

NAME

scan_rt_i – Class for Scanning an R*tree index in the Shore Storage Manager

SYNOPSIS

```
#include <sm_vas.h> // which includes scan.h

class scan_rt_i {
public:

    stid_t          stid;
    tid_t           tid;
    ndx_t           ntype;

    NORET           scan_rt_i(
        const stid_t&          stid,
        sob_cmp_t              c,
        const nbox_t&          box,
        bool                   include_nulls=false,
        concurrency_t          cc = t_cc_page);

    NORET           ~scan_rt_i();

    rc_t            next(
        nbox_t&       key,
        void*         el,
        smsize_t&     elen,
        bool&         eof);

    void            finish();

    bool            eof() { return _eof; }
    bool            error_detected()

};
```

DESCRIPTION

Class scan_rt_i supports scanning an R*tree index.

TODO

Updates While Scanning

A common question is what is the effect of changes to an index made by a transaction that is also scanning the index. It is not safe to change anything in the file while scanning. Instead, a list of changes should be made during the scan and only performed after the scan is complete.

Null Values

R-trees can contain entries with "null" keys, which are represented by polygons of dimension 0. The data type

```
class nbox_t
contains
bool nbox_t::is_Null() const;
```

```
static nbox_t& nbox_t::Null;  
for creating and detecting null keys in R-trees.
```

When scanning an R-tree index, you can skip (default) or collect the entries with "null" keys, according to the value given in the *include_nulls* argument when you create the iterator.

The semantics of a search with nulls is as follows:

inside

Null is inside everything, including Null.

cover

Null covers nothing except Null.

overlap

Null overlaps everything (and everything overlaps null).

ERRORS

To do.

VERSION

This manual page applies to Version 2.0 of the Shore Storage Manager.

SPONSORSHIP

The Shore project is sponsored by the Advanced Research Project Agency, ARPA order number 018 (formerly 8230), monitored by the U.S. Army Research Laboratory under contract DAAB07-91-C-Q518. Further funding for this work was provided by DARPA through Rome Research Laboratory Contract No. F30602-97-2-0247.

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SEE ALSO

`rtree(ssm)`, `scan_index_i(ssm)` `intro(ssm)`