

A modular EAM training

Introduction to EAM

Agenda for this course

Quelques mot-cles

Interfaces

Search equipment

Basic data extraction

Training principle: Theory – Demonstration – Practice

Systems/Asset management concepts

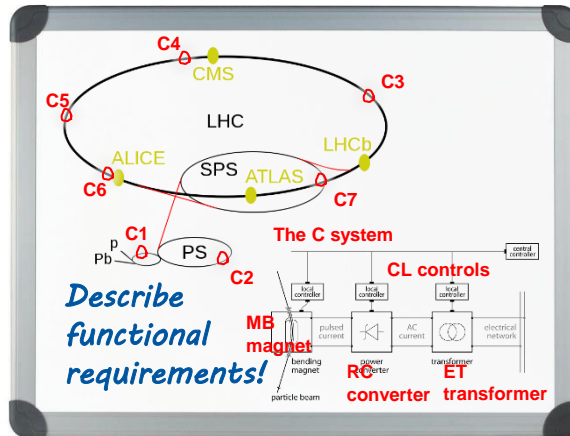


System

- Major top assembly that would normally contain many sub-components (systems, positions, assets etc)
- Examples of systems:
 - Compressors
 - Buildings
 - Vehicles
 - Particle accelerators
 - ..



Functional positions (static need)



LAYOUT DATABASE

Mainly accelerator functional positions
<https://layout.cern.ch>
 (ECR documents)

BT Transfer Line

- BT3.DVT10
- BT2.DVT10
- BT1.BVT10
- BT4.BVT10
- BT3.BPM00
- BT2.BPM00
- BT4.BPM00
- BT1.BPM00
- BT1.DHZ10
- BT4.DHZ10
- BT3.DHZ10
- BT2.DHZ10
- BT4.VVS10
- BT1.VVS10
- BT3.VVS10
- BT2.VVS10
- BT3.DVT20
- BT2.DVT20
- BT3.VPI11B
- BT2.VPI11

BT3.DVT10 ID 5554712

Corrector magnet, dipole vertical, type T-DVT pulsed

Type: PXMCVACWAP ID 50559963

Location: BT

Owner Group: TE-MSC

Responsible: Antony Newborough

Links: BT3.DVT10 in EAM Light, PXMCVACWAP-CR000001 asset in EAM Light, PXMCVACWAP-CR000001 asset in EAM, BT3.DVT10 in InforEAM, BT3.DVT10 in GIS, PXMCVACWAP-CR000001 in Norma DB

Dimensions: width 0.39m, height 0m, depth 0m

Machines: BT (BT-LINE)

Sequences: BT BEAM BT3

Location

- Physical position of the equipment
- EAM synchronised to GIS database daily

All_Locations									Edit
Location	Description	Class	Parent Location	Dep./Service Unit	Cost Code	Country	Zone Sécurité	Out of Service	
[R] ▼	[R] ▼	[R] ▼	[R] ▼	[R] ▼	[R] ▼	[R] ▼	[R] ▼	☑ ▼	
SM18/R-207	ESCALIER	LOCAL	SM18/R	*		FR	18	<input type="checkbox"/>	
SM18/R-R54	SALLE DE CONTRÔLE	LOCAL	SM18/R	*		FR	18	<input type="checkbox"/>	
SM18/1-T54	SALLE DE CONTRÔLE	LOCAL	SM18/1	*		FR	18	<input type="checkbox"/>	
SM18/R-204	ESCALIER	LOCAL	SM18/R	*		FR	18	<input type="checkbox"/>	
SL501	3561=CANIVEAU SHE5	STR	SL5	*		FR	5	<input type="checkbox"/>	
222/S-201	ESCALIER	LOCAL	222/S	*		CH	26	<input type="checkbox"/>	
222/S-202	ESCALIER	LOCAL	222/S	*		CH	26	<input type="checkbox"/>	
EHN1/1-K83	AUTRE LOCAL TECHNIQUE	LOCAL	EHN1/1	*		FR	9	<input type="checkbox"/>	
EHN1/R-219	ESCALIER	LOCAL	EHN1/R	*		FR	9	<input type="checkbox"/>	
SUI2/1	Floor 1	FLOOR	SUI2	*		FR	17	<input type="checkbox"/>	
SUI2/1-001	LOCAL ELEC / CV	LOCAL	SUI2/1	*		FR	17	<input type="checkbox"/>	
SL211	2261=CANIVEAU PA2	STR	SL2261	*		FR		<input type="checkbox"/>	
SL302	2361=CANIVEAU PA3	STR	SL31	*		FR		<input type="checkbox"/>	
SL102	3161=CANIVEAU TECHNIQUES PT1	STR	SL3161	*		CH	1	<input type="checkbox"/>	
SL301	2361=CANIVEAU PA3	STR	SL31	*		FR		<input type="checkbox"/>	
SL412	2461=CANIVEAUX PA4	STR	SL2461	*		FR		<input type="checkbox"/>	
SL413	3461=CANIVEAU	STR	SL4	*		FR		<input type="checkbox"/>	

- Location field in EAM Light

Location
353/R-002

Parts (piece)

Hey, both correspond to the spec.



- Assembly that one can enter into inventory / store
- Can be assigned to a class / category (more later) and linked to an item

Example of part (big magnet assembly)

- ▶ HCLMQMA001 (v.0) Cold Mass LMQMA
 - ▶ HCLMQMA010 (v.0) Helium Vessel
 - ▶ HCMQM_S001 (v.0) Quadrupole MQM_
 - ▶ HCMCBCB001 (v.0) MCBCB Magnet Assembly
 - ▶ HCQITESCXT (v.0) Short Thermometer with Cernox Sensor

Assets

Assets are uniquely named instances of a part

Example: VME crate maintained by BE-CEM:

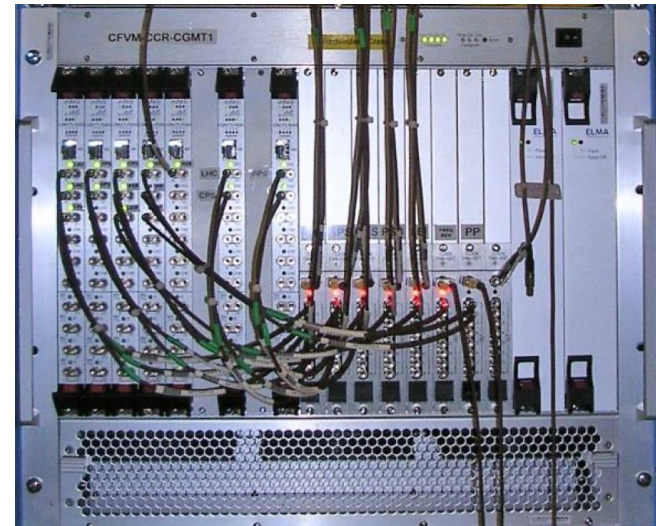
We need to change the oil on the pump "EC-013"



Asset:	HCCVREC000-E1000191 *	VME64x CRATE 9U 17 Slots / 041-240
Department:	CCIB	Q=
Type:	Equipement	

Part Association	
Part:	HCCVREC Q=
Store:	

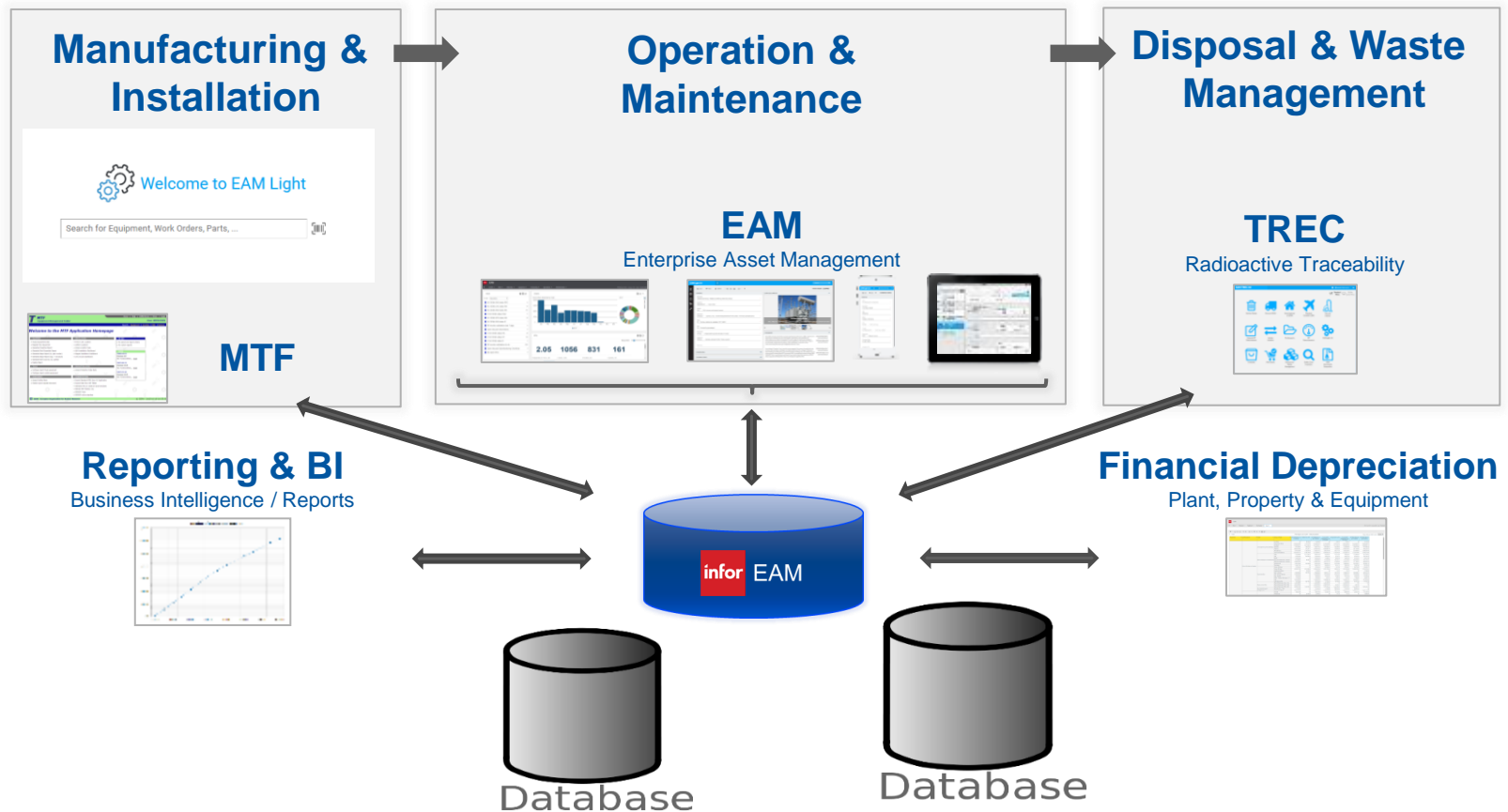
Service unit (MRC)



A modular EAM training

Tools and Interfaces

EAM system landscape at CERN

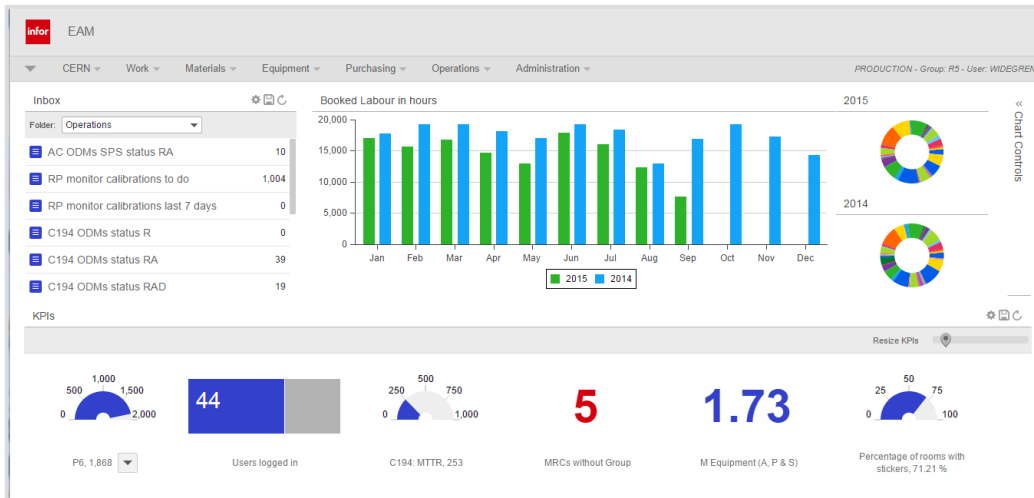


TEST (play/test, CERN only) and PROD (work, CERN and outside)

Native EAM interfaces

EAM

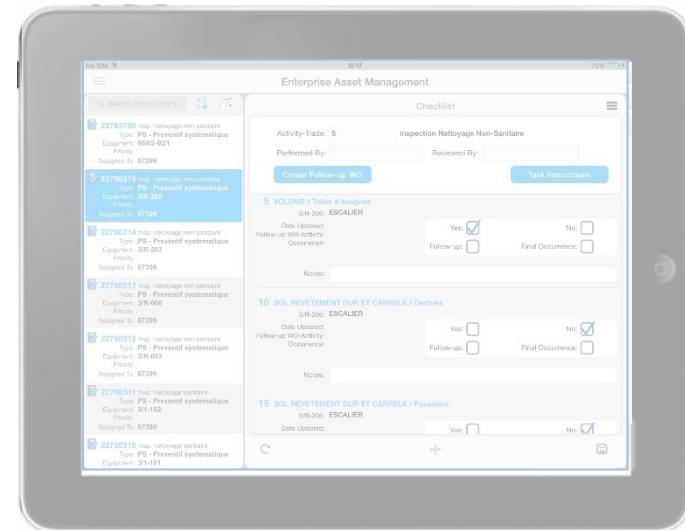
Full/Expert/Extended Web Interface



Not supported

Infor EAM Mobile

Offline Tablet Application



CERN EAM Light (web application)

<https://testeamlight.cern.ch/>

EAM Light
TEST

13.02 72%

cmmsx.cern.ch/SSO/eamlight/

EAM Light | LJENSEN

MY OPEN WORK ORDERS

LATE TODAY WEEK **ALL**

Welcome to EAM Light

Search for Equipment, Work Orders, Parts, ...

ers, Parts, ...

CERN

EDMS 2504161

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Native Interface (extended)

Access: PROD: <https://eam.cern.ch>

User details

The screenshot displays the EAM Native Interface (extended) dashboard. At the top, there is a navigation bar with the EAM logo, a 'Menu' button, and a list of menu items: Work, Materials, Equipment, Administration, and Reports. The user's current session is identified as 'PRODUCTION - Group: MO-ER - User: EAMLKJ'. The dashboard is divided into three main sections:

- Inboxes:** Located on the left, it shows a folder dropdown set to 'Operations' and a message: 'There are no records to display.' A blue arrow points to the 'Inboxes' label.
- Charts (configuration):** Located in the top right, it features a 'Select a chart type.' prompt with a bar chart icon. To the right, there are 'Chart Controls' including a 'Chart Type' dropdown, a 'Chart Period' dropdown set to 'Months', and a 'Show Year/Year' toggle.
- KPIs (configuration):** Located at the bottom, it displays four key performance indicators with their respective values and descriptions:
 - 182**: Open WOs my MRCs
 - 195**: My MRCs WOs updated during the last 30 days
 - 74**: Overdue WOs my MRCs
 - 0**: My MRC number of NON CONFORME assets - MF AssetsA 'Resize KPIs' slider is visible on the right side of this section. A blue arrow points to the 'KPIs (configuration)' label.

Native interface (extended)

Save

New

Copy/Clone

Reset/
Refresh

Record-/Split-/List-
View



infor EAM

Work ▾ Materials ▾ Equipment ▾ Administration ▾

PRODUCTION - Group: MFPLUS - User: CFORUM

MF Asset MFHX52-600 FRAISEUSE PORTIQUE

Record View | Comments × | Events × | Structure × | EDMS Documents × | Show on Map × | Equipment User × | More ▾

Asset: MFHX52-600 * FRAISEUSE PORTIQUE

Department: HXMF q

Status: * Installe et Maintenu ▾

Safety Status:

Equipment Details ^

Class: HX52 q

Commission Date: * 27/MAR/2015

Category: q

Equipment Value: 2,093,000.00

Budget Code: q

Hierarchy ^

Location: 156 q

Custom Fields ^

Détenteur (ID CERN): 87278 q

Resp. Technique (ID CERN): q

Année de construction: 2,017 q

CERN Group: EN/MME q

DAI Number (alphanumeric): 6244866

Tracking Details ^

Manufacturer: q

X Coordinate: 6,000

Serial Number: WACO 3.6108

Y Coordinate: 4,000

Model: TAURUS 30

Z Coordinate: 3,000

Your turn: exercise #1

- Aller sur EAM eam.cern.ch avec votre login / password
- Verifier que vous etes tous dans le user-group “MO-ER”
- Tache:
 - Aller dans le menu ‘Equipment’ -> ‘A
 - Trouver les positions appartenant au Dep/Service Units:
 - CSAC - Software access control
 - CSCV – Software cooling and ventilation
 - CSEL – Software electrical distribution
 - Trouver les positions en Status ‘Installed’ et ‘hors service’
 - Verifier acces au ‘Data Spy’: MO Positions
 - Faire son propre data-spy

EAM-Light

Prod: <https://eamlight.cern.ch>

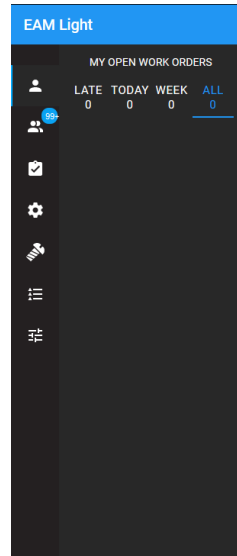
Open Work Orders
assigned to me.

Open Work Orders
assigned to my
Department(s).

Work Order menu

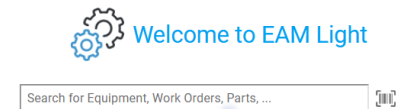
Equipment menu

Materials menu



The screenshot shows the EAM Light mobile application interface. On the left is a dark sidebar menu with icons for user profile, notifications, settings, work orders, and equipment. The main content area displays a table titled 'MY OPEN WORK ORDERS' with columns for 'LATE', 'TODAY', 'WEEK', and 'ALL'. The 'ALL' column is currently selected and highlighted in blue.

MY OPEN WORK ORDERS			
LATE	TODAY	WEEK	ALL
0	0	0	0



Quick Search

EAM-Light



Copy/Clone

Mail link

Show on Map

Create WO

Show in EAM

Open in EDMS

Toggle List <-> Picture

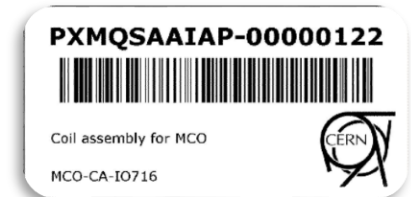
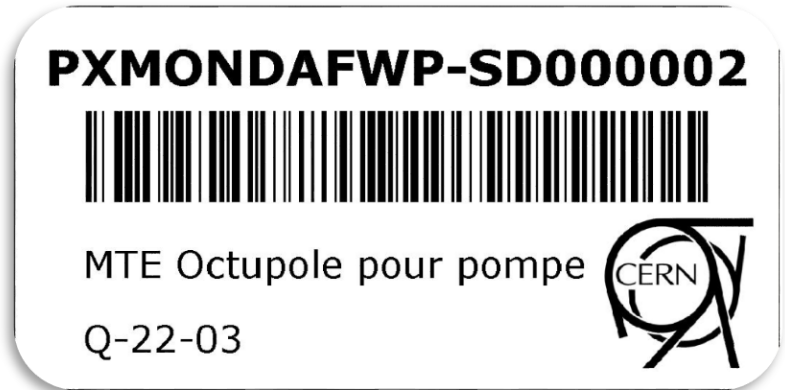
A screenshot of the EAM Light web application. The interface is divided into several sections: 'Equipment Tree' on the left, 'GENERAL' and 'DETAILS' sections in the middle, and 'EDMS DOCUMENTS', 'NCRs', and 'COMMENTS' on the right. The 'GENERAL' section shows details for 'Bras d'aspiration (fixe)' including department 'PINS - Inspecteurs de sécurité' and status 'Installe et Maintenu'. The 'DETAILS' section shows class 'PLEV - Local Exhaust Ventilation', category 'PLEV03 - Bras d'aspiration (fixe)', and manufacturer 'EURM - Euromate'. The 'EDMS DOCUMENTS' section displays an image of a red industrial arm with a yellow gripper, with a small thumbnail below it. The 'COMMENTS' section shows a comment from 'GP' dated 10-APR-2017, describing a centralized aspiration system.

Identify the equipment - barcode printing

Identify pieces of equipment by the means of labels that contain barcodes or QR-codes.

Labels can be printed from within EAM, from the Equipment Generator and from the Kiosk application on compatible network label printers.

Printer & label recommendations and instructions:
<https://edms.cern.ch/document/1728014>



Attaching or linking documents – EAM-Light

The screenshot displays the EAM Light interface. On the left, a sidebar shows 'MY OPEN WORK ORDERS' with filters for 'LATE', 'TODAY', 'WEEK', and 'ALL'. Below this, two work orders are listed: one for 'Upload TREC functional positions' and another for 'Test repairation'. The main area shows details for 'Asset CRPLEV-04106'. The 'GENERAL' section includes 'Description* Bras d'aspiration (mobile)', 'Department* PINS – Inspecteurs de sécurité', and 'Status* Installe et Maintenu'. The 'DETAILS' section lists 'Class PLEV – Local Exhaust Ventilation', 'Category PLEV04 – Bras d'aspiration (mobile)', 'Commission Date* 01-Jan-2000', 'Assigned To', 'Criticality', 'Manufacturer KMPR – Kemper', 'Serial Number 134747 / 11-2003', 'Model 8410103', and 'Part'. A modal window titled 'EDMS DOCUMENTS' is open, showing a photo of a mobile extraction arm. A tooltip over the photo displays: 'EDMS: 2011839 v.1', 'File: 15337426188431976296970.jpg', 'Title: Image attached (Aug 08, 2018 05:37:08) t...', and 'Status: In Work'. Below the photo are icons for uploading a document and a thumbnail of the photo. At the bottom of the modal is a comment input field with the placeholder 'Enter new comment here'.

GENERAL

Description*
Bras d'aspiration (mobile)

Department*
PINS – Inspecteurs de sécurité

Status*
Installe et Maintenu

DETAILS

Class
PLEV – Local Exhaust Ventilation

Category
PLEV04 – Bras d'aspiration (mobile)

Commission Date*
01-Jan-2000

Assigned To

Criticality

Manufacturer
KMPR – Kemper

Serial Number
134747 / 11-2003

Model
8410103

Part

EDMS DOCUMENTS

EDMS: 2011839 v.1
File: 15337426188431976296970.jpg
Title: Image attached (Aug 08, 2018 05:37:08) t...
Status: ● In Work

Enter new comment here

Parts quick introduction

- Parts in EAM are types of material used during activities (ODM)
- Two part categories:
 - Tracked by quantity (consumables) (UoM = pieces, m, l, % ..)
 - Tracked by asset (valuable equipment)
- Parts can be entered into an EAM store (magasin)
- Parts can be used on assets (-> assets also into a store)

Store quick introduction

- EAM stores pour tracer des parts
- <https://eamkiosk.cern.ch/>
- Membres du MO-ER ont acces a ces stores (tous en batiment 104):

EAM Store Kiosk

My stores

C001 TS/ASE/ACS SIEMENS STOCK	S001 MAGASIN CERN - SECURITE FEU	S002 MAGASIN CERN - SECURITE GAZ MAINTENANCE CORRECTIVE	S003 MAGASIN CERN - SECURITE GAZ MAINTENANCE PREVENTIVE	Y104 ACCESS CONTROL PARTS 104
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Store exercise

- Aller sur eamstore.cern.ch and select the store: 'S002'
- Check what we have using 'Search'

Work-orders – details et activites

Work Order 31653998 | SAVE | NEW | DELETE

DETAILS

Description* Maintenance Préventive Access Point PC based automation

Equipment* YEASL11.ADR=193 PC Synoptique Local

Location 193 193=HALL EXPERIMENTAL AD, MACHINE ELENA

Dep./Service Unit* CSAC SOFTWARE SUPPORT - CONTROLE ACCES

Type* **PS - Preventive - Recurrent, Systematique**

Status* RT - Completed - Awaiting CERN Validation

Work Order 32583849 | SAVE | NEW | DELETE

DETAILS

Description* Report a Access Control difficulty or malfunction (NOT accelerator areas)

Equipment* YSDIS-00070 0112/R-E25 Traka Cabinet M20

Location 112/R-E25 BUREAU

Dep./Service Unit* CSAC SOFTWARE SUPPORT - CONTROLE ACCES

Type* **CD - Corrective - Repair**

Status* RT - Completed - Awaiting CERN Validation

Priority H - Haute

ACTIVITIES AND BOOKED LABOR

5 - CSIN

Checklist maintenance PC point accès PACS YASL

Task Plan	Material List		Hrs. Worked (Estimated)	
YETSK-YEASL	-	1	1 (4)	23-Jan-2023

Employee	Date Worked	Hours Worked
DE OLIVEIRA ALEXANDRE	09-Oct-2023	1

ADD ACTIVITY | BOOK LABOR

Work-order - checklist

CHECKLISTS



Results Hide filled items Expand Checklist Options


5 – Checklist maintenance PC point accès PACS YASL



CREATE FOLLOW-UP WO

⚙️ YEASL11.ADR=193 – PC Synoptique Local

NE PAS redémarrer le PC si des personnes sont en zone (sortie impossible)	<input checked="" type="checkbox"/> Completed
Se connecter UNIQUEMENT via VNC	<input checked="" type="checkbox"/> Completed
Créer un point de restauration	<input checked="" type="checkbox"/> Completed
Ne plus installer les patches Windows sur les Panels PC	OK - Ok
Suppression des Fichiers temporaires - Disk Cleanup	<input checked="" type="checkbox"/> Completed
Vérifier les processus et performance dans task manager	<input checked="" type="checkbox"/> Completed
Vérifier les programmes installés	<input checked="" type="checkbox"/> Completed
Vérifier l'état du disque dur avec l'outil Intel® Rapid Storage Technology	<input checked="" type="checkbox"/> Completed
Vérifier l'espace disque	<input checked="" type="checkbox"/> Completed
Verification journal d'évenements Windows	<input checked="" type="checkbox"/> Completed

Work-order – comments/closing codes/parts

 COMMENTS

  06-OCT-2023 14:42 by Alexandre De Oliveira

Resynchronisation de la boîte Traka + test not ok.
Full upload + redemarrage de la boîte par Cetin OK.

 CLOSING CODES

Problem Code

Add Part Usage

Transaction Type* Issue Return

Store*

Activity*


Part* 

Asset ID

Bin

Quantity

CANCEL SAVE

 PART USAGE

ADD PART USAGE

