Remote Upgrade via TT - POC

This page describes the remote upgrade procedure using new functionality in TT and new functionality in CDS and units.

Purpose

The purpose of this POC is to introduce the concept of upgrading the site remotely when relaying on existing infrastructure, specifically issuing new version in GPG files and using existing tools (TechTool). This is coming in addition to existing upgrade procedures and doesn't replace them, meaning same GPG files maybe used for regular upgrade via DOK or remote upgrade via CDS.

How to upgrade

- Have new version in form of GPG files
- Add version number to the name of GPG files, example

  BS.tar.gz2.gpg BS_04.04.04.04.1.tar.gz2.gpg

  CDS.tar.gz2.gpg CDS_04.04.04.04.1.tar.gz2.gpg
- Copy both GPG file on GW device into C:\GW\RepoGPG folder
- Use TT to monitor site readiness for an upgrade
- Use TT to trigger an upgrade for CDS devices
- Use TT to monitor entire upgrade process

Remote Upgrade overview

New remote upgrade mechanism introduces new concept of separation between getting new version GPG file to devices and actual installation. The purpose for this separation is to allow time for distribution of new version to devices to overcome network issues. Once all devices have new version GPG file in local repository the installation process should not run into problems as installation will be done locally on the device.

The installation happens hierarchy:

1. CDS gets command from TT to install new version
2. After CDS been upgraded it sends new CDS version to connected units
3. Units detect that CDS version is different from their own version and start installation process automatically

This way units that were offline for some reason will upgrade automatically after establishing connection to upgraded CDS device.

GW perspective

The only action has to be taken on the GW device is to put GPG files into C:\GW\RepoGPG folder. The GW device is serving as remote repository for all connected CDS devices. Meaning all CDS devices will sync their local repository against remote repository on GW device.

CDS perspective

Here is new functionality on CDS device:

- Broadcasting CDS details (IP address, MAC address) similar to units to allow scanning for CDS devices via TT
- Server socket listening on port 3037 for remote upgrade manager. It is used to establish connection with TT
- New request messages to provide information about upgrade status on CDS and on connected units and process installation command
- Send CDS version as part of CdsInit message to allow units to know if CDS upgraded
- Local repository defined as /home/earlysense/RepoGPG
- Cron job that rsync remote repository on GW device to local repository and handles installation

Unit perspective

Here is new functionality on units:

- Save connected CDS_VERSION into preferences
- Send new configuration parameter GPG_FILE_VERSION to CDS to allow CDS report upgrade status of connected units to TT
- Local repository defined as /home/earlysense/RepoGPG
- Cron job that rsync remote repository on CDS to local repository and handles installation

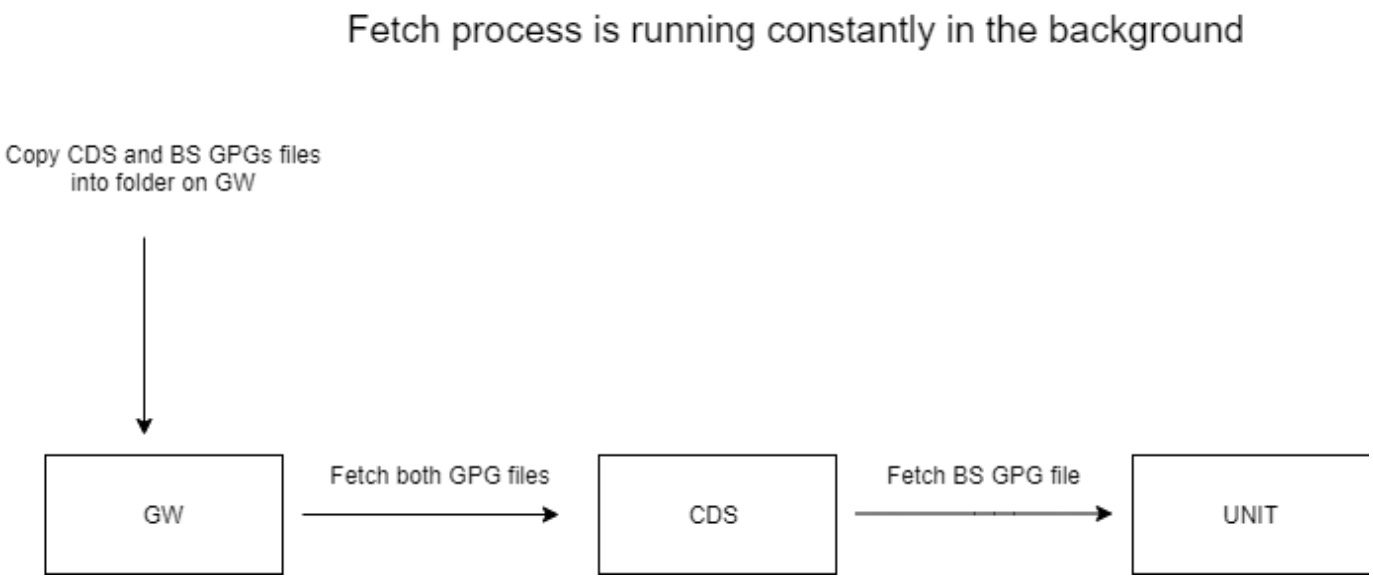
TechTool perspective

Here is new functionality on TechTool:

- New password 1106#UP and new screen to manage remote upgrade
- Detect broadcasting CDS devices
- Request upgrade status from all detected CDS devices periodically
- Send installation command to selected CDS devices
- Present fetching and then installation progress

Remote Upgrade in details

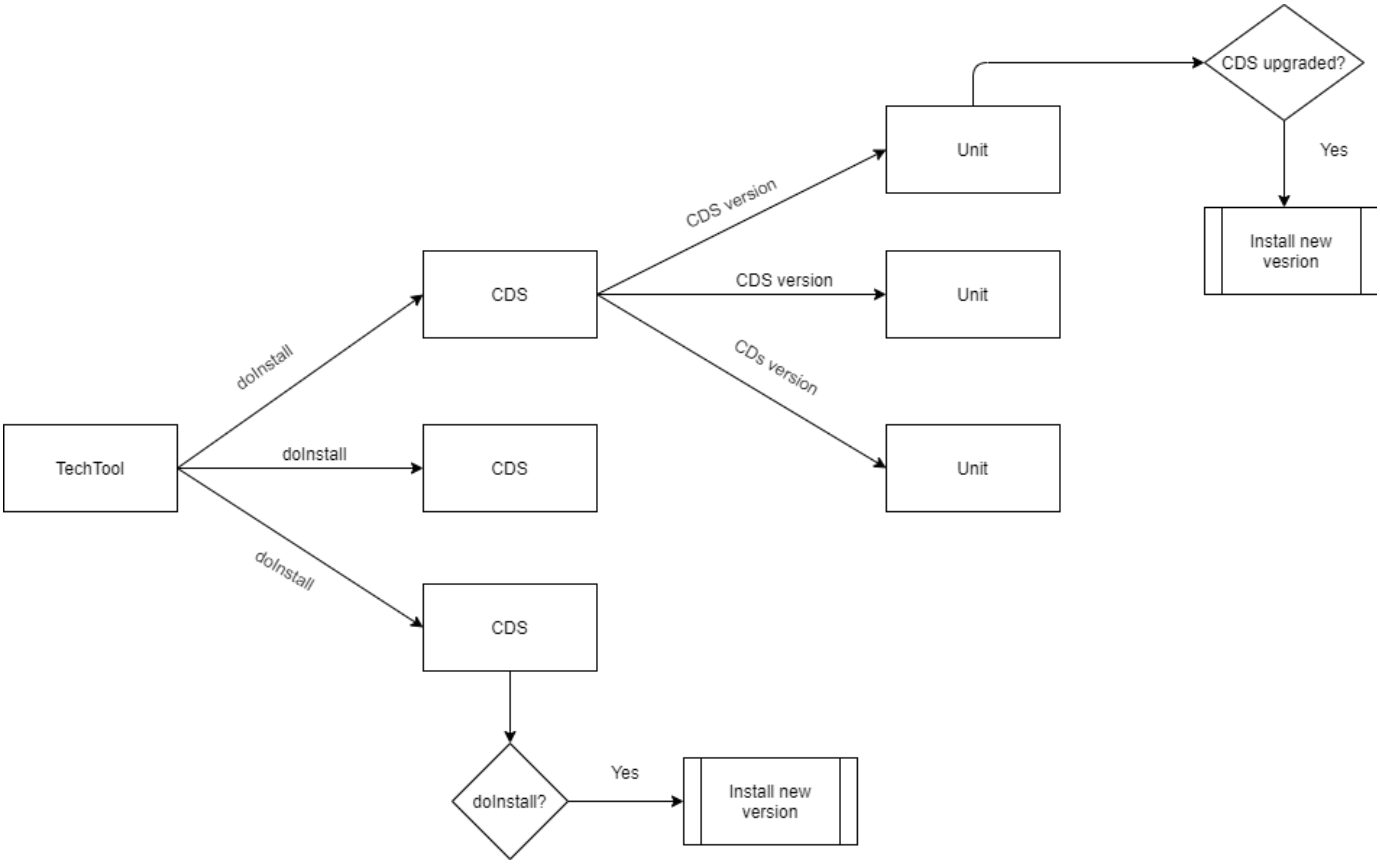
Fetch process - Download version GPG file to devices



- Fetch is implemented as Linux cron job scheduled to run periodically (each 5 min). It also handles the installation of the new version
- Before rsync from remote repository on GW the integrity test is running to make sure repository is not corrupted, for example:

1. Not empty (for not delete GPG files from local repository)
2. Each GPG file has version inside its name
3. Version of both CDS and BS GPG files are the same

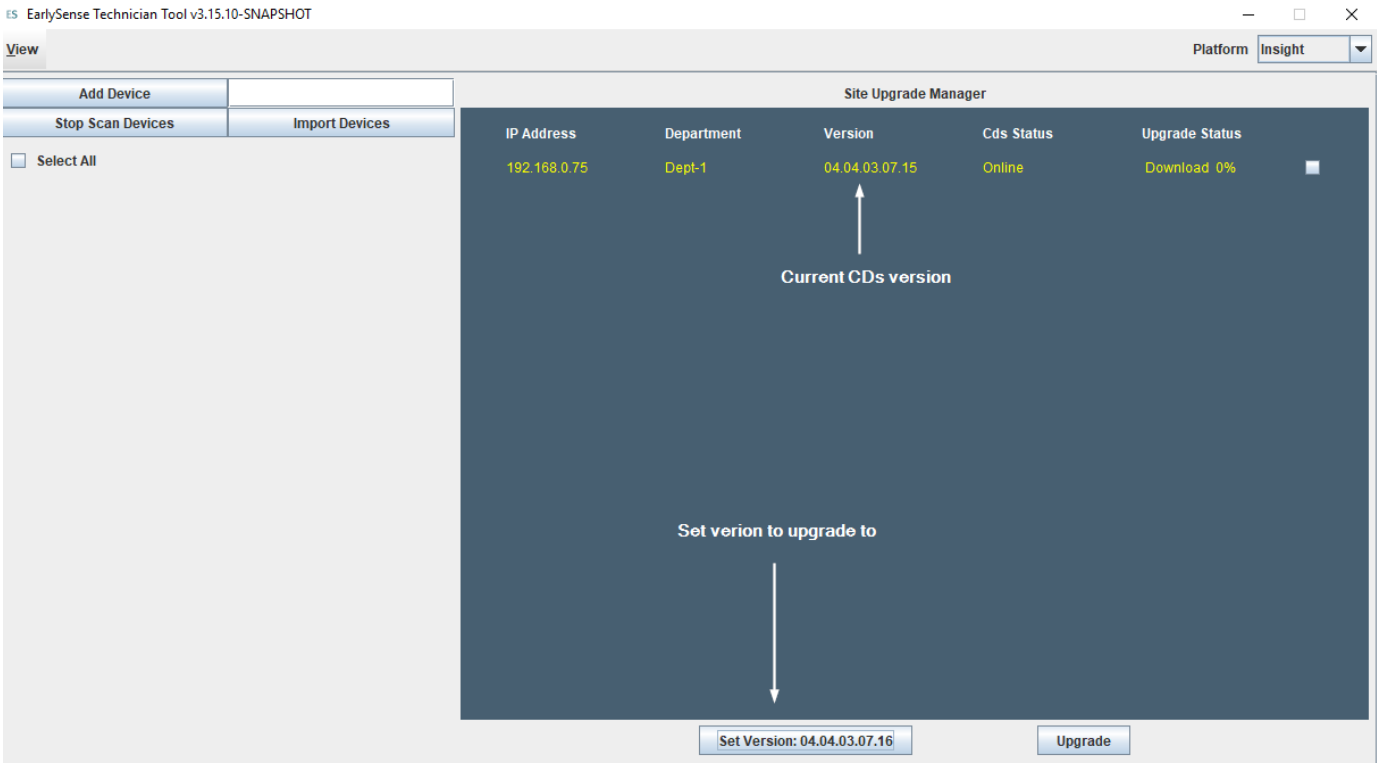
Installation process



- When CDS gets doInstall command from TT it creates /home/earlysense/doInstall file with version to be installed inside. When Linux cron job is running it first rsync repository and then proceed to install if above file is presented. This is implemented in a single job to avoid synchronization issues
- After CDS has been upgraded the connected units will detect that CDS version has changed and will upgrade as well

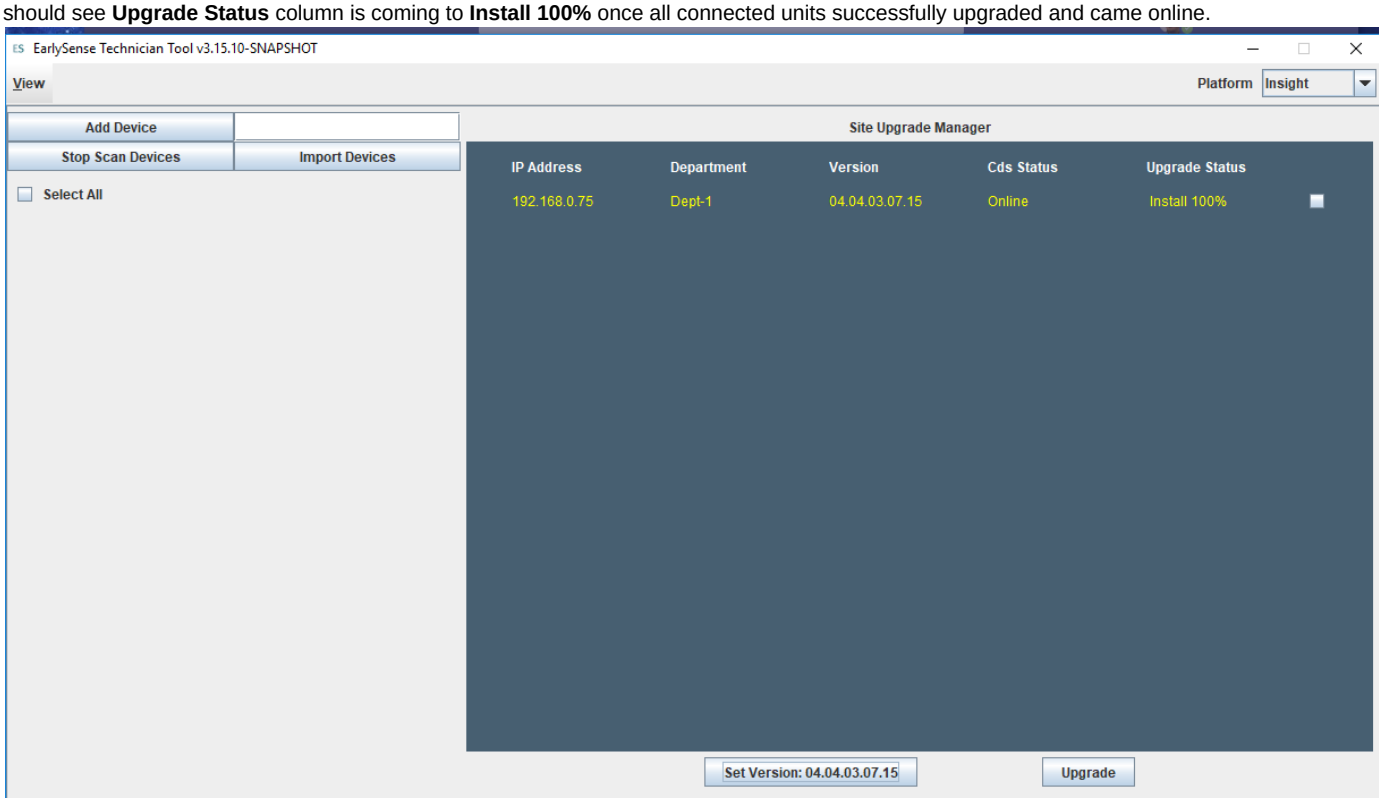
TechTool usage

- Connect TT computer to the same network with CDS and unit devices
- Put GPG files into repository on GW as described above
- Launch TT and login with password: 1106#UP
- Go to **View Site Upgrade Manage**r screen
- Press **Start Scan Devices** button
- Wait until all CDS devices detected
- Set version you want to upgrade to using **Set Version** button



- **Upgrade status** column indicates percentage of devices that already downloaded new version GPG file into local repository
- Wait until coming to **Download 100%**
- Select CDS devices you want to upgrade by selected check box
- Press **Upgrade** button

TT will send doInstall command to selected CDS devices and they will proceed with an upgrade. You should see **Cds Status** column shows Offline and then Online when **Version** column shows new version of CDS. When CDS is upgraded the **Upgrade Status** column will switch to **Inst all X%**, according to number of online devices. For example if there is only one unit connected to CDS the **Upgrade Status** column will show **Inst all 50%**. After reboot CDS device will connect to units. Units will detect that CDS upgraded and will start installation of new version as well. We should see **Upgrade Status** column is coming to **Install 100%** once all connected units successfully upgraded and came online.



Notes:

The TT screen is not fully implemented for POC:

- No indication that doInstall command has been sent to CDS devices
- No indication that Upgrade was launched for already upgraded CDS device, although it this will not cause any issues as installation will be done only if current CDS version differs from version inside doInstall file.
- No indication for units in case some units didn't come online after reboot. It will be helpful to present unit details like room/bed and online /offline for easily detecting problematic units. This information is already known to TT just need to develop new screen for presentation.

Sources

Name	Comment
Version	04.04.03.07
Git Branch	https://git.earlysense.com/medical/Hospital/tree/1.2.0_remote_upgrade_poc
Jenkins job	https://jenkins.earlysense.com/job/medical-Branches/job/1.2.0_remote_upgrade_poc/