

Oracle Application Express - How It's Made

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Oracle Application Express is the native Web development framework of the Oracle Database. And while the development methodology of Oracle Application Express is typically Rapid Application Development (RAD), Application Express itself is a highly engineered Web and database application.

One of the unique characteristics of Oracle Application Express is that it is written in itself. The Oracle Application Express development environment and framework is a collection of 15 Application Express applications comprising 2,141 pages, 3,075 database objects and over 500,000 lines of PL/SQL. In addition, Oracle Application Express is translated into over 10 languages and is supported in database 10gR2, 11gR1 and 11gR2. The process and requirements of developing Oracle Application Express mirror those of other Oracle Application Express development projects, but on a much grander scale.

The lifecycle of an Application Express release follows the same path of every typical development project. It begins with the gathering of requirements and determining what will be included in the product release. The feature list is gathered from a variety of sources, including enhancement requests logged through Oracle Support, the Oracle Technology Network discussion forum, various Oracle-internal projects, customer meetings and conferences, and lastly, strategic direction from senior management. The feature list is narrowed, cost of the features is evaluated, and an end target release date and schedule is put in place.

Work then shifts to the design and prototype phase. The Team Development module of Application Express is used to capture the feature design, specification, documentation, testing requirements, globalization characteristics and accessibility issues. Prototyping of the features begins and this is iteratively demonstrated and refined until it can be included in the product itself.

Each Application Express release undergoes numerous customer evaluation cycles and a variety of testing: security testing, accessibility testing, platform testing, upgrade testing and code coverage analysis. Using a combination of commercial tools and internally developed frameworks, the Application Express engine and development environment is analyzed by numerous tools, looking for functional defects and security issues.

Compared to other development teams, the Application Express development team may be considered modest in size, especially given the size of the product that is developed. But it is through the combination of sound design and development processes in combination with the features of Application Express that this release process can be managed effectively. Additionally, since the tool is written in itself, the requirements of the development team help to drive the feature list and functionality of the framework, and also help in the constant functional and scalability testing during the iterative development of Application Express. The tools and processes used, and the lessons learned from the Oracle Application Express development team can be directly applied to any customer's Application Express development project.