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Extension of the DIRAC workload-management system to allow use of distributed Windows resources

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The DIRAC workload-management system of the LHCb experiment allows coordinated use of globally distributed computing power and data storage. The system was initially deployed only on Linux platforms, where it has been used very successfully both for collaboration-wide production activities and for single-user physics studies. To increase the resources available to LHCb, DIRAC has been extended so that it also allows use of Microsoft Windows machines. As DIRAC is mostly written in Python, a large part of the code base was already platform independent, but Windows-specific solutions have had to be found in areas such as certificate-based authentication and secure file transfers, where .NetGridFTP has been used. In addition, new code has been written to deal with the way that jobs are run and monitored under Windows, enabling interaction with Microsoft Windows Compute Cluster Server 2003 on sets of machines where this is available. The result is a system that allows users' transparent access to Linux and Windows distributed resources. This paper gives details of the Windows-specific developments for DIRAC, outlines the experience gained deploying the system at a number of sites, and reports on the performance achieved running the LHCb data-processing applications.

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LHCb

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