



# Openbravo Business Suite Technical Training 2 Platform Development

## Course Guide

v4.0

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## Introduction

Technical Training level 2 aims to provide an in depth knowledge of how **Openbravo Business Suite can be customized, extended and packaged into modules**. Client and server side development is discussed through a real life scenario and numerous hands on exercises.

**Note:** This course does not cover topics such as installation, basic customizations through the use of application dictionary and report development! To learn those, please consider participating in our [Technical Training 1](#).

## Audience

This course is targeted at **experienced Java developers** who will be customizing or extending Openbravo Business Suite with new functionality. See the [Requirements](#) section below for a more detailed list of required knowledge.

## Content

### Session 1 Introduction and Concepts

This first session will welcome the student to the course, present the schedule and give an overview of the topics and assignments.

To resemble a real life scenario a hotel management module will be developed with the following requirements:

- a new **Guest entity** that ties to a Business Partner to whom an invoice can be issued
- a new **Room entity**
- a new **Stay entity** overnight stay of a particular guest in a room
- a new **Guest/Stay window** where the corresponding entities can be managed and edited
- a new **Room window** where rooms can be managed and edited
- **customized Business Partner** screen
- **background and on demand recalculation of guest rates** based on the history of stays
- **webservice** that exposes a list of available rooms to the world according to smoking/nonsmoking criteria
- **automatic checkout** from the original room upon switching rooms
- **custom screen** showing a monthly overview of room utilization
- **package all developments** for this solution into a single OBX file that can be shared/distributed

### Session 2 Development Environment

Before any coding takes place, a development environment will be set up and configured.

- **checkout of the latest stable code**
- **installation and configuration of Eclipse**

All exercises and customizations within this course must be done in this local environment! An **Openbravo On Demand instance** owned by each student will be used to simulate a **testing/pre production environment** where all developments will have to be deployed to and verified by the instructor.

### Session 3 Modularity & Initial Client Setup

Development of any artifact MUST be part of a module. A **new Hotel Management template + module** will be created which all subsequent course developments will belong to.

We will also learn how to install other existing external modules.

An initial client+organization setup will be performed for a fictitious customer Hotel Green Terrace to simulate the application setup and a testing environment.

### Session 4 Advanced Application Dictionary

The student should be familiar with the basic concepts of Openbravo's Model Driven Development (MDD) approach by now. This metadata is also called the Application Dictionary in Openbravo Business Suite and its advanced powers will be discussed with topics such as:

- creating new tables, windows, tabs and fields
- creating new references
- making fields conditionally readonly
- making fields display under certain conditions
- changing labels and descriptions of fields
- derived default values
- document sequences
- making and exporting changes to a core window

### Session 5 Database Core Elements

*Stored Procedures:* Most of Openbravo Business Suite business logic is located within stored procedures inside the database. Customization of certain main stored procedures through extension points is often required and will be explained here.

*Triggers:* Another portion of Openbravo Business Suite business logic is implemented using database triggers. The student will learn how triggers are structured and how to override core triggers.

Development of new business logic should be done through Java processes and will be discussed in later chapters.

### Session 6 Java Processes and the Data Access Layer

#### *Data Access Layer*

Instead of stored procedures and SQL statements, Openbravo Business Suite offers Object Relational Mapping through plain Java objects that allow the developer to perform all database operations. In Openbravo Business Suite it is called the Data Access Layer (DAL, based on Hibernate) which will be discussed here.

#### *Action Buttons*

Extending standard windows defined inside the application dictionary can often be done by placing action buttons on them with a Java process behind it. An action button will be introduced to the guest window that recalculates a specific guest's rate based on his or her stay within the last X months.

### Session 7 Callouts

Doing validations, additional database lookups or plain calculations within automatic windows is possible using callouts associated with individual columns. A new callout will be developed that upon entering a checkout date for a guest's stay, automatically calculates the final sum based on the nights stayed and the room rate given.

## **Session 8 Event Handlers**

Events are Java processes that replace the database trigger functionality. A new event will be developed within this section that operates on our list of stays, doing an automatic checkout of a guest that switches to another room.

## **Session 9 Background Processes**

Any Java process in Openbravo can easily be developed and scheduled as a background job. The hotel management scenario requires the guest rate to be recalculated automatically using a background process developed here.

- Process vs DAL Based Process
- Develop a short background process
- Scheduling
- Monitoring

## **Session 10 Webservices**

Webservices are a great way of making applications flexible and open to integration with other systems. Openbravo supports SOAP as well as REST (XML & JSON) webservices which will be discussed in this chapter. A new REST webservice will be developed that offers a list of available (non occupied) rooms according to the smoking/nonsmoking criteria passed.

## **Session 11 ToolBar and Navigation Bar Customizations**

Custom buttons or widgets can be added to the Toolbar or the Navigation bar. Both will be discussed and developed within this chapter.

## **Session 12 Manual Window/View**

When a certain functionality cannot be supported by the elements discussed until this point or when a different UI is required, a custom screen can be developed from scratch to fill the gap. This is the last resort which should only be taken when no other framework artifact can be used to implement the solution. Custom windows offer limitless options but make you the full owner and maintainer of it. Consequently, these do not benefit from Openbravo bugfixes and upgrades.

The use of the SmartClient RIA library will be explained here to develop the frontend, coupled by a backend Java process.

## **Session 13 Packaging**

By this point, the student will have lots of additional developments done compared to the core Openbravo Business Suite. Packaging them together in order to install them at a customer's site or share them with the community is crucial. One will learn how to define datasets and export all metadata to a specific module's folder and package it together into a single .OBX file.

# Formats

## Online Elearning Format

The online version of the course delivers the same content as the classroom one but in a self study manner and over a longer period of time, **4weeks**. The online format of this training is an alternative designed for participants **with financial and/or resource constraints**. To make up for the classroom interactivity, the online e-learning platform comes with the following collaboration elements:

- **News blog** where live sessions and other news will be published
- **Documentation** for each topic and assignments that can be printed out
- Links to **Howto articles and additional readings**
- **Q&A forums** monitored and answered by Openbravo training specialists
- **Exercises and assignments**
- Embedded **IRC live chat sessions/support** tutored by a Openbravo training specialists
- An **Openbravo On Demand virtual instance** of Openbravo Business Suite application is provided where exercises are deployed, executed and troubleshot by the instructor

This course requires roughly **45 hours (depending on the student's background and proficiency) of student self study** which he or she may invest as they see fit across the **4week availability**:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Week 1	IRC Chat Live Assistance *						
	Forum Support						
	Self Study						
	Elearning Platform Availability						
Week 2	IRC Chat Live Assistance *						
	Forum Support						
	Self Study						
	Elearning Platform Availability						
Week 3	IRC Chat Live Assistance *						
	Forum Support						
	Self Study						
	Elearning Platform Availability						
Week 4	IRC Chat Live Assistance *						
	Forum Support						
	Self Study						
	Elearning Platform Availability						

<b>IRC Chat Live Assistance</b>	<b>IRC Chat Rooms</b> where an Openbravo Instructor is present to resolve any questions, issues or doubts that may arise during the course. *This is an experimental feature for which we cannot guarantee any service levels yet
<b>Forum Support</b>	<b>Forum Support by an Openbravo Training Specialist</b> is provided during <b>working hours</b> , i.e. Monday to Friday. We will respond within one working day from the moment a forum post or inquiry is submitted. Please note that we do our best to provide responses within few hours (as well as on weekends), though not obliged to do so.
<b>Self Study</b>	The course is based on <b>self-study</b> model with an estimated <b>45 hour student dedication required</b> . During the entire course length the student can choose his or her own pace to follow and go through the complete course. Dependent on the student's effort the course can be completed in any time between one and four weeks.
<b>Elearning Platform Availability</b>	The elearning platform with all its elements such as <b>study materials, virtual environments, forums and assignments available for the full length of the course</b>

### Classroom Format

Classroom format of the training is aimed at those in need to learn how to customize and extend Openbravo Business Suite in the shortest and most efficient manner possible, when given as such and delivered by an Openbravo Training Specialist, the Advanced Development. The 5 day course with the following schedule:

Day 1	Day 2	Day 3	Day 4	Day 5
Concepts and Scenario	Advanced Application Dictionary	Java Processes and Data Access Layer	Background Processes	Custom Window/View
Development Environment	Customization of Core Database Artefacts	Callouts	Webservices	Packaging the Solution
Modularity and Initial Client Setup		Events	Toolbar and Navigation bar customizations	Resolving left issues and Q&A

Within the classroom training the student will receive a USB key with:

- **electronic materials**
- **tools and installers** required for the course
- implementation source examples

# Requirements

## Knowledge prerequisites

- knowledge of **basic development concepts in Openbravo Business Suite** (mastered by taking the [Technical Training 1](#))
- excellent senior knowledge of **Java**
- good knowledge of **Javascript**
- master the concepts of **web applications** (preferably J2EE)
- basic knowledge of database concepts and SQL (SELECT, stored procedures, triggers)
- Knowledge of source control (Mercurial) is a plus

## Computer Requirements

- **dual core** processor (2GHz or faster)
- **4Gb** RAM or more
- A compatible web browser. Due to the fact that Openbravo Business Suite is a **rich internet application (RIA)**, the newest browsers with optimized Javascript engines are recommended for the best user experience:

Web browser	Minimum required	Recommended version
Chrome	42	43 or higher
Firefox	31	38 or higher
Internet Explorer	9	11 or higher
Safari	7	8 or higher

# Terms & Prices

## Times, Prices & Registration

Please visit <http://www.openbravo.com/resources/trainings/> for a list of scheduled dates and locations and to purchase seats for attending one of the upcoming courses.

## Language

All **training materials** are available in **English** only. **Classroom teaches and online course support** (forums & chats) however can also be delivered in **Spanish**.

## Notes

- The course is led and followed by an **Openbravo Training Specialist**.
- Training is based on **Openbravo Business Suite 3.0PR15Q3.3**.
- Prices are quoted per student and do not include taxes.
- This course is open to all participants, regardless of affiliation with Openbravo.
- This course **does not cover the functional or basic technical configuration topics** required to complete an implementation which are delivered during the [Functional Training 1](#) and [Technical Training 1](#).

For detailed Terms and Conditions of Openbravo courseware delivery, please visit the following link: <https://university.openbravo.com/university-terms.html>