following requirements; there is only one report in this suite:

B 4 The system shall have the capability to alert VA staff when appointments are scheduled about patient scheduling reliability (show/no-show rate) averaged over a period of time configured by the authorized end user.

A 6.3 The system shall provide statistics for appointments such as: no-shows, left without being seen, etc.

B 9.4.2 The system shall have the capability to generate reports based on metrics and measures related to patient information relevant to supporting the episode of care, the continuity of care, and missed opportunities of all patients.

Report 6: Summary by Activity Type with Patient Detail
Report Title: Summary by Activity Type with Patient Detail
Report Purpose: The purpose of this report is to supply a patient detail and summary for appointments by activity type. An activity type for an appointment is the disposition that was used by the scheduler when the appointment was updated. This could be a no show/missed appointment or left without being seen. This supplies the scheduler the ability to pull these quickly in a report by the date of the appointment using the From and To date parameters of the report. The scheduler can also select a specific Clinic, Site, and Facility. These metrics can then be analyzed to help in managing patient missed appointments and to help analyze the volume of missed appointments for a time period and clinic.
Req 6.1: Enable the user to enter in the following parameters:

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select a specific clinic- have a drop down of available clinics populate
- Site- Allow user to select a specific site- have a drop down of available sites populate
- Facility- Allow user to select a specific facility- have a drop down of available facilities populate

Req 6.2: For the From and To date, use the appointment table where the date is the most updated appointment. This can be either the scheduled appointment date or the rescheduled appointment date if populated

Req 6.3: Only bring back data within from and to date, clinic, site, and facility chosen by the user under the report parameters.

Req 6.4: Create a table; title it **Patient Detail** which displays the following headers as columns: Allow each field in the table to be filtered

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text
- Clinic- Format as text
- Provider (Provider First Name Provider Last Name)
- Initial Appointment Date- format as MM/DD/YYYY
- Rescheduled Appointment Date- format as MM/DD/YYY
- Activity Type- Format as text
- Completed Appointment-(Y/N)

Req 6.5: Patient Name column: Concatenate the patient name together with last name first then first name and lastly middle name in this format last name, first name middle name.

Req 6.6: SSN (last four digits) column: Display only the last four digits of the patient's social security number in column two. Column will need to be formatted to return as text in the event that the first digit is a 0.

Req 6.7: Clinic- Name of the clinic

Req 6.8: Provider- Provider First Name Provider Last Name

Req 6.9: Initial Appointment Date- Date the appointment was initially created

Req 6.10: Rescheduled Appointment Date- Date the appointment was rescheduled to

Req 6.11: Activity Type -This is the appointment disposition note that was entered by the scheduler for the patient (examples: no show/missed appointment, left without being seen). Show the most recent activity type for that appointment.

Req 6.12: Completed Appointment- Display a Y if the appointment was completed and a N for any other status

Req 6.13: Display a table under the patient detail table that shows the following columns:

- **Clinic**- Name of clinic. Display as text.
- **Total No Show/Missed Appointments-** Total count of appointments with an activity type displayed in the patient detail table as no show/missed appointments (for the time period, clinic, site, and facility). Display as a number

- **Average Number of Missed Appointments-** This is a calculated field which takes the total number of no show/missed appointments for the time period, clinic, site, and facility divided by the total appointments for the time period, clinic, site and facility. The appointment denominator is defined as the total count of appointments (appointment= the most updated date for an appointment which can be either the initially created date or the rescheduled date for a non-cancelled appointment). Display as a number with two significant figures after the decimal place.

Req 6.14: Display table as shown in figure D17

Clinic	Total No Show/Missed Appointments	Average Number of Missed Appointments
PNS	1	0.33
PTRP	2	0.50

Average Number of Missed Appointments is a calculated value (Number of No Show Missed Appointments for time period for that clinic, site, and location/ Total Appointments for time period, clinic, site and location)

Appointments are the most recently updated date for an appointment (this can be initially created or the rescheduled date) which has not been cancelled

Figure D17

Req 6.15: Create two note boxes under the Summary of Missed Appointments by Clinic

- Outline note boxes
- Fill note boxes in light grey to match legend
- Italicize and bold the font
- Display as shown in Figure 3.3

Req 6.16: Graph the Average Number of Missed Appointments by Clinic. Display as depicted in Figure D18

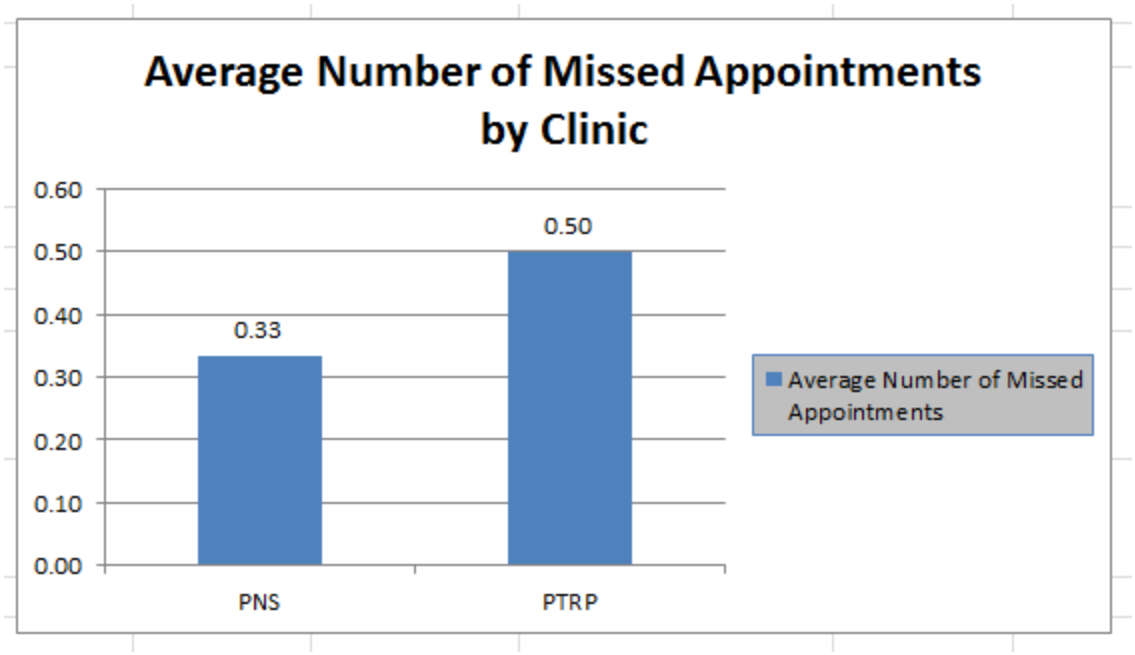


Figure D18

Req 6.17: Create a Legend that displays as in D19

- Outline legend
- Ensure colors are consistent with report
- Blue
- Fill legend in light grey
- Ensure font is easy to read and matches style of report

Req 6.18: Ensure report is displayed per mock up

D.4. Work List Summary Queue and Patient Detail

This reporting suite fulfills the following requirements; there is only one report in this suite:

A 7.2.1 The system shall have the capability to generate and display a work list based on unfulfilled appointments at the operational level to capture the source of a request, type of request, and status of a request along a timeline. Work list (queue) is automatically updated based on tasks that need to be completed by the scheduler.

B 9.4.4 The system shall have the capability to generate QA reports to ensure the proper disposition of incomplete appointment information.

Report 7: Work List Summary Queue and Patient Detail

Report Title: Work List Summary Queue and Patient Detail

Report Purpose: The purpose of this report is to supply a patient detail and work list summary for appointments needing action required because an appointment needs to be made either locally or for a transfer. Information is pulled for a user specified time based on the desired date

of the appointment, clinic, site, and facility. A table displaying if action is required for an appointment at the top of the report and summary of appointments with action required by clinic is shown at the bottom of the report. This supplies the scheduler the ability to quickly see and manage appointments which need to be rescheduled for a specific time frame, Clinic, Site, and Facility. These metrics can then be analyzed to help in managing unscheduled appointments and to help analyze workload.

Req 7.1: Enable the user to enter in the following parameters:

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select a specific clinic- have a drop down of available clinics populate
- Site- Allow user to select a specific site- have a drop down of available clinics populate
- Facility- Allow user to select a specific facilities- have a drop down of available clinics populate

Req 7.2: For the From and To date, use the appointment desired date.

Req 7.3: Only bring back data within from and to date, clinic, site, and facility chosen by the user under the report parameters.

Req 7.4: Create a table, title the table: **Appointments with Action Required**

Display the following headers as columns and allow each field to be filterable in report

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text
- Source of Request- Format as text
- Desired Appointment Date
- Type of Request
- Status

Req 7.5: Patient Name column: Concatenate the patient name together with last name first then first name and lastly middle name in this format last name, first name middle name.

Req 7.6: SSN (last four digits) column: Display only the last four digits of the patient's social security number in column two. Column will need to be formatted to return as text in the event that the first digit is a 0.

Req 7.7: Source of Request- Name of role of person who made request- i.e. provider, patient, etc.

Req 7.8: Desired Appointment Date- Date the patient or provider supplied for the desired appointment date. Display in format MM/DD/YYYY.

Req 7.9: Type of Request- Display as text. This is the type of request that was made only return those that are marked as standard or transfer.

Req 7.10: Status- Display as text. Only return data back that is pending.

Req 7.11: For the **Appointments with Action Required** table, only return data where there is no appointment date and no rescheduled date and type of request=standard or transfer and status-pending. That would make the appointment require action and need an appointment to be scheduled for a transfer to another site/clinic/facility or locally.

Req 7.12: Below the **Appointments with Action Required**, create a summary table and title it **Summary of Appointments with Action Required by Clinic.**
Display the following fields as columns in the table:

- **Clinic-** Name of clinic, display as text
- **Action Required-** Total Count of appointments with a desired appointment date, no scheduled or rescheduled appointment date where the type of request=standard or transfer and status=pending

Summary of Appointments with Action Required by Clinic

Clinic	Action Required
PNS	2

Figure D19

Req 7.13: Ensure report is displayed per mock up

D.5. DSS Stop Code Detail

This reporting suite fulfills the following requirement; there is only one report in this suite:

B 9.3.3 The system shall have the capability to generate reports based on cost reporting metrics and measures (i.e. DSS stop codes and other financial metrics and measures as defined by the business) that are tied to the scheduling appointment. Work List Summary Queue and Patient Detail

Report 8: DSS Stop Code Detail Report
Report Title: DSS Stop Code Detail Report
Report Purpose: The purpose of this report is to supply the primary and secondary stop codes with descriptions and total overall counts of stop codes by a user specified time period, clinics, site, and facility. Additional financial cost reporting metrics can be reported on once defined and supplied by the business.

These metrics provide stop code totals and line by line analysis by encounter to help in managing appointments not assigned codes.
Req 8.1: Enable the user to enter the following reporting parameters.

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select one or more clinics
- Site- Allow user to select a specific Site- have a drop down of available clinics populate
- Facility- Allow user to select a specific Facility- have a drop down of available clinics populate

Req 8.2: For the From and To date, use the most updated appointment date. This can be either the date the appointment was initially scheduled or the rescheduled appointment date.

Req 8.3: Only bring back data within from and to date, clinics, site, and facility chosen by the user under the report parameters.
Req 8.4: Create a table, title the table: **Patient Detail**
Display the following headers as columns and allow each field to be filterable in report

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text
- Clinic- Format as text
- Provider- Provider First Name, Provider Last Name
- Initial Appointment Date- MM/DD/YYYY
- Rescheduled Appointment Date- MM/DD/YYYY
- Most Recent Activity Type- Format as text
- Completed Appointment (Y/N)- Y or N
- Primary Stop Code- Format as number 3 digits
- Primary Stop Code Description- Format as text
- Secondary Stop Code- Format as number 3 digits
- Secondary Stop Code Description- Format as text

Req 8.5: Patient Name column: Concatenate the patient name together with last name first then first name and lastly middle name in this format last name, first name middle name.
Req 8.6: SSN (last four digits) column: Display only the last four digits of the patient's social security number in column two. Column will need to be formatted to return as text in the event that the first digit is a 0.
Req 8.7: Clinic: Name of clinic the patient appointment is located at
Req 8.8: Provider: Name of provider patient's appointment is scheduled with
Req 8.9: Initial Appointment Date: Date the appointment was initially scheduled for.
Req 8.10: Rescheduled Appointment Date: Date the appointment was rescheduled for, if there are no values replace with N/A.
Req 8.11: Most Recent Activity Type: The most recently updated activity type recorded
Req 8.12: Completed Appointment (Y/N): Supply a Y if the appointment was completed and a N if any other status
Req 8.13: Primary Stop Code: The three digit number recorded in the Stop Code table under code when restriction type=primary
Req 8.14: Primary Stop Code Description: The Name recorded in the Stop Code table when restriction type=primary
Req 8.15: Secondary Stop Code: The three digit number recorded in the Stop Code table under code when restriction type=secondary
Req 8.16: Secondary Stop Code Description: The Name recorded in the Stop Code table when restriction type=secondary
Req 8.17: Create a table under the **Patient Detail** table; title it **Count of Completed Appointments by Primary Stop Code and Clinic.**
This table's data is based on the patient detail table but summarized into counts. Create the following columns:

Clinic: Name of the Clinic
Primary Stop Code- The three digit number recorded in the Stop Code table under code when restriction type=Primary
Count of Primary Stop Codes- Count of the three digit number recorded in the Stop Code table under code when restriction type=Primary
Primary Stop Code Description- Description for the primary stop code

Req 8.18: Create a table next to the **Count of Completed Appointments by Primary Stop Code and Clinic** and title it **Count of Completed Appointments by Secondary Stop Code. This table's data is based on the patient detail table but summarized into counts. Create the following columns:**

Clinic: Name of the Clinic
Secondary Stop Code- The three digit number recorded in the StopCode table under code when restriction type=Secondary
Count of Secondary Stop Codes- Count of the three digit number recorded in the Stop Code table under code when restriction type=Secondary
Secondary Stop Code Description- Description for the primary stop code

Req 8.19: Create a note box under the **Count of Completed Appointments by Primary Stop Code and Clinic. Have the note read and display like below in Figure D20:**

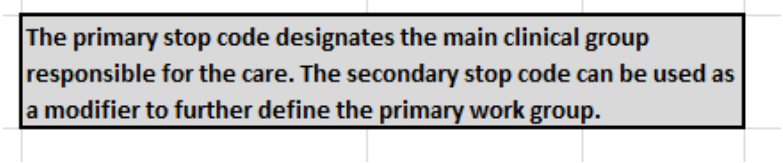


Figure D20

D.6. Capacity Workload and Utilization Report

This reporting suite fulfills the following requirements; there is only one report in this suite:

B9.3.1 The system shall have the ability to capture and provide the data necessary to conduct capacity planning through complete visibility into supply (provider, equipment, facility, support staff) and demand (enrolled and/or empaneled Veteran requests for appointments). 3

B9.3 National Reports: National reporting is generated by national program managers, VISN management and by facility management to review performance, trends, analytics, as well as access to care and payment issues. National reports are populated by "rolling up" information from the various stations, clinics, and facilities across VHA. ---

B 9.3.5 The system shall have the capability to generate performance reports. Performance measures include access measures, clinical measures and scheduling measures.

B 4 The system shall have the capability to alert VA staff when appointments are scheduled about patient scheduling reliability (show/no-show rate) averaged over a period of time configured by the authorized end user.

A 7.2 Operational reports are generated by a facility, VISN, station or clinic to facilitate day-to-day operations. These can range from printing daily appointment lists for a clinic to printing a listing of patients who missed appointments or who left without being seen. Operational reports are also generated to track performance metrics, access to care metrics, utilization of staff, workload measurement/workload leveling and workload planning.

Report 9: Capacity Workload and Utilization Report
Report Title: Capacity Workload and Utilization Report
Report Purpose: The purpose of this report is to enable a user to conduct capacity planning through complete visibility into supply availability for clinicians, equipment, and facilities based on a time period, Clinics, Sites, Facilities, and VISNS the user selects. To enables national program managers, VISN management, and facility management to review performance and trends by allowing the user to roll up reports via time period, Clinics, Sites, Facilities and VISNS. To display the most recent patient activity related to the appointment to enable the user to see scheduling reliability just as no show rate and left without being seen based on parameters selected by the user.
Req 9.1: Enable the user to enter the following reporting parameters.

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select one or more Clinics
- Facilities- Allow user to select one or more Facilities
- Site- Allow user to select one or more sites
- VISN- Allow user to one or more VISN

Req 9.2: For the From and To date, use the most updated appointment date. This can be either the date the appointment was initially scheduled or the rescheduled appointment date.
Req 9.3: Create a table and title it: **Patient Work List Detail,** include the following columns, allow each of these columns to be able to be filtered by the user:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text
- Appointment Date- MM/DD/YYYY
- Appointment Start Time- Hour: minute AM or PM
- Appointment End Time- Hour: Minute AM or PM
- Appointment Duration (in minutes) Minutes
- Clinic- Format as text
- Facility- Format as text
- Site- Format as text
- VISN-Format as text
- Room-Format as number
- Equipment- Format as text
- Provider- Provider First Name, Provider Last Name
- Provider Role- Format as text

- Most Updated Activity Type- Format as text
- Cancellation Reason- Format as text

Req 9.4: Include a note box at the bottom of the Patient Work List Detail table. Have the note table read:

- Outline Box
- Fill box solid in light grey
- Bold and place in Italics

Note: Appointment date is the current date for the appointment, this can be the original scheduled date or the rescheduled date
The provider is defined as the person the appointment is with i.e. the name of support staff or physician

Figure D21

Req 9.5: Create a table and title it **Average Activity Type by Clinic** include the following columns:

- Activity Type Description- Display the most recent activity type for the appointment
- Count by Activity Type- Count the number of appointments
- Clinic- Display the clinic name

Display the table with information based on the selections the user makes for the parameters.

Req 9.6: Create a table next to the **Average Activity Type by Clinic** table and title it **Overall Activity Type Count** include the following columns:

- Activity Type Description- Display the most recent activity type for the appointment
- Count by Activity Type- Count and display the total number of appointments

Display the table with information based on the selections the user makes for the parameters

Req 9.7: Create a pie graph for the **Overall Activity Type Count** table. Call chart **Count by Activity Type**

- Display the data labels within the pie chart slices
- Show a legend
  - Outline the legend
  - Fill legend in light grey
  - Display on right

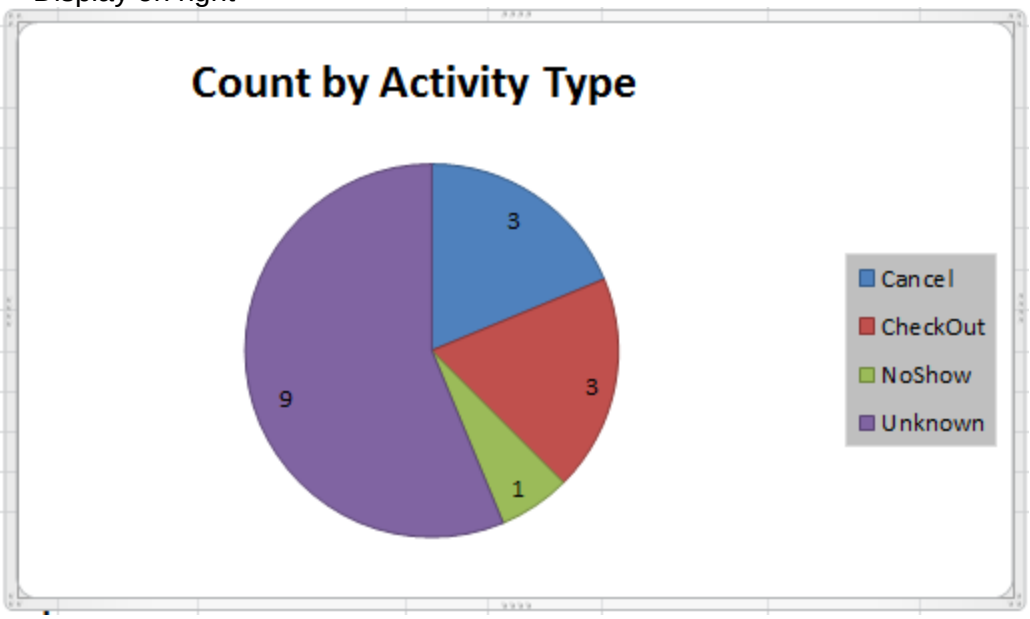


Figure D22

Req 9.8: Create a table for Provider showing provider availability. Title the table: **Provider Availability.** Include the following columns for this table:

- **Provider-** Show the provider name if the provider has an open hour available for scheduling. Providers with less than a one hour block of availability should not be shown.
  Note: Vacation blocks are not accounted for at this time
- **Date-** Show the real date the provider is booked with an appointment this can either be the rescheduled date or appointment date in MM/DD/YYYY format
- **Available Time Slots for Appointments-** Only show the hours the provider does not have an appointment booked. Only display based on possible appointment slots allocated in there scheduling policy.

Req 9.9: Show a note box under the **Provider Availability** table

- Outline note box
- Fill note box in light grey to match legend
- Italicize and bold the font
- Have note display: Note: Blocks, holiday's and holds are currently not shown in the above table

Display as shown in Figure D23

Provider Availability

Provider	Date	Available Time Slots for Appointments
Margaret Hills	2/1/2013	8:00 AM
Margaret Hills	2/1/2013	11:00 AM
Margaret Hills	2/1/2013	1:00 PM
Margaret Hills	2/1/2013	2:00 PM
Margaret Hills	2/1/2013	3:00 PM
Margaret Hills	2/1/2013	4:00 PM
Smith Thorns	2/1/2013	11:00 AM
Smith Thorns	2/1/2013	1:00 PM
Smith Thorns	2/1/2013	2:00 PM
Smith Thorns	2/1/2013	3:00 PM
Smith Thorns	2/1/2013	4:00 PM
Margaret Hills	2/2/2013	9:00 AM
Smith Thorns	2/3/2013	8:00 AM
Smith Thorns	2/3/2013	9:00 AM
Smith Thorns	2/3/2013	1:00 PM
Smith Thorns	2/3/2013	2:00 PM
Smith Thorns	2/3/2013	3:00 PM
Smith Thorns	2/3/2013	4:00 PM
Note: Blocks, holiday's and holds are currently not shown in the above table.		

Figure D23

Req 9.10: Create a table title the table: **Provider Utilization and Case Load**
Include the following columns for this table:

- **Provider**- Show the provider name if the provider is included in the Provider Availability table. Provider name should only be shown 1 time per day.
- **Date-** Show the date one time for each provider.

- **Utilization Rate-** Calculated field using the number of hours the provider is booked with appointments which were not cancelled or rescheduled. This is the number of appointments the provider has per day divided by the total number of appointment slots the provider has allotted for their scheduling policy.

Provider Utilization and Case Load

Provider	Date	Utilization Rate
Margaret Hills	2/1/2013	27%
Smith Thorns	2/1/2013	23%
Margaret Hills	2/2/2013	87%
Smith Thorns	2/2/2013	0%
Margaret Hills	2/3/2013	87%
Smith Thorns	2/3/2013	20%

Provider Utilization Rate is the number of appointments the provider has per day, divided by the total number of appointment slots the provider has alloted for their scheduling policy.

Figure D24

Req 9.11: Create a graph for the **Provider Utilization and Case Load** table and title the graph: **Provider Utilization**

- Show graph as a line graph
- Show data labels
- Show legend with provider name which indicates what line they are on the graph. Ensure each provider line is a different color in legend and in graph.
  - Outline legend
  - Ensure colors are consistent with report
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report (see Figure D25 below)

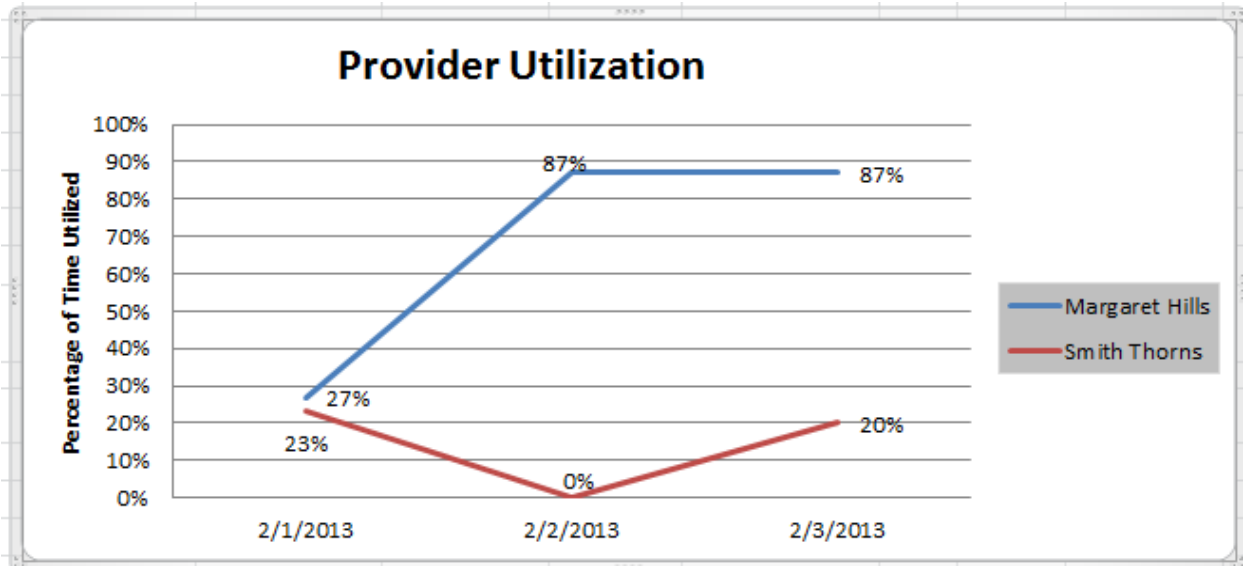


Figure D25

Req 9.12: Create a table title the table: **Clinic Availability**
Include the following columns for this table:

- **Clinic-** Show the clinic name if the clinic is has an open hour available for scheduling. An available hour is classified when an appointment has been scheduled or changed and rescheduled for a particular time. Show hour as available if appointment was cancelled. Clinics with less than a one hour block of availability should not be shown. Clinics can be shown as available even if provider is on vacation or during a provider's lunch break. Providers do not have to tie to the Clinic.
- **Date-** Show the date the clinic is NOT booked with an appointment (that is not cancelled) which has been either scheduled or rescheduled for that date in MM/DD/YYYY format
- **Available Time Slots for Appointments-** Only show the hours the clinic does not have an appointment booked based on appointment slots allocated in there scheduling policy. A booked appointment is either an appointment which has been scheduled or rescheduled for that date and time and that has not been cancelled.

Req 9.13: Create a table title the table: **Clinic Utilization Based on Appointments**
Include the following columns and note displayed in Figure D26 shown below for this table:

- **Clinic-** Show the clinic name if the clinic is included in the Clinic Availability table. Clinic name should only be shown 1 time per day.
- **Date-** Show the date one time for each Clinic.
- **Utilization Rate-** Calculated field using the number of appointments the Clinic has per day that are not rescheduled or cancelled divided by the total number of appointments the Clinic has available in their scheduling policy.

Clinic Utilization Based on Appointments

Clinic	Date	Utilization Rate
PNS	2/1/2013	34%
PTRP	2/1/2013	22%
PNS	2/2/2013	81%
PTRP	2/2/2013	0%
PNS	2/3/2013	81%
PTRP	2/3/2013	19%

Clinic Utilization Rate is the number of appointments the Clinic has per day, divided by the total number of appointment slots the Clinic Resources have alloted for their scheduling policy.

Figure D26

Req 9.14: Create a graph for the **Clinic Utilization Based on Appointments** table and title the graph: Clinic Utilization

- Show graph as a line graph
- Show data labels
- Show legend with provider name which indicates what line they are on the graph. Ensure each Clinic line is a different color in legend and in graph.
  - Outline legend
  - Ensure colors are consistent with report
  - Fill legend in light grey
  - Ensure font is easy to read and matches style of report (see Figure D27 below)

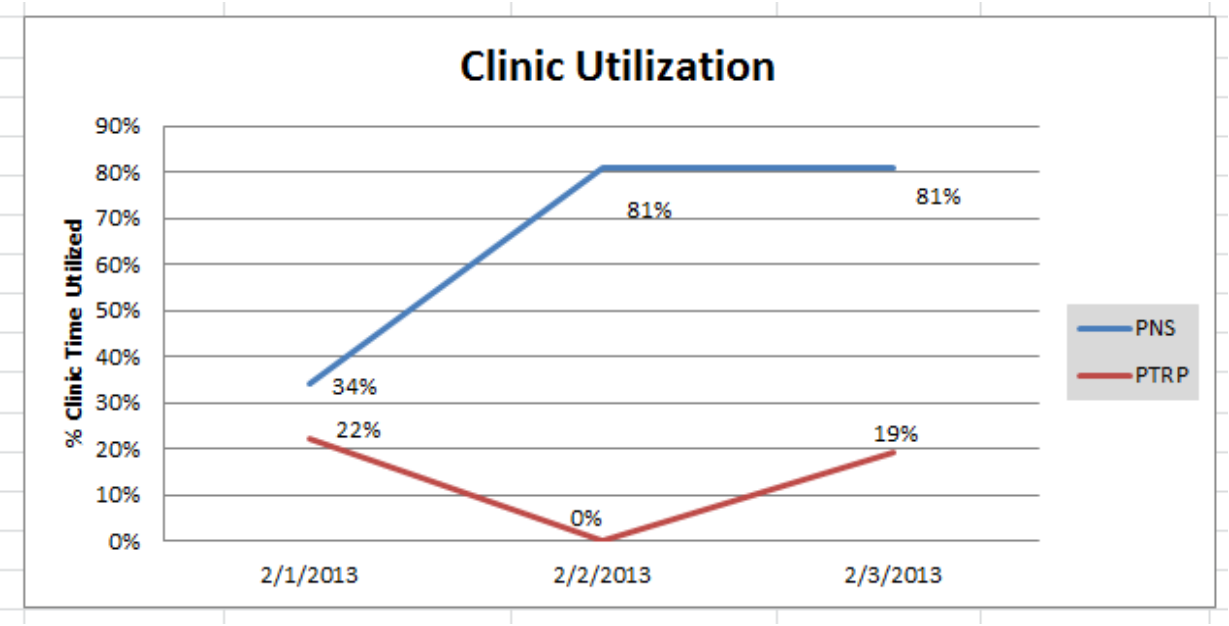


Figure D27

Req 9.15 Create a table for Equipment showing equipment availability. Title the table: **Equipment Availability.** Include the following columns for this table:

- **Clinic-** Show each open hour available for scheduling. Equipment with less than a one hour block of availability should not be shown. Do not display Equipment not available for that clinic .
- **Equipment**- Show the name of the equipment
- **Date-** Show the real date the provider is booked with an appointment this can either be the rescheduled date or appointment date in MM/DD/YYYY format
- **Available Time Slots for Appointments -** Only show the hours the equipment does not have an appointment and based on the available time slots allocated in the Equipment's scheduling policy. Formatted as Hour: Minute and AM or PM

Req 9.16: Create a table title the table: **Equipment Utilization Rate**
Include the following columns and note displayed in Figure D28 shown below for this table:

- **Clinic-** Show the clinic name if the clinic is included in the Equipment Availability table. Clinic name should only be shown 1 time per day.
- **Equipment-** Shown the name of the available equipment
- **Date-** Show the date one time for each Clinic and piece of equipment
- **Utilization Rate-** Calculated field using the number appointments the equipment is reserved for an appointment that is not rescheduled or cancelled per day divided by the total number of time slots the equipment resource is allotted in their scheduling policy.

Equipment Utilization Rate

Clinic	Equipment	Date	Utilization Rate
PNS	Exercise Bike	2/1/2013	13%
PTRP	Exercise Bike	2/1/2013	22%
PNS	CATSCAN	2/1/2013	0%
PNS	Exercise Bike	2/2/2013	0%
PTRP	Exercise Bike	2/2/2013	0%
PNS	CATSCAN	2/2/2013	19%
PNS	Exercise Bike	2/3/2013	0%
PTRP	Exercise Bike	2/3/2013	0%
PNS	CATSCAN	2/3/2013	25%

Equipment Utilization Rate is the number of appointments the Equipment is reserved per day, divided by the total number of appointment slots the Equipment Resource has alloted for their scheduling policy.

Figure D28

Req 9.17: Create a bar chart which graphs the **Equipment Utilization Rate** table.
Display as shown in Figure D29.
Include legend:

- Solid Outline
- Fill with light grey

Req 9.18: Ensure report displays like shown in Capacity Work Load and Utilization Mock Up

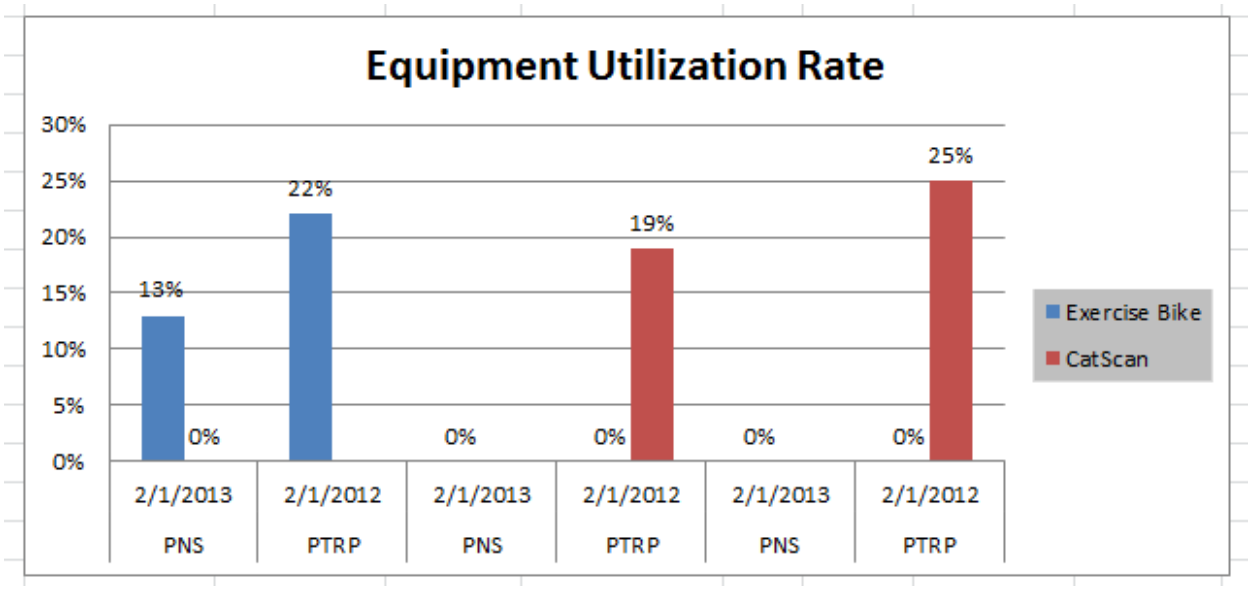


Figure D29

D.7. Clinic Operational Report

This reporting suite fulfills the following requirement; there is only one report in this suite:

9.3.9 The system shall have the capability to generate reports based on metrics and measures related to Mental Health appointments.

Report 10: Mental Health Operational Report
Report Title: Clinic Operational Report
Report Purpose: The purpose of this report is to enable a user to generate a report based on one or multiple clinics of their choosing to see the most updated activity documented on an appointment (i.e. no show, checkin, cancel, etc.). To supply complete visibility on the number of appointments and their statuses based on a particular time period, clinics, site, and facility selected.
Note: Most mental health clinics end in the word Mental Health, since this is not always the case; the user has the ability to select which clinics make up their mental health report. However, this report can be used for any clinic or combinations of clinics.
Req 10.1: Enable the user to enter the following reporting parameters.

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select one or more clinics- mental health clinics generally end with mental health but since this is not always the case the user can select whichever clinics they choose
- Facility- Allow user to select one facility

- Site- Allow user to select one site

Req 10.2: For the From and To date, use the most updated appointment date. This can be either the date the appointment was initially scheduled or the rescheduled appointment date.

Req 10.3: Create a table and title it: **Patient Work List Detail,** include the following columns, allow each of these columns to be able to be filtered by the user:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text only showing last four digits
- Appointment Date- MM/DD/YYYY- Display the most recent date for appointment , use the rescheduled date if populated, if blank this is the initial appointment date
- Appointment Start Time- Hour: minute AM or PM- Convert military time to standard time this is stored in appointment table
- Appointment End Time- Hour: Minute AM or PM- Covert military time to standard time, this is the appointment start time plus the length of appointment in appointment table
- Appointment Duration (in minutes) Minutes- Stored in appointment table as length
- Clinic- Format as text – Name of the clinic the appointment is with
- Facility- Format as text- Name of the facility for the clinic the appointment is with
- Site- Format as text- Name of the site the appointment is with
- Provider- Provider First Name Provider Last name- Name of the clinician the appointment is with
- Most Updated Activity Type- Format as text and show the most recent for this appointment
- Cancelled Appointment (Y/N)- Format as Y/N- When Activity type=Cancel then Y

Req 10.4: Include a note box at the bottom of the Patient Work List Detail table. Have the note table read:

- Outline Box
- Fill box solid in light grey
- Bold and place in Italics

Note: Appointment date is the current date for the appointment, this can be the original scheduled date or the rescheduled date
The provider is defined as the person the appointment is with i.e. the name of support staff or physician

Figure D30

Req 10.5: Allow each field in the Patient Work List Detail Table to be filtered on

Req 10.6: Create a table under the **Patient Work List Detail** table and title it: **Summary by Activity Type**

Display the following columns:

- Most Updated Activity Type- Display the most updated activity as shown in the above Patient Work List Detail Table. Do not show appointments where the activity type is populated with cancel.

- Number of Appointments- Show the total count of appointments that are displayed in the above Patient Work List Table. Do not show appointments where the activity type is populated with cancel.
- Percentage of Appointments- Calculated field: The total number of appointments by their activity type divided by the total number for all appointments for all activity types. Appointments which are cancelled are excluded from both the numerator and denominator.
- Date- Date of the appointment shown as MM/DD/YYY
- Total- Show a total for the number of appointments column

Req 10.7: Display the table as shown in Figure D31

Summary By Activity Type

Most Updated Activity Type	Number of Appointments	Percentage of Appointments	Date
No Show	3	50%	2/1/2013
Checked Out	2	33%	2/1/2013
CheckIn	1	17%	2/1/2013
Total	6	100%	

Figure D31

Req 10.8: For the **Summary by Activity Type** table display the following note under the table:

- Fill Note in light grey
- Bold and place in Italics
- Place beneath the Summary by Activity Type table
- Create a solid line around note
- Display as shown in Figure D32

Note: Appointments which have been cancelled for the day are not shown in table or used to calculate rate, please refer to the Patient Detail Table to see those appointments.

Figure D32

Req 10.9: Display a pie chart to the right of the Summary by Activity Type table that charts the percentage of appointments by activity type. Title the chart: **Appointments by Activity Type**

- Display the data labels within the pie chart.
- Create legend
  - Fill legend in light grey
  - Create solid line around legend
  - Display as shown in Figure D33

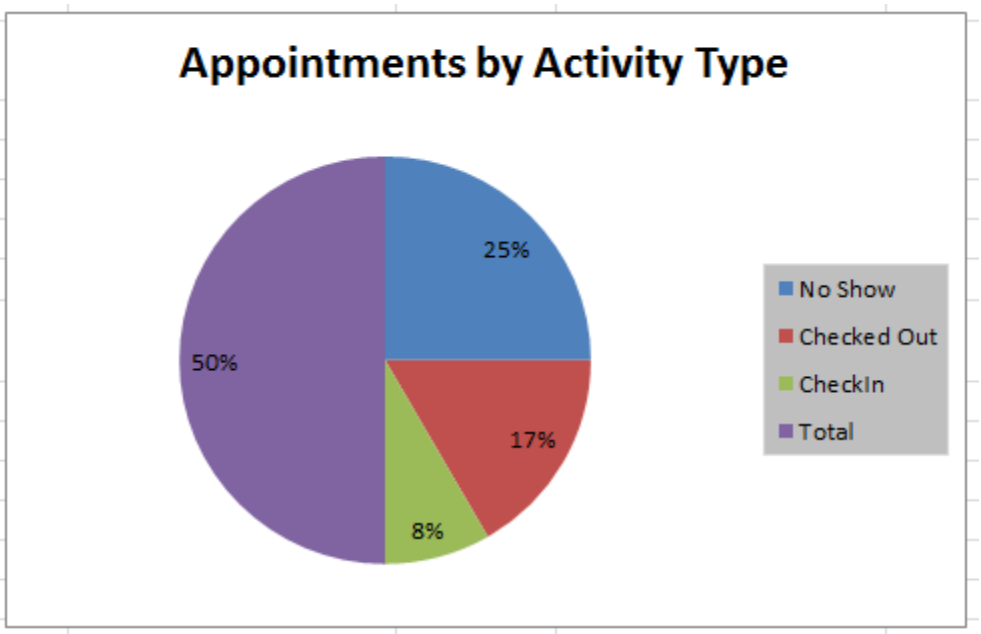


Figure D33

Req 10.10: The following can be used to determine Mental Health Appointments

```
select *
from dbo.StopCode
 where (code in ('198','379',
 '299', '487', '488', '489', '288', '401',
 '400', '5324', '513', '330', '189',
 '402', '380', '357', '290', '425', '200')
 and VistaSiteId='557')
OR
 (code in ('188', '198', '369', '278', '481', '482', '266', '315', '265',
'396', '395',
 '527', '506', '309', '397', '375', '338', '267', '420', '200')
 and VistaSiteId='555')
OR
 (code in (
 '200','290',
 '425', '380', '357',
 '189', '402', '513', '330',
 '400','534', '188',
 '198','379','299','487',
 '488', '289','489',
 '288','401') and VistaSiteID='557')
```

D.8. Consults Summary and Overview

This reporting suite fulfills the following requirement; there is only one report in this suite:

B 7.3 The system shall provide reports for consults obtained outside of VHA.

Report 11: Consults Summary and Overview Detail Report
Report Title: Consults Summary and Overview Detail Report
Report Purpose: The purpose of this report is to enable a user to generate a report based on appointment requests marked as a consult and had a referral status that isn't recorded as originating from the VA to capture consult referrals marked as Walter Reed NMMC, Portsmouth NNMC, Brook AMC, Other MTF, Community Facility, or Home. To display a total count of consults for a specific time period, Clinics, Sites, and Facilities entered by the user.
Req 11.1: Enable the user to enter the following reporting parameters.

- From Date- Allow user to pick from a calendar
- To Date- Allow user to pick from a calendar
- Clinic- Allow user to select one or more clinics
- Facility- Allow user to select one or more facility
- Site- Allow user to select one or more site

Req 11.2: For the From and To date, use the most updated appointment date. This can be either the date the appointment was initially scheduled or the rescheduled appointment date.
Req 11.3: Create a table and title it: **Patient Work List Detail,** include the following columns, allow each of these columns to be able to be filtered by the user:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text only showing last four digits
- Appointment Date- MM/DD/YYYY- Display the most recent date for appointment , use the rescheduled date if populated, if blank this is the initial appointment date
- Clinic- Format as text – Name of the clinic the appointment is with
- Facility- Format as text- Name of the facility for the clinic the appointment is with
- Site- Format as text- Name of the site the appointment is with
- Provider- Provider First Name Provider Last name- Name of the clinician the appointment is with
- Appointment Request Type- Format as text and only show those marked as consult
- Referral Source – Format as text

Req 11.4: Include a note box at the bottom of the Patient Work List Detail table. Have the note table read:

- Outline Box
- Fill box solid in light grey
- Bold and place in Italics

Note: Appointment date is the current date for the appointment, this can be the original scheduled date or the rescheduled date
The provider is defined as the person the appointment is with i.e. the name of support staff or physician

Figure D34

Req 11.5: Allow each field in the Patient Work List Detail Table to be filtered on

Req 11.6: Create a table under the **Patient Work List Detail** table and title it: **Consults Not Originating from VA**

Display the following columns:

- Consult Appointment Requests- Display the Appointment Request type when it is equal to Consult only
- Referral Source- Show referral source for the consult, exclude those have a referral source=VA
- Count of Requests- Calculated field: The total number of counts shown in the Patient Work List Detail table
- Percentage of Requests- Number of consults for each referral source divided by the total number of consults, displayed as a percentage

Display a Total column at the bottom of the table and total the count of requests and percentage of requests. Percentage of requests should equal 100%.

Consults Not Originating from VA

Consult Appointment Requests	Referral Source	Count of Requests	Percentage of Requests
Consult	Brook AMC	1	17%
Consult	Home	3	50%
Consult	Other MTF	1	17%
Consult	Walter Reed NNMC	1	17%
Total		6	100%
Note: Consults which are marked with a referral source of VA are not included in Summary			

Figure D35

Req 11.7: Display the table as shown in Figure D35

Req 11.8: Include a Note at the bottom of the Consults Not Originating from VA table which says:

Note: Consults which are marked with a referral source of VA are not included in Summary

- Bold and place in Italics
- Create a border around note
- Fill in light grey
- Display as shown in Figure D36

Req 11.9: Display a pie chart next to the Consults Not Originating from VA table. Display the data labels within the pie chart. Only chart the referral source by the percentage of requests. Title chart: **Percentage of Consults Not Originating from VA.**
Req 11.10: For the chart: **Percentage of Consults Not Originating from VA** display the legend and for legend:

- Create a border around legend
- Fill in light grey
- Display as shown in Figure D36

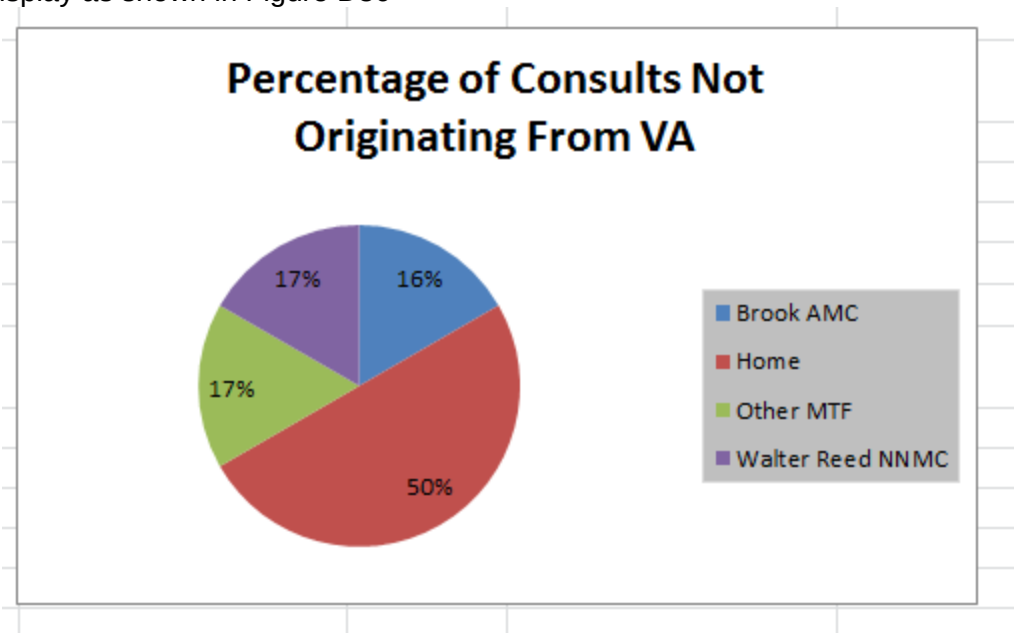


Figure D36

D.9. Ad-Hoc Operational Report

This reporting suite fulfills the following requirements; there is only one report in this suite:

A 7.1.1 The system shall have the capability to support user-created ad hoc report generation (without re-programming) and provide the capability to save the report definition for future use and to save the reports in various standard exportable formats.
9.3.11 The system shall have the capability to generate reports based on unfulfilled appointment request.

Report 12: Ad-Hoc Operational Report
Report Title: Ad-Hoc Operational Report
Report Purpose: The purpose of this report is to enable a user to generate a detailed work list report by various parameters allowing them to custom build their own report. To allow users to create, save, and export their custom report to their computer. To display a detailed patient work list so that a user can examine unfulfilled appointment requests.

Req 12.1: Enable the user to enter the following reporting parameters.

- From Date- Allow user to pick from a calendar, tie this to the date of the initial appointment or if there is a rescheduled date use the rescheduled date
- To Date- Allow user to pick from a calendar, tie this to the date of the initial appointment or if there is a rescheduled date use the rescheduled date
- Appointment Request Type- Allow the user to single or select multiples, format as text
- Most Updated Activity Type- Display the most updated activity type for that appointment; Allow the user to single or select multiples, format as text
- Clinic- Allow user to select one or more clinics
- Facility- Allow user to select one or more facility
- Site- Allow user to select one or more site
- VISN- Allow the user to select one or more VISN

Req 12.2: For the From and To date, use the most updated appointment date. This can be either the date the appointment was initially scheduled or the rescheduled appointment date.

Req 12.3: Create a table and title it: **Patient Work List Detail,** include the following columns, allow each of these columns to be able to be filtered by the user:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)- Format as text only showing last four digits
- Initial Appointment Date- MM/DD/YYYY- Date the initial appointment was made
- Rescheduled Appointment Date- MM/DD/YYYY- Date the appointment was rescheduled
- Most Updated Activity Type- Show the most recent activity type that is stored, display as text
- Cancellation Reason- Show the cancellation reason stored if the appointment was cancelled, display as text
- Appointment Start Time- convert military time to Hour: Minute AM or PM
- Appointment End Time- convert military time to Hour: Minute AM or PM- This is a calculated field based on the appointment start time and length of appointment
- Appointment Duration (in minutes)- Length of appointment, display as a number
- Clinic- Format as text – Name of the clinic the appointment is with
- Facility- Format as text- Name of the facility for the clinic the appointment is with
- Site- Format as text- Name of the site the appointment is with
- VISN- Format as text- Name of the VISN the site is located in
- Room- Format as Text- This could be a combination of letters and numbers, this is the room number the patient's appointment will take place in
- Equipment- Display as text, this is the name of the piece of equipment if any will be used during appointment. If there is no equipment allocated populate as "None"
- Provider- Provider First Name Provider Last name- Name of the clinician the appointment is with
- Provider Role- Format as text, this is the role of the clinician; i.e., Physician, Occupational Therapist, Physiatrist, etc.
- Appointment Request Type- Format as text and only show all

Req 12.4: If any fields in the table yield a null update to N/A

D.10. Congressional Performance Reports

This reporting suite fulfills the following requirements and is comprised of two reports:

9.3.8 The system shall have the capability to generate on-demand reports containing current data to be presented to Congress.

The scheduling database doesn't contain information related to ROI or diagnoses, after evaluating additional performance measures requested from the VA to Congress these requirements were found:

- Performance measure: Increase the percentage of OEF/OIF Veterans with a primary diagnosis of PTSD who received a minimum of 8 psychotherapy sessions within a week period.
- Performance measure: Increase the percentage of appointments completed within 14 days Based on these requirements two and three the following reports were compiled:

Report 13: Congressional Report - Count of Completed Mental Health Appointments Per Patient

Report Title: Congressional Report: Count of Completed Mental Health Appointments by Patient

Report Purpose: The purpose of this report is to allow a user to create a report for any time period, Clinics, Site, and Facility they choose to display a count of mental health appointments that have been completed for each patient.

Req 13.1: Enable the user to enter in the following parameters:

- From Date- Allow user to select from a calendar
- To Date- Allow user to select from a calendar
- Clinic- Allow single and multiple selections
- Facility- Allow single and multiple selections
- Site- Allow single and multiple selections

Req 13.2: For the From and To date- base this on the most updated appointment date use the initial appointment date unless there is a rescheduled date for that appointment. If there is a rescheduled date, use this date as the most updated date.

Req 13.3: Only bring back data within from and to date, Clinics, Site, and Facility chosen

Req 13.4: Create a table, title it **Patient Mental Health Appointment Detail**: which displays the following headers as columns:

- Patient name (Last Name, First Name Middle Name)
- SSN (last four digits)
- Clinic
- Number of Completed Mental Health Appointments

Req 13.5: For the Number of Completed Mental Health Appointments- count the number of appointments which do not have an activitytype of Cancel or No Show and have one of the following DSS Stop Code Descriptions. DSS Stop Codes can change for every site; all DSS

Stop Codes need to be specified by site in code. Below is a listing of Mental Health codes to include for each site.

Note: There are currently only three sites with data.

```
select *
from dbo.StopCode
 where (code in ('198','379',
 '299', '487', '488', '489', '288', '401',
 '400', '5324', '513', '330', '189',
 '402', '380', '357', '290', '425', '200')
 and VistaSiteId='557')
OR
 (code in ('188', '198', '369', '278', '481', '482', '266', '315', '265', '396', '395',
 '527', '506', '309', '397', '375', '338', '267', '420', '200')
 and VistaSiteId='555')
OR
 (code in (
 '200','290',
 '425', '380', '357',
 '189', '402', '513', '330',
 '400','534', '188',
 '198','379','299','487',
 '488', '289','489',
 '288','401') and VistaSiteID='557')
```

Req 13.6: Have report look like the mock up report : **Congressional Performance Reports Mock Up**, tab 1 titled: **Count of Mental Health Appts**

Req 13.7: Include the following note at the bottom of the **Patient Mental Health Appointment Detail** table and display like in Figure D37:

Req 13.8: Allow each column in the table to be filtered on

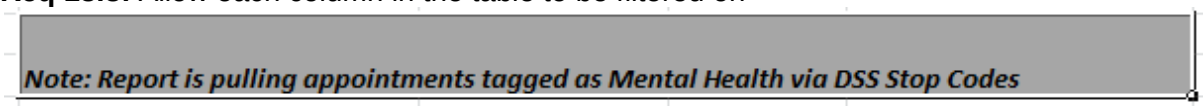


Figure D37

Report 14: Congressional Report: Percentage of Completed Appointments

Report Title: Congressional Report: Percentage of Completed Appointments

Report Purpose: The purpose of this report is to allow a user to create a report for any time period, Clinics, Sites, Facilities, and VISNS they choose to display a count and percentage of completed appointments for to supply to Congress.

Req 14.1: Enable the user to enter in the following parameters:

- From Date- Allow user to select from a calendar

- To Date- Allow user to select from a calendar
- Clinic- Allow single and multiple selections
- Site- Allow single and multiple selections
- Facility- Allow single and multiple selections
- VISN- Allow single and multiple selections

Req 14.2: For the From and To date- base this on the most updated appointment date use the initial appointment date unless there is a rescheduled date for that appointment. If there is a rescheduled date, use this date as the most updated date.

Req 14.3: Create a table: title table: **Completed Appointments** and display the following columns:

- Clinic- Name of Clinic, format as text
- Facility- Name of Facility, format as text
- Site- Name of Site, format as text
- VISN- Name of VISN- format as text
- Total Number of Appointments- Count of Total Appointments scheduled
- Number of Completed Appointments- Count of Completed Appointments, only show appointments where the activitytype field is not equal to cancel or no show
- Percentage of Completed Appointments- Count of completed appointments when activity type is not equal to cancel or no show divided by the total amount of scheduled appointments. Show as a percent

Req 14.4: Create a row under the table and call it: Total Number of Completed Appointments. Bold the title and sum the column: Number of Completed Appointments. Bold and sum the column Total Number of Appointments. Display as shown in Figure D38

Congressional Report: Percentage of Completed Appointments

Report Parameters:	
From Date	2/1/2013
To Date	2/2/2013
VISN	06
Site	GA VA Medical Health Center
Facility	GA VA Regional Medical Health Center
Clinic	PNS

Completed Appointments

Clinic	Facility	Site	VISN	Total Number of Appointments	Number of Completed Appointments	Percentage of Completed Appointments
PNS	Richmond	Hunter Holmes Mcguire	6	60	54	90%
PTRP	Richmond	Hunter Holmes Mcguire	6	30	23	77%
Total Number of Completed Appointments				90	77	

Performance Measure for Congress: Increase the percent of appointments completed within 14 days

Note: Percentage of Completed Appointments is a calculated field which takes the total number of appointments marked as complete divided by the total number of appointments (for the time period selected)

Figure D38

Req 14.5: Create two notes under the **Completed Appointment** table and display as shown in Figure D39 above
Performance Measure for Congress: Increase the percent of appointments completed within 14 days

- Make font bold and place in italics
- Create a border around note
- Fill in light blue

Note: Percentage of Completed Appointments is a calculated field which takes the total number of appointments marked as complete divided by the total number of appointments (for the time period selected)

- Make font bold and place in italics
- Create a border around note
- Fill in light grey

Req 14.7: Have report look like the mock up report: **Congressional Performance Reports Mock Up**, tab 2 titled: **Completed Appointments**

E. Appendix E: Open Source and Software Licensing Documentation

E.1. Descriptive Documentation of the Integration Codes

The integration of third-party applications with VistA can be a tricky process due to the complexity of VistA and the underlying processes. Consequently, we have opted for an integration strategy that showcases a comprehensive strategy. The exact integration approach needs to be specified on the basis of the VA's strategic goals and requirements. Therefore, the chosen approach is just that: an approach and the techniques used which valuably represent our ability to integrate our applications with VistA.

E.1.1. Our Integration Strategy

Our integration strategy between the scheduling application and VistA allows the synchronization of data between the two applications in two different ways:

First, we import reference data from VistA and treat that data as "read-only" data within the scheduling application in order to ensure consistency between the scheduling application and VistA.

Second, we continuously export data from the scheduling application to VistA to ensure that back-end processes in VistA can continue to function even without any knowledge of the new scheduling application.

Note that, for this proof-of-concept, we currently do not continuously synchronize the data from VistA after the one-time import of the reference data into the scheduling application. VistA has an efficient way of detecting data changes using a data checksum that can be used to continuously synchronize any data between VistA and the scheduling application.

E.2.2. Integration Point: Organization Data

We assume that organization data is owned by VistA therefore we retrieve the following from VistA and treat it as referenced data:

- One Top Level Management System
- Facilities linked to the Top Level Management System

E.2.3. Integration Point: General Reference Data

We assume that the following data is owned by VistA and we therefore retrieve it from VistA and treat it as read-only data within the scheduling applications. Note that it is a fairly simple exercise for our engineers to add user interfaces to manage (add, delete, update) these entities if needed:

- Appointment Type Categories
- Cancellation Reasons
- List of Services Types (currently not used)
- Stop Codes
- Providers
- Patients

The VistA instances we received did not have providers that we could re-use; therefore we create them while running during Step 6 of UC 1.

The VistA instances we received included Stop Codes, Service Types, Cancellation Reasons and Appointment Type Categories. We are re-using these.

The stop codes listed in the Contest materials differ from the auto-populated codes imported from VistA. Despite this discrepancy, the flexible nature of our application ensures that such differences are easily a handled.

E.2.4. Integration Point: Patient Data

Patient information is owned by VistA. The Search feature of the scheduling application always retrieves the list of patients from VistA. When the user selects a specific patient, the service layer determines whether the given patient has been imported locally (in the scheduling database). When that is not the case, the service layer imports the patient data locally. The patient information that is imported mainly includes demographic data.

Note that in order to have a richer testing environment, we create a set of patient entries at the end of UC 1 in each VistA instance in order to have enough data for testing purposes.

E.2.5. Integration Point: Stop Codes

Stop Codes are required for reporting purposes and to reproduce appointments that are made from the scheduling application into VistA. The list of valid Stop Codes is defined at the level of a site. Sections/Clinics are assigned stop codes when created.

When creating provider-type resources in the scheduling application, the section or clinic stop code is assigned to the provider resource.

When Appointment Types are created they are also assigned a stop code.

E.2.6. Integration Point: Provider Data

The list of VistA Providers is available and used when a provider resource is created in the scheduling application. At that time (creation of provider resource) an equivalent clinic/provider

entity is also created in VistA. The information (i.e. name) for that clinic/provider entry in VistA is derived from the section/clinic and provider information.

Consequently, the scheduling application may have multiple provider resources per section and clinic and each provider resource is matched by exactly one VistA clinic/resource entry.

E.2.7. Integration Point: Appointment Data

Within the scheduling application, a scheduler can commit a patient and several types of resources (providers, rooms and equipment) into the same appointment.

When an appointment involves a provider, the appointment is also saved in VistA using the patient and provider information.

Consequently, each patient-provider appointment in the scheduling application is matched with a corresponding VistA appointment.

Finally, the entire lifecycle of the appointment (check-in, check-out, …) is synchronized into VistA.

E.2. Documentation of Code APIs

Health eTime includes a robust and comprehensive API arranged as a set of services to configure schedule policies and perform scheduling tasks. This section lists a non-exhaustive list of the signatures of these services.

AccountService

[Authentication]

```
User LogOn(string username, string password);
```

[User Management]

```
Collection<User> GetUsers();
User GetUser(int id);
User GetUserFromUsername(string userName);
User AddUser(User user);
User UpdateUser(User user);
bool DeleteUser(int id);
```

[Role Management]

```
Collection<Role> GetAllRoles();
Role GetRole(int id);
```

Role AddRole(Role role);
Role UpdateRole(Role role);
bool DeleteRole(int id);

[Actions Management]
Collection<Shared.Model.UserRoles.Action> GetAllActions();
Shared.Model.UserRoles.Action GetAction(int id);
Shared.Model.UserRoles.Action AddAction(Shared.Model.UserRoles.Action action);
Shared.Model.UserRoles.Action UpdateAction(Shared.Model.UserRoles.Action action);
bool DeleteAction(int id);

AppointmentService
[Appointment Management]
Appointment Get(int id);
Appointment Update(Appointment appointment);
bool Delete(int id);
Appointment CreateAppointment(Appointment appointment);
Appointment CreateWalkInAppointment(Appointment appointment);
Appointment CheckInAppointment(Appointment appointment);
Appointment CheckOutAppointment(Appointment appointment, string disposition);
Appointment NoShowAppointment(Appointment appointment);
Appointment CancelAppointment(Appointment appointment, string cancelType, string cancelReason, string remarks);
Appointment CreateRecurringAppointments(Appointment appointment, Recur recur);

[Resources and Appointments]
Collection<Appointment> GetForPatient(int patientId, DateTime? start, DateTime? end);
Collection<Appointment> GetNoShowAppointmentsForPatient(int patientId, DateTime? start, DateTime? end);
Collection<Appointment> GetForResource(int resourceId, DateTime? start, DateTime? end, AppointmentStatus status = AppointmentStatus.Unknown);
Collection<Appointment> GetAllForAppointmentType(AppointmentType apptType, DateTime? start, DateTime? end, AppointmentStatus status);
Collection<Appointment> GetAllRelatedAppointments(Appointment appointment);

[Communication/Request Management]
CommunicationQueueItem AddToCommunicationQueue(CommunicationQueueItem queueItem);
CommunicationQueueItem AddToCommunicationQueue(CommunicationTemplate template, Appointment appointment);

CommunicationQueueItem AddToCommunicationQueue(CommunicationTemplate template, AppointmentRequest appointmentRequest);
Collection<CommunicationQueueItem> GetAllRelatedCommunications(Appointment appointment);
Collection<CommunicationQueueItem> GetAllRelatedCommunications(AppointmentRequest appointmentRequest);
AppointmentRequest AddAppointmentRequest(AppointmentRequest request);
AppointmentRequest UpdateAppointmentRequest(AppointmentRequest request);
Collection<AppointmentRequest> GetAppointmentRequestsForPatient(Patient patient);
Collection<AppointmentRequest> GetAllOpenAppointmentRequests(Section section);
public enum AppointmentAction { Create, WalkIn, CheckIn, CheckOut, NoShow, Cancel, Reschedule };

EquipmentService
[Equipment Management]
Collection<Equipment> GetAllForSite(int siteId);
Collection<Equipment> Get();
Equipment Get(int id);
Equipment Add(Equipment equipment);
Equipment Update(Equipment equipment);
bool Delete(int id);

FacilityService
[Facility Management]
Collection<Facility> GetAll(int siteId);
Facility Get(int id);
Facility Add(Facility facility);
Facility Update(Facility facility);
bool Delete(int id);
CommunicationTemplate AddOrUpdateCommunicationTemplate(int facilityId, CommunicationTemplate communicationTemplate);
bool DeleteCommunicationTemplate(int facilityId, CommunicationTemplate communicationTemplate);

ImportService
[Import Tasks]
bool CheckAndUpdate();
bool ImportSite(string siteId);

NationalSystemService
Service AddService(Service service);

Collection<Service> GetServices();

AppointmentTypeCategory AddAppointmentTypeCategory(AppointmentTypeCategory appTypeCat);
Collection<AppointmentTypeCategory> GetAppointmentTypeCategories();

Holiday AddHoliday(Holiday holiday);
Collection<Holiday> GetHolidays();

PatientService
[Patient Management]
Collection<Patient> Get();
Patient Get(int id);
Patient Add(Patient patient);
Patient Update(Patient patient);
bool Delete(int id);
Collection<Patient> Search(string siteId, string searchParam);
Patient Get(string siteId, string dfn);

[Patient Appointments]
Collection<Appointment> GetAppointments(string siteId, string dfn, DateTime rangeStart, DateTime rangeEnd);
Collection<Appointment> GetAppointments(int patientId, DateTime rangeStart, DateTime rangeEnd);
bool MakeAppointment(int patientId, Collection<Resource> resources, DateTime appointmentTime);

ProviderService
[Provider Management]
Collection<Provider> Get();
Provider Get(int id);
Provider Add(Provider provider);
Provider Update(Provider provider);
bool Delete(int id);

ResourceService
[Resource Management]
Collection<Resource> GetAll(int sectionId);
Resource Get(int id);
Resource Add(Resource resource);
Resource Update(Resource resource);

bool Delete(int id);
Collection<Appointment> GetAppointments(int resourceId, DateTime rangeStart, DateTime rangeEnd);
Dictionary<DateTime, List<SlotInstance>> GetCapacity(int resourceId, DateTime rangeStart, DateTime rangeEnd);

RoomService
[Resource Management]
Collection<Room> GetAll(string siteId, string facilityId);
Room Get(string id);
bool Add(Room room);
bool Update(string id, Room room);

SectionService
[Section/Clinic Management]
Collection<Section> GetAll(int facilityId);
Section Get(int id);
Section Add(Section section);
Section Update(Section section);
bool Delete(int id);

[Communication Template in Section/Clinic]
CommunicationTemplate AddOrUpdateCommunicationTemplate(int sectionId, CommunicationTemplate communicationTemplate);
bool DeleteCommunicationTemplate(int sectionId, CommunicationTemplate communicationTemplate);
AppointmentType AddOrUpdateAppointmentType(int sectionId, AppointmentType communicationTemplate);
bool DeleteAppointmentType(int sectionId, AppointmentType communicationTemplate);

SiteService
[Site Management]
Collection<Site> Get();
Site Get(int id);
Site GetFromVistaSiteId(string VistaSiteId);
Site Add(Site site);
Site Update(Site site);
bool Delete(int id);

E.3. MUnit Test Report

```
GTM>D ^KBANSDMU
OK - MKNOAV - Make appointment on a clinic that has NO
availability
information.
OK - MKHOL - Schedule on a Holiday EVEN if the clinic doesn't
allow it....
OK - MKFUT - Make an appointment way way way into the future...
OK - MKDAY - Make an appontment on the same day...
OK - MKCAN - Make an appointment over a cancelled appointment

Ran 1 Routine, 5 Entry Tags
Checked 15 tests, with 0 failures and encountered 0 errors.
```

E.4. Licenses Stored in the VMs

Health eTime is our primary open source scheduling application and its Apache 2.0 license is stored in the VM directories along with this main document.

The following is a list of supporting licenses stored in the VMs directories. These components enable Health eTime operations in the test environment.

- Daypilot Lite 2010 (Open Source)
- Log4Net (Open Source)
- JQuery (Open Source)
- NHibernate (Open Source)
- Bedework (CalDav Server) (Open Source)
- Apache HTTP Server Version 2.2 (used to run Bedework) (Open Source)
- Webdev. Net (CalDav libraries)
- SQL Server Enterprise 2008 (SQL Server Reporting Services)

The authorization letter (also stored in the directory) fully affirms that our installation is compliant with the licenses and that the VA can fully and freely test Health eTime in the VMs.