

VeraLab™
Computer Lab Management Suite
Booking Application

8.0 for Microsoft Windows

July 2017

VeraLab Booking Application, 8.0 for Microsoft Windows

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Booking Application

This chapter describes optional Booking Application add-in and how it can be integrated with VeraLab Suite. This chapter covers the following topics:

- [Booking Application Overview](#)
- [Booking Process](#)
- [Class Bookings](#)
- [Deployment](#)
- [Booking Reports](#)

Booking Application Overview

Booking Application add-in for VeraLab Suite is designed to provide students and faculty with a robust web-based tool to book an individual workstation or entire computer room for a specific period of time. It is assumed that VeraLab Suite is running in a Self-Service mode and integrated with campus LDAP or MSAD directory.

Note Special edition of VeraLab Suite must be installed to support Booking Application add-in. Please contact sales@veralab.com for more details.

Under this scenario, students can log on to workstations in the lab using their individual credentials (username and password) stored in LDAP or MSAD directory. If authentication is successful users are granted access to computers provided no other limitations take place (see below).

Different computer rooms have different open times (i.e. not all computer rooms are available 24/7) and students are only allowed to make reservations within lab open time limits.

Note Lab Schedules and lab open hours must be defined before reservations can be made.

Booking Process

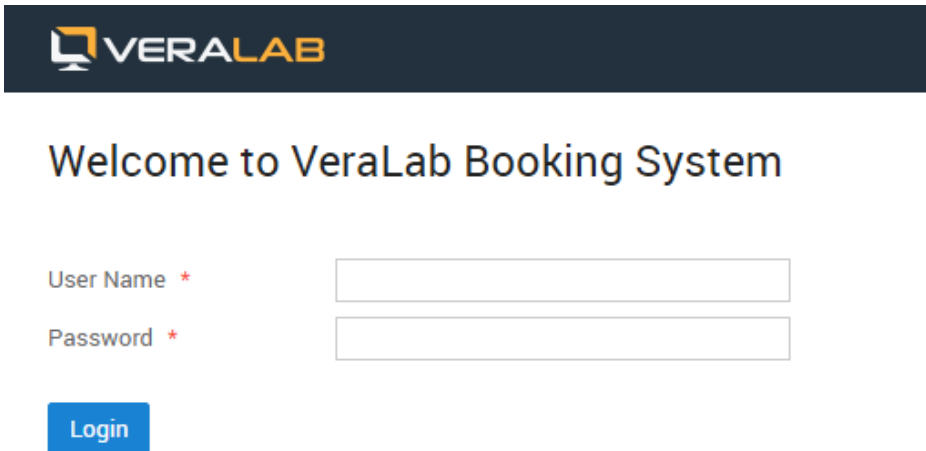
To make a reservation, user must login to VeraLab Booking Application using a browser. If the access to VeraLab server or Booking Application (Booking Application can be deployed on a separate server from VeraLab Suite) is open from off campus, students or faculty can make reservation from any computer connected to the Internet.

Warning If a Student is on the **Ban List**, such student cannot login to the Booking Application to make a reservation until ban is removed by the Booking Administrator.

By default Booking Application URL is `http://bookingapp_host:port/booking`, where `bookingapp_host` can be same as VeraLab host if it has been installed as single node; default port is 8080. See the screenshot on figure 1-1.

Figure 1-1: *Booking Application login screen.*

Booking Application login screen.



VERALAB

Welcome to VeraLab Booking System

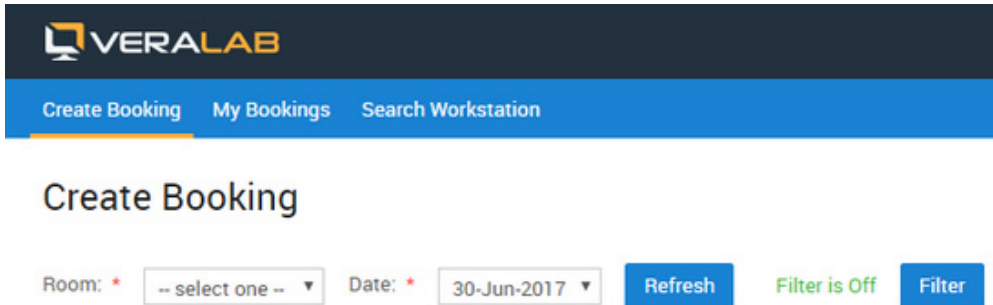
User Name *

Password *

Login

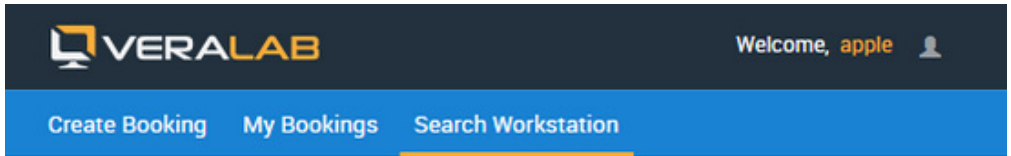
Upon successful login, a user is presented with several tabs and can either create new reservation, view/edit/cancel existing reservations, or perform workstation search based on certain criteria, e.g. search for computers that have 4GB RAM and 2 CPU cores minimum. When searching, a user will be provided with the list of rooms where workstations meeting that criteria are found. See the screenshots on figures 1-2 and 1-3.

Figure 1-2: *Create New Booking.*



The screenshot shows the VERALAB application interface. At the top, there is a dark blue header with the VERALAB logo. Below the header is a blue navigation bar with three tabs: 'Create Booking' (which is underlined), 'My Bookings', and 'Search Workstation'. The main content area is titled 'Create Booking'. Below the title, there are two dropdown menus: 'Room: *' with the value '-- select one --' and 'Date: *' with the value '30-Jun-2017'. To the right of these dropdowns are three buttons: a blue 'Refresh' button, a green 'Filter is Off' button, and a blue 'Filter' button.

Figure 1-3: Search Workstations based on certain criteria.



Search Workstation

CPU Frequency:

CPU # of Cores:


Memory Size:


Operating System:

Software:

Leaving any filter field blank will disable searching for that criteria.
 Use only number values when you search using CPU Speed, Cores, and Memory filters.
 Searching on CPU, Cores, and Memory will return all records that are less or equal to specified values.

Available:

From 

to 

Search Result

B53B (found 2 stations)
 Dummy Room (found 10 stations)

Booking Process

Once Room and Date selections are made, a user is presented with a grid of available workstations in the room. Each cell in the grid contains a workstation name and the Book link, clicking on which a new window pops up, prompting to specify reservation start and end times for selected workstation on that date. Students can view the availability of workstations and make bookings accordingly. They can not book workstations marked as unavailable or that are

booked for a class. Users can see what time slots have already been reserved and cannot make new reservations that overlap existing reservations. See the screenshots on figures 1-4 and 1-5.

Figure 1-4: *Create new booking Screen.*

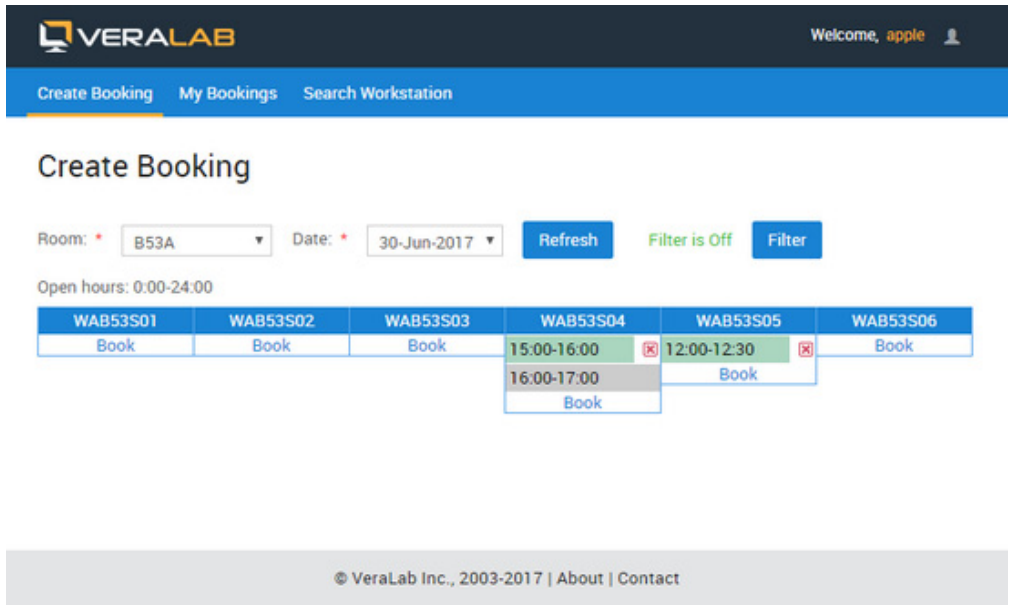


Figure 1-5: *View My Bookings.*

Room	Workstation	Start Time	End Time	Delete
B53A	WAB53S05	30-Jun-2017 12:00	30-Jun-2017 12:30	✘
B53A	WAB53S04	30-Jun-2017 15:00	30-Jun-2017 16:00	✘

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Students are allowed to make reservations in advance, e.g. a week in advance, but not later than 15 minutes before requested time.

Booking Process Checks and Limitations

Checks and limitations for regular student's bookings (and bookings made by Administrator on behalf of a student):

1. Start and End time must be a multiple of 15 minutes.
2. Student is not part of the "Ban" list.
3. Booking does not exceed booking limit (default is 60 minutes defined in Application Settings).
4. Booking start time is in future.
5. Station is available for bookings (reservable).
6. If station status has been "unavailable for more than 24 hours, a booking request cannot be completed. If a station has been unavailable for more than 2 hours, but less than 24 hours, next booking can be made at any period beyond 24 hours from the start time of such unavailability. If a stations has been unavailable for less than 2 hours, next booking can be made at any time beyond 2 hours from the start time of such unavailability.
7. Booking time fits room/lab schedule.
8. Student has not exceeded booking quota for the day.
9. No other bookings exist for the same time period (no double-booking).
10. No other class/block bookings exist for the same time period.

11. Next booking availability is at least 15 minutes ahead in the future.

Checks and limitations for Administrator's bookings:

1. Start and End time must be a multiple of 15 minutes.
2. Booking start time is in future.
3. Station is available for bookings (reservable).
4. If station status has been "unavailable for more than 24 hours, a booking request cannot be completed. If a station has been unavailable for more than 2 hours, but less than 24 hours, next booking can be made at any period beyond 24 hours from the start time of such unavailability. If a stations has been unavailable for less than 2 hours, next booking can be made at any time beyond 2 hours from the start time of such unavailability.
5. Booking time fits room/lab schedule.
6. No other bookings exist for the same time period (no double-booking).
7. No other class/block bookings exist for the same time period.
8. Student username/id is valid in the Directory.

Checks and limitations for block (or class) bookings (made by Booking Administrator):

1. Start and End time must be a multiple of 15 minutes.
2. Booking start time is in future.
3. If booking is recurrent, at least one day has been specified.
4. Room has to be open at the requested time.
5. No other booking exists for the same time. All overlapping individual bookings will be canceled and email notifications will be sent out.
6. Block bookings can be made within next 6 months from current date.

Changes to Schedules

In case of any change in a schedule, all bookings of the affected room/lab will be scanned and canceled if required. Schedule deletion falls under the same logic.

Time and Date Periods

In most cases when specifying date/time range, VeraLab uses from/to inclusive rule, e.g. if a schedule is defined between January 1st and January 3rd of 2010, this means the schedule is valid during 1st, 2nd, and 3rd of January 2010. The only exclusion to this rule is booking time. This means that if a booking is made from 0:00 to 0:15, the booking will expire exactly at 15 minutes, in other words actual booking time is from 0:00:00 until 0:14:59.

Note All time periods and schedules are valid within 24 hour period of the same date starting at 0:00 hour. For example, if a room schedule is from 19:00 to 2:00, it has to be defined as two time ranges: 0:00-2:00 and 19:00-0:00. The same rule applies to bookings - if there is any booking that overlaps 0:00, it has to be requested as two time periods.

Client Behavior and Checks

To enforce reservation on the client side the following checks are performed:

1. When a new booking time is reached, the client displays a custom message during 5 seconds and then performs the session logout.
2. When a new user logs in, the client verifies against the server if that user has a booking. If the same user booking exists, the session remains running; if not, the client performs an action from Step 1.

Background Processes and Servlets

Background monitoring process wakes up every minute and performs the following actions:

- Closes long running sessions on all stations that exceeded “max registration length” setting. If it is required to avoid automatic session time-out, “max registration length” value has to be increased to some large number exceeding room open hours.
- Sends warning messages to stations where sessions are expiring.
- Closes sessions on stations that are occupied by anyone except a user with a current booking.
- Sends warning messages about logout.
- Updates database tables and deletes completed/expired bookings (both individual and class).
- Updates database tables and deletes “no show” bookings.

Servlet controls the following requests:

- If there is a Class booking in progress, any user can start a new session. It is assumed that class instructor will enforce the access of only those students who are enrolled in the class.
- If there is an Admin booking in progress, any user can start a new session. It is assumed that Administrator will enforce such access case.
- If there is no booking in progress, any user can start a new session.
- If there is any individual, non-admin booking in progress, only a user with the matching username can continue with a new session. Any user can login, but will be immediately logged out if the username does not match a username on the booking.

Class Bookings

Class bookings are performed through VeraLab main application: http://veralab_server:8080/veralab. VeraLab user must be granted a Booking Administrator role in order to login into VeraLab and perform required actions. See the screenshot on figure 1-6.

Figure 1-6: *Class Booking Screen and create new booking window.*

VERALAB

Welcome, Administrator VeraLab

Create Booking

Select Room * C02A

Course Name * Introduction to Java

Start Date * 10-Jul-2017

Start Time * 08:00

Instructor Id * jsmith

Instructor Email * jsmith@veralab.edu

End Date * 31-Aug-2017

End Time * 09:30

Recurrent

Su Mo Tu We Th Fr Sa

Ok Close

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Deployment

Booking Application is delivered as a special edition of VeraLab Suite, not available for download from our regular Downloads page on the www.veralab.com web site. To deploy VeraLab Booking App module, the following high level steps must be performed. For more details, please contact VeraLab Support.

1. Download and unzip binaries into a temporary folder using links provided by VeraLab Sales or Support.
2. Deploy customized VeraLab application. VeraLab Suite installation steps are standard and can be reviewed by downloading and reading Installation Guide.
3. Logon to Veralab web application and go to Tools -> Settings -> Booking Settings.
4. Update LDAP Server attributes to point to your onsite LDAP or MSAD server.
5. Open VeraLab Server Manager and stop “VeraLab Server” component VeraLab using VeraLab Server Manager or from Windows Services Panel.
6. Copy booking.war from downloaded location into c:\Veralab\tomcat\webapps.
7. Start VeraLab and verify you can login.
8. Logon to VeraLab Booking app and follow steps to make a computer reservation.

Multi-Node Deployment

In order to deploy Booking application in a two-node architecture, the following high level steps must be performed. For more details, please contact VeraLab Support.

1. Deploy customized VeraLab application and database on Node1.
2. Add new user to VeraLab database, e.g. bookinguser and verify DB can be accessed from Node2. To create additional database user for VeraLab, run below command from PostgreSQL prompt, e.g.

```
create user bookinguser with createdb password 'booking';
```

3. Install JRE, Tomcat, and Booking application on Node2. It is possible to deploy three Booking applications (one for each campus) on the same server, but they must have different names, e.g. booking_campus1.

4. Change booking/WEB-INF/db.properties on Node2:

```
torque.dsfactory.maindb.connection.url = jdbc:postgresql://
```

```
enter_veralab_server_hostname:5432/veralab
```

```
torque.dsfactory.maindb.connection.user = bookinguser
```

```
torque.dsfactory.maindb.connection.password =enter_bookinguser_password
```

Booking Reports

The following reports are available in VeraLab Suite integrated with Booking Application module. Booking reports are available only for users with Booking Administrator role.

- Show Reservation Schedules report. Filters: from/to dates, room selection. Displays a schedule table for the selected room and shows only block/class bookings. See the sample report on figure 1-7.
- Number of Bookings Report. This report is similar to built in login report. It displays number of bookings per room. It counts user bookings (all except canceled or banned) and can display results by day of week or distribution by hours.
- Bookings by Workstation. This report counts and displays number of bookings per workstation. The results can be grouped by month, week, or day. Same as previous report, it counts user bookings (all except canceled or banned).
- Block Booking Report. Filters: from/to dates, room selection. Report period is limited to 31 days due to resource-intensive calculations. The report counts the sum of all non canceled block bookings and total open hours per room. The result is displayed as percentage of block bookings to total open hours.

- Workstation Unavailability History Report. Report is located under Technician (role) -> Reports and allows to export data from availability log.

Figure 1-7: Sample Reservation Schedule Report.

The screenshot shows the VERA LAB web application interface. At the top, there is a navigation bar with the VERA LAB logo and a user profile for Administrator VeraLab. Below the navigation bar, the 'Reports' menu is selected. The main content area is titled 'Reservation Schedule' and contains a search form with the following fields: 'Dates from' (01-Jul-2017), 'to' (31-Jul-2017), and 'Room Name' (C02A). A 'Show' button is located below the search fields. Below the search form, there is an 'Excel' icon and a table of reservation data.

Date	From	To	Course Name	Instructor Id
11-Jul-2017	8:00	9:30	Introduction to Java	jsmith
13-Jul-2017	8:00	9:30	Introduction to Java	jsmith
18-Jul-2017	8:00	9:30	Introduction to Java	jsmith
20-Jul-2017	8:00	9:30	Introduction to Java	jsmith
25-Jul-2017	8:00	9:30	Introduction to Java	jsmith
27-Jul-2017	8:00	9:30	Introduction to Java	jsmith

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