



# Indus Production Line

## *Configuration Guide*

Version 1.18-SNAPSHOT

2018-08-17

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Table 1. History

Date	Author	Detail Unresolved directive in subdocs/_init.adoc - include::D:\workspaceJava\cg-wm\target/generated-docs/history/ci-pf-configuration.adoc.psv[]
------	--------	--

# 1. Introduction

This document describes, from scratch, how to configure CI Platform on BPM Factory.

This should work for any project using the Production Line from CG Indus team.

## 2. Prerequisites

### 2.1. CI PF Initialization



This has to be done only for a new Production Line

Browse and ask for a CI platform :

Service Catalog -> iProd -> Production Line - PLaaS -> Production Line Initialization

Later, every help tickets will be raised from here :

Service Catalog -> iProd -> Production Line - PLaaS -> Production Line Coaching and Support

When CI PF is up and running, test the access : <https://bpmfactory.s2-eu.nvx.com>

### 2.2. Technical account



This has to be done only for a new Production Line

Using a fake account created in LAM won't work : you can't login to Gerrit with it, hence no HTTP nor SSH key handling is possible.

#### 2.2.1. CORP account

Ask for the creation of a technical account (for communication between Jenkins, SonarQube, Gerrit and Nexus) : raise a ticket in

Service Catalog -> iPlan -> Engagement Repository - ERaaS -> CTF: Service account creation

Add it to LAM (see below).

The user will have to be re-conducted every 6 months, a mail will be sent to administrator. The password never expires.

#### 2.2.2. Administration

You can administer it here <https://corporatedirectory.nvx.com> in section **My Service Accounts**

## 2.3. Visio account with PC

If you have a TV where you want to display your devOps KPI, you have to order a PC with a specific account.

Information :

- Price is 220€ + 78€/month.
- 5-10 days estimated delivery.
- The "Tiny PC" cannot display more than HD.
- As of early 2018, it seems that only Dells can display 4K.

Steps :

- Prepare the list of hosts and ports the PC should access
- Browse [https://nvxiticsprod.service-now.com/itics\\_ess/](https://nvxiticsprod.service-now.com/itics_ess/)
- Go to **Order Services** → **Physical Computing** → **Communication** → **Project Skype Conferencing**
- Put the order, giving as much detail as possible (hosts/ports/HD/4K...). Then wait for the validation of the EM.
- Go buy the TV while waiting for the account.

### 2.3.1. Add hosts/ports

- Browse <http://help.nvx.com/>
- **IT Infrastructure Services** → **Network Connectivity** → **Request Now**
- Category → **Modify Network Security Rule**
  - Describe the new host/ports to access
  - Give detailed information
    - Login : SVC-FR-VCRNSBPMFACT
    - PC : LFR018678 / 10.69.240.109

### 3. Deploy asciidoc to github

```
mkdir docs  
cd docs  
git init  
git checkout --orphan gh-pages
```

Copy a first version of the site in the directory, then :

```
git add *  
git commit -m "initial site content"  
git remote add origin "https://github.com/NeVraX182/docs.git"  
git push --set-upstream origin gh-pages
```



## 4. LDAP Account Manager (lam)

Choose the service **lam** on your production line :

<https://bpmfactory.s2-eu.nvx.com/lam/templates/lists/list.php?type=user>

*Add every user of your project to grant him access to your CI PF :*

- **New user**
  - **First name**
  - **Last name** in uppercase
  - **Email address**
  - **Unix**
    - **User name** : 8 char max, confirm with the person that it is his CORP login, else change
    - **Primary group** : users
  - **Save**

### 4.1. Mailing list

*Follow these steps if and when you need to create a mailing list :*

- Browser here : <http://help.nvx.com/>
- Under section **Popular Requests** click on **(Form) Request for new distribution list**.
- Expand the **Instructions** section and fill all fields
  - the name you provide will have [.fr@nvx.com](mailto:.fr@nvx.com) appended
  - for example, if you want a webMethods list for ADM, you can ask a list named "webmethods.adm" and the mailing list will be [webmethods.adm.fr@nvx.com](mailto:webmethods.adm.fr@nvx.com)
- Click **Submit**
- When created, you can administer it here : <https://corporatedirectory.nvx.com>
  - Section **My Distribution Lists**

## 5. FusionForge



Official documentation is here : <https://km3.nvx.com/book/1071769>

Choose the service "FusionForge" on your production line : <https://bpmfactory.s2-eu.nvx.com/fusionforge/>

### 5.1. Add admin rights



By default, only the PL owner has admin rights (create project, create trackers).

Select **Site Admin**, section **Global roles and permissions** → **Forge administrators** → **Edit Role**

Add CORP login next to **Add User** and click it.

The user should have admin rights right away, thus being able to see the **Site Admin** section.

### 5.2. Create project

In the **Site Admin** tab, section **Project Maintenance**, click on the link **Register New Project**.

Fill the required fields.

Now that the project is created, you can access it by going on the **Projects** tab, then **Project List** and finally clicking on the project name.

### 5.3. Create tracker

On the project homepage, click on **Tracker** → **Administration**.

Set name "TASKS" and a description, then hit **Submit**.

### 5.4. Add users



The user must have connected at least once on FusionForge to be available.

To add access to users, on the project homepage, click on **Admin**, then **Users and permissions**.

*Two options :*

- You know the CORP login, then you can put it in the box
- You don't, then click on **Add Users From List**, then the first letter of the family name, then the user

## 5.5. Change your name

*Your name can be "Forge Admin" at PL reception, here is how to change it :*

- Click on **My Page** → Tab **My Account**
- Change your **First Name** and **Last Name**
- Hit save

## 6. Gerrit

Choose the service **Gerrit** on your production line : <https://bpmfactory.s2-eu.nvx.com/gerrit>

### 6.1. Initialization



This has to be done only for a new Production Line

#### 6.1.1. Permissions

##### Jenkins user push

- Click on **People** → **List Groups** → **Non-interactive Users**
- Add Jenkins (your technical account) in the list

##### Deleting tags

- Click on **Projects** → **List** → [ **All-projects** ] → section **Access** → **Edit**
- Under [ **Reference: refs/tags/\*** ]
  - Click on [ **Add Permission...** ] and select **Push**
  - Select group **Administrator** and click **Force Push**
  - Save Changes

Now you can delete tags from your projects, for ex :

```
git push --force --delete origin cg-wm-1.17.6
```

#### 6.1.2. Verified status

- Click on **Projects** → **List** → [ **All-Projects** ] → section **General** → **Edit Config**
- Add this

```
[label "Verified"]  
  function = MaxWithBlock  
  value = -1 Fails  
  value = 0 No score  
  value = +1 Verified
```

- Click on **Save**, then **Close**
- Click on **Publish Edit**, then **Publish**, [ **Code-Review+2** ], **Submit**
- Click on **Projects** → **List** → [ **All-Projects** ] → **Access** → **Edit**
- Under [ **Reference: refs/heads/\*** ]
  - Click on [ **Add Permission...** ] and select **Label Verified**
  - Select group **Administrator**

- Select group [ **Non-Interactive Users** ]
- Save Changes

### 6.1.3. Fast Forward

By default, when projet submissions are not fast forward, final submitting a change will create a merge commit. The history is potentially doubled.

- Click on **Projects** → **List** → [ **All-Projects** ] → **General**
- Under **Submit Type**, select **Rebase if Necessary**

## 6.2. User preferences

Click on **YourName** → **Settings** → **Diff Preferences** and set **columns** = **120** (you will probably have to paste it due to a GUI bug)

## 6.3. Project creation

Create your GIT project by clicking on **Projects** → **Create New Project**

- Project Name = **cg-wm**
- Rights Inherit From = **All-Projects**
- Check that it has inherited correctly "Rebase if necessary", else change and save

### 6.3.1. Project git address

The git is visible in **Projects** → [ **(gitweb)** ].

Something like :

- <https://cric.pl.s2-eu.nvx.com/gerrit/cg-wm.git>
- <https://cric.pl.s2-eu.nvx.com/gerrit/cg-tibco.git>
- <https://cric.pl.s2-eu.nvx.com/gerrit/cg-talend.git>

### 6.3.2. Users groups creation

For each project, create a reviewer list and a validator list.

- Go to **Projects** → **Create New Group**
- Reviewers list
  - Give a name, for example [ **dge-reviewers** ]
  - Add every developers / primary reviewers on the project
  - Click on **General**
  - Description = Reviewers (first level : +1)

- Click **Save Description**
- Check [ **Make group visible to all registered users. ]**
- Click **Save Group Options**
- Validators list
  - Give a name for example [ **dge-validators** ]
  - Add technical responsible and a backup
  - Click on **General**
  - Description = "Validators (level 2 : +2)"
  - Click **Save Description**
  - check [ **Make group visible to all registered users. ]**
  - Click **Save Group Options**

# 7. Jenkins

## 7.1. Plugins installation



This has to be done only for a new Production Line

- Go to **Jenkins** → **Administration Jenkins** → **Gestion des plugins**
- Update all plugins which have an update available
- Select **Disponibles** (=available) and install :
  - Pipeline Maven Integration
  - Throttle Concurrent Builds Plug-in
    - To be able to force non concurrent builds
  - Xvnc
    - To have a virtual screen if needed in tests
  - Naginator
    - For retry on failure
  - Gerrit Trigger
    - To launch job on gerrit update
  - HTML Publisher plugin
    - To have the **Maven Reporting** link when "maven site" is launched
  - Monitoring
    - To see nice health data of Jenkins on <https://bpmfactory.s2-eu.nvx.com/jenkins/monitoring>
  - JUnit Attachments
    - for enhanced job reporting
  - Logstash
    - To send jenkins jobs output to logstash then elastic
  - diskcheck
    - Check filesystem space on slave before a build
  - disk-usage
    - Show disk usage per build, configuration in **Administrer Jenkins** → **[ Configurer le système ]** → **Utilisation du disque**
  - AnsiColor
    - To allow colors in build logs
  - Simple Theme Plugin
    - to change Jenkins basic theme

## 7.2. Change Theme



This has to be done only for a new Production Line

- Have the Simple Theme Plugin installed
- Navigate **Administrer Jenkins** → **[ Configurer le système ]** → **Theme** section
  - URL of theme CSS = <https://cdn.rawgit.com/afonsof/jenkins-material-theme/gh-pages/dist/material-cyan.css>
    - see the author's page for other colors : <http://afonsof.com/jenkins-material-theme/>
  - Save

## 7.3. Gerrit Trigger Configuration



This has to be done only for a new Production Line

On Jenkins :

- Create the console-master job if not already existing

Create a new freestyle job.

Name it console-master

General

☒ **[ Restreindre où le projet peut être exécuté ]**

  - master

Put this **Build** → **[ Ajouter une étape au build ]** → **[ Exécuter un script shell ]** → paste this and save :

```
ssh-keygen -y -f /root/.ssh/id_rsa > /root/.ssh/id_rsa.pub
ls -lart /root/.ssh/
more /root/.ssh/id_rsa.pub
```

- Add 1 executor on the master node
  - **Home** → **[ État du lanceur de compilations ]** → **[ maître ]** → **Configurer**
- Execute the console-master
- Keep track of what the execution gave for later Gerrit configuration, example :

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQDKGER5oLwkNhCtTzmUQooA+1mdrjIGi84AVsOHYNpsMqFBhkpxfImvopvKLYiztXUA15dwwDsPWq1tUcy/4N
WqKnMTQA57xxxT2r8suF/DVLH6fNn8T73mGz9+kT77FXHuaMfmDTqrwPngUYQMm2Y9kTjGhIcH/jseq6jCUawITA0s/6EUbs7jtJ/S+jMb6Ed60S7S/n
R3IzQwVrXMiQjDdFsL8RWEBQ54T4cNia/HMI8MK7mEEF5K008g4Ru3BIdk+VSisPUYFPmNc/tE12RyAjkvcwWxrYqFEB5h6R1S0yWXAjCUzjv8T0ov4W
us+ZqNgqUMYtBBf+zQvQC1ub
```

- When finished, remove the executor from master node
- Create a local trigger server



◦ **Home → Administrer Jenkins → Gerrit Trigger → Add New Server**

- Gerrit Connection Setting
  - Name = local\_server
  - Hostname = gerrit
  - Frontend URL = <http://gerrit/>
  - SSH Port = 29418
  - Username = svc-fr-bpmfact
  - SSH Keyfile = /root/.ssh/id\_rsa
- Gerrit Reporting Values
  - Verify = <vide>, 1, -1, -1, -1
  - Code Review = <vide>, 1, -1, -1, -1
- Gerrit Verified Commandes
  - Started = vide
  - Successful =

```
gerrit review <CHANGE>,<PATCHSET> --message 'Build Successful (      ) <BUILDS_STATS>' --verified <VERIFIED>
```

- Failed =

```
gerrit review <CHANGE>,<PATCHSET> --message 'Build Failed ( _ ) <BUILDS_STATS>' --verified <VERIFIED>
```

- Unstable =

```
gerrit review <CHANGE>,<PATCHSET> --message 'Build Unstable ( ° ° ) <BUILDS_STATS>' --verified <VERIFIED>
```

- Not Built =

```
gerrit review <CHANGE>,<PATCHSET> --message 'No Builds Executed (      ,) <BUILDS_STATS>' --verified <VERIFIED>
```

- Save

On Gerrit :

- Connect with the technical user (svc-fr-bpmfact / Bpm-fact0ry)
  - You may have to use a secondary browser, since authentication is very persistent on Gerrit
- Click on the user top right → **Settings** → **SSH Public Keys** → **[ Add Key... ]**
- Add the public key content from Jenkins server (the one asked to be kept track earlier), starting with **ssh-rsa**

On Jenkins :

- Test the earlier configured connection of the trigger with **Test Connection** while editing `local_server`
- Restart jenkins with : <https://bpmfactory.s2-eu.nvx.com/jenkins/safeRestart>
- The Gerrit trigger should be up and running

## 7.4. Administration



This has to be done only for a new Production Line

### 7.4.1. Overall configuration

Connect to Jenkins configuration page : <https://bpmfactory.s2-eu.nvx.com/jenkins/configure>

#### Propriétés globales

- `JAVA_HOME` = `/usr/`

#### Jenkins Location

- Adresse email de l'administrateur système = [xxxxxx@nvx.com](mailto:xxxxxx@nvx.com)

#### Extended E-mail Notification

- SMTP server = `smtp.nvx.fr`
- Default user E-mail suffix = `@nvx.com`

#### Notification par email

- Serveur SMTP = `smtp.nvx.fr`
- Suffixe par défaut des emails des utilisateurs = `@nvx.com`

Save.

### 7.4.2. Tools configuration

Connect to Jenkins tools configuration page : <https://bpmfactory.s2-eu.nvx.com/jenkins/configureTools/>

#### Maven

- Nom = Maven 3.5
- Version = 3.5.2

#### Logstash Plugin

- Indexer type = ELASTICSEARCH
- Host name = <http://frpardge.corp.nvx.com>
- Port = 9200
- Key = `/jenkins/builds`

Save.

## 7.5. Allow CSS on published HTML



This has to be done only for a new Production Line

- Create a pipeline "css-support"
- Build Triggers
  - Construire périodiquement
    - Planning = 0 10,15,20 \* \* \*
- Pipeline

```
println(System.getProperty("hudson.model.DirectoryBrowserSupport.CSP"))
System.setProperty("hudson.model.DirectoryBrowserSupport.CSP", "")
println(System.getProperty("hudson.model.DirectoryBrowserSupport.CSP"))
```

- Uncheck **Use Groovy Sandbox** and save

## 7.6. SonarQube token

To be able to upload quality results to SonarQube, you have to create a token.

Go to SonarQube application on the PL → **YourName** → **My Account** → **Security** → Name = Jenkins → **Generate**

Now maven can upload results to SonarQube with something like :

```
mvn sonar:sonar -Dsonar.login=ab7451586619e21d0e2bb50389899ce3595e3 -Dsonar.host.url=http://sonarqube:9000/sonarqube
```

## 7.7. ssh key on remote server



This has to be done only for a new remote server

If you have a remote server where you deploy your artifacts for further developments or tests : \* note the result of the slavePrep.sh script under **Here is this server's ssh public key**. Here is an example

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQDZRLfTsI+cTRjbhYhnDvIOI3LsexMiJpwcBmeuJrISnEdh1LRPlviQjtI1h7NCihejVIPgvzyMVn3tMLsvABBXLtbV
FIetOudpJn+8isnYAWWaaqX2fce/BqjLC26ygR4n25sqTO/GE9AhV5uBPbYTr4HCrH9Wzd8nU13DXm8C0hxUKh1+Uwm47KB11fVH/boIUygocIRu1FXS9TJy
MU0qFf3GGmDXs56VTe4ZQtPBHJ1kLRXQQc6UIhTbdLpedo4Khvzr7TpdVZg13qXZt35/t7Gu41bImHS1N64TKhaxAYgCPjYKg19tAWJpEkk3WzXghohLivIQ
PInu5h3uvckH jenkins@b43496a2520e
```

- Connect on the remote server via SSH
- add the key to ~/.ssh/authorized\_keys file

## 7.8. Pipelines creations

### 7.8.1. The Review pipeline

This will be the review pipeline with steps from checkout to quality check. This pipeline is a "pipeline as code".

Go to Jenkins home page :

<https://bpmfactory.s2-eu.nvx.com/jenkins>

- Click **New Item**
- Choose a name : CG-WM\_P1\_Review
- Choose Pipeline type

#### General

- Description = This is the review pipeline fired by Gerrit on non yet validated push
- Check **Supprimer les anciens builds**
  - Strategy = Log Rotation
  - Nombre de builds à conserver = 10

#### Build Triggers



In the field **Choose a Server**, **Any Server** won't work

- Choose **Gerrit event**

#### Gerrit Trigger

- Choose a Server = local\_server
- Trigger on = Patchset Created
- Gerrit Project
  - Type = Plain
  - Pattern = cg-wm
  - Branches
    - Type = Plain
    - Pattern = master

#### Advanced Project Options

None.

## Pipeline

- Definition = Pipeline script

*Pipeline content to copy/paste*

```
#!/groovy

properties([
    buildDiscarder(logRotator(artifactDaysToKeepStr: '', artifactNumToKeepStr: '', daysToKeepStr: '', numToKeepStr:
'7')),
    [$class: 'ThrottleJobProperty',
        categories: [],
        limitOneJobWithMatchingParams: false,
        maxConcurrentPerNode: 0,
        maxConcurrentTotal: 0,
        paramsToUseForLimit: '',
        throttleEnabled: false,
        throttleOption: 'project'],
    pipelineTriggers([
        gerrit(customUrl: '',
            gerritProjects: [[branches: [[compareType: 'PLAIN', pattern: 'master']],
                compareType: 'PLAIN', disableStrictForbiddenFileVerification: false, pattern: 'cg-wm']],
            serverName: 'local_server',
            triggerOnEvents: [patchsetCreated(excludeDrafts: false, excludeNoCodeChange: false, excludeTrivialRebase:
false)]
        )
    ])
])

node {
    timeout(30) {
        try {
            stage('Checkout') {
                cleanWs() // requires workspace cleanup plugin to be installed
                echo "**** Starting checkout of patchset ${GERRIT_PATCHSET_NUMBER} on change number
${GERRIT_CHANGE_NUMBER}"
                git username: 'svc-fr-cric', password: 'Bocibo15', url: 'https://cric.pl.s2-eu.nvx.com/gergit/cg-wm.git'
                def changeBranch = "change-${GERRIT_CHANGE_NUMBER}-${GERRIT_PATCHSET_NUMBER}"
                sh "git fetch origin ${GERRIT_REFSPEC}:${changeBranch}"
                sh "git checkout ${changeBranch}"

                def v = version(readFile('pom.xml'))
                echo "Building version ${v}"
            }
            stage('Compilation') {
                //slaves are wiped out randomly, so we prepare them on each execution
                sh '$WORKSPACE/src/scripts/slavePrep.sh'

                withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
                    //clean to deploy libs to local maven repository
                    sh "mvn clean dependency:purge-local-repository"
                    //The assembly is postponed : it needs some further generated PDF
                    sh "mvn install verify -DskipTests -Dassembly.skipAssembly=true"
                }
            }
            stage('Verification'){
                parallel (
                    "Unit Tests" : {
                        wrap([$class: 'Xvnc', takeScreenshot: false, useXauthority: true]) {
                            withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled:
true)]) {
                                sh "mvn test -s cg-settings.xml -Dcheckstyle.skip=true"
                                //Maven auto reports JUnit surefire results
                            }
                        }
                    },
                    "Documentation" : {
                        sh '$WORKSPACE/src/scripts/asciidocOnlyModified.sh'
                    }
                )
            }
        }
    }
}
```

```

//get history from git to asciidoc documentation
sh '$WORKSPACE/src/scripts/asciidocHistory.sh $WORKSPACE'
withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled:
true))]) {
    //validate produces the date for PDF
    sh "mvn validate asciidoctor:process-asciidoc antrun:run@pdfsAddVersion -s cg-settings.xml
-Dcheckstyle.skip=true"
}
archiveArtifacts artifacts: '**/*.pdf', excludes: '**/test*.pdf', allowEmptyArchive: true
}
)
}
stage('Integration Tests'){
    //integration tests have to be after documentation for the tracker zip to include the user manual
    wrap([$class: 'Xvnc', takeScreenshot: false, useXauthority: true]) {
        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)])
    {
        try{
            //we do not install, since these suspicious jars could be misused by other projects
            sh "mvn verify failsafe:verify -Dcg.ut.skip=true -Dcheckstyle.skip=true"
        } finally {
            //Maven does not auto report JUnit failsafe results
            junit '**/target/failsafe-reports/*.xml'
        }
    }
}
stage('Quality Gate') {
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
        sh "mvn sonar:sonar -Dsonar.login=0d1356516289799b179c6c7f851c9d4464ab04e2
-Dsonar.host.url=http://sonarqube:9000/sonarqube"
    }
    sh '$WORKSPACE/src/scripts/sonarStatus.sh'
}
stage('Assembly') {
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
        sh "mvn install -DskipTests -Dcheckstyle.skip=true"
        sh "mvn dependency:purge-local-repository"
    }
    archiveArtifacts artifacts: '**/target/*.zip'
}
} catch (any) {
    step([
        $class: 'Mailer', notifyEveryUnstableBuild: true,
        recipients: emailxtrrecipients([$class: 'CulpritsRecipientProvider'],
        [$class: 'RequesterRecipientProvider'])
    ])
    currentBuild.result = 'FAILURE'
}
} //timeout
logstashSend failBuild: false, maxLines: 1000
} //node

@NonCPS
def version(text) {
    def matcher = text =~ '<version>(.)</version>'
    matcher ? matcher[0][1] : null
}

```

## 7.8.2. The Deploy pipeline

This will be the main pipeline with everything from checkout to deployment. This pipeline is a “pipeline as code”.

Go to Jenkins home page :

<https://bpmfactory.s2-eu.nvx.com/jenkins>

- Click **New Item**
- Choose a name : CG-WM\_P2\_Deploy
- Choose **Pipeline** type

## General

- Check **Supprimer les anciens builds**
  - Strategy = Log Rotation
  - Nombre de builds à conserver = 10

## Build Triggers

- Choose « Scrutation de l'outil de gestion de version »
- Planning = H \* \* \* \*

## Advanced Project Options

None.

## Pipeline

Definition = Pipeline script from SCM

SCM = Git

- Repositories
  - Repository URL = <http://bpmfactory.s2-eu.nvx.com/gerrit/p/cg-wm.git>
  - Credentials = svc-fr-bpmfact / Bpm-fact0ry
- Branches to build : \*/master

Script Path = Jenkinsfile-2-deploy-to-dev

☒ Lightweight checkout

*Pipeline content (for information)*

```
#!/groovy
node {
    timeout(60) {
        try {
            stage('Checkout') {
                cleanWs() // requires workspace cleanup plugin to be installed
                retry(3) {
                    checkout scm
                }
                def v = version(readFile('pom.xml'))
                echo "Building version ${v}"
            }
            stage('Compilation') {
                //slaves are wiped out randomly, so we prepare them on each execution
                sh '$WORKSPACE/src/scripts/slavePrep.sh'
                withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
                    //used to deploy libs to local maven repository
                }
            }
        }
    }
}
```

```

        sh "mvn clean"
        //The assembly is postponed : it needs some further generated PDF
        sh "mvn install -DskipTests -Dassembly.skipAssembly=true"
    }
}
stage('Unit Tests') {
    wrap([$class: 'Xvnc', takeScreenshot: false, useXauthority: true]) {
        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)])
    }
    sh "mvn test -Dcheckstyle.skip=true"
    //Maven auto reports JUnit surefire results
}
}
stage('Documentation') {
    //get history from git to asciidoc documentation
    sh '$WORKSPACE/src/scripts/asciidocHistory.sh $WORKSPACE'
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
        //validate produces the date for PDF
        //javadoc:aggregate is CPU intensive, we don't parallelize for now
        sh "mvn validate asciidoctor:process-asciidoc antrun:run@pdfsAddVersion javadoc:aggregate
-Dcheckstyle.skip=true"
        sh "mvn javadoc:jar -pl cg-utils -Dcheckstyle.skip=true"
    }
    step([$class: 'JavadocArchiver', javadocDir: 'target/site/javadoc', keepAll: true])
    archiveArtifacts artifacts: '**/*.pdf,**/*-javadoc.jar', excludes: '**/test*.pdf'
}
stage('Integration Tests') {
    wrap([$class: 'Xvnc', takeScreenshot: false, useXauthority: true]) {
        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)])
    }
    try{
        sh "mvn verify failsafe:verify -Dcg.ut.skip=true -Dcheckstyle.skip=true"
    } finally {
        //Maven does not auto report JUnit failsafe results
        junit '**/target/failsafe-reports/*.xml'
    }
}
}
stage('Quality Check') {
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
        sh "mvn sonar:sonar -Dsonar.login=0d1356516289799b179c6c7f851c9d4464ab04e2
-Dsonar.host.url=http://sonarqube:9000/sonarqube"
    }
    sh '$WORKSPACE/src/scripts/sonarStatus.sh'
}
stage('Assembly') {
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: false)]) {
        sh "mvn install -DskipTests -Dcheckstyle.skip=true"
    }
    //archiveArtifacts is now in "Deployment" phase since we download packages
}
stage('Publication'){
    parallel (
        "Deployment to Nexus and IS": {
            withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled:
true)]) {
                //sh 'mvn wagon:update-maven-3'
                sh 'mvn deploy -DskipTests -Dassembly.skipAssembly=true -Dcheckstyle.skip=true -s cg-
settings.xml'
            }
            sh "ssh devops@frpardge.corp.nvx.com 'cd /opt/sagis/profiles/IS_default/bin;./restart.sh'"
            sh '$WORKSPACE/src/scripts/deployJavadoc.sh'
            sh '$WORKSPACE/src/scripts/getPackages.sh'

            //SchemaSpy must not fail the deployment so we put it after deployment
            sh '$WORKSPACE/src/scripts/schemaspy.sh'
            publishHTML([
                allowMissing          : false,

```



```

        alwaysLinkToLastBuild: false,
        keepAll                : true,
        reportDir               : 'target/schemaspy',
        reportFiles              : 'index.html',
        reportName               : 'DB Schema'])

    archiveArtifacts artifacts: '**/target/*.zip'
},
"Reporting" : {

    //Git Inspector
    sh 'mkdir target/gitinspector'
    sh 'export PYTHONIOENCODING=utf-8 ; gitinspector --format=html -rTw >
target/gitinspector/index.html'
    publishHTML([
        allowMissing            : false,
        alwaysLinkToLastBuild: false,
        keepAll                  : true,
        reportDir                : 'target/gitinspector',
        reportFiles              : 'index.html',
        reportName               : 'Git Inspector'])

    //Maven Site
    withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled:
true)]) {
        sh 'mvn site site:stage -DskipTests -Dcheckstyle.skip=true -s cg-settings.xml'
    }
    publishHTML([
        allowMissing            : false,
        alwaysLinkToLastBuild: false,
        keepAll                  : true,
        reportDir                : 'target/staging',
        reportFiles              : 'index.html',
        reportName               : 'Maven Reporting'])
    }
    }
} catch (any) {
    step([
        $class: 'Mailer', notifyEveryUnstableBuild: true,
        recipients: emailxtrerecipients([[ $class: 'CulpritsRecipientProvider'],
        [ $class: 'RequesterRecipientProvider' ] ])
    ])
    currentBuild.result = 'FAILURE'
}
} //timeout
logstashSend failBuild: false, maxLines: 1000
} //node

@NonCPS
def version(text) {
    def matcher = text =~ '<version>(.)</version>'
    matcher ? matcher[0][1] : null
}

```

### 7.8.3. The Deploy Int pipeline



Describe this pipeline when stable

### 7.8.4. The Release pipeline

This is the release pipeline launched manually at will when an external release is needed. This pipeline is a "pipeline as code".

Go to Jenkins home page :

<https://bpmfactory.s2-eu.nvx.com/jenkins>

- Click **New Item**
- Choose a name : CG-WM\_P3\_Release
- Choose **Pipeline** type

## General

- Check **Ce build a des paramètres**
  - Paramètre texte
    - RELEASE\_VERSION
    - the release version, with pattern 1.YY.MM[increment] (ex : 1.17.5.9)
- Check **Supprimer les anciens builds**
  - Strategy = Log Rotation
  - Nombre de builds à conserver = 10

## Build Triggers

No trigger (manual launch).

## Advanced Project Options

None.

## Pipeline

Definition = Pipeline script from SCM

SCM = Git

- Repositories
  - Repository URL = <http://bpmfactory.s2-eu.nvx.com/gerrit/p/cg-wm.git>
  - Credentials = svc-fr-bpmfact / Bpm-fact0ry
- Branches to build : \*/master

Script Path = Jenkinsfile-4-release

☒ Lightweight checkout

*Pipeline content (for information)*

```
#!/groovy

//Release is a manual firing (and should always be)
//No need to do the whole process, trunk is always trustworthy with our setup
//Just check that the merge pipeline (DeployToDev) is successful

node {
    timeout(30) {
```

```

try {
    stage('Checkout') {
        cleanWs() // requires workspace cleanup plugin to be installed
        retry(3) {
            checkout scm
        }
        echo "Releasing version $RELEASE_VERSION"
    }
    stage('Documentation') {
        //get history from git to asciidoc documentation
        sh '$WORKSPACE/src/scripts/asciidocHistory.sh $WORKSPACE'

        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
            //to put jars in local maven repository if needed
            sh "mvn clean"
            sh "mvn versions:set -DnewVersion=$RELEASE_VERSION"
            //without this local installation, modules are searched on internet on mvn validate
            sh "mvn install -DskipTests -Dassembly.skipAssembly=true"
            //we launch some (quick) tests that contains the generation of service list for the cg-utils doc
            sh "mvn test -pl cg-utils"
            //time to launch the actual doc generation
            //validate produces the date for PDF
            sh "mvn validate asciidoctor:process-asciidoc antrun:run@pdfsAddVersion javadoc:aggregate
-Dcheckstyle.skip=true"
            sh "mvn javadoc:jar -pl cg-utils -Dcheckstyle.skip=true"
        }

        step([class: 'JavadocArchiver', javadocDir: 'target/site/javadoc', keepAll: true])
        archiveArtifacts artifacts: '**/*.pdf,**/*-javadoc.jar', excludes: '**/test*.pdf'
    }
    stage('Deployment') {
        //Deployment is after documentation because a pdf must be in the zip

        //Delete tag if this is a replayed-on-error build...

        //...locally
        sh "git tag -d cg-wm-$RELEASE_VERSION || true"

        //...remotely
        //Special characters have to be URL encoded : https://stackoverflow.com/questions/6172719/escape-
character-in-git-proxy-password
        sh "git push --force --delete https://svc-fr-cric:ptTpill5FS47RHDFV8541owV4zkbZ0tVrxyqRsmGhw@cric.pl.s2-
eu.nvx.com/gerrit/p/cg-wm.git cg-wm-$RELEASE_VERSION || true"

        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
            sh "mvn deploy scm:tag -s cg-settings.xml -DskipTests -Dcheckstyle.skip=true"
        }
        sh "$WORKSPACE/src/scripts/deployJavadoc.sh"
        sh "$WORKSPACE/src/scripts/getPackages.sh"
        archiveArtifacts artifacts: '**/target/*.zip'
    }
    stage('Reporting') {
        withMaven(maven: 'Maven 3.5', mavenOpts: '-Xmx1024M', options: [artifactsPublisher(disabled: true)]) {
            sh "mvn site site:stage -DskipTests -Dcheckstyle.skip=true -s cg-settings.xml"
        }
        publishHTML([
            allowMissing      : false,
            alwaysLinkToLastBuild: false,
            keepAll           : true,
            reportDir         : 'target/staging',
            reportFiles        : 'index.html',
            reportName         : 'Maven Reporting'])
    }
} catch (any) {
    step([
        class: 'Mailer', notifyEveryUnstableBuild: true,
        recipients: emailExtrecipients([class: 'CulpritsRecipientProvider'],
[class: 'RequesterRecipientProvider'])
    ])
    currentBuild.result = 'FAILURE'
}

```

```

    }
  } //timeout
  logstashSend failBuild: false, maxLines: 1000
} //node

@NonCPS
def version(text) {
  def matcher = text =~ '<version>(.)</version>'
  matcher ? matcher[0][1] : null
}

```

## 7.9. Troobleshooting

### 7.9.1. Disk space usage > 90 %

If the disk space usage is too high and your build fails at the start for this reason, you can purge some folders with the below actions.

- Edit the **console** job.
- Put these lines and save :

```

du --max-depth=1 /home/jenkins/workspace/ | sort -n -r | head -n 30
find /home/jenkins/workspace/ -maxdepth 1 -mtime +90 -type d -depth -print

```

- Launch the job
- Following the results, do the necessary deletions
- If there are some ws-cleanup directory, you can delete them safely :

```

rm -rf /home/jenkins/workspace/*ws-cleanup* ???

```

## 8. SonarQube

### 8.1. Quality Gates

Click on **Quality Gate**

Create a new one for your project and select your quality gate rules :

- Comments is less than 30 then 25
- Coverage is less than 86 then 80
- Maintainability Raiting is worse than A then C
- Reliability Raiting is worse than A then C
- Security Raiting is worse than A then C
- Unit Test Success (%) is worse than A then C

### 8.2. Update



This has to be done only for a new Production Line

**Administration** → **System** → **Update Center**

- SonarJava : install or update to latest
- Findbugs : install
- SoftVis3D : install

### 8.3. Rules / quality profile

#### 8.3.1. Export

- Navigate to **Quality Profiles** → **BCT** (or your profile) → **Actions** → **Back Up**
- This will download a XML
- On CG-WM, the common java XML quality profile is saved here :

```
src\docs\SonarQube.qualityProfile.BCT.xml
```

#### 8.3.2. Import



for an import to be successful, SonarQube must know the rules, so SonarJava and Findbugs must be up to date

- Navigate to **Quality Profiles** → dropdown menu next to **Create** → **Restore Profile**

- Provide the saved XML

### 8.3.3. Create



This has to be done only if you want to define a custom set of rules

- Choose **Quality Profiles** → **Java** → **Sonar way** → **Copy**
- Select the newly created profile
- Now you can :
  - Click on the number of active rules to deactivate some
  - Click on **Activate More**
  - Go to **Rules**, search one and change its value

## 8.4. Technical Debt



This has to be done only for a new Production Line

- Select **Administration** → **Configuration** → **General Settings** → **Technical Debt**
- Set Maintainability rating grid = 0.01,0.02,0.03,0.05
  - *This means that a tech debt < 1% is rated A, a tech debt > 5% is rated E.*
- Hit **save technical debt**

## 9. Nexus3



This has to be done only for a new Production Line



The technical account has to be created in CORP and defined in LAM as an administrator

### 9.1. URL

Repositories, release, snapshot and group, should already be created.

The public repository address can be found there :

- Click on the wheel
- **Repository** → **Repositories** → **maven-public**
- Get the URL

### 9.2. Set SNAPSHOT retention



This has to be done only for a new Production Line

- Go to **Administration** (wheel) → **System** → **Tasks** → **Create task**
- Type = Remove Snapshots From Maven Repository
- Fields
  - Name = Delete old snapshots
  - Repository = (All Repositories)
  - Minimum snapshot count = 5
  - Snapshot retention (days) = 7
  - Delete immediately = [x]
  - Task frequency = Daily
  - Time to run this task = 8:00

### 9.3. Add a proxy (=remote) repository

- Connect to Nexus
- Click on **Administration** (wheel) → **Repositories** → **Repository** → **Create repository**
- Choose **maven2 (proxy)**
- Fill repository data
  - Name = Wakaleo

- Remote Storage = <http://www.wakaleo.com/maven/repos>
- Download Remote Indexes = False
- Save
- On the corresponding line in the list, click on **Analyze**

Now artifacts should be accessible via maven if the settings.xml is well configured to reach the Nexus :

### *Settings.xml using Nexus*

```
<settings xmlns="http://maven.apache.org/SETTINGS/1.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/SETTINGS/1.0.0 http://maven.apache.org/xsd/settings-1.0.0.xsd">

  <servers>
    <!-- tag::server[] -->
    <server>
      <id>nexus-local</id>
      <username>svc-fr-cric</username>
      <password>ESBpwd2018</password>
    </server>
    <!-- end::server[] -->
    <server>
      <id>iSERVER-dev</id>
      <username>devops</username>
      <password>devopswm</password>
    </server>
    <server>
      <!-- Gerrit credentials for maven-scm-plugin, which search with the hostname
           as server id -->
      <id>cric.pl.s2-eu.nvx.com</id>
      <username>svc-fr-cric</username>
      <!-- Gerrit does not use the CORP password, we use the UI generated one -->
      <password>ptTpIL5FS47RHDFV8541owV4zkbZ0tVrxyqRsmGhw</password>
    </server>
  </servers>

  <!-- tag::mirrors[] -->
  <mirrors>
    <mirror>
      <id>nexus-local</id>
      <mirrorOf>*</mirrorOf>
      <url>https://cric.pl.s2-eu.nvx.com/nexus3/repository/maven-public/</url>
    </mirror>
  </mirrors>
  <!-- end::mirrors[] -->

  <!-- tag::profiles[] -->
  <profiles>
    <profile>
      <id>nexus-local</id>
      <repositories>
        <repository>
          <id>central</id>
          <url>http://central</url>
          <releases>
            <enabled>true</enabled>
          </releases>
          <snapshots>
            <enabled>true</enabled>
          </snapshots>
        </repository>
      </repositories>

      <pluginRepositories>
```



```

    <pluginRepository>
      <id>central</id>
      <url>http://central</url>
      <releases>
        <enabled>true</enabled>
      </releases>
      <snapshots>
        <enabled>true</enabled>
      </snapshots>
    </pluginRepository>
  </pluginRepositories>

  <properties>
    <snapshotUrl>https://cric.pl.s2-eu.nvx.com/nexus3/repository/maven-snapshots/</snapshotUrl>
    <releaseUrl>https://cric.pl.s2-eu.nvx.com/nexus3/repository/maven-releases/</releaseUrl>
  </properties>

</profile>
</profiles>
<!-- end::profiles[] -->

<!-- tag::activeProfiles[] -->
<activeProfiles>
  <activeProfile>nexus-local</activeProfile>
</activeProfiles>
<!-- end::activeProfiles[] -->

</settings>

```

### *Repositories to add*

- For SchemaSpy : <http://www.wakaleo.com/maven/repos>

# 10. JIRA

Jira is used here in association with BugPicture, to have a Gantt chart.

## 10.1. JIRA Access restriction

*To restrict the access to stay under the 10 members for the cheapest license (\$12 with tax once and for all) :*

- in LAM, create the jira-users group, and put in all users you want to give access to JIRA
- browse user management in JIRA : <https://dge.pl.s2-eu.nvx.com/jira/secure/admin/user/UserBrowser.jspa>
  - Give you the **jira-administrators** right and remove **pladmin** from this group
  - define **jira-users** as default group
  - remove all groups EXCEPT **jira-administrators** and **jira-users**

## 10.2. Project

### 10.2.1. Add Time Estimated

*To add **time estimated** in Kanban*

- Edit an issue
- Where is my field ? : "Time Tracking"
- Click on the link to add it

Now it is added. To define to days as default unit :

- **Wheel** → **Issues** → Left pannel **Time Tracking** → **Deactivate**
- Change configuration
  - **Time format** = days
  - **Default Unit** = day
- Click **Activate**

### 10.2.2. Configure emails notification

To disable emails notification :

- **Projects** → **MyProject** → Bottom left corner **Project Settings** → **Notifications** → **Actions** → **Select a scheme** → **None**

## 10.3. Version

Perform these actions for each new version.

### 10.3.1. Add new members

If you have new members in this version, add them in LAM and especially in the **jira** group.

Update JIRA rights :

- Click on the wheel → **User management** → left section **User Directories**
- Click **Synchronize**

### 10.3.2. Create the version

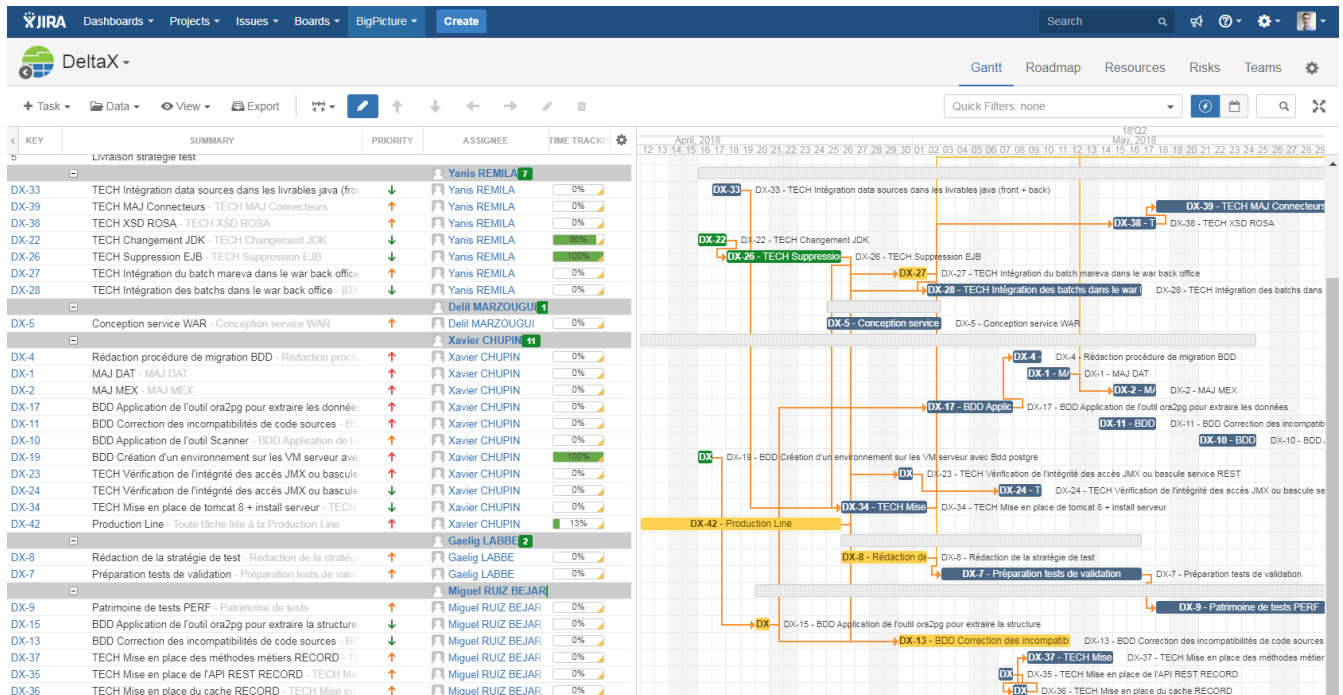
- **Projects** → **MyProject** → left section **Releases**
- Fill The data name/dates/description
- Click **Add**

### 10.3.3. Add tickets

- Add all tickets in JIRA
- Import all in BigPicture

## 10.4. BigPicture

BigPictures is a 10\$ plugin that adds Gantt capabilities to JIRA. Install this plugin if you have a license or want to try it for a month.



### 10.4.1. Gantt

To see Gantt chart, go to **BigPicture** → **YourProject** → **Gantt**.



You can edit a ticket using "E" shortcuts when in GANTT view

### 10.4.2. Configure layout

*To obtain the layout of the picture*

- **BigPicture** → **Gantt**
- **View** → **Layout** → **Compact**
- **View** → **Perspective** → **Team**
- **View** → **Perspective** → **Manager Perspectives**
- using drag and drops, keep only these fields
  - Key, Summary, Priority, Assignee, Time Tracking
- save
- **BigPicture** → **Gantt**
- **Data** → **Sort tasks A-Z** → **Assignee**

### 10.4.3. Regroup tasks

*To regroup tasks under bigger subjects in Gantt view*

- **Task** → **Create task** → **Artificial Task**
- Put it before all wanted subtasks with **up arrow** or **down arrow**
- Select each task and make them subtask by clicking on →

#### 10.4.4. Add deadlines

*To add a deadline in Gantt view*

- **Task** → **Create task** → **Artificial task**

# 11. Nexus2



Deprecated, use Nexus3

## 11.1. Define rights of technical account



This has to be done only for a new Production Line



The technical account has to be created in CORP and defined in LAM as an administrator

- Click on **Security** → **Users**
- Select **LDAP** (next to **Delete**) and search for your technical account name. It should appear in list below.
- In **Config** section associated, there is only **admins** Role.
- Add these roles :
  - **Nexus Deployment Role**
  - **Nexus Developer Role**
  - **Repo: All Repositories (Full Control)**

## 11.2. Set SNAPSHOT retention



This has to be done only for a new Production Line

- Go to **Administration** → **Scheduled Tasks** → **Add**
- Define the attributes :
  - Name = Delete old snapshots
  - Task Type = Remove Snapshots From Repository
  - Repository/Group = All Repositories
  - Minimum snapshot count = 5
  - Snapshot retention (days) = 7
  - Remove if released = [ ]
    - Else, you can end up loosing all SNAPSHOTS without notice !
  - Delete immediately = [x]
  - Recurrence = Daily
  - Recurring Time = 8:00

## 11.3. Add a proxy (=remote) repository

- Connect to Nexus
- Click on **Repositories** → **Add...** → **Proxy**
- Fill, example sonatype snapshot
  - Repository ID = sonatype-snapshots
  - Repository Name = Sonatype Snapshots
  - Repository Type = proxy
  - Repository Policy = Snapshot
  - Remote Storage Location = <https://oss.sonatype.org/content/repositories/snapshots/>
  - Download Remote Indexes = False
- Hit save
- Click on bottom section **Routing** → **Update now**
- Go back to **Repositories** and select **Public Repositories**
- In bottom section **Configuration** add your new repository to the right
- Hit save

Now artifacts should be accessible via maven if the settings.xml is well configured to reach the Nexus.

### *Repositories to add*

- For SchemaSpy : <http://www.wakaleo.com/maven/repos>

## 12. Additionnal nvx VM : webMethods & Elastic servers

- VM host = **frpardge.corp.nvx.com**
- VM user = **devops**

### 12.1. Initialize VM

- Adding a user

```
adduser devops
```

- Granting him root privileges

```
visudo
```

```
devops ALL=(ALL:ALL) ALL
```

- Checking FS size

```
parted  
print free
```

- Example

Number	Start	End	Size	Type	File system	Flags
	32.3kB	1049kB	1016kB		Free Space	
1	1049kB	500MB	499MB	primary	ext2	boot
2	500MB	53.7GB	53.2GB	primary		lvm
	53.7GB	53.7GB	1049kB		Free Space	



Below instructions are for Ubuntu only. You can check your Linux distribution with this command : `cat /etc/*-release`

- Add some server for apt-get

```
sudo vi /etc/apt/sources.list
```

```
deb [arch=amd64] http://archive.ubuntu.com/ubuntu/ trusty main restricted universe multiverse  
deb [arch=amd64] http://archive.ubuntu.com/ubuntu/ trusty-security main restricted universe multiverse  
deb [arch=amd64] http://archive.ubuntu.com/ubuntu/ trusty-updates main restricted universe multiverse  
deb [arch=amd64] http://archive.ubuntu.com/ubuntu/ trusty-proposed main restricted universe multiverse  
deb [arch=amd64] http://archive.ubuntu.com/ubuntu/ trusty-backports main restricted universe multiverse
```



## 12.2. Install Docker



Below instructions are for Ubuntu 14 only. You can check your Linux distribution with this command : `cat /etc/*-release`

```
apt-get install apt-transport-https ca-certificates curl software-properties-common
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu xenial stable"
apt-get update
apt-cache search docker-ce
apt-get install docker-ce
```

- May work on Jenkins slave



don't use on managed PL, we don't have enough rights

```
sudo add-apt-repository \
"deb [arch=amd64] https://download.docker.com/linux/${. /etc/os-release; echo "$ID"} \
$(lsb_release -cs) \
stable"
sudo apt-get update
sudo apt-cache search docker-ce
sudo apt-get install --assume-yes docker-ce
sudo dockerd
```

- Allow Docker remote API

Solution found here <https://forums.docker.com/t/enable-remote-api-on-docker-hosts-in-ubuntu-14/11583/2>

```
vi /etc/default/docker
```

```
DOCKER_OPTS="-H tcp://0.0.0.0:2375 -H unix:///var/run/docker.sock"
```

- Start Docker Daemon

```
sudo dockerd
```

- To restart (as root)



Don't forget the `docker.sock` `chmod` if you use `metricbeat`

```
service docker restart
```

- To check FS size

```

root@frpardge:/var/lib/docker
$ du -sh -- * .*
92K    aufs
44K    containers
116K   image
52K    network
20K    plugins
4.0K   swarm
4.0K   tmp
4.0K   trust
28K    volumes
4.0K   .
61M    ..

```

- Get rid of sudo for devops user

```

sudo groupadd docker
sudo gpasswd -a devops docker
newgrp docker
docker run hello-world

```

- Install **Portainer** to ease administration

```

sudo docker pull portainer/portainer

```

```

sudo docker run -d --name portainer --restart=always -p 19000:9000 -v /var/run/docker.sock:/var/run/docker.sock
portainer/portainer

```

- To use, go to <http://frpardge.corp.nvx.com:19000>

- login/password = **admin / administrator**

- Install docker-compose

```

curl -L https://github.com/docker/compose/releases/download/1.19.0/docker-compose-`uname -s`-`uname -m` -o
/usr/local/bin/docker-compose

```

```

chmod +x /usr/local/bin/docker-compose

```

```

docker-compose --version

```

### 12.2.1. Define Nexus3 as the Docker registry

- Raise a ticket in INSERE to ask a port opening for Nexus3 as a Docker registry
  - They will provide this kind of response, which indicates how to login before 'docker push' :

```

docker login docker-registry-bpmfactory.s2-eu.nvx.com
User name: docker
User Password: dockerPWdbpmfactory

```

- Use the information to add the registry in docker configuration

```
vi /etc/docker/daemon.json
```

```
{  
  "storage-driver": "devicemapper",  
  "insecure-registries": [  
    "docker-registry-bpmfactory.s2-eu.nvx.com"  
  ],  
  "disable-legacy-registry": true  
}
```

- be careful not to have INSECURE\_REGISTRY here, it would not start :

```
vim /etc/sysconfig/docker
```

```
#INSECURE_REGISTRY='--insecure-registry userbxy05.socle:8444'
```

- Redémarrer docker

```
service docker restart
```

## 12.3. Setup a dockerized Oracle12c database

Database found here : <https://hub.docker.com/r/sath89/oracle-12c/>

```
docker pull sath89/oracle-12c
```

```
docker run --restart=always --name dbdev -d -p 18080:8080 -p 1521:1521 sath89/oracle-12c
```

```
docker logs -f feef20144fdc124d7b19d22aaf7bd63cbb837df667cc9764e7bdb5bcafa1af46
```

```
Database not initialized. Initializing database.  
Starting tnslnsr  
Copying database files  
1% complete  
3% complete  
Import finished  
Database ready to use. Enjoy! ;)
```

*Connect to Oracle Application Express web management console with following settings :*

- host = <http://frpardge:18080/apex>
- workspace = **INTERNAL**
- user = **ADMIN**
- password **0racle!**

## 12.4. Install Elastic items

Configuration files are given in next associated sections below. For some of them, some chmod change is needed :

```
cd ~/elastic
chmod go-w ./*.yaml
```

### 12.4.1. Migration prerequisites

*If you are upgrading from a previous version of Elastic, you have to do this before anything :*

- Close data senders using Portainer for containers
  - Shutdown the IS, or just disable CgElastic & WmMediator packages
  - Stop Heartbeat, Filebeat, Metricbeat containers
  - No need to stop Logstash if Filebeat is closed
- Check that nothing is coming in Elasticsearch with Kibana, then stop Kibana container
- Stop Elasticsearch container

For now, no data migration has been tried, so no support on it. This will be a fresh new Elasticsearch, and a Kibana with imported dashboards (hoping they still work).

Rename all stopped container, to be able to get the initial name on new containers.

## 12.4.2. Elasticsearch



If you are new to the Elastic Stack, learn with the excellent official Kibana tutorial : <https://www.elastic.co/guide/en/kibana/current/getting-started.html>

- Install with docker without x-pack

```
docker pull docker.elastic.co/elasticsearch/elasticsearch-oss:6.0.0
```

*To start it*

```
docker run --restart=always -d --name elastic -p 9200:9200 -p 9300:9300 -e "discovery.type=single-node"  
docker.elastic.co/elasticsearch/elasticsearch-oss:6.0.0
```

- if elastic stops directly after start with this error

```
max virtual memory areas vm.max_map_count [65530] likely too low, increase to at least [262144]
```

- Then type before retry

```
sudo sysctl -w vm.max_map_count=262144
```

## 12.5. Kibana

- Install with docker without x-pack

```
docker pull docker.elastic.co/kibana/kibana-oss:6.0.0
```

- Create the file described at the end of this section

```
~/elastic/kibana.yml
```

- Start the container

```
docker run --restart=always -d --name kibana -p 5601:5601 -v  
~/elastic/kibana.yml:/usr/share/kibana/config/kibana.yml docker.elastic.co/kibana/kibana-oss:6.0.0
```

Check that it is up and running : <http://frpardge:5601/>

*Once every application is up, you will be able to declare patterns :*

- cgwmbeat-\*
- heartbeat-\*
- jenkins
- logstash-\*
- metricbeat-\*
- webmethodsmediator

*And to apply some Elasticsearch default index configuration :*

- the limit of 1000 fields by index is a bit low, updated to 2000
- default is 5 shards per index, too many for dev
- default is 1 replica, for a single node ES it's 0

```
PUT _template/all  
{  
  "index_patterns" : ["*"],  
  "settings": {  
    "index.mapping.total_fields.limit": 2000,  
    "index.max_docvalue_fields_search": 400,  
    "number_of_shards": 1,  
    "number_of_replicas": 0  
  }  
}
```

Here is something to try, inside the "PUT \_template/all", someday, to not have keyword (fixed word) + text (searchable) but only keyword :

```
"dynamic_templates": [
  {
    "match_mapping_type": "string",
    "mapping": {
      "type": "keyword"
    }
  }
]
```

### *For Elasticsearch monitoring :*

```
GET /_cat/indices?v
GET _cluster/health
```

### *~/elastic/kibana.yml*

```
# Kibana is served by a back end server. This setting specifies the port to use.
#server.port: 5601

# Specifies the address to which the Kibana server will bind. IP addresses and host names are both valid values.
# The default is 'localhost', which usually means remote machines will not be able to connect.
# To allow connections from remote users, set this parameter to a non-loopback address.
server.host: "0.0.0.0"

# Enables you to specify a path to mount Kibana at if you are running behind a proxy. This only affects
# the URLs generated by Kibana, your proxy is expected to remove the basePath value before forwarding requests
# to Kibana. This setting cannot end in a slash.
#server.basePath: ""

# The maximum payload size in bytes for incoming server requests.
#server.maxPayloadBytes: 1048576

# The Kibana server's name. This is used for display purposes.
#server.name: "your-hostname"

# The URL of the Elasticsearch instance to use for all your queries.
elasticsearch.url: "http://frpardge.corp.nvx.com:9200"

# When this setting's value is true Kibana uses the hostname specified in the server.host
# setting. When the value of this setting is false, Kibana uses the hostname of the host
# that connects to this Kibana instance.
#elasticsearch.preserveHost: true

# Kibana uses an index in Elasticsearch to store saved searches, visualizations and
# dashboards. Kibana creates a new index if the index doesn't already exist.
#kibana.index: ".kibana"

# The default application to load.
#kibana.defaultAppId: "discover"

# If your Elasticsearch is protected with basic authentication, these settings provide
# the username and password that the Kibana server uses to perform maintenance on the Kibana
# index at startup. Your Kibana users still need to authenticate with Elasticsearch, which
# is proxied through the Kibana server.
#elasticsearch.username: "user"
#elasticsearch.password: "pass"

# Enables SSL and paths to the PEM-format SSL certificate and SSL key files, respectively.
# These settings enable SSL for outgoing requests from the Kibana server to the browser.
#server.ssl.enabled: false
#server.ssl.certificate: /path/to/your/server.crt
#server.ssl.key: /path/to/your/server.key

# Optional settings that provide the paths to the PEM-format SSL certificate and key files.
# These files validate that your Elasticsearch backend uses the same key files.
#elasticsearch.ssl.certificate: /path/to/your/client.crt
#elasticsearch.ssl.key: /path/to/your/client.key
```



```
# Optional setting that enables you to specify a path to the PEM file for the certificate
# authority for your Elasticsearch instance.
#elasticsearch.ssl.certificateAuthorities: [ "/path/to/your/CA.pem" ]

# To disregard the validity of SSL certificates, change this setting's value to 'none'.
#elasticsearch.ssl.verifyMode: full

# Time in milliseconds to wait for Elasticsearch to respond to pings. Defaults to the value of
# the elasticsearch.requestTimeout setting.
#elasticsearch.pingTimeout: 1500

# Time in milliseconds to wait for responses from the back end or Elasticsearch. This value
# must be a positive integer.
#elasticsearch.requestTimeout: 30000

# List of Kibana client-side headers to send to Elasticsearch. To send *no* client-side
# headers, set this value to [] (an empty list).
#elasticsearch.requestHeadersWhitelist: [ authorization ]

# Header names and values that are sent to Elasticsearch. Any custom headers cannot be overwritten
# by client-side headers, regardless of the elasticsearch.requestHeadersWhitelist configuration.
#elasticsearch.customHeaders: {}

# Time in milliseconds for Elasticsearch to wait for responses from shards. Set to 0 to disable.
#elasticsearch.shardTimeout: 0

# Time in milliseconds to wait for Elasticsearch at Kibana startup before retrying.
#elasticsearch.startupTimeout: 5000

# Specifies the path where Kibana creates the process ID file.
#pid.file: /var/run/kibana.pid

# Enables you specify a file where Kibana stores log output.
#logging.dest: stdout

# Set the value of this setting to true to suppress all logging output.
#logging.silent: false

# Set the value of this setting to true to suppress all logging output other than error messages.
#logging.quiet: false

# Set the value of this setting to true to log all events, including system usage information
# and all requests.
#logging.verbose: false

# Set the interval in milliseconds to sample system and process performance
# metrics. Minimum is 100ms. Defaults to 5000.
#ops.interval: 5000
```

## 12.5.1. Troubleshoot

Here is a list of problems and solutions.

### Kibana cannot connect to Elasticsearch

If Kibana cannot connect to Elasticsearch with this message :

```
blocked by: [FORBIDDEN/12/index read-only / allow delete (api)]; [cluster_block_exception] blocked by:
[FORBIDDEN/12/index read-only / allow delete (api)];
```

Then apply these settings :

```
PUT _settings
{
  "index": {
    "blocks": {
      "read_only_allow_delete": "false"
    }
  }
}
```

```
PUT cgwmbeat-2018.02.16/_settings
{
  "index": {
    "blocks": {
      "read_only_allow_delete": "false"
    }
  }
}
```

## 12.6. Curator

```
wget -q0 - https://packages.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -
```

```
sudo vi /etc/apt/sources.list
```

```
deb [arch=amd64] http://packages.elastic.co/curator/5/debian stable main
```

```
sudo apt-get update && sudo apt-get install elasticsearch-curator
```

*To start it*

```
curator --config ~/elastic/curator.config.yml --dry-run ~/elastic/curator.delete_indices.yml  
curator --config ~/elastic/curator.config.yml ~/elastic/curator.delete_indices.yml
```

### 12.6.1. Automation

- Create below script

*~/elastic/curator.sh*

```
#!/bin/sh  
  
curator --config ~/elastic/curator.config.yml ~/elastic/curator.delete_indices.yml
```

- Open crontab

```
crontab -e
```

- Add this line to launch it at 8:00 everyday

```
0 8 * * * ~/elastic/curator.sh
```

- Exit and save with **Ctrl+X, Y, Enter**

### 12.6.2. Configuration

### *~/elastic/curator.config.yml*

```
---
# Remember, leave a key empty if there is no value.  None will be a string,
# not a Python "NoneType"
client:
  hosts:
    - 127.0.0.1
  port: 9200
  url_prefix:
  use_ssl: False
  certificate:
  client_cert:
  client_key:
  ssl_no_validate: False
  http_auth:
  timeout: 30
  master_only: False

logging:
  loglevel: INFO
  logfile:
  logformat: default
  blacklist: ['elasticsearch', 'urllib3']
```

### *~/elastic/curator.delete\_indices.yml*

```
---
# Remember, leave a key empty if there is no value.  None will be a string,
# not a Python "NoneType"
#
# Also remember that all examples have 'disable_action' set to True.  If you
# want to use this action as a template, be sure to set this to False after
# copying it.
# # # #
# curator --config ~/elastic/curator.config.yml --dry-run ~/elastic/curator.delete_indices.yml
# curator --config ~/elastic/curator.config.yml ~/elastic/curator.delete_indices.yml
# # # #
actions:
  1:
    action: delete_indices
    description: Delete indices older than 30 days. No error when no actual deletion.
    options:
      ignore_empty_list: True
    filters:
      - filtertype: age
        source: name
        direction: older
        timestring: '%Y.%m.%d'
        unit: days
        unit_count: 30
```

## 12.7. Heartbeat

- Pull the image

```
docker pull docker.elastic.co/beats/heartbeat:6.0.0
```

- Create the file described at the end of this section

```
~/elastic/heartbeat.yml
```

- Start the container

```
docker run --name heartbeat -d -v ~/elastic/heartbeat.yml:/usr/share/heartbeat/heartbeat.yml  
docker.elastic.co/beats/heartbeat:6.0.0
```

```
#
# wget --user=svc-fr-pldouane --password=Na9Is4Aw0! https://cdsdouane.pl.s2-eu.nvx.com/jenkins/job/DTXE_P1_CodeReview/
#
heartbeat.monitors:
- name: Jenkins
  type: http
  schedule: '@every 30s'
  urls: ["https://bpmfactory.s2-eu.nvx.com/jenkins/job/CNAV-DGE_P1_Review/"]
  username: svc-fr-bpmfact
  password: Bpm-fact0ry
  check.request.method: GET
  check.response.status: 200
- name: 'Jenkins Douane'
  type: http
  schedule: '@every 30s'
  urls: ["https://cdsdouane.pl.s2-eu.nvx.com/jenkins/job/DTXE_P1_CodeReview/"]
  username: svc-fr-pldouane
  password: Na9Is4Aw0!
  check.request.method: GET
  check.response.status: 200
- name: 'Gerrit home'
  type: http
  schedule: '@every 30s'
  urls: ["https://bpmfactory.s2-eu.nvx.com/gerrit/changes/?n=25&0=81"]
  username: svc-fr-bpmfact
  password: Bpm-fact0ry
  check.response.status: 200
- name: 'Gerrit viewFile'
  type: http
  schedule: '@every 30s'
  urls: ["https://bpmfactory.s2-
eu.nvx.com/gerrit/changes/421/revisions/5ab9d4c5cab6a087b936748f2df6550666a502dd/files/Jenkinsfile-2-deploy-to-
dev/diff?context=ALL"]
  username: svc-fr-bpmfact
  password: Bpm-fact0ry
  check.response.status: 200
- name: 'IS Dev'
  type: http
  schedule: '@every 30s'
  urls: ["http://frpardge:5555"]
  username: Administrator
  password: manage
  check.response.status: 200
- name: Kibana
  type: http
  schedule: '@every 30s'
  urls: ["http://frpardge:5601/app/kibana#/management?_g=()"]
  check.response.status: 200
- name: 'UM Dev'
  type: tcp
  schedule: '@every 30s'
  hosts: ["frpardge:9000"]

heartbeat.scheduler:
  limit: 10

output.elasticsearch:
  hosts: ["frpardge.corp.nvx.com:9200"]

dashboards.enabled: true
```

## 12.8. Logstash



Install this only if you have files to be parsed and sent to Elasticsearch

- Pull the image

```
docker pull docker.elastic.co/logstash/logstash-oss:6.0.0
```

- Create the file described at the end of this section

```
~/elastic/logstash-pipelines/logstash.conf
```

- Start the container

```
docker run --restart=always --name logstash -d -p 5043:5043 -v ~/elastic/logstash-pipelines/:/usr/share/logstash/pipeline/ docker.elastic.co/logstash/logstash-oss:6.0.0
```

*~/elastic/logstash-pipelines/logstash.conf*

```
input {
  beats {
    port => "5043"
  }
}

filter {
  if [fields][log_type] == "perflog" {
    grok {
      match => { "message" => "%{TIMESTAMP_ISO8601:timestamp} INFO  PERFORMANCES - \[%{GREEDYDATA:package}\]
%{WORD:method}\\(\\) completed successfully in %{NUMBER:duration:int} ms" }
    }
  }
  else {
    grok {
      match => { "message" => "\[%{TIMESTAMP_ISO8601:timestamp}\\] \[%{NOTSPACE:wMCode}\\] %{GREEDYDATA:textMsg}" }
    }
  }
  date {
    match => [ "timestamp", ISO8601 ]
    timezone => "Europe/Paris"
    target => "@timestamp"
  }
}

output {
  elasticsearch {
    hosts => [ "frpardge.corp.nvx.com:9200" ]
  }
  #stdout { codec => rubydebug }
}
```

## 12.9. Filebeat



Install this only if you have files to be parsed and sent to Elasticsearch

- Pull the image

```
docker pull docker.elastic.co/beats/filebeat:6.0.0
```

- Create the file described at the end of this section

```
~/elastic/filebeat.yml
```

- Start the container

```
docker run --name filebeat -d -v /opt/sagis/IntegrationServer/instances/default/logs/:/islogs/ -v  
~/elastic/filebeat.yml:/usr/share/filebeat/filebeat.yml docker.elastic.co/beats/filebeat:6.0.0
```

*~/elastic/filebeat.yml*

```
filebeat.prospectors:  
  
- type: log  
  paths:  
    - /islogs/log4j2/perfs.log  
  fields: {log_type: perflog}  
  
- type: log  
  paths:  
    - /islogs/server.log  
  multiline.pattern: '^\[20'  
  multiline.negate: true  
  multiline.match: after  
  fields: {log_type: serverlog}  
  
output.logstash:  
  hosts: ["frpardge.corp.nvx.com:5043"]
```



## 12.10. Metricbeat

This chmod has to be done again after each VM reboot before starting Metricbeat :

```
sudo chmod 777 /var/run/docker.sock
```

- Pull the image

```
docker pull docker.elastic.co/beats/metricbeat:6.0.0
```

- Create the file described at the end of this section

```
~/elastic/metricbeat.yml
```

- Start the container

```
docker run --name metricbeat -d -v /var/run/docker.sock:/var/run/docker.sock -v  
~/elastic/metricbeat.yml:/usr/share/metricbeat/metricbeat.yml --volume=/proc:/hostfs/proc:ro  
--volume=/sys/fs/cgroup:/hostfs/sys/fs/cgroup:ro --volume=:/hostfs:ro --net=host  
docker.elastic.co/beats/metricbeat:6.0.0 metricbeat -e -system.hostfs=/hostfs
```

To test you CPU graphs, with the proper handling of the cores, you can use stress application to load one or multiple cores :

```
sudo apt-get install stress  
stress --cpu 2
```

```
metricbeat.modules:
- module: system
  period: 10s
  metricsets:
    - cpu
    #- load
    - memory
    #- network
    - process
    - process_summary
    #- core
    #- diskio
    #- socket
  processes: ['.*']
  process.include_top_n:
    by_cpu: 10      # include top processes by CPU
    by_memory: 10   # include top processes by memory

- module: system
  period: 1m
  metricsets:
    - filesystem
    - fsstat
  processors:
    - drop_event.when.regex:
        system.filesystem.mount_point: '^/(sys|cgroup|proc|dev|etc|hostfs|run|var)($|/)'

- module: docker
  metricsets:
    #- container
    - cpu
    #- diskio
    #- healthcheck
    #- image
    #- info
    - memory
    #- network
  hosts: ["unix:///var/run/docker.sock"]
  period: 10s

output.elasticsearch:
  hosts: ["frpardge.corp.nvx.com:9200"]

metricbeat.config.modules:
  path: /usr/share/metricbeat/metricbeat.yml
  reload.enabled: true
  reload.period: 60s
```

## 12.11. Grafana

```
wget https://s3-us-west-2.amazonaws.com/grafana-releases/release/grafana_4.4.3_amd64.deb
```

```
sudo apt-get install -y adduser libfontconfig
```

```
sudo dpkg -i grafana_4.4.3_amd64.deb
```

*To start it*

```
sudo service grafana-server start
```

*To auto start it at boot time*

```
sudo update-rc.d grafana-server defaults
```

## 12.12. Jaeger Tracing (OpenZipkin-like)

*To start it*

```
docker run --restart=always --name jaeger -d -p5775:5775/udp -p6831:6831/udp -p5778:5778 -p16686:16686  
jaegertracing/all-in-one:latest
```

## 12.13. Install WM servers

### 12.13.1. Prerequisites

#### Enable X11, ssh graphical

- On Windows machine
  - install Xming
  - configure putty session for X11 :
  - Connection > SSH > X11
  - check "ENable X11"
  - X display location = localhost:0.0

- On linux VM

```
apt-get install libfontconfig1 libxrender1
apt-get install libxtst6
apt-get install libxi6
```

#### Install Java

- <https://tecadmin.net/install-oracle-java-8-ubuntu-via-ppa/>

#### Setup hosts

```
vi /etc/hosts
```

```
127.0.0.1 dbhost umhost ishost
```

#### Prepare database

```
./dbConfigurator.sh -i -file wm-db-script.xml -dir . --password=WMUSER --admin_password=oracle
```

### 12.13.2. Install IS & UM manually



TODO