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Subject: documentation and uvs

Posted by [hojtsy](#) on Mon, 30 Jan 2006 19:11:24 GMT

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I see all these files in the src.tpp direcorey in uvs. Some of them are also visible in srcdoc.tpp, but I edited the version in the src.tpp directory. There are other strange things you can see in the screenshot: There are two "Overview of U++ containers" pages, two "Serialization" pages, some pages don't have a name, etc. Some pages are also visible in src.tpp and srcdoc.tpp. After looking more closely at this confusion, it is possible that I was editing some obsolete versions of those files which should have not been visible in src.tpp.

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### File Attachments

1) [docs\\_in\\_uvs.jpg](#), downloaded 2252 times

The screenshot shows a window titled "AIndex" with a toolbar at the top. The left pane displays a file tree with two main sections: "src" and "srcdoc". Under "src", there is a "Core" folder containing various files and subfolders like "Algorithms", "AMap", "Any", "Array", "ArrayIndex", "ArrayMap", "BiArray", "BiVector", "Buffer", "Callbacks", "Color", "About storing configuration", "CParser", "Date formatting and scanning", "Internationalization and translation files", "Core package", "Index", "Serialization utilities", "Moveable", "Overview of U++ containers - NTL", "NTL vs STL", "One", "Overview of U++ containers - NTL", "Transfer semantics", "Ptr and Pte", "Segtor", "Serialization utilities", "NTL and standard library", "Streams", "Stream utilities", "NTL Tutorial", "Miscellaneous", "Vector", and "VectorMap". Under "srcdoc", there is another "Core" folder with files like "Including binary data using .brc files", "Charset and encoding issues", "About storing configuration", "Design decisions and tradeoffs", and "Runtime dynamic linking using .dli files".

The right pane displays the documentation for the `AIndex` class. It starts with the class signature:

```
template <class T, class V,
class HashFn>
class AIndex
```

It then provides descriptions for the template parameters:

- `T`.....Type of elements to store. T must satisfy requirements for container flavor identified by parameter V and must have `operator==` defined.
- `V`.....Basic random access container.
- `HashFn`.....Hashing class. Must have defined `unsigned operator() (const T& x)` method returning hash value for elements.

Next, it explains the class's purpose:

This template class adds associative capabilities to basic random access containers, forming flavors of Index. It is used as base class for concrete index flavors, `Index` and `ArrayIndex`.

It allows adding elements at the end of sequence in constant amortized time like basic random container. Additionally, it also allows fast retrieval of a position of the element with specified value. Hashing is used for this operation. AIndex stores hash-values of elements, so it has no sense to cache them externally.

Building of internal hash maps of AIndex is always deferred till search operation. This effectively avoids unneeded remapping if large number of elements is added.

Removing elements from an AIndex causes an interesting problem. While it is possible to simply remove (or insert) an element at a specified position, such operation has to move a lot of elements and also scratches internal hash maps. Thus removing elements this way is slow, especially when combined with searching.

The solution for this problem is **unlinking** of elements. Unlinked elements are not removed from index, but they are **ignored** by search operations. Unlinking is a simple, constant time, fast operation. Further, it is possible to place an element at the first available unlinked position (rather than to the end of sequence) using the `Put` method, reusing unlinked position in short constant time.

The only problem of unlinking is that it breaks the so-called **multi-key ordering**. This term means that if there are more elements with the same value in the