iDART Web Home

This is the iDARTweb wiki space.

http://sol.cell-life.org/idart

Start here

Documentation: Browse through this wiki using the left sidebar navigation

Jenkins (build system): https://www.cell-life.org/jenkins/job/idart-web/

Gitlab (source code): https://www.cell-life.org/gitlab/celllife-idart-web

Development:

```
git clone git@git.cell-life.org:celllife-idart-web.git
cd celllife-idart-web
sh ./bin/full.sh
less /tmp/jboss-as-7.2.0.iDART/standalone/log/server.log
```

Please contribute.

Recent space activity

- **Raiyaan Smith**
  - IDART-Prehmis setup configuration for Hout Bay pilot site created Jul 16, 2014

- **Dagmar Timler**
  - Manual installation updated Jun 07, 2014 • view change
  - iDART Web Home updated Jun 07, 2014 • view change
  - Architecture updated Jun 07, 2014 • view change
  - Integration updated Jun 07, 2014 • view change

Space contributors

- Raiyaan Smith (1304 days ago)
- Dagmar Timler (1342 days ago)
- Israr Mohamed (1477 days ago)
- Kevin Sewell (1589 days ago)

Architecture

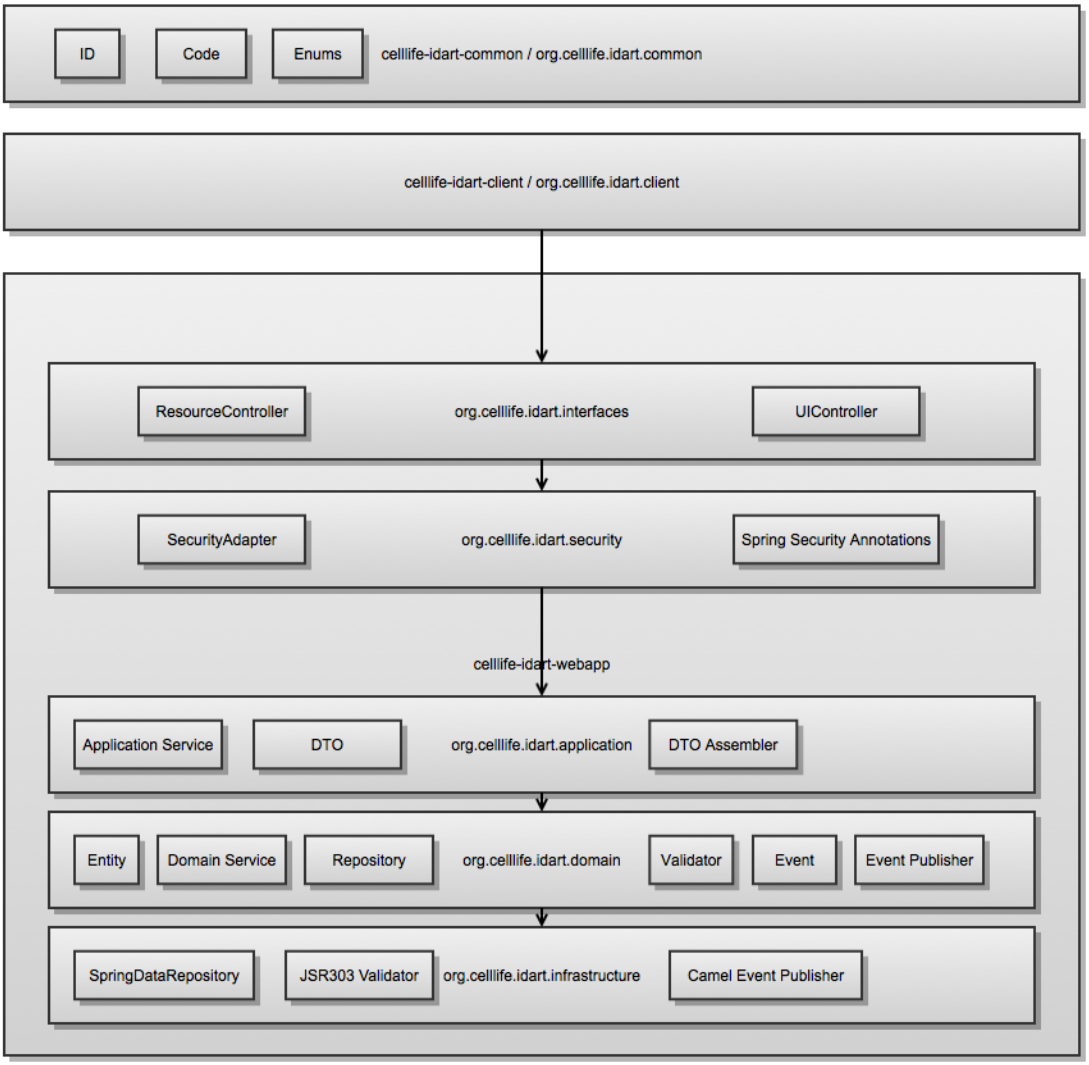
This section describes the iDARTweb architecture.

Please take note of the following pages (and use the sidebar on the left):

- System Diagram
- Application Diagram

- Integration
- Security

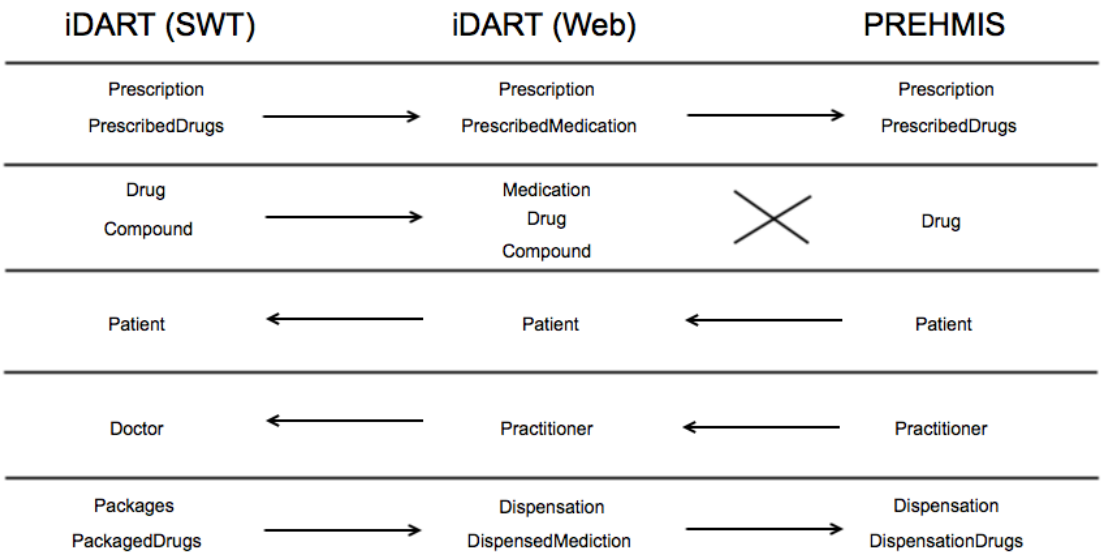
Application Diagram



Integration

See the below diagram to illustrate the flow of information between the three systems

1. iDART standalone client (SWT)
2. iDARTweb
3. PREHIMS


iDART (SWT)
iDART (Web)
PREHMIS
Prescription
PrescribedDrugs
Prescription
PrescribedMedication
Prescription
PrescribedDrugs
Drug
Compound
Medication
Drug
Compound
Drug
Patient
Patient
Patient
Doctor
Practitioner
Practitioner
Packages
PackagedDrugs
Dispensation
DispensedMediction
Dispensation
DispensationDrugs

iDART (SWT)

- iDART(Web) Endpoint Configuration
- Provider Services
    - IdartWebPatientService
    - IdartWebDoctorService
    - IdartWebMedicationService
    - IdartWebPrescriptionService
    - IdartWebDispensationService

iDART(Web) Endpoint Configuration

iDART(Web) settings are configured through the IZPack Installer

- <IDART_SWT_PROJECT_DIR>/metadata/install/userInputSpec.xml

Example

```
idart_web_enabled=true
idart_web_url=http://www.cell-life.org/idart
idart_web_system_id=99999999
encrypted_idart_web_application_key=8DA6F846-DFD1-4099-8E24-70B22EFAA2E4
```

Provider Services

IdartWebPatientService

Package: org.celllife.idart.integration.idartweb.patient

Entry point: model.manager.SearchManager.getPatientIdentifiers()

IdartWebDoctorService

Package: org.celllife.idart.integration.idartweb.doctor

Entry point: model.manager.AdministrationManager.getAllDoctors()

IdartWebMedicationService

Package: org.celllife.idart.integration.idartweb.medication

Entry point: org.celllife.idart.gui.drug.AddDrug.cmdSaveWidgetSelected()

IdartWebPrescriptionService

Package: org.celllife.idart.integration.idartweb.prescription

Entry point: model.manager.PackageManager.saveNewPrescription()

IdartWebDispensationService

Package: org.celllife.idart.integration.idartweb.dispensation

Entry point: model.manager.PackageManager.savePackage()

iDART (Web)

- Operations
  - GetPatients
    - Request
    - Response
  - GetPractitioners
    - Request
    - Response
  - SavePart
    - Request
      - Compound
      - Drug
  - SaveProduct
    - Request
      - Medication
  - SavePrescription
    - Request
  - SaveDispensation
    - Request

Operations

GetPatients

Request

HTTP Method: GET

URL: http://www.cell-life.org/idart/patients/search/findByIdentifier?identifier=<identifier>

Response


```
{
    "identifiers": [
        {
            "system": "IDART_WEB",
            "value": "00000000"
        },
        {
            "system": "PREHMIS",
            "value": "1"
        },
        {
            "system": "PGWC",
            "value": "72254311"
        }
    ],
    "valid": {
        "fromDate": 1380827630944
    },
    "person": {
        "identifiers": [
            {
                "system": "IDART_WEB",
                "value": "00000014"
            }
        ],
        "firstName": "AEIGHT",
        "lastName": "TEST",
        "gender": "MALE",
        "birthDate": 347148000000,
        "measurements": [],
        "contactMechanisms": []
    }
}
```


GetPractitioners

Request

HTTP Method: GET

URL: http://www.cell-life.org/idart/practitioners

Response

```
[
    {
        "identifiers": [
            {
                "system": "PREHMIS",
                "value": "715"
            },
            {
                "system": "IDART_WEB",
                "value": "00000007"
            }
        ],
        "type": "SENIOR_PROFESSIONAL_NURSE",
        "person": {
            "identifiers": [
                {
                    "system": "IDART_WEB",
                    "value": "00000021"
                }
            ],
            "firstName": "Hanlie",
            "lastName": "Nel",
            "measurements": [],
            "contactMechanisms": []
        }
    },
    {
        "identifiers": [
            {
                "system": "IDART_WEB",
                "value": "00000012"
            },
            {
                "system": "PREHMIS",
                "value": "1500"
            }
        ],
        "type": "MEDICAL_OFFICER",
        "person": {
            "identifiers": [
                {
                    "system": "IDART_WEB",
                    "value": "00000026"
                }
            ],
            "firstName": "Renay",
            "lastName": "Mbaezve",
            "measurements": [],
            "contactMechanisms": []
        }
    }
]
```


SavePart

Request

HTTP Method: POST

URL: http://www.cell-life.org/idart/parts

Compound

```
{
    "type": "COMPOUND",
    "identifiers": [
        {
            "system": "99999999",
            "value": "Abacavir"
        }
    ],
    "label": "Abacavir",
    "classifications": [ ]
}
```

Drug

```
{
    "type": "DRUG",
    "identifiers": [
        {
            "system": "99999999",
            "value": "00000002"
        }
    ],
    "label": "Abacavir 300mg",
    "form": "CAP",
    "classifications": [
        {
            "classification": {
                "value": "J05AF06",
                "type": "ATC"
            }
        }
    ],
    "billOfMaterials": [
        {
            "type": "ENGINEERING",
            "part": [
                {
                    "system": "99999999",
                    "value": "Abacavir"
                }
            ],
            "quantityUsed": {
                "value": 300,
                "unitOfMeasure": "mg"
            }
        }
    ]
}
```

SaveProduct

Request

HTTP Method: POST

URL: http://www.cell-life.org/idart/products

Medication

```
{
    "type": "MEDICATION",
    "identifiers": [
        {
            "system": "99999999",
            "value": "00000001"
        }
    ],
    "name": "[ABC] Abacavir 300mg",
    "drug": [
        {
            "system": "99999999",
            "value": "00000001"
        }
    ]
}
```

SavePrescription

Request

HTTP Method: POST

URL: http://www.cell-life.org/idart/prescriptions

```
{
    "identifiers": [
        {
            "system": "99999999",
            "value": "1380829240229"
        }
    ],
    "prescriber": [
        {
            "system": "PREHMIS",
            "value": "1299"
        }
    ],
    "patient": [
        {
            "system": "PGWC",
            "value": "72254311"
        }
    ],
    "dateWritten": 1380829240229,
    "prescribedMedications": [
        {
            "identifiers": [
                {
```

```
            "system": "99999999",
            "value": "1380829240228"
        }
    ],
    "medication": [
        {
            "system": "99999999",
            "value": "00000001"
        }
    ],
    "reasonForPrescribing": "Because I said so",
    "valid": {
        "thruDate": 1380829240229
    },
    "expectedSupplyDuration": {
        "value": 4,
        "unitOfMeasure": "wk"
    },
    "dosageInstruction": {
        "timing": {
            "repeat": {
                "frequency": 2,
                "duration": {
                    "value": 1,
                    "unitOfMeasure": "d"
                }
            }
        },
        "doseQuantity": {
            "value": 1,
            "unitOfMeasure": "each"
        }
    }
```

```
        }
    ]
}
```

SaveDispensation

Request

HTTP Method: POST

URL: http://www.cell-life.org/idart/dispensations

```
{
    "identifiers": [
        {
            "system": "99999999",
            "value": "1380829240461"
        }
    ],
    "patient": [
        {
            "system": "PGWC",
            "value": "72254311"
        }
    ],
    "dispenser": [
        {
            "system": "PREHMIS",
            "value": "1299"
        }
    ],
    "handedOver": 1380829240461,
    "dispensedMedications": [
        {
            "medication": [
                {
                    "system": "99999999",
                    "value": "00000001"
                }
            ],
            "quantity": {
                "value": 100,
                "unitOfMeasure": "each"
            },
            "dosageInstruction": {
                "timing": {
                    "repeat": {
                        "frequency": 2,
                        "duration": {
                            "value": 1,
                            "unitOfMeasure": "d"
                        }
                    }
                },
                "doseQuantity": {
                    "value": 1,
```

```
            "unitOfMeasure": "each"
        }
    },
    "expectedSupplyDuration": {
        "value": 4,
        "unitOfMeasure": "wk"
    },
    "authorizingPrescribedMedication": [
        {
            "system": "99999999",
            "value": "1380829240228"
        }
    ]
```

```
        }
    ]
}
```

PREHMIS

- Attached Documents
- Endpoint
- WSDL
- Operations
    - GetPatient
        - Request
        - Response
    - GetPractitionerList
        - Request
        - Response
    - StorePrescription
        - Request
    - StoreDispensation
        - Request

Attached Documents

- WSDL
- Prehmis API v1

Endpoint

http://prehmis-qa.capetown.gov.za/api.php

WSDL

http://prehmis-qa.capetown.gov.za/api.wsdl

Operations

GetPatient

Request

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
                  xmlns:preh="http://prehmis-qa.capetown.gov.za/">
    <soapenv:Header>
        <preh:AuthHeaderElement>
            <username>$username</username>
            <password>$password</password>
            <facility_code>$facilityCode</facility_code>
            <application_key>$applicationKey</application_key>
        </preh:AuthHeaderElement>
    </soapenv:Header>
    <soapenv:Body>
        <preh:getPatient>
            <AuthHeader/>
            <nr>$patientIdentifierValue</nr>
            <identifier>$patientIdentifierType</identifier>
        </preh:getPatient>
    </soapenv:Body>
</soapenv:Envelope>
```

Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
                   xmlns:ns1="http://prehmis-qa.capetown.gov.za/"
                   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <SOAP-ENV:Header>
        <ns1:AuthHeaderElement xsi:type="ns1:AuthHeader">
            <username></username>
            <password></password>
            <facility_code></facility_code>
            <application_key></application_key>
        </ns1:AuthHeaderElement>
    </SOAP-ENV:Header>
    <SOAP-ENV:Body>
        <ns1:getPatientResponse>
            <result>
                <id>1</id>
                <first_name>AEIGHT</first_name>
                <last_name>TEST</last_name>
                <date_of_birth>1981-01-01</date_of_birth>
                <gender>Male</gender>
                <cellphone_number/>
                <pgwc_patient_number>72254311</pgwc_patient_number>
                <sa_id_number/>
                <passport_number/>
            </result>
        </ns1:getPatientResponse>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

GetPractitionerList

Request

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
                  xmlns:preh="http://prehmis-qa.capetown.gov.za/">
    <soapenv:Header>
        <preh:AuthHeaderElement>
            <username>$username</username>
            <password>$password</password>
            <facility_code>$facilityCode</facility_code>
            <application_key>$applicationKey</application_key>
        </preh:AuthHeaderElement>
    </soapenv:Header>
    <soapenv:Body>
        <preh:getPractitionerList>
            <AuthHeader/>
        </preh:getPractitionerList>
    </soapenv:Body>
</soapenv:Envelope>
```

Response

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:prehmis="http://prehmis-qa.capetown.gov.za/"
               xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soap:Header>
        <prehmis:AuthHeaderElement xsi:type="prehmis:AuthHeader">
            <username></username>
            <password></password>
            <facility_code></facility_code>
            <application_key></application_key>
        </prehmis:AuthHeaderElement>
    </soap:Header>
    <soap:Body>
        <prehmis:getPractitionerListResponse>
            <result>
                <item>
                    <id>1086</id>
                    <practitioner_type>Enrolled Nurse</practitioner_type>
                    <first_name>Berenice</first_name>
                    <last_name>Carolus</last_name>
                    <practitioner_code>1159</practitioner_code>
                </item>
                <item>
                    <id>1225</id>
                    <practitioner_type>Senior Professional Nurse</practitioner_type>
                    <first_name>Elmarie</first_name>
                    <last_name>Thumser</last_name>
                    <practitioner_code>1299</practitioner_code>
                </item>
            </result>
        </prehmis:getPractitionerListResponse>
    </soap:Body>
</soap:Envelope>
```

StorePrescription

Request

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
                  xmlns:preh="http://prehmis-qa.capetown.gov.za/">
    <soapenv:Header>
        <preh:AuthHeaderElement>
            <username>${username}</username>
            <password>${password}</password>
            <facility_code>${facilityCode}</facility_code>
            <application_key>${applicationKey}</application_key>
        </preh:AuthHeaderElement>
    </soapenv:Header>
    <soapenv:Body>
        <preh:storePrescription>
            <prescription>
                <id>${prescription.id}</id>

<prehmis_patient_id>${prescription.prehmisPatientId}</prehmis_patient_id

<pgwc_patient_number>${prescription.pgwcPatientNumber}</pgwc_patient_number>

<patient_sa_id_number>${prescription.patientSaIdNumber}</patient_sa_id_number>

<practitioner_code>${prescription.practitionerCode}</practitioner_code>

<prescription_date>${prescription.prescriptionDate}</prescription_date>
                <duration>${prescription.duration}</duration>
                <end_date>${prescription.endDate}</end_date>
                <change_reason>${prescription.changeReason}</change_reason>
            </prescription>
            <prescriptionDrugs>
                <item>
                    <atc_code>${prescribedMedication.atcCode}</atc_code>

<amount_per_time>${prescribedMedication.amountPerTime}</amount_per_time>
                    <times_per_day>${prescribedMedication.timesPerDay}</times_per_day>
                </item>
            </prescriptionDrugs>
        </preh:storePrescription>
    </soapenv:Body>
</soapenv:Envelope>
```

StoreDispensation

Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:preh="http://prehmis-qa.capetown.gov.za/">
    <soapenv:Header>
        <preh:AuthHeaderElement>
            <username>${username}</username>
            <password>${password}</password>
            <facility_code>${facilityCode}</facility_code>
            <application_key>${applicationKey}</application_key>
        </preh:AuthHeaderElement>
    </soapenv:Header>
    <soapenv:Body>
        <preh:storeDispensation>
            <dispensation>
                <id>${dispensation.id}</id>

<prehmis_patient_id>${dispensation.prehmisPatientId}</prehmis_patient_id>

<pgwc_patient_number>${dispensation.pgwcPatientNumber}</pgwc_patient_number>

<patient_sa_id_number>${dispensation.patientSaIdNumber}</patient_sa_id_number>
                <prescription_id>${dispensation.prescription}</prescription_id>
                <dispensing_date>${dispensation.dispensationDate}</dispensing_date>

<practitioner_code>${dispensation.practitionerCode}</practitioner_code>
                <supply_duration>${dispensation.supplyDuration}</supply_duration>
            </dispensation>
            <dispensationDrugs>
                <item>
                    <atc_code>${dispensedMedication.atcCode}</atc_code>
                    <quantity>${dispensedMedication.quantity}</quantity>
                </item>
            </dispensationDrugs>
        </preh:storeDispensation>
    </soapenv:Body>
</soapenv:Envelope>
```

Security

- Agents
    - System
        - UserDetailsService:
        - Path to Organisation
    - User
        - UserDetailsService
        - Path to Organisation
- Security Adapter Pattern

Agents

The security needs to account for two types of agents:

- System
- User

System

A system is authenticated using its **system ID** and **application key**. The application key is a UUID that is generated by iDART Web.

UserDetailsService:

org.celllife.idart.framework.security.IdartSystemDetailService

Path to Organisation

System -> (Deployed at) -> Facility -> (Operated by) -> Organisation

User

A user is authenticated using a **username** and **password**.

UserDetailsService

org.celllife.idart.framework.security.IdartUserDetailService

Path to Organisation

User -> (For) -> Person -> (Member of) -> Organisation

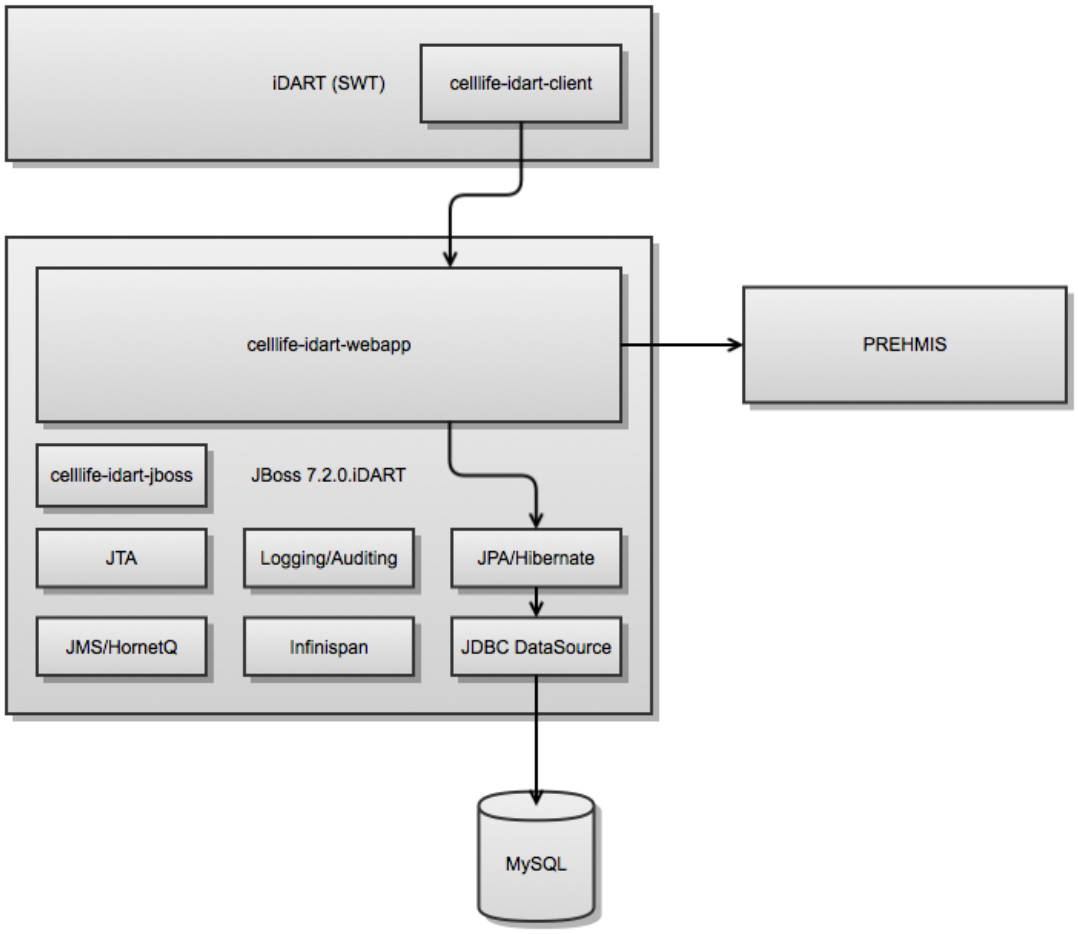
Security Adapter Pattern

Reference: Security in Domain-Driven Design

The SecurityAdapter is responsible for validating that the current User or System has sufficient privileges, and for filtering data based on associated organisation.

Each ApplicationService has an associated SecurityAdapter. Any interaction between a ResourceController or UiController with the ApplicationService should be mediated by the SecurityAdapter.

System Diagram



Design

This section is used for all iDARTweb design information. From business design to UI design.

Please see the following pages:

- Dispense Personas
- Dispense Context Scenarios

Dispense Context Scenarios

Dispense Context Scenarios

Read more about the personas.

Context scenario 1

Dispensing packages

A patient walks into the pharmacy with the patient folder in hand. On this folder is the patients barcode label. Sanvi assists the patient by logging into “Dispense” and then from the home page navigates to the “Make up drug packages for patients” screen. Sanvi scans the barcode of that particular patients folder and a screen appears with the details of that patient, along with the drugs that that patient has been previously prescribed to. She confirms if the prescription in the given folder matches that of the drugs listed on the “make up drug packages” screen. She will then click “create package” and is then requested to select a printer. She selects the label printer and prints the drug labels along with the summary label.

Sanvi then hands over the labels along with the folder over to the pharmacy assistant Aeysha, who then collects all the drugs and packages them together, applies the drug labels to the designated containers and then hands the completed package back to Sanvi. Sanvi confirms that all is in order and hands the package over to the patient.

Context scenario 2

Adding a new user

Aeysha has been complaining about the heavy workload intensity and has requested to Sanvi that this workload be made lighter. After holding a meeting with Benjimin the pharmacy manager, Sanvi was given the nod to hire and extra pharmacy assistant.

The new assistant has started and Sanvi realised that a staff profile is required to be added on the dispensing system for this user. Being the only person with Staff administration rights, Benjimin logs into Dispense, from the home page he clicks on “General administration” and he then selects “Add new user”. On this page he creates a user name for the new staff member, inputting that person details in, and then that user types in his/her own preferred password. Benjimin then clicks “Save” then “Log Off”. The user is now successfully added to Dispense.

Context scenario 3

Stock take & Reporting

Richard, the clinic manager, was enquiring what the stock situation was for the pharmacies within his clinic. Usually this process is done on the last day of every month but Richard has requested a stock status from Benjimin for auditing purposes. Benjimin delegates the stock take responsibility to Aeysha, the pharmacist assistant.

Aeysha logs into Dispense. From the home screen she clicks on “Stock and Dispensing screen”. She selects “Stock Take” and from there selects “Generate Stock Template”. This process results in a print out of a stock take template which allows her to record all the drugs she has counted. The sheet provides the name particular drugs, along with 3 columns beside it: The packs counted, Pills counted, and the total. This applies for each drug on the system. Aeysha takes this sheet counts the packs for each drug and the amount of loose pills for each drug, and then records it all on this template. After completing each drug on the list she would then go back into Dispense, log in, clicks on “Stock and Dispensing” and from there clicks on “Stock Take”. Lastly she clicks on “Start Stock Take” and captures the information she has now recorded on the template. Once she is complete, Aeysha clicks on “End Stock Take”. The screen then generates a report which confirms whether the stock has balanced or not.

Benjimin has the option of emailing this report (pdf) to Richard Zaha (clinic manager) OR Benjimin can inform Richard that the report is ready for him to generate himself directly from Dispense.

Dispense Personas

The following information describes the main stakeholders that will be using Dispense

Read about the context scenarios

Level 1 - Clinic Manager (Richard Zaha)

Summary

- Age 50 +
- Highly qualified & experienced in the medical field.
- Is a respectable manager and leader in the workplace.
- Always on the move.

- Very professional.
- Delegates tasks to those below him.
- Computer & technical ability 2.5/5

Motivations

- Requires a full overview of information regarding all departments.
- Makes sure all departments are running sufficiently.
- Pays more attention to fault than merit.

Level 2 - Pharmacy Manager (Benjimin Van Wyk)

Summary

- Age 35 +
- Highly qualified & experienced in the medical field.
- Is a respectable manager and leader in the workplace.
- 50% of his time is spent on his computer. The other 50% is delegating and assisting.
- Computer & technical ability 3.5/5

Motivations

- Monitoring different areas of the pharmacy he runs.
- Ensuring that his staff are maintaining expectations.
- Receiving updates on status of stock.
- Patients are satisfied and are receiving the correct medication.

Level 3 - Pharmacist (Sanvi Abrahams)

Summary

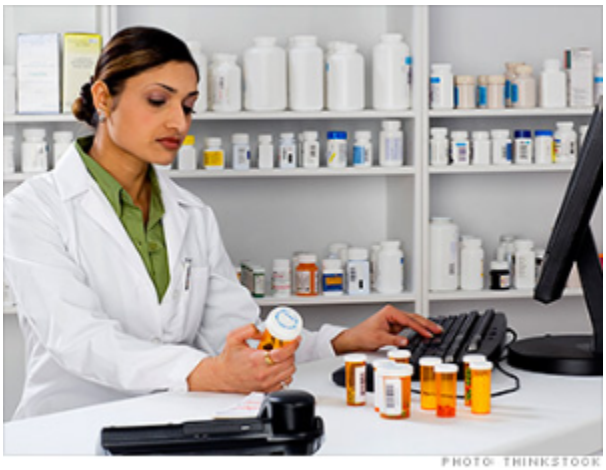
- Age 25 - 40

- Standard qualification with minimal to average experience. (Occasionally an intern)
- Gets given tasks & delegates to assistant only.
- Complete hands on approach to the work place but still has access to all functionalities on the operating interface.
- Computer & technical ability 3.5/5

Motivations

- Concerned with the daily dispensing of ARVs to patients.
- Monitors & maintains the stock level.
- Handles patient information.
- Also checks up to see if patients are obedient to their drug taking.

Level 4 - Assistant (Ayesha Smith)



Summary

- Ages range from 30-50
- Has the REQUIRED pharmacy assistant formal training.
- Receives tasks from the pharmacist.
- Complete hands on approach to the work place.
- Computer & technical ability 2/5

Motivations

- Concerned with drug packaging to dispense to the patients.
- Continuously controlling/managing stock.

File Lists

Add File Lists

Title	Creator	Modified
Personas (DRAFT 1)	Israr Mohamed	Dec 18, 2013

Personas (DRAFT 1)

A list of the stakeholders in "Dispense" along with their motivations

File	M
DispenseContextScenario.odt	De
Dr.pptx	De

Drag and drop to upload or browse for files

Download All

Technical

This section describes technical information on installation and system administration of the iDARTweb system.

Please use the bar on the left to navigate.

Building iDART Web

Project Structure

- bin
  - build scripts
- client
  - Java Client for iDART (SWT)
- common
  - Classes common to both celllife-idart-webapp and celllife-idart-client
- database
  - Liquibase change log files
  - Ant configuration file
- domain
  - Domain aggregates
- jboss
  - JBoss configuration file
  - Ant configuration file
- model
  - Non-code artifacts
- seed
  - iDART Web seed data
- webapp
  - iDART Web WAR
  - Application
  - Interfaces
  - Infrastructure
  - Integration
  - Security

Building iDART Web

Pre-build

- Installed JBoss 7.2.0.iDART
- Installed MySQL (username: root, password: root)

Build

- full.sh will:
  - Clean previous JBoss installation
  - Build Database Bundle
  - Recreate Database
  - Build Domain and Webapp
  - Build JBoss Bundle

- Start JBoss

```
git clone git@git.cell-life.org:celllife-idart-web.git
cd celllife-idart-web
sh ./bin/full.sh
less /tmp/jboss-as-7.2.0.iDART/standalone/log/server.log
```

NB: You will see this in the logs... this is normal and can be ignored

```
15:10:43,920 WARN  [org.jboss.as.ee] (MSC service thread 1-3) JBAS011006: Not
installing optional component
org.springframework.web.context.request.async.StandardServletAsyncWebRequest due to
exception: org.jboss.as.server.deployment.Depl
oymentUnitProcessingException: JBAS011054: Could not find default constructor for
class org.springframework.web.context.request.async.StandardServletAsyncWebRequest
        at
org.jboss.as.ee.component.ComponentDescription$DefaultComponentConfigurator.configure(
ComponentDescription.java:607) [jboss-as-ee-7.2.0.iDART.jar:7.2.0.iDART]
        at
org.jboss.as.ee.component.deployers.EEModuleConfigurationProcessor.deploy(EEModuleConf
igurationProcessor.java:80) [jboss-as-ee-7.2.0.iDART.jar:7.2.0.iDART]
        at
org.jboss.as.server.deployment.DeploymentUnitPhaseService.start(DeploymentUnitPhaseSer
vice.java:120)
        at
org.jboss.msc.service.ServiceControllerImpl$StartTask.startService(ServiceControllerIm
pl.java:1811)
        at
org.jboss.msc.service.ServiceControllerImpl$StartTask.run(ServiceControllerImpl.java:1
746)
        at
java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1145)
[rt.jar:1.7.0_13]
        at
java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:615)
[rt.jar:1.7.0_13]
        at java.lang.Thread.run(Thread.java:722) [rt.jar:1.7.0_13]
```

Post-build

- Seeding data
  - <project_root>/seed/src/main/assembly/bootstrap.sh

Web interfaces

http://127.0.0.1:9990/console/App.html is the URL for JBoss management console
http://127.0.0.1:8080/idart is the url for idart-web

Entities

Sources

- Silverstone - The Data Model Resource Book Volume 1

- http://hl7.org/implement/standards/fhir/

Medical

- Compound
- Default Dosage Instruction
- Dispensation
- Drug
- Encounter
- Facility
- Medication
- Patient
- Practitioner
- Prescribed Medication
- Prescription

Party

- Person
- Organisation

Product

- Inventory Item
- Part
- Product

IDART-Prehmis setup configuration for Hout Bay pilot site

Database Server	localhost
Idart Database Name	pharm
Connecting to Prehmis?	Select yes
Connecting to IDART Web?	Select yes
Idart web server URL	http://idartweb.cell-life.org/idart
Idart web system ID	00000003
Idart web application key	58C0EA0A-7D02-685-0EC0-8D21F2A20D0F7

JBoss (WildFly)

Overview

iDART Web is developed to be deployed into JBoss AS 7.2. We have a custom build of Wildfly with a patched version of Hibernate

Building 7.2.0.iDART

```
git clone git@git.cell-life.org:wildfly.git
cd wildfly
git checkout 7.2.0.iDART

export MAVEN_OPTS="-Xmx1024m -Xms1024m -XX:MaxPermSize=512m"

# Install build-config first
mvn clean install -f build-config/pom.xml

# Install parent pom next
mvn clean install -N

# Build the rest of JBoss - remove -DskipTests if you don't trust that everything
still works with
mvn clean install -DskipTests -Prelease
```

Configuring JBoss with celllife-idart-jboss

The celllife-idart-jboss module builds a bundle that contains:

- celllife-idart-webapp-<version>.war
- Cargo libraries for starting/stopping JBoss and deploying/undeploying the WAR
- MySQL JDBC Driver to be installed into JBoss
- config.cli
    - This is a configuration script written in JBoss CLI
    - It configures:
        - JDBC DataSources
        - Logging
        - Hibernate Configuration
        - JMS Connection Factory and Topics
        - JTA

celllife-idart-jboss is a module of the celllife-idart-web project

Build and run

```
# Given that everything has been built
mvn install -DskipTests -f ${BASE_DIR}/../jboss/pom.xml
ant -f ${BASE_DIR}/../jboss/target/celllife-idart-jboss/build.xml start
```

Manual installation

These instructions explain how to install iDARTweb on a server.

- Manual installation of idartweb
    - Prerequisites
    - Change to the new idartuser directory
    - Unzip Wildfly
    - Install mysql library
    - Setup Wildfly server
    - Create or Update database
    - Run Wildfly
    - Configure Wildfly via CLI
    - Add the admin user for Wildfly
    - Deploy the war
    - Stop the server
    - Seed the database
    - Tail the log file

Manual installation of idartweb

Prerequisites

1. idartweb user has been created with home directory /opt/idartweb
2. system property IDARTWEB_APPLICATION_PROPERTIES points to a properties file (under /opt/idartweb/etc/application.properties)
3. database install from the latest idartweb build are available under a directory called database. There should be a separate database.zip artifact for iDARTweb
4. latest iDARTweb installation is available. (Get artifact from Jenkins or Nexus)
5. seed source files from idartweb project are available under a directory called seed. (Note: only for new installations with a new database.). Source files are found here: https://www.cell-life.org/gitlab/celllife-idart-web/tree/master/seed

Change to the new idartuser directory

```
[root@dev2 ~]$ sudo su - idartweb
```

Unzip Wildfly

```
[idartweb@dev2 ~]$ wget
https://www.cell-life.org/nexus/content/repositories/releases/org/jboss/as/jboss-as-di
st/7.2.0.iDART/jboss-as-dist-7.2.0.iDART.zip
[idartweb@dev2 ~]$ tar xvf jboss-as-7.2.0.iDART.tar.gz
[idartweb@dev2 ~]$ ln -fs /opt/idartweb/jboss-as-7.2.0.iDART/ jboss
```

Install mysql library

Download the following attached files into the install directory (you may need to create it first) and run the commands below:

- com.mysql.module.xml
- module.xml
- mysql-connector-java-5.1.23.jar

```
[idartweb@dev2 ~]$ mkdir jboss-as-7.2.0.iDART/modules/com
[idartweb@dev2 ~]$ mkdir jboss-as-7.2.0.iDART/modules/com/mysql
[idartweb@dev2 ~]$ mkdir jboss-as-7.2.0.iDART/modules/com/mysql/main
[idartweb@dev2 ~]$ cp ./install/mysql-connector-java-5.1.23.jar
./jboss-as-7.2.0.iDART/modules/com/mysql/main/
[idartweb@dev2 ~]$ cp ./install/com.mysql.module.xml
./jboss-as-7.2.0.iDART/modules/com/mysql/main/module.xml
[idartweb@dev2 ~]$ vi ./jboss-as-7.2.0.iDART/modules/com/mysql/main/module.xml
```

module.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<module xmlns="urn:jboss:module:1.0" name="com.mysql">
    <resources>
        <resource-root path="mysql-connector-java-5.1.23.jar"/>
    </resources>
    <dependencies>
        <module name="javax.api"/>
    </dependencies>
</module>
```

Setup Wildfly server

Download the following attached files into the install directory:

- standalone.xml

```
[idartweb@dev2 ~]$ cp ./install/standalone.xml
./jboss-as-7.2.0.iDART/standalone/configuration/
```

Note

standalone.xml is a copy of standalone-full.xml with the following changes:

1. ports,
2. 127.0.0.1 replaced with 0.0.0.0, and
3. ajp listener added

```
{code}
<connector name="ajp" protocol="AJP/1.3" scheme="http" socket-binding="ajp"/>
{code}
```

Create or Update database

Create the database (new installations ONLY)

```
[idartweb@dev2 ~]$ ant -f ./database/build.xml database-recreate
```

Update the database

```
[idartweb@dev2 ~]$ ant -f ./database/build.xml schema-update
```

Run Wildfly

```
[idartweb@dev2 ~]$ ./jboss-as-7.2.0.iDART/bin/standalone.sh&
```

Configure Wildfly via CLI

Download the following files into the install directory. Note that the config.cli file must be modified to include the correct database properties

- jboss-cli-logging.properties
- jboss-cli.xml
- config.cli

```
[idartweb@dev2 ~]$ java -Dlogging.configuration=./install/jboss-cli-logging.properties
-Djboss.cli.config=./install/jboss-cli.xml -jar ./jboss/jboss-modules.jar -mp
./jboss/modules org.jboss.as.cli -c --file=./install/config.cli
```

Add the admin user for Wildfly

```
[idartweb@dev2 ~]$ JBOSS_HOME=./jboss java -jar ./jboss/jboss-modules.jar -mp
./jboss/modules org.jboss.as.domain-add-user -s -u admin -p <password>
```

Deploy the war

```
[idartweb@dev2 ~]$ cp celllife-idart-webapp.war
./jboss-as-7.2.0.iDART/standalone/deployments/idartweb.war
```

Stop the server

```
./jboss-as-7.2.0.iDART/bin/jboss-cli.sh --connect command=:shutdown
```

Seed the database

Make sure the server is started, then run the following commands (with modifications to specify the correct server - not sol)

Note: this is only required the first time you install the app - it creates the first users and standard iDART drugs.

```
find ./seed -type f -exec sed -i 's/localhost:8080\/idart/sol.cell-life.org\/idart/g'
{} \;
sh ./seed/src/main/assembly/bootstrap.sh
```

Tail the log file

```
tail -f ./jboss/standalone/log/server.log
```

Tests

Please use the left sidebar to navigate to all the pages in this section.

Manual Test Scenario

Test Scenario

- iDartWebTestScenario.pptx

TC0001: Create Drug

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in

I want to create a new drug on Idart

I have all the details of the new drug to be created

I click general admin and *"add new drug"* becomes available

I click add new drug and enter the following data

Drug Name	Form	ATC Code	Pack Size	Drug is ARV or Side Treatment	Chemical Strength
Test	tablet	J05AF06	60	Arv	100

Standard Dosage

Take	Times per day
1	2

I click *"save this drug"*

The drug is saved and sent to Idart Web database, which updates Prehmis with new drug

TC0002: Lookup Patient

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the welcome page

I want to search a patient to view his/her details

I have the patients folder with the patient identifier on it

I click "*Patient Admin"* and the patient admin screen opens

I click *"Update an existing patient"* and the update an existing patient screen opens

I click in the *"Patient Number"* field and I scan the patients bar-code on the patient folder

Idart web processes query and requests information from Prehmis database and displays information on Idart stand alone

TC0003: Lookup Doctor/Update and Save Prescription

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in

I want to update a patient by changing the prescribing doctor.

Nothing has changed on the prescription except the Doctor prescribing it

I have the patient folder with the patient identifier and the prescription prescribed by the new doctor

I am on the patient admin screen

I click capture/update patient's prescription and the prescription page displays

I scan the patients bar coded label on the folder and the patients current prescription displays

I click the doctor drop down list and a list of doctors appear

I select the doctor and click update prescription

Idart stand alone updates Idartweb, which updates the patient prescription on Prehmis

- When searching for the doctor Idart web retrieves the updated list of doctors from Prehmis

TC0004: Adding Stock

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in

I want to add stock that has just arrived at the pharmacy

I have the name, batch number, expiry date and the amount of stock received

I am on the stock and dispensing screen

I click stock arrives at pharmacy and the add stock screen displays

I click add stock and a list of drugs currently on the database displays

I select the drug I want to add stock for

I enter the batch number, expiry date and amount received

I click add this drug and it goes back to the add stock screen

I click save and it confirms that the stock has been added and asks if i would like to generate a Stock Receipt Form

I select yes and a report is generated showing the stock I have just added

Stock levels are updated Idart web

TC0005: Direct dispensing to patients

Background

Given

When

Then

Notes

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the welcome page

I want to directly dispense to a patient

The patient is in front of me with his/her patient folder and the patient identifier label is attached to the folder

I am on the make up drug packages for patient screen

I scan the patient label on the patient folder

The patient detail and drugs to dispense appears

I check that the drugs to dispense matches up with the patients prescription in the patient folder

* If patient is coming for a refill on prescription I perform a pill count

I click create package

I select the label printer to print the drug labels

Idartweb sends dispensing information for the patient to Prehmis

* Pill count is not a compulsory step and we need to establish if Prehmis can handle this type of information

TC0006: Creating packages for later pick up

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to create a package for later pick up

I ran the patients expected on a day report and located the patient I want create a package for.

I enter the patient ID from the patient expected on a day report

I select I am creating package for later pick up

The patient details and drugs to dispense appears with the next appointment date and pill count removed

I check that the drugs to dispense matches up with the patients prescription in the patient folder

I click create package

I select the label printer to print the drug labels

Idartweb sends dispensing information for the patient to Prehmis

TC0007: Scan out packages to patients

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to scan a package out to patient

The package was created for that patient already

I am on the scan out package for patient screen

I have the package with the package ID label

I scan the package label

The package details appear

I click save

Idart web save the information and sends it off to Prehmis

TC0008: Return uncollected package

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to return an uncollected package

The necessary time has elapsed and the patient has not collected his/her package

I have the package with the package ID label

I search for the patient

The package details appear

I select the reason for returning the package (in this case missed appointment)

I select the option to return the drugs to stock so that it can be dispensed to another patient

I click return uncollected package

The drugs are returned to idart stock

Idartweb sends the information about the patient to Prehmis

TC0009: Undo Created package

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to undo a created a package

A package was created for a patient and a mistake was mad with regards to a drug that was given to the patient

The mistake was realised while the patient was at the pharmacy

I have the Patient folder number

I am on the Stock prescription and package deletion page

I scan the patient bar-code on the folder

The details of the last package dispensed to the patient appears

I double check that it is the package I had just dispensed

i click remove this package

Information is saved to idartweb and idart web sends the information about the patient to prehmis

TC0010: Redo a single item in a package

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to redo a single item in a created a package

A package was created for a patient and the patient has enough of a particular drug to last him for the next month

The patient is at the pharmacy

I have the Patient folder number

I am on the Stock prescription and package deletion page

I select Redo single item in a package

I scan the patient bar-code

the current package details appear

I select the drug of which he/she has enough

I click remove this drug

Information is saved to idartweb and idart web sends the information about the patient to prehmis

TC0011: Delete incorrect prescription

Background

Given

When

Then

I am the pharmacist using Idart with my own username and password

I am logged in and I am on the make up drug packages for patient screen

I want to undo a created a package

I created a prescription for a patient and I realised that I have made a mistake with the prescription

I have the Patient folder number

I am on the Stock prescription and package deletion page

I scan the patient bar-code on the folder

The details of the last prescription which doesn't have a package dispensed against it for the patient appears

i click remove this prescription

Information is saved to idartweb and idart web sends the information about the patient to prehmis