

Federated Identity Management

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CODAS & IT

CCFE

Culham Centre for Fusion Energy

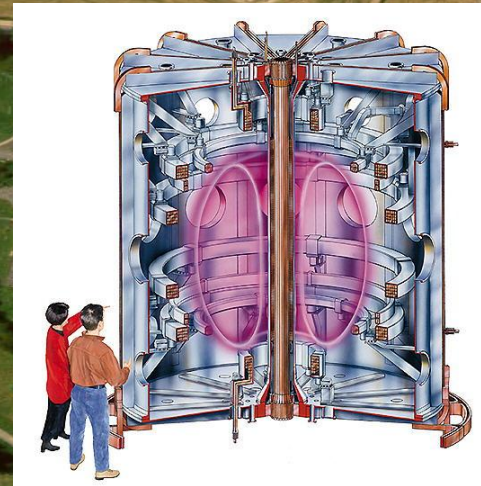
Summary

- CCFE & EFDA-JET
- Information Assurance
- Remote Participation
- Remote Experimentation
- What we want

Fusion Research at



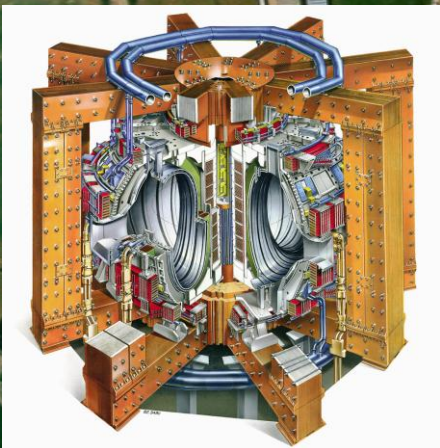
MAST



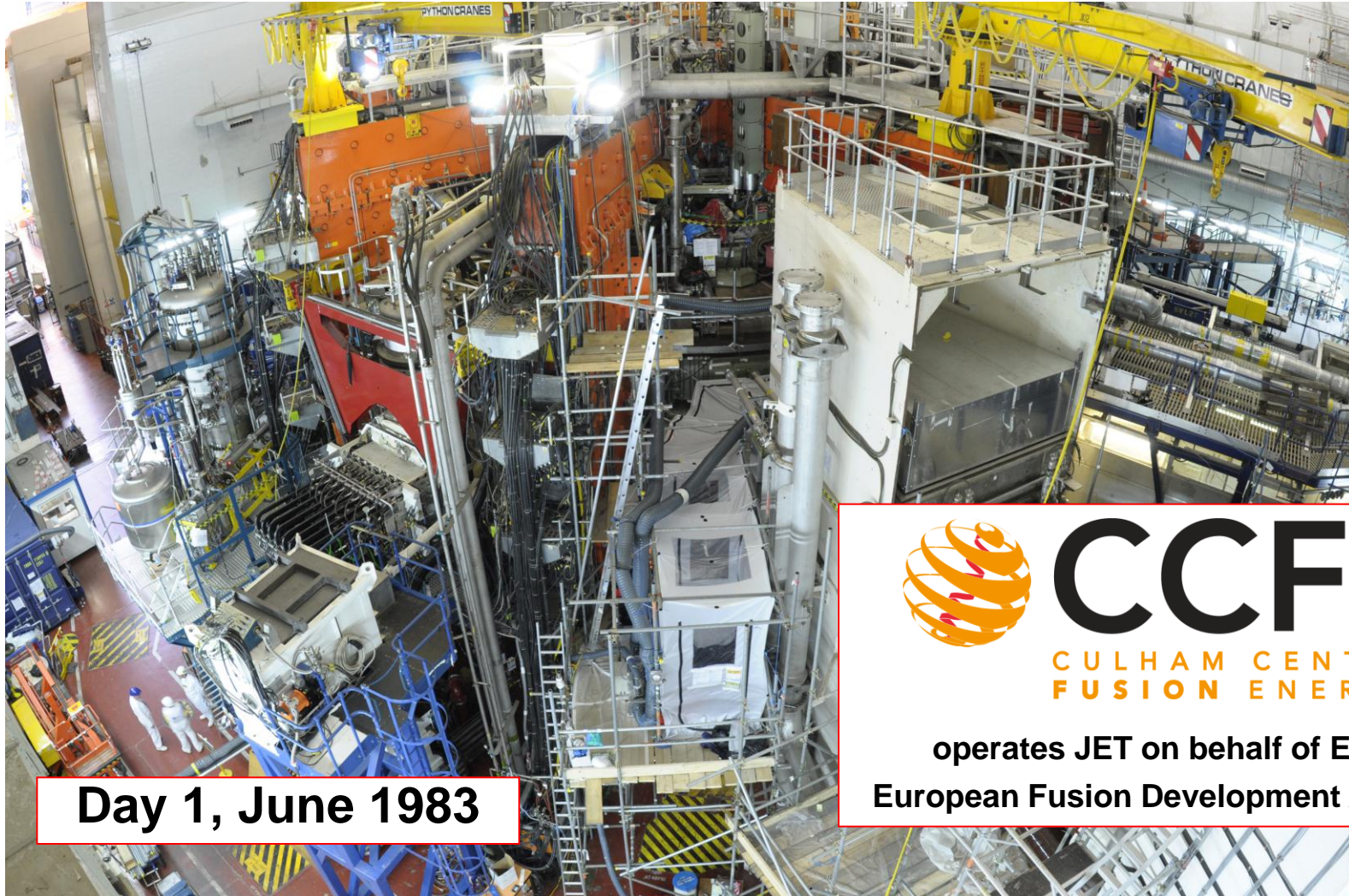
W



JET



JET – The Largest Tokamak to date



Day 1, June 1983



CCFE

CULHAM CENTRE FOR
FUSION ENERGY

operates JET on behalf of EFDA –
European Fusion Development Agreement

EFDA-JET / CCFE

EURATOM : KEY ACTION FUSION Associated Laboratories, parties to EFDA				
Euratom - Belgian State (Brussels) - (Mol)		Euratom - HAS (Budapest)	Euratom - IPP Asdex Upgrade - Wendelstein 7-AS Wendelstein 7-X (Garching) - (Greifswald) - (Berlin)	
Euratom - CEA TORE SUPRA (Cadarache)		Euratom - IPP.CR CASTOR (Prague)		
Euratom - CIEMAT TJ-II (Madrid)		Euratom - IST ISTTOK (Lisbon)		
Euratom - Conf. Suisse TCV - SULTAN (Lausanne) - (Villigen)		Euratom - Latvia (Riga)		
Euratom - DCU (Dublin) - (Cork)		Euratom - MEC (Bucharest)		
Euratom - ENEA FTU - RFX (Frascati) - (Milan) - (Padua)		Euratom - ÖAW (Vienna) - (Graz) - (Innsbruck)		
Euratom - FOM (Petten) - (Nieuwegein)		Euratom - RISØ (Roskilde)		
Euratom - FZJ TEXTOR (Julich)		Euratom - TEKES (Helsinki) - (Tampere) - (Lappeenranta)		
Euratom - FZK TOSKA (Karlsruhe)		Euratom - UKAEA MAST - JET (Culham)		
Euratom - Greece (Athens) - (Heraklion) - (Ioannina)		Euratom - LEI (Kaunas)	Euratom - CU TOSKA (Bratislava)	Euratom - MHST (Ljubljana)
	Euratom - IPPLM (Warsaw)	Euratom - INRNE (Sofia)		

international collaborations with US, Russian Federation, Japan, China, ...

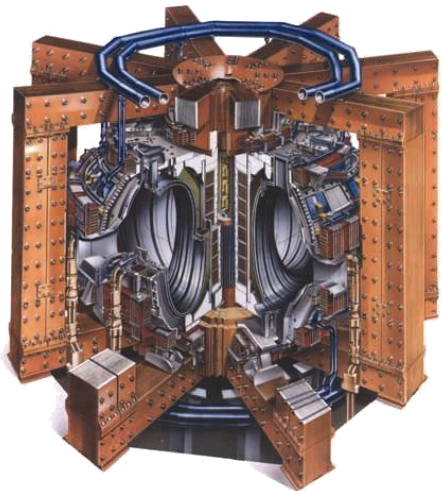
JET → ITER

JET Enhancement Programme (EP)

ITER relevant Engineering and
Physics + Control Systems + Culture

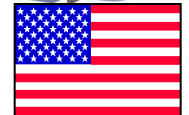
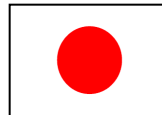
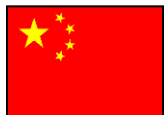
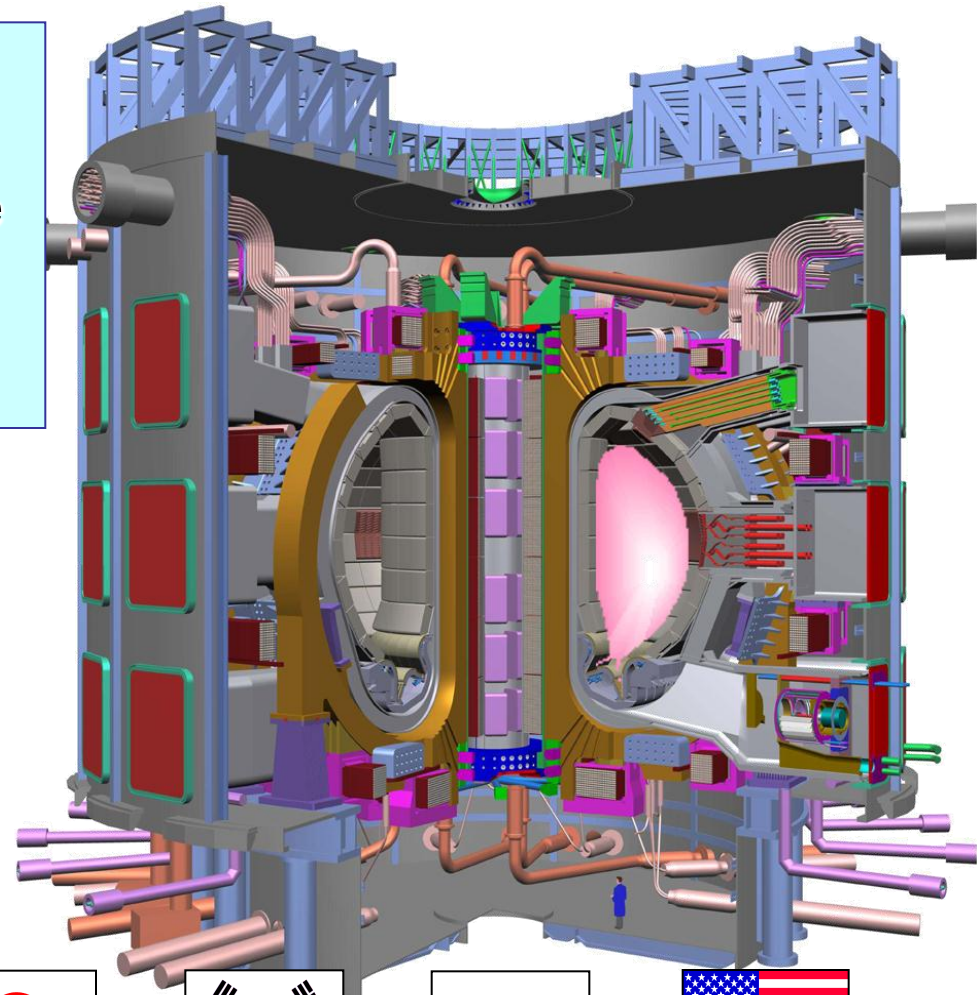
EP1 ~2004, EP2 ~now, EP3 ?

ITER first plasma 2020?



2x2x2

Plasma Volume
x10

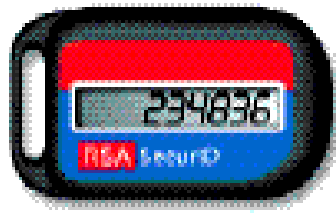


CCFE Information Assurance

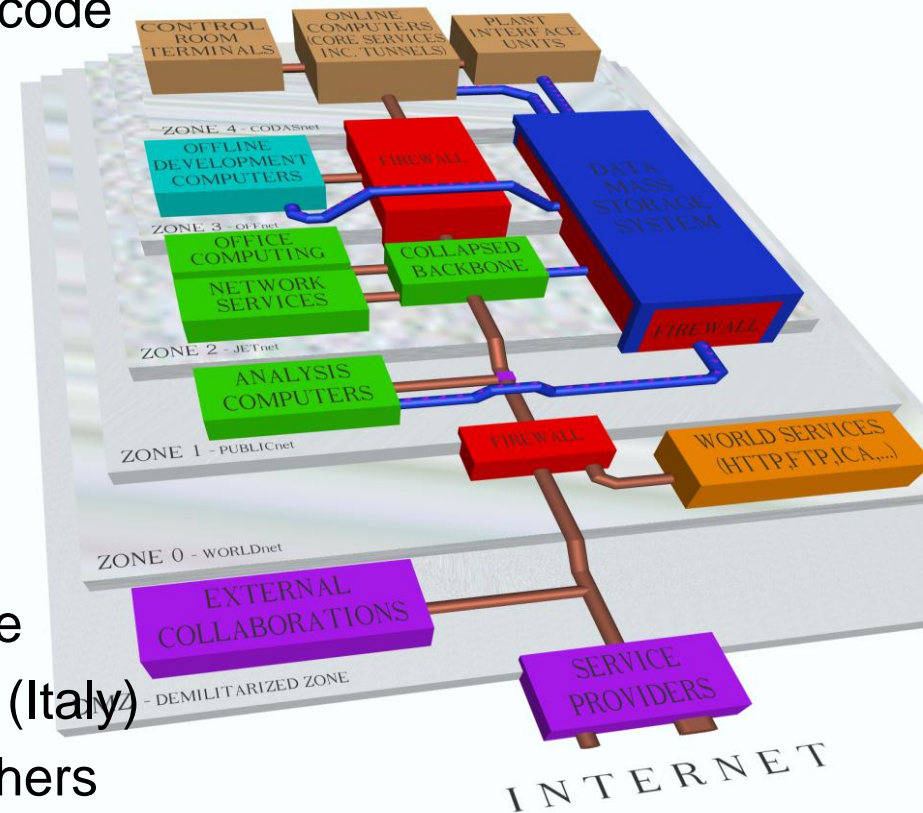
- CCFE is the remaining part of United Kingdom Atomic Energy Authority (*not UKAEA*)
- CCFE Manages JET on behalf of EFDA
- We are UK NDPB, hence need to follow UK Cabinet Office Information Assurance guidelines
- Regulated by Office for Civil Nuclear Security (OCNS)
- No air-gap between plant control and “public” networks
- Policy Statement:
 - "Any form of Remote Computer Access (RCA) to the Authority networks, which can result in the ability to change data held on those networks, will be implemented using strong authentication techniques".
- We need to know who is doing what

Remote Participation (1)

- Remote Computer Access (RCA)
 - IT Security Policy
 - RSA SecurID Pin + One-time passcode



- Username/password still required
- CITRIX
- VNC direct to UNIX
- Multi-level network structure
- Connection to on-line via procedure
- CCFE RSA Server shared by RFX (Italy)
- We could have mutual trust with others



Remote Participation (2)

- Shared Documentation
 - 3-tiers of web servers – public, users, intranet
 - CAD drawings via CATIA Portal (Smarteam)
- Remote Control Room Presence
- Remote Data Access (RDA) – via MDSplus
 - www.mdsplus.org - ex LANL, MIT, RFX Padova - de facto standard
 - Open access from fusion community (list of addresses)
 - No take up of use of X.509 certificates via SecurId – hence dropped
 - No remote writes

Remote Participation (3)

- CCFE/EFDA-JET collaborate with several UK Universities and European & International fusion labs.
- EFDA have worked on a system called PAPI (<http://papi.rediris.es>)
- CCFE have tentatively agreed that PAPI can give access to our middle tier - <http://users.jet.efda.org> (but this work is not being driven)
- We have followed Eduroam with interest and will (probably) at sometime implement it;
- But SecurID will still be required for internal network access
- EFDA-JET runs a grid service and are RA for the UK e-Science CA

Remote Experimentation

Remote Experimentation often comes up for discussion. CCFE is responsible for the JET facilities. As such we are unlikely to delegate the responsibility for machine safety. We do allow diagnostics to be operated remotely providing:

1. they are not used for machine protection or control;
2. they do not involve any active equipment on the Tokamak - opening of valves etc;
3. they are not part of the critical path analysis chain;
4. they are not specifically part of the physics programme for a particular experiment.

(The last two conditions can be relaxed with special permission)

We then ensure that particular applications are sand-boxed and separated from other networks and we then allow a tunnel granted via procedural control based on RSA SecurID technology.

What we want

ITER of course brings in a greater international element to collaboration. We do not yet know what they will allow.

- They will however be a nuclear licensed site (unlike us).
- It is unlikely they will be less strict than we are, although there will be pressure, because of the safety case, legislation ...

CCFE is taking on more ITER related work, requiring greater collaboration/sharing with Industry – we need a lighter way to provide this than always having to use SecurID

In general CCFE is unlikely to move away from strong two-factor authentication, **but**.

- federated access control to the middle-tier of the web site, or
- provision of read-only data access

is something we **are** interested in.

We would prefer an international solution to a European one and a European one to a UK one.

However because of our links in the UK, within Europe and further afield we might adopt more than one solution.