



GIS Portal Racks Project

Olivier Barrière BE-CO-IN

BE-BI TC

February 22th, 2018

Outline

- Purpose
- Scope
- Missing features
- Links with other CERN entities
- Next project (BE-CO Hardware Data Management)
- Summary
- Demo

Purpose

- Provide a global & common infrastructure to all Equipment Groups (EG) for:
 - Locating the equipment
 - Finding the corresponding documentation (Infor-EAM, EDMS, MTF)
 - Finding links to databases (Layout, CCDB, IT Network, Power converter, etc..)
 - Finding IT Outlets in racks
 - Integrate tunnel view
 - Finding power distribution in racks
 - Finding cable racks

=> Reduce piquet intervention time for intervening in accelerators

=> Share information from different services for exploitation & installation

BE-CO Scope

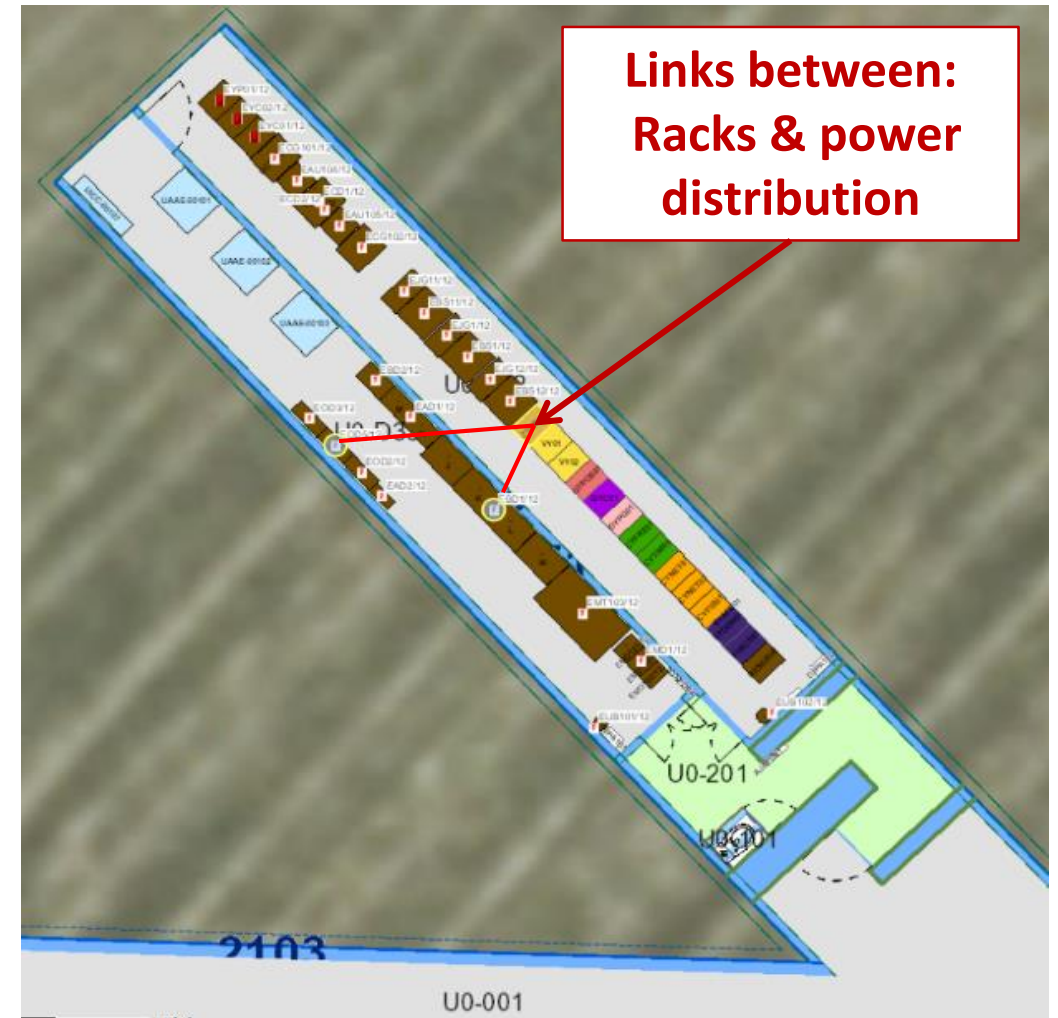
- Phase 1 - data integration (2013-2018/Q2)
 - 2013-2016 Racks for accelerator sector for PS, LHC U & S, SPS
 - 2016-2018 Racks for Prévessin & Meyrin site, SM18, IT Star Points, North area...
- Phase 2 - Data validation (2017-2018/Q2)
 - Validate racks Groups responsible for SPS & PS complex
 - Maintain data up-to-date
 - Put in place automatic reports between databases
 - If a responsible change unit or leave CERN
 - If a new rack is installed
 - If a rack is removed

Accelerator sector Scope

- Phase 3 - (2018/Q3...)
 - Maintain data up-to-date
 - A decision has to be made by the management, to decide who will be in charge of the maintenance
- Missing features (Electrical distribution, common exploitation cable DB)
 - A working group, composed by BE-CO, BE-OP, EN-ACE, is writing a document to describe:
 - The current situation in terms of use cases.
 - The needs
 - The impact of not having such data available today in terms of cost (intervention time => impact on operation)
 - The cost of implementation and keeping this data up-to-date for operation and installation
 - By the end of March this document will be presented to the sector hierarchy to ensure:
 - The situation and potential impact is understood
 - To take into account priorities to work on this topics

Missing feature 1 - GIS

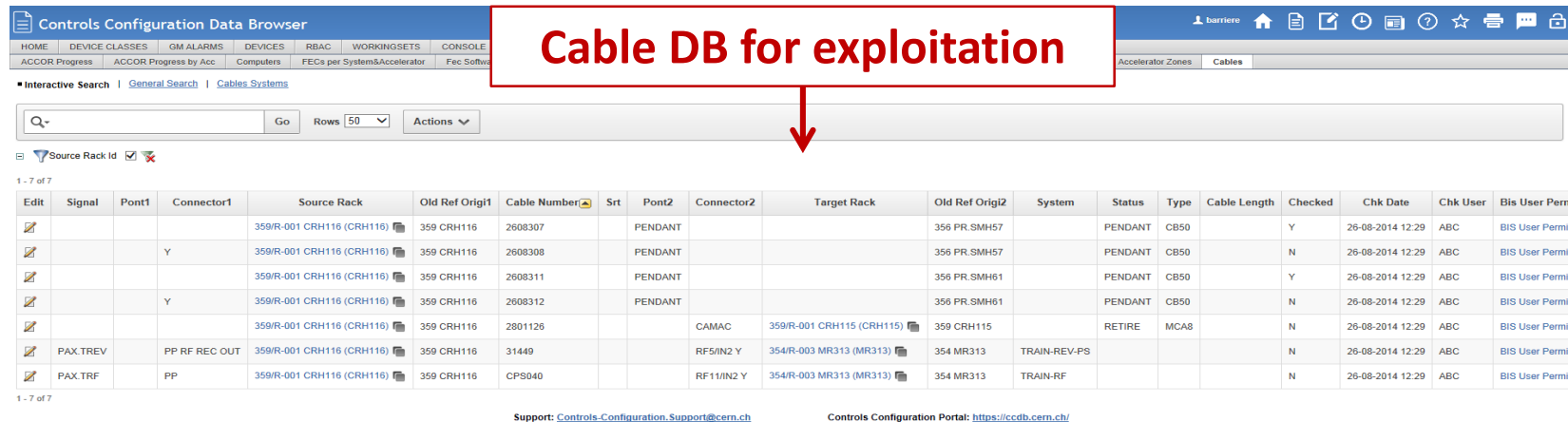
- Rack power distribution for exploitation & installation
 - From where racks are powered
 - Visualise which racks are impacted by a power cut
=> Validate if a device is powered
 - Which network is distributed



Missing feature 2 - GIS

- Common cable DB for exploitation including: GESMAR, CCDB, etc...
 - To avoid double check in CCDB & GESMAR..., each time users need to find a cable
- Add a search in GIS Portal Racks to visualise the cable extremities

Cable DB for exploitation



Controls Configuration Data Browser

HOME DEVICE CLASSES QM ALARMS DEVICES RBAC WORKINGSETS CONSOLE
ACCOR Progress ACCOR Progress by Acc Computers FECs per System Accelerator Fec Softw

Accelerator Zones Cables

Interactive Search | General Search | Cables Systems

Search: [] Go Rows: 50 Actions: []

Edit	Signal	Pont1	Connector1	Source Rack	Old Ref Orig1	Cable Number	Srt	Pont2	Connector2	Target Rack	Old Ref Orig2	System	Status	Type	Cable Length	Checked	Chk Date	Chk User	Bis User Perr
				359/R-001 CRH116 (CRH116)	359 CRH116	2608307		PENDANT			356 PR.SMH57		PENDANT	CB50		Y	26-08-2014 12:29	ABC	BIS User Permit
			Y	359/R-001 CRH116 (CRH116)	359 CRH116	2608308		PENDANT			356 PR.SMH57		PENDANT	CB50		N	26-08-2014 12:29	ABC	BIS User Permit
				359/R-001 CRH116 (CRH116)	359 CRH116	2608311		PENDANT			356 PR.SMH61		PENDANT	CB50		Y	26-08-2014 12:29	ABC	BIS User Permit
			Y	359/R-001 CRH116 (CRH116)	359 CRH116	2608312		PENDANT			356 PR.SMH61		PENDANT	CB50		N	26-08-2014 12:29	ABC	BIS User Permit
				359/R-001 CRH116 (CRH116)	359 CRH116	2801126			CAMAC	359/R-001 CRH115 (CRH115)	359 CRH115		RETIRE	MCA8		N	26-08-2014 12:29	ABC	BIS User Permit
	PAX.TREV		PP RF REC OUT	359/R-001 CRH116 (CRH116)	359 CRH116	31449			RF5/IN2 Y	354/R-003 MR313 (MR313)	354 MR313	TRAIN-REV-PS				N	26-08-2014 12:29	ABC	BIS User Permit
	PAX.TRF		PP	359/R-001 CRH116 (CRH116)	359 CRH116	CPS040			RF11/IN2 Y	354/R-003 MR313 (MR313)	354 MR313	TRAIN-RF				N	26-08-2014 12:29	ABC	BIS User Permit

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Support: Controls.Configuration.Support@cern.ch Controls Configuration Portal: <https://ccdb.cern.ch/>

Missing feature 2

Cable search in GIS

CERN Accelerating science Signed in as: CERN\barriere Deconnexion Lie

CERN Site Management and Buildings

CERN Système d'Information Géographique - GIS Portal - Racks

Carte Portals Données Outils Rechercher un bâtiment, un bureau, un site ou point d'intérêt FR Aide A

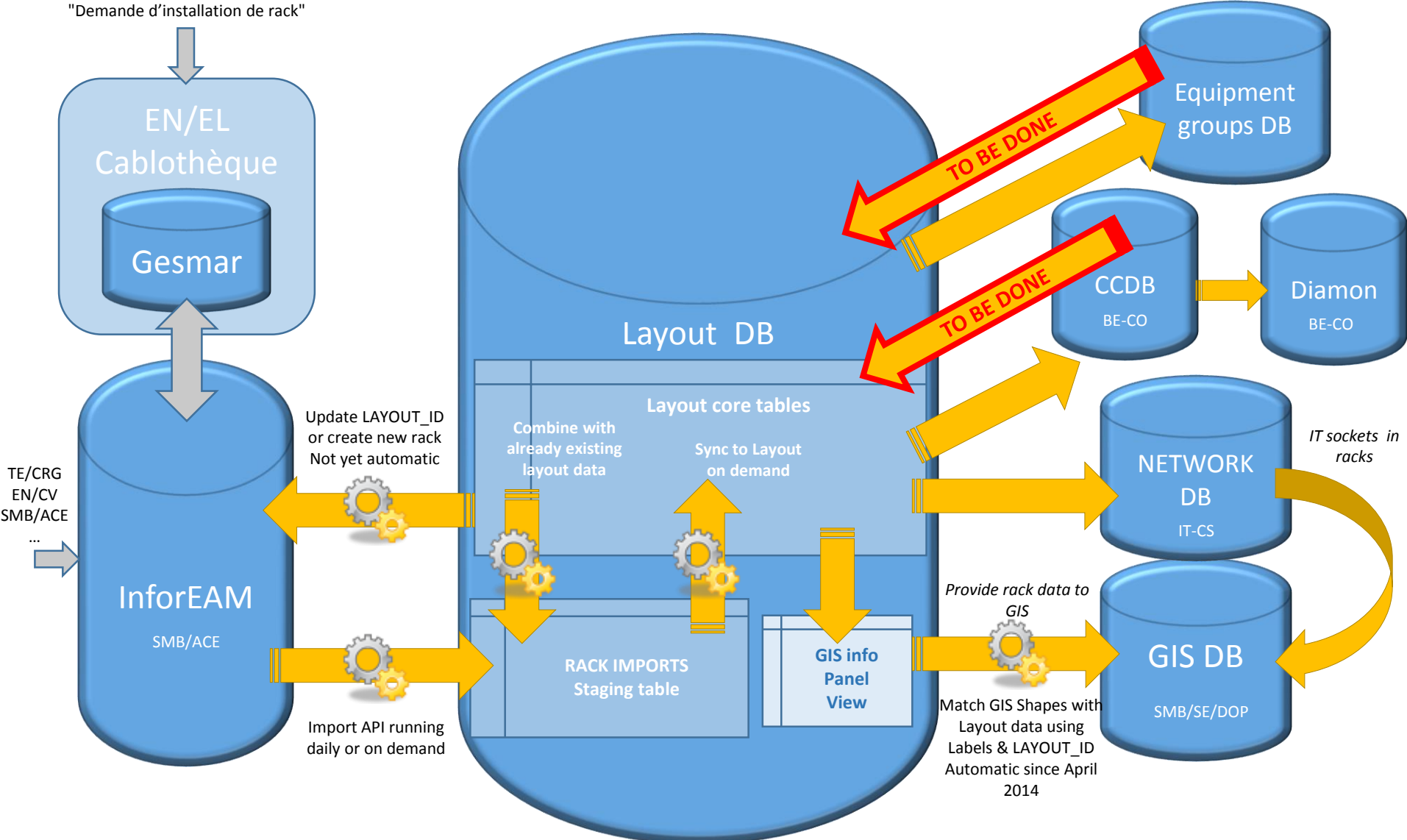
Données

Table des matières Légende

- Equipements
 - Contrôle d'accès
 - IT_Equipments
 - EL_Equipment
 - CO-Equipement
 - Racks
 - Annotation
 - Rack responsible group validated
 - Racks by unit
 - Not synchronized or not in database
 - Not assigned
 - BE-ABP
 - BE-BI
 - BE-CO
 - BE-ICS
 - BE-OP
 - BE-RF
 - EN-ACE
 - EN-CV
 - EN-EA
 - EN-EL
 - EN-HE
 - EN-MME
 - EN-SMM
 - EN-STI
 - EP-CMD
 - EP-DT
 - HSE-CEN
 - HSE-RP

The screenshot shows a GIS interface for CERN racks. A search bar at the top contains the text 'Rechercher un bâtiment, un bureau, un site ou point d'intérêt'. A legend on the left lists various equipment categories, including 'Racks by unit' with a color-coded key. The main map area displays a floor plan of a rack facility with various racks labeled (e.g., R-010, R-002, R-006, R-021, R-020, R-031, R-501, R-203, R-406). A red box with the number '25812' is overlaid on the map, with a red arrow pointing to a specific rack unit. Another red box with the text 'Search by cable' is also overlaid on the map, with a red arrow pointing to a cable path. The interface includes a search bar, a legend, and a list of data layers.

Links with other CERN entities



Links with other CERN entities

Links			
Group	DB	DB	DB
BE-CO	LAYOUT	CCDB (FEC's & Cables)	DIAMON
EN-EL	GESMAR		
EN-ACE	Infor-EAM	EDMS	MTF
IT-CS	Network		
SMB-SE	GIS		
TE-EPC	Power Converters		

Clients				
BE-ABP	EN-ACE	TE-ABT	IT-CF	HSE-CN
BE-BI	EN-CV	TE-CRG	IT-CM	HSE-RP
BE-CO	EN-EA	TE-EPC	IT-CS	EP-CMD
BE-ICS	EN-EL	TE-MSC		EP-DT
BE-OP	EN-HE	TE-VSC		SMB-SE
BE-RF	EN-MME			
	EN-STI			
	EN-SMM			

Next project

BE-CO Hardware Data Management

- Racks & cable Layout purpose
 - Replace manual drawings by automatic ones
 - One source of data to maintain up-to-date

Status

- Manage data in Layout DB
- Give an equipment code for all material: crates, cards, patches...
- Define all connections of each equipment: connector numbers & types
- Define cable connections between connectors

Next project purpose 1: Fill Racks Layout 2018/Q2

The screenshot displays a web application interface for a 'LAYOUT DATABASE'. The browser address bar shows the URL <https://layout.web.cern.ch/default.aspx?id=5800723>. The user is signed in as 'barriere'. The interface includes a navigation menu with categories like 'Functional Positions', 'Interfaces', 'Systems', 'Electrical', 'Classifications', 'Machines', and 'Civil Works'. A search bar is present with the text 'All Words' and a 'Search' button.

The main content area is divided into several sections:

- Version: STUDY**
- IDENTIFICATION** table:

ID	5800723
Machine	CERN
Type	LY__016 (Type ID : 6711239, naming convention : HC)
Description	GREY 42U OLD 700 DEEP - RACK CONTROLE ETHERNET
Layout Name	R(BCER677
Expert Name	BCER677
Label	677
- Classification Log**
- DIMENSIONS** table:

Length	Width	Height
0.5 m	0.7 m	1.87 m
- LOCALISATION** table:

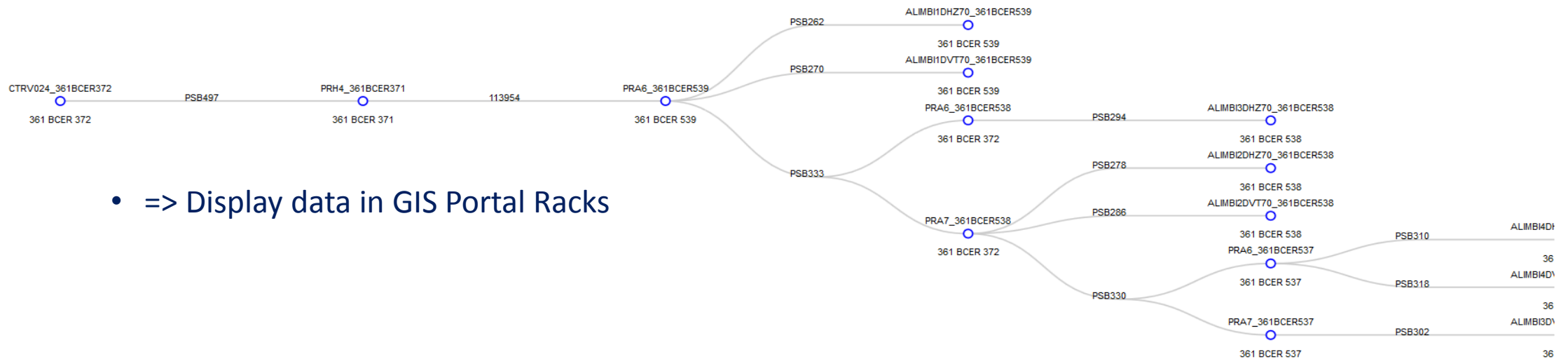
LocationFrom	S	S	S	U	V	V	B	A	C	Mag	Anchor	
Start	Middle	End	Start	End	Start	End	Start	End	Start	End	Length	
361/1-012	361/1-012	0 m	0 m	0 m	0 m	0 m	0 m	0°	0°	0°	N/A	OUVRAGE NON MACHINE
- Links to other databases**: R(BCER677 in MTF See devices in 677 in Network DB

The interface also features a 3D rack layout view on the left, a detailed front view of a rack on the right, and a 2D floor plan view at the bottom. A red arrow points from a red-bordered box labeled 'Racks Layout' to the detailed rack view. The floor plan shows various racks and equipment, with a red arrow pointing to a specific rack location.

Next project purpose 2: Automatic Cables Layout 2018/Q4

Replace manual drawings
by automatic ones

- For all BE-CO systems:
 - MTG, Timing, white rabbit, buses, external conditions...
 - Manage data in Layout DB
- => Generate automatic logical schematics

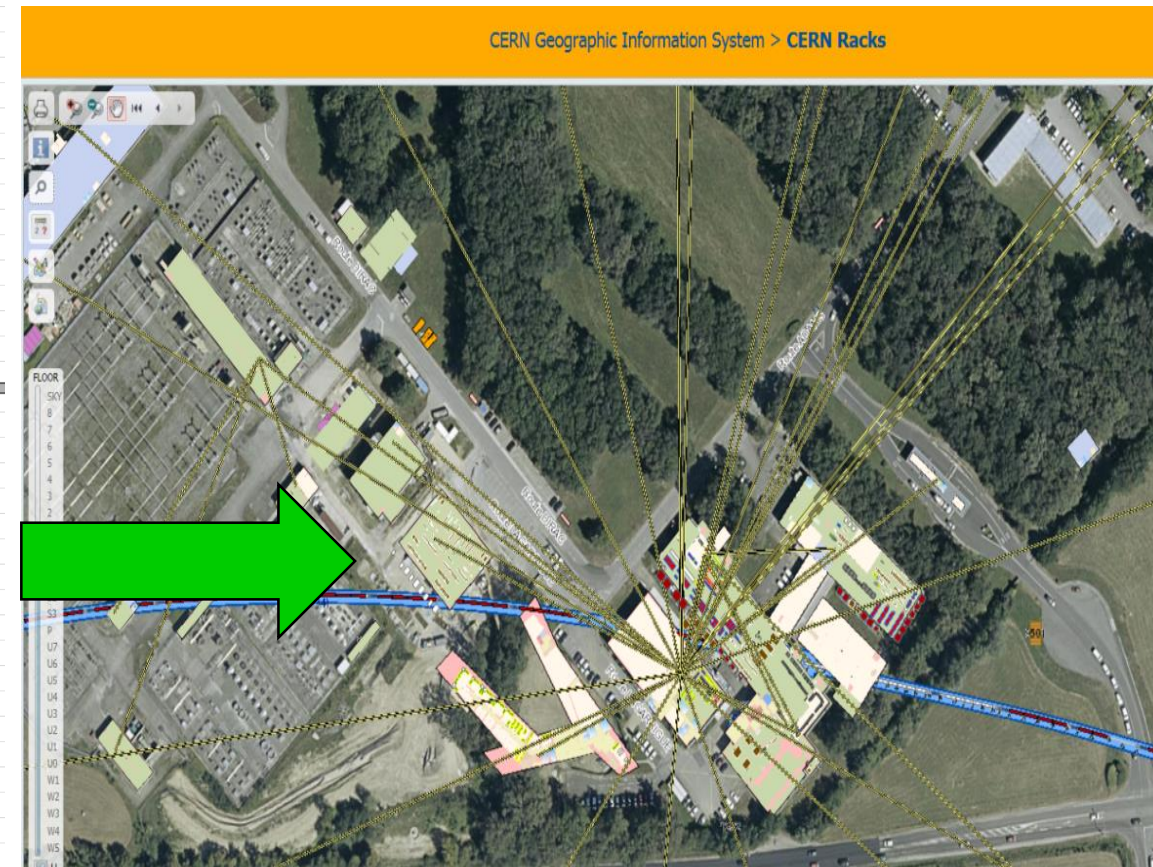
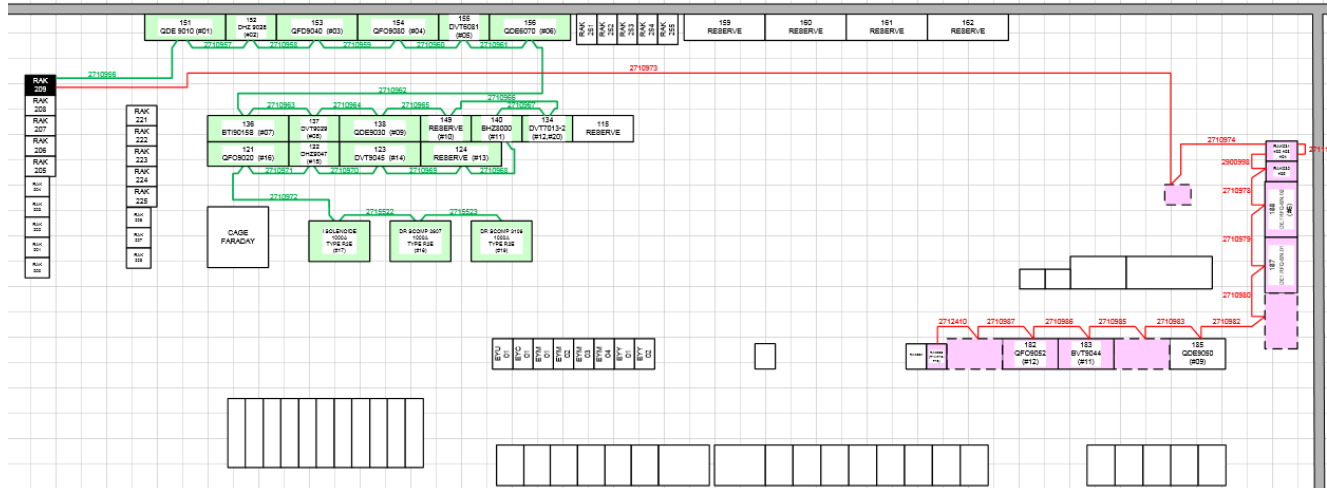


Next project purpose 3 Display data in GIS Portal Racks (2019)

Replace manual drawings
by automatic ones

Bât. 193/R-407

1R-CFC-193-RPOW1-1-
2R-CFC-193-RPOW1-2-



Summary

- GIS phase 1 - Data integration (2013-2018/Q2)
 - Rack integration for accelerator sector, machines, test benches, star points...
- GIS phase 2 - Data validation (2017-2018/Q2)
 - Racks Groups responsible validation for SPS & PS complex
 - Put in place automatic reports between databases
- GIS Phase 3 - Maintain data up-to-date (2018...)
 - A decision has to be made by the management, to decide who will be in charge of the maintenance
- GIS Missing features 1 & 2 - Rack power distribution & common cable DB for exploitation
 - By the end of March, a document will be presented to the sector hierarchy to ensure:
 - The situation and potential impact is understood
 - To take into account priorities to work on this topics
- Next project - BE-CO Hardware Data Management
 - Fill racks layout (2018/Q2)
 - Manage cabling data in Layout DB (2018/Q4) => Generate automatic logical schematics
 - Display data in GIS Portal Racks (2019)

Demo

<https://home.cern/>

<http://smb-dep.web.cern.ch/en/content/isp>

<https://gis.cern.ch/gisportal/Racks.htm>