ZIMMER BIOMET
ジンマー・バイオメット・デンタル

Introduction of ZWCS
(ZimVie Warehouse Control System)

Outline

I. Login and Main Menu Structure

II. Each Function
- a. Import Shipping Notice
- b. Re-Print Product Labels
- c. Synchronize Item Master with Kintone
- d. Verify Product Labeling

III. System Settings
- e. Source Code Management
- f. Application File Deployment
- g. Database Server Setting

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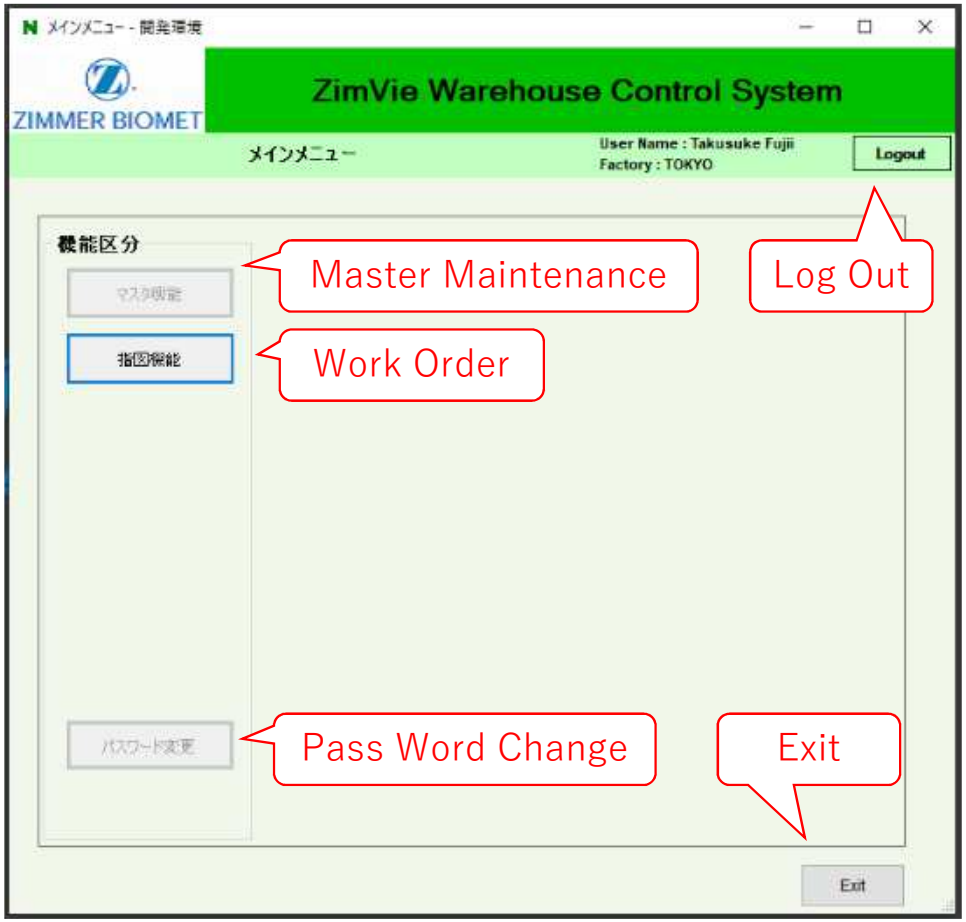
Login

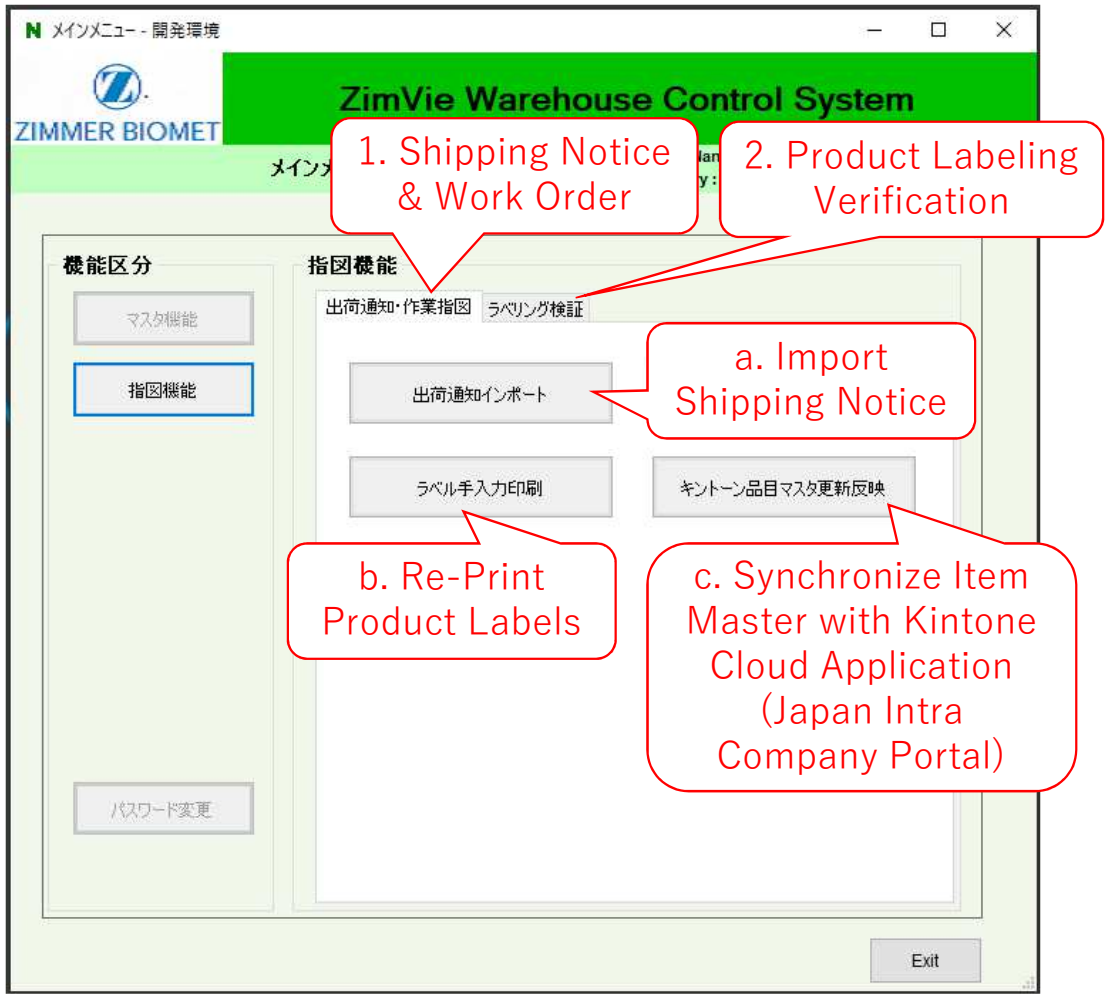
Even though user authentication and role & responsibility control functions are implemented, it is turned off to minimize the complexity in operation, considering that most of the users of this application are logistics partner employee. Currently, user can log in by typing any letters in user name text box and password text box.

Main Menu



Maser maintenance menus such as user - role & responsibility masters are disabled, so is the password change menu. Currently, only the work order related menus are set as available.

Main Menu first tab: Shipping Notice & Work Order



Work order menu consists with 2 tabs:

1. Shipping Notice & Work Order
2. Product Labeling Verification

1. Shipping Notice & Work Order tab provides 3 functions:

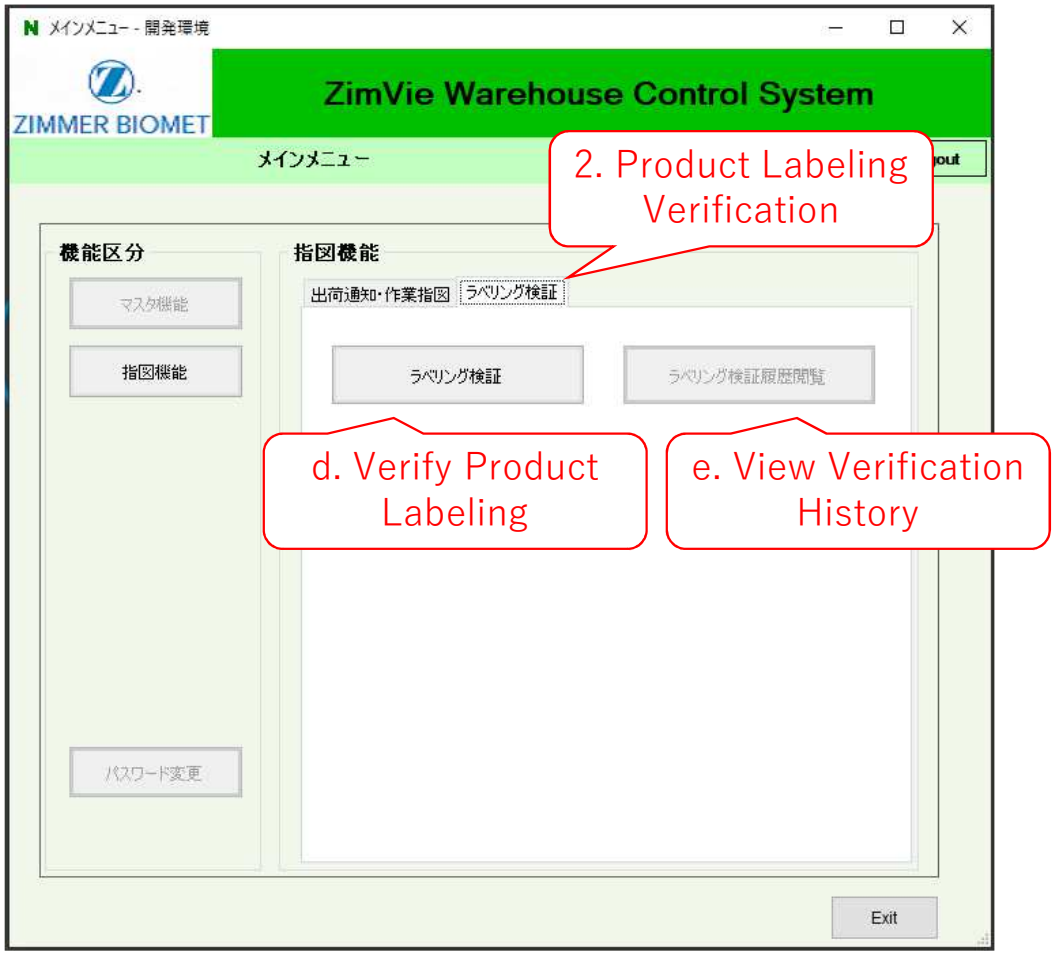
a. Import Shipping Notice
b. Re-Print Product Labels
c. Synchronize Item Master

a. Import Shipping Notice does:
Convert shipping notice into work order and product label

b. Re-Print Product Labels does:
Let user manually print product label

c. Synchronize Item Master:
Synchronize local item master with Kintone item master

Main Menu second tab: Product Labeling Verification



Work order menu consists with 2 tabs:

1. Shipping Notice & Work Order
2. Product Labeling Verification

2. Product Labeling Verification tab provides 2 functions:

d. Verify Product Labeling

e. View Verification History

d. Verify Product Labeling does:
Convert shipping notice into work order and product label

e. View Verification History does:
Let user manually print product label

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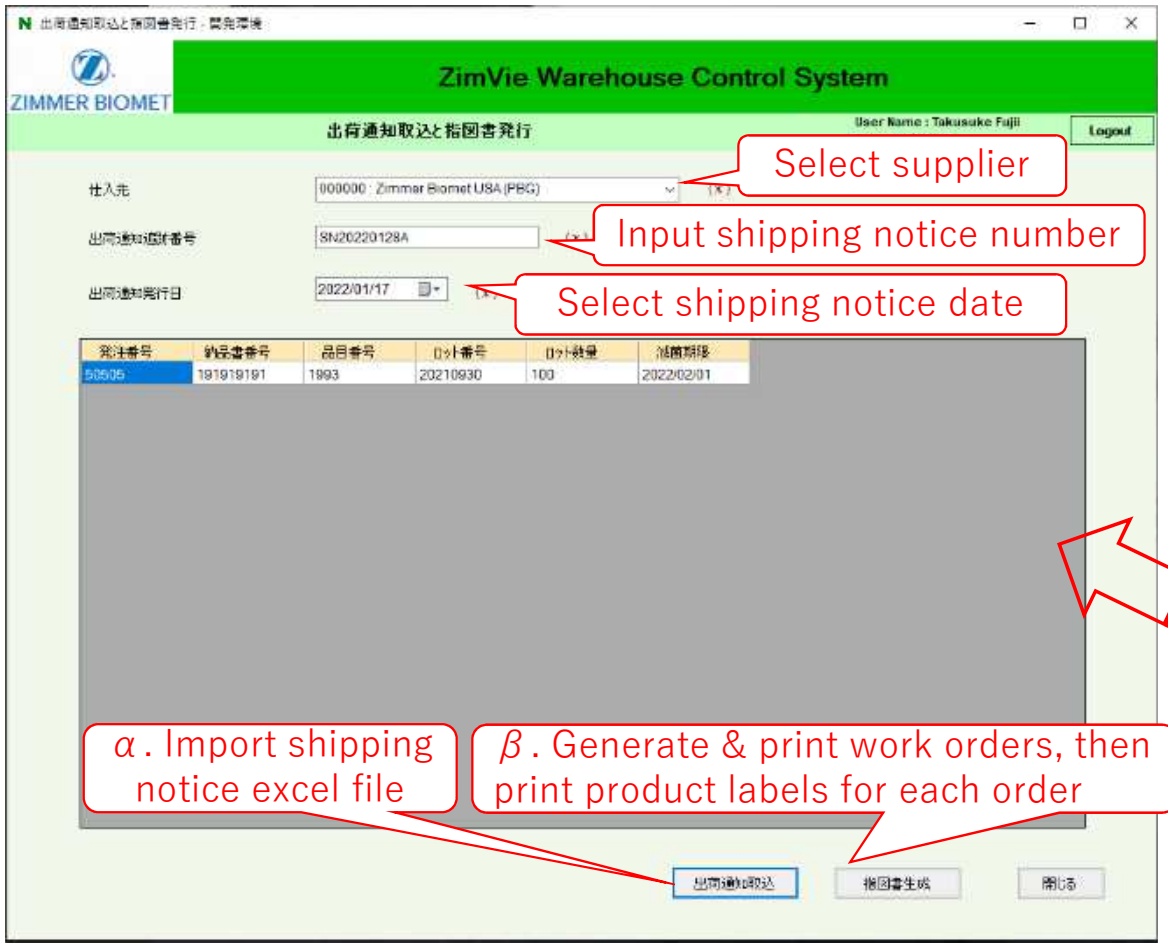
a. Import Shipping Notice

a. Import Shipping Notice



Import Shipping Notice Screen provide the below two functions:

α. Import shipping notice excel file then display its details.

β. Generate & print work orders, then print product labels.

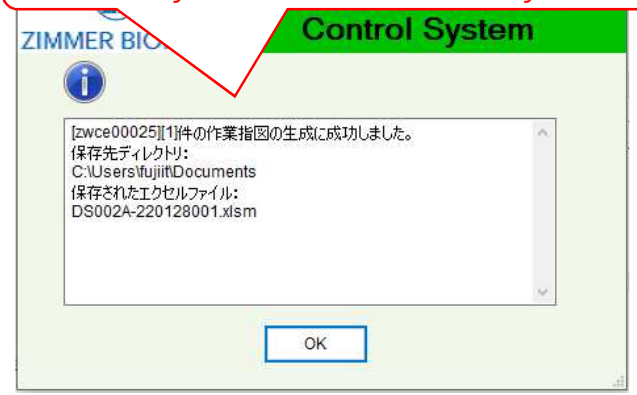
	A	B	C	D	E	F	G	H	I
1	Order Number	PO Number	Invoice Number	Item Number	Quantity Ordered	Shipped Quantity	Unit Sell Price	Lot Number	Lot Expiration date
2	987654321	50505	191919191	1993	100	100	16.42	20210930	01-Feb-2022
3									
4									

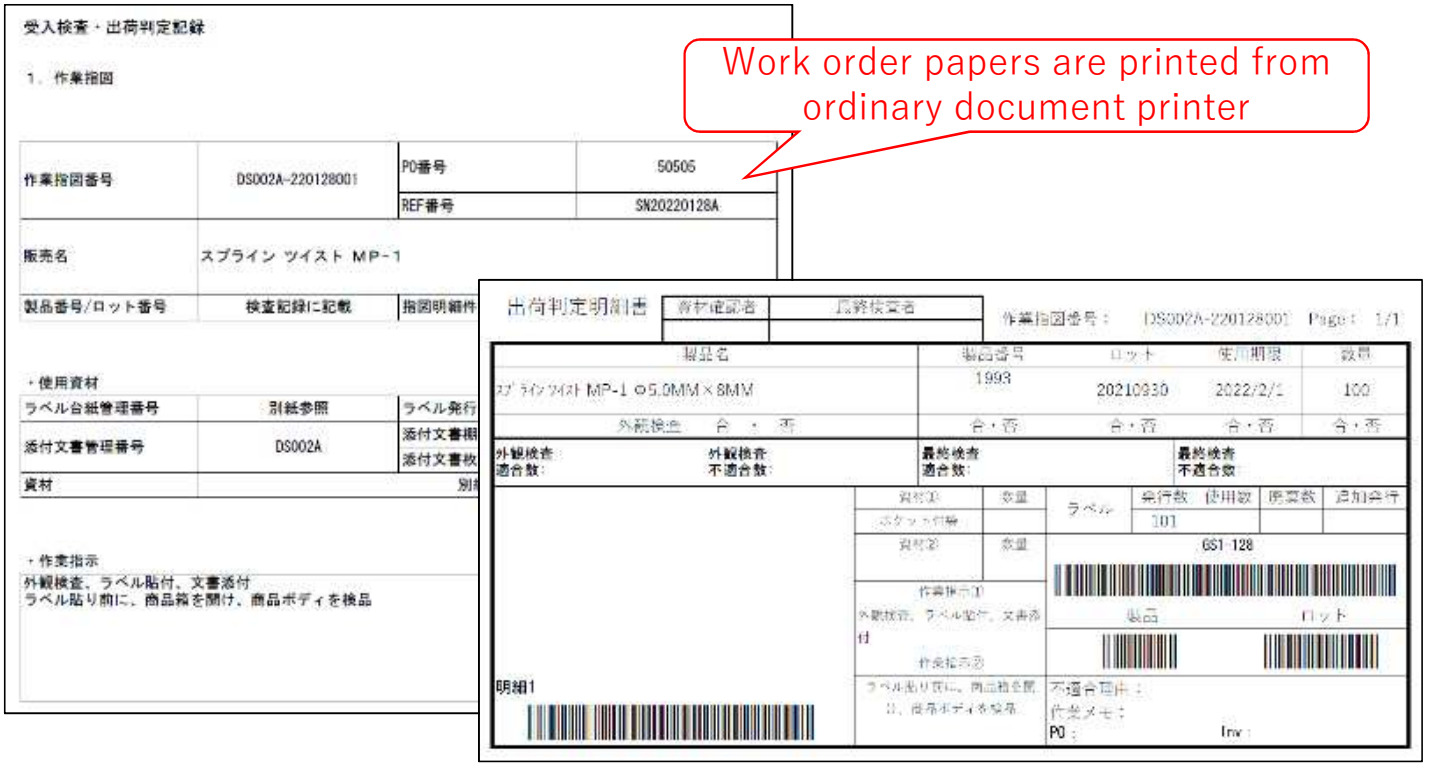
"Shipping notice" here refers to "COC: certificate of conformance" sent from PBG or the "ASN: advance shipping notice" sent from the 3rd party suppliers.

a. Import Shipping Notice

The result of clicking the button "β. Generate & print work orders, then print product labels“

Work order Excel file is generated in My Document directory.





Work order papers are printed from ordinary document printer

Product labels are printed from barcode printer

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b. Re-Print Product Labels

b. Re-Print Product Labels

Product label re-printing function is available for the case of labels lost or misprinted.
There are two types of label: ordinary product label, internal-purpose logistic label.

Input item number

Input description displayed from item master

Label type displayed from item master

Input lot number

Select expiry date

Input label quantity

Send print command to the barcode printer

Ordinary product label

Internal-purpose logistic label

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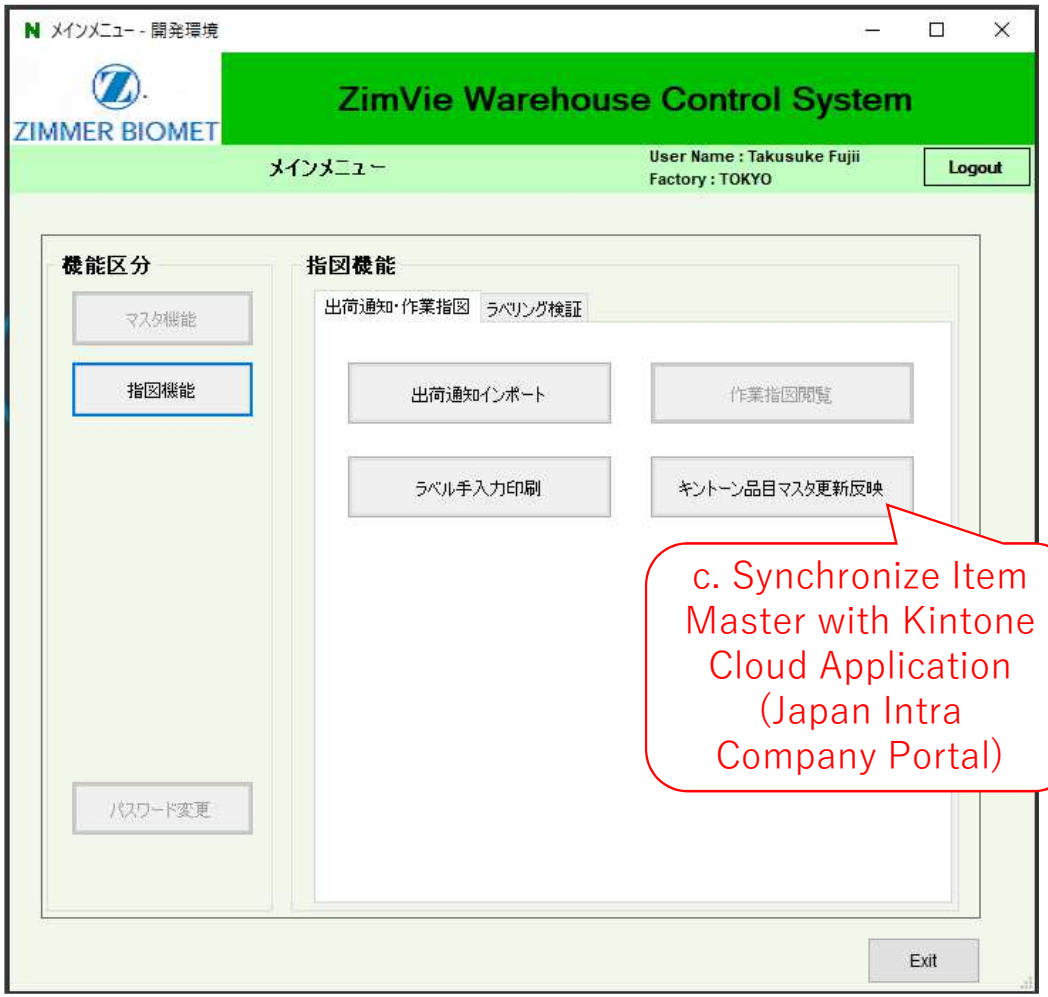
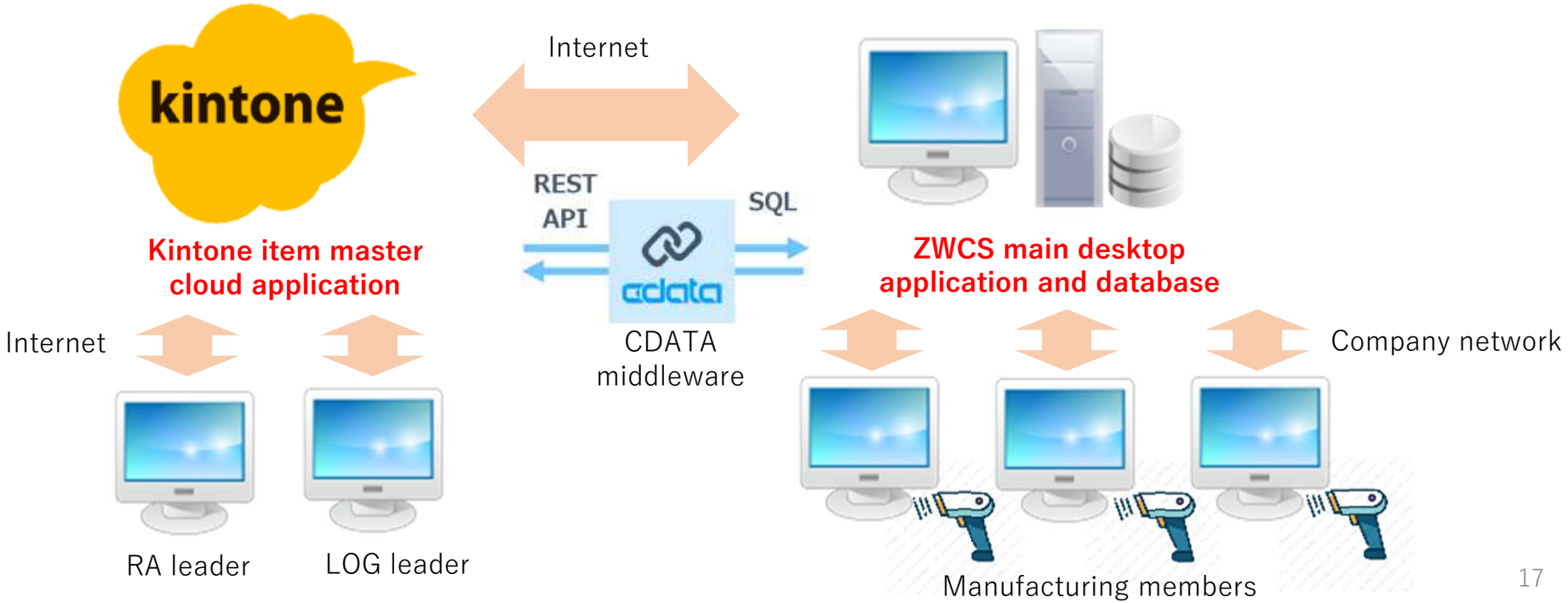
c. Synchronize Item Master with Kintone



c. Synchronize Item Master with Kintone

For Japan regulatory and logistics management purpose, Japan local item master data is controlled in Kintone application. ZWCS main desktop application runs in warehouse on-site PC with Postgres DBMS. RA and Logistics leader members manage item master in Kintone which is synchronized to ZWCS main application and database. Incidentally, work order - product label verification operation is done by manufacturing members accessing the database from each manufacturing PC.

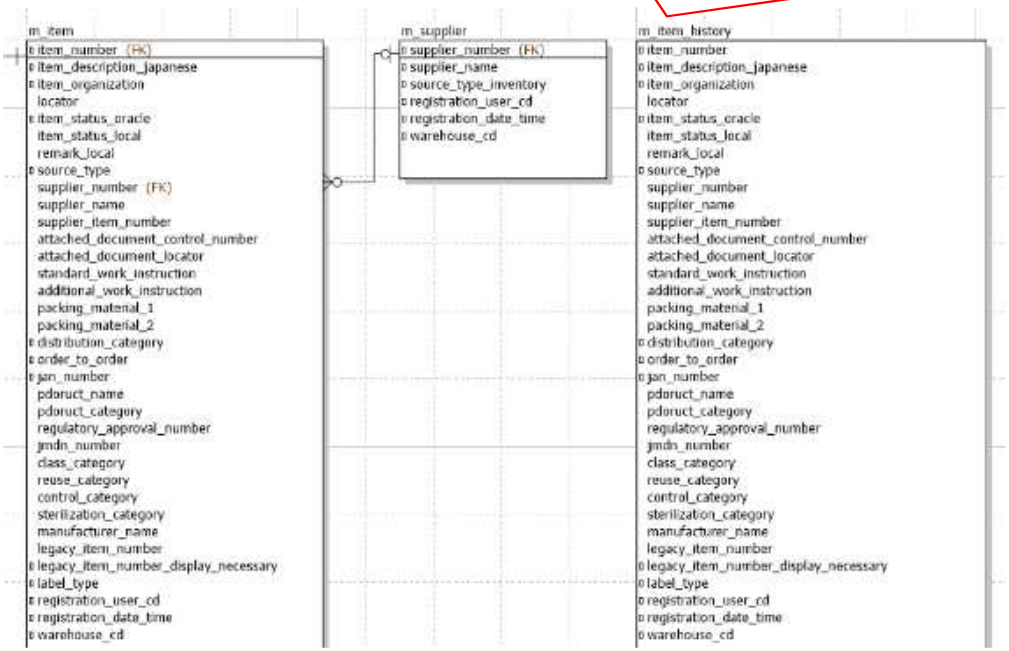


c. Synchronize Item Master with Kintone

When the Synchronize button is clicked in the main desktop application, the application read Kintone data for necessary update or creation, then update or create the record in the local database if the target item records exists. The local master record history is stored in the database for every update or create.

Synchronization result is displayed as the message to the user.

Not only the latest item master records but also every update or create history is stored in the local database.



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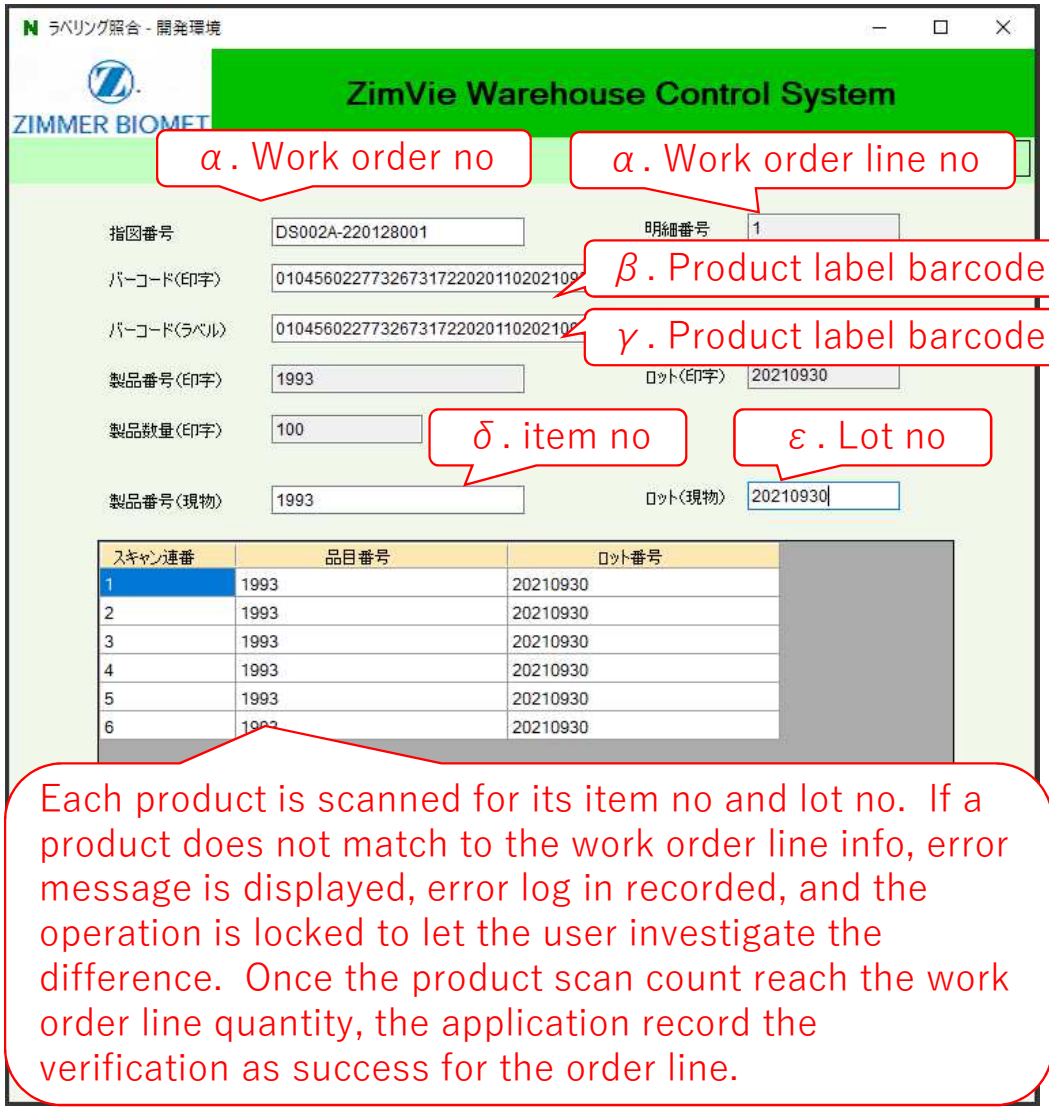
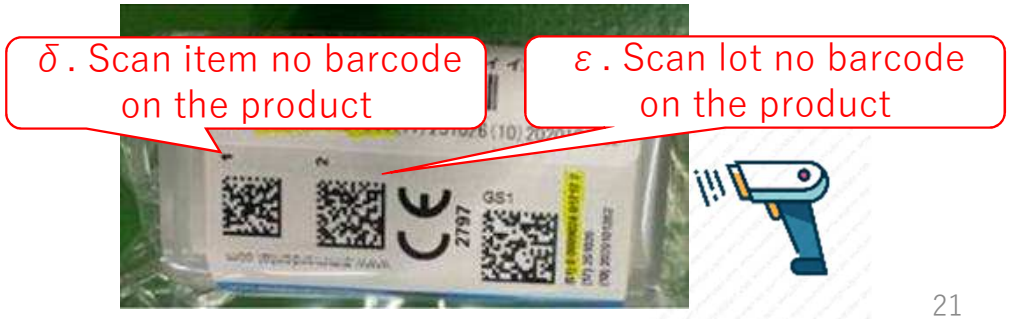


Each product is scanned for its item no and lot no. If a product does not match to the work order line info, error message is displayed, error log in recorded, and the operation is locked to let the user investigate the difference. Once the product scan count reach the work order line quantity, the application record the verification as success for the order line.



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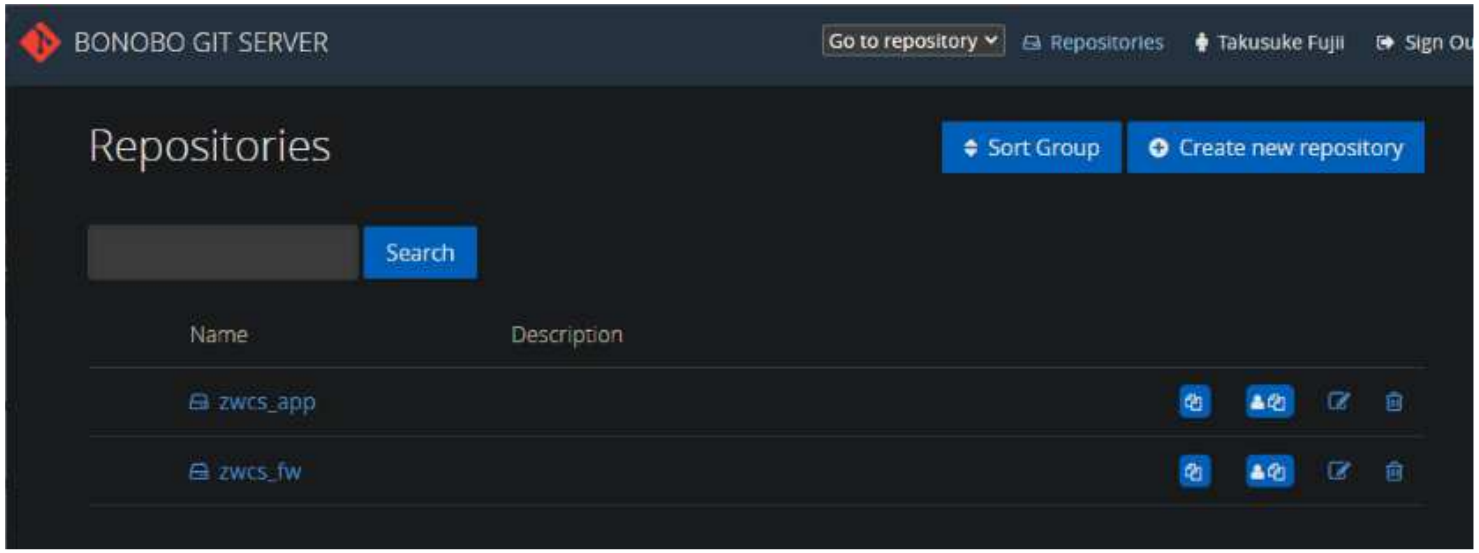
e. Source Code Management

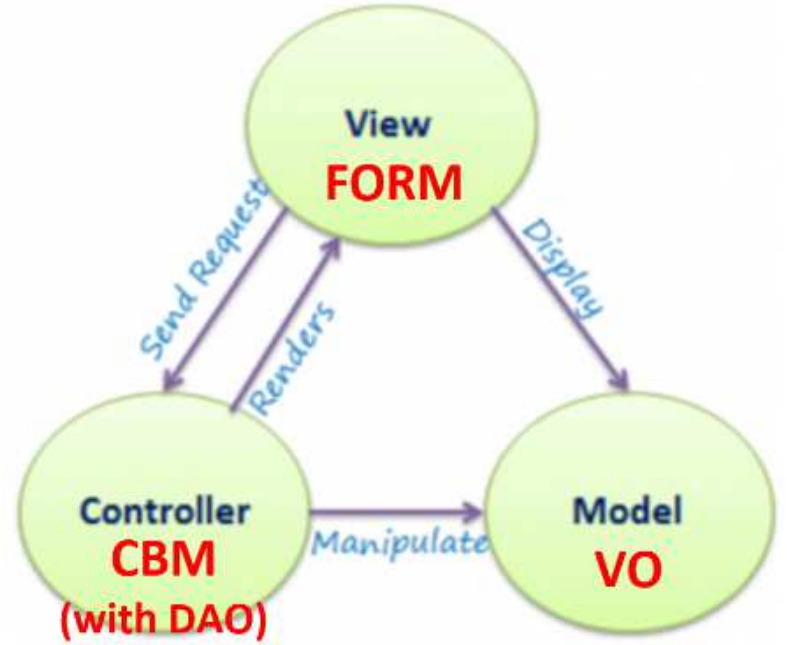
ZWCS source code consists of two solutions. One is “Framework” solution which contains base objects to control database transaction, business logic abstraction, and UI design. The other one is “Application” solution which contains implementation objects to actually describe the ZWCS specific business logics and UI forms.

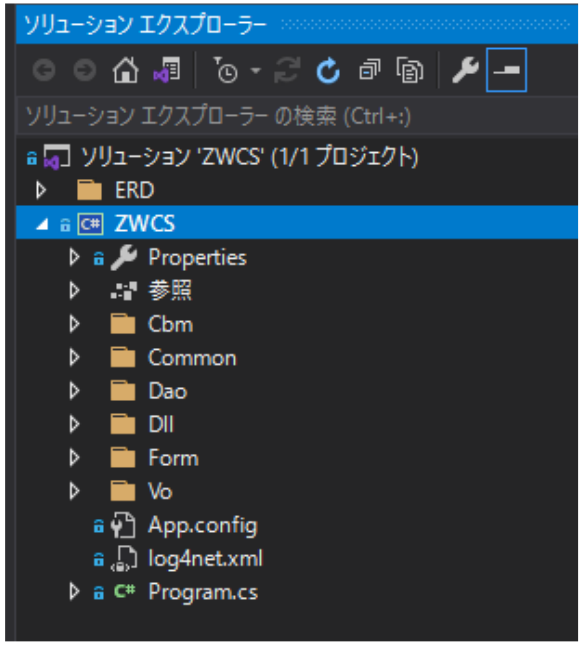
Framework repository: http://euesv-app-p67/Bonobo/zwcs_fw.git
Application repository: http://euesv-app-p67/Bonobo/zwcs_app.git



e. Source Code Management

ZWCS is a Windows Forms application applying MVC architecture.
Value Object (Model) : Defines data structure
Form (View) : Defines display
Core Business Module (Controller) : Contains control logic (usually with one or more DAO)
Data Access Object : Contains database command (usually SQL command)
* Each object in the solution is stored to the corresponding folders.





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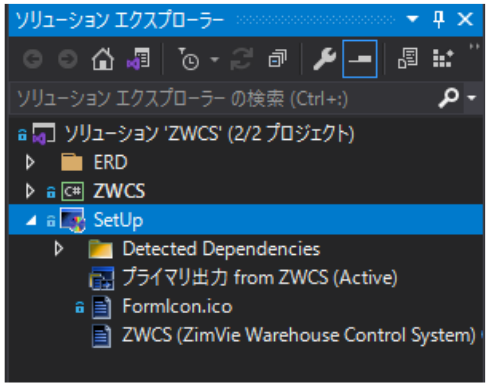
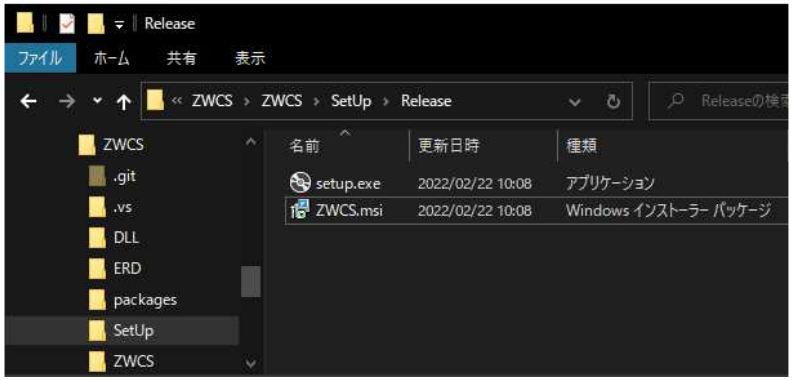
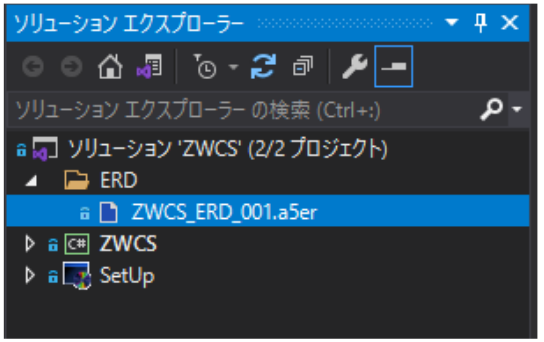
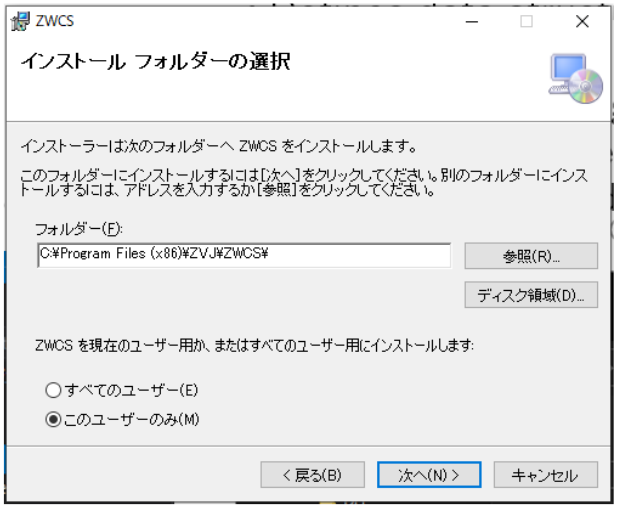
f. Application File Deployment

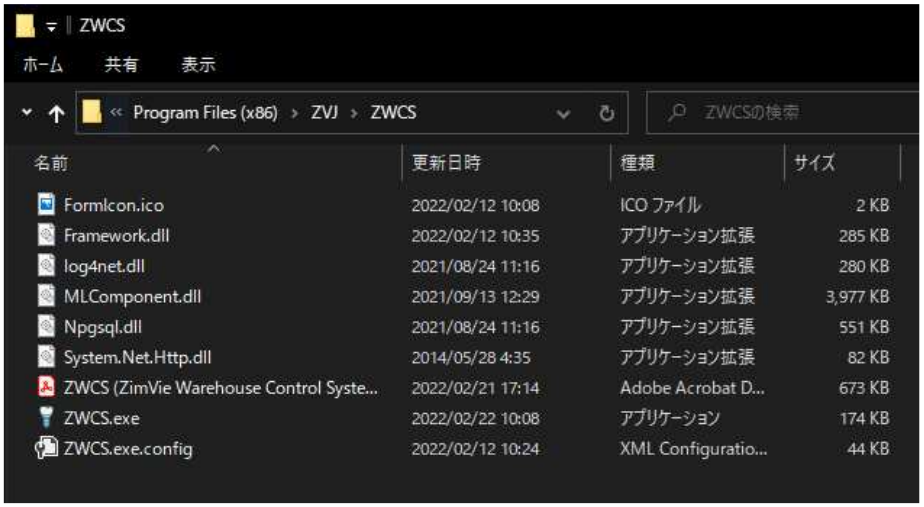
ZWCS solution has Windows Installer project “SetUp”. By building this project, the installer file is created. Its execution on user’s PC results in the app’s installment to the path “C:¥Program Files (x86)¥ZVJ¥ZWCS”, with short cut to the desktop and start menu.

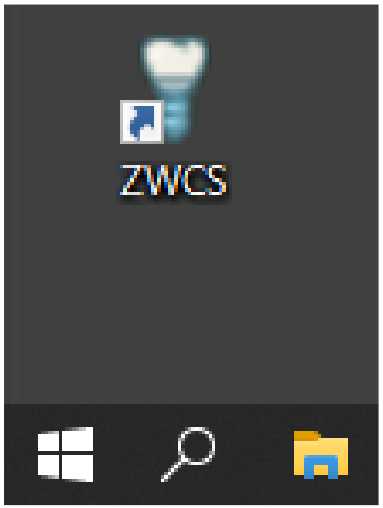












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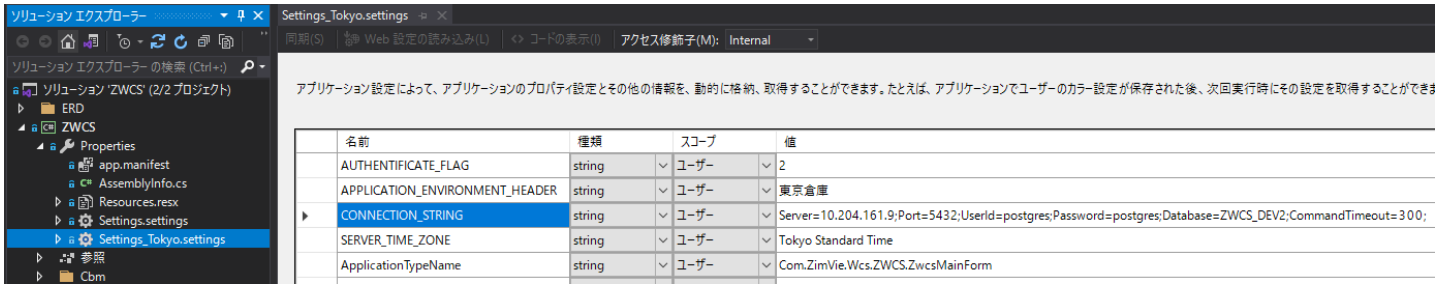
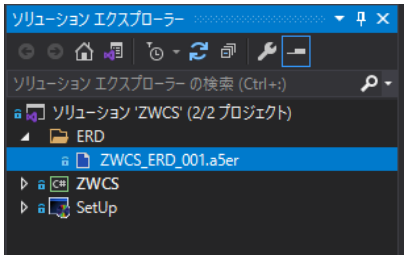
g. Database Server Setting

ZWCS is using opensource PostgreSQL 9.6 as its database. The IP address of the database can be adjusted in the setting file of ZWCS project. The database design is stored in “a5er” file in the ZWCS solution using “A5:SQL Mk-2” free tool. The tool can generate DDL(data definition language) from the ERD (entity relationship diagram).





A5:SQL Mk-2
SQL Development Suite