

# SPIRE ICC Operational Hardware

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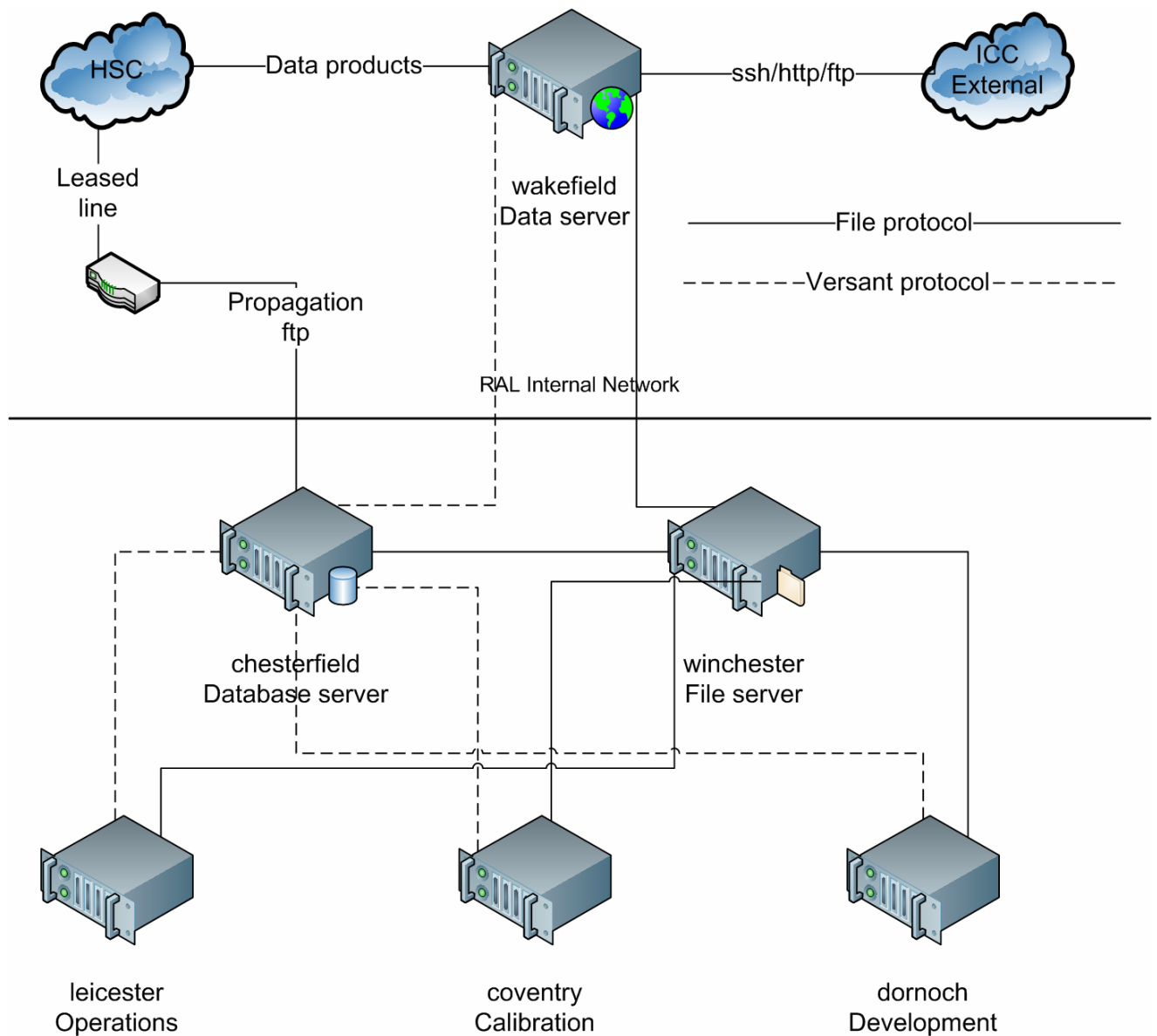
# Introduction

This document describes the SPIRE operational computing hardware setup at RAL. Hardware situated at ICC sites external to RAL is outside the scope of this document.

## Network Configuration

This diagram shows the operational servers in a slightly simplified view of the network.

- Desktop PCs and laptops are not shown; they are able to connect to the servers via ssh.
- Users external to the ICC can ssh to `wakefield`, situated outside the firewall. From there it is possible to ssh to the other servers inside the firewall.
- Within the RAL network, connections are shown to the file server `winchester` with solid lines, and to the database server `chesterfield` with dashed lines.
- Note that the propagation mechanism via the leased line also uses the Versant protocol.
- Data product transfer from the HSC to `wakefield` is via HTTP. This should bypass the RAL HTTP proxy.
- The telemetry and PAL interfaces from `wakefield` to the external ICC use the HTTP protocol.
- The external (and internal) ICC also has an FTP interface to `wakefield`. Note that this allows access to files on `winchester`.



## Servers

Servers (chesterfield, wakefield, leicester):

- 2 x 3GHz Intel Xeon Dual-Core
- 64-bit
- 8GB RAM
- 1TB disk
- Red Hat Enterprise Linux AS release 4 (Nahant Update 4), see `/etc/redhat-release`

Servers (coventry,caithness):

- 2 x 2.66GHz Intel Xeon Quad-Core
- 64-bit
- 12GB RAM
- 1TB disk
- Red Hat Enterprise Linux AS release 4 (Nahant Update 4), see `/etc/redhat-release`

Servers (dornoch):

- 2 x 2.66GHz Intel Xeon Quad-Core
- 64-bit
- 16GB RAM
- 2TB disk
- Red Hat Enterprise Linux AS release 4 (Nahant Update 4), see `/etc/redhat-release`

Disk server (winchester):

- 36TB NAS (Network Attached Storage)
- 20TB Operational Partition `winchester:/disks/winchester1`
- 9TB User Partition `winchester:/disks/winchester2`

Software on all servers:

- Java HotSpot(TM) 64-Bit Server VM (build 1.5.0\_14-b03, mixed mode)
- HCSS 0.6.3, SPIRE "new style" build.

## Database Server: chesterfield

- Versant database server.
- Connected to leased line.
- Target for database propagation from HSC.

## External Data Server: wakefield

- Outside firewall.
- Entry point for communications (e.g. `ssh`) from outside RAL.
- Web server.
- FTP server (*to be set up*).
- Data distribution server (telemetry, products) to ICC.
- JBoss server for expert HSPOT.

## Operations: leicester

- Processing machine for operations team.

## Calibration: coventry

- Processing machine for calibration team.

## Development: dornoch

- Processing machine for software development team. This may have up-to-date developer builds for testing software such as pipeline processing.

## File Server: winchester

- This is purely a file server. It cannot be logged in to.

Product storage	<code>/misc/winchester1/data/products</code>
PV validation data	<code>/misc/winchester1/data/pv_validation</code>
Database backups	<code>/misc/winchester2/sg55/backups</code>

## Backup device:

The backup device is a Quantum SuperLoader 3 LTO Ultrium 4 Tape drive robot. This has a capacity of 800GB native, 1.6TB compressed per tape and the unit has a 20 tape capacity. The unit is physically connected to the NAS fileserver and has access to all processing nodes in order to perform both incremental and full backups of the designated partitions on the nodes.

## Backup strategy: Processing nodes

For nodes - chesterfield, leicester, wakefield, coventry, dornoch & caithness.

- Daily incremental dumps Monday - Thursday (inclusive)
- Weekly Full dump run Friday
- Monthly Full dump run Friday

Partitions backed up: /, /home & /disks/data1, /disks/data2

## Backup strategy: Fileserver

For node winchester

- Daily incremental dumps Monday - Thursday (inclusive)
- Weekly incremental dumps run Friday
- Monthly Full dump run Friday

Partitions backed up: /, /disks/winchester1 and /disks/winchester2

There may be a change to the policy for the backups on the file server depending on usage i.e. data throughput and what percentage of data is dynamic or static. These issues will be resolved at a future date once processing begins in earnest and experience of the actual production system working has been gained.