

**NAME**

nbox\_t – Multi-dimensional box class

**SYNOPSIS**

```
#include <nbox.h>

class nbox_t {

    nbox_t();
    nbox_t(int dimension);
    nbox_t(int dimension, int box[]);
    nbox_t(const nbox_t& nbox);
    nbox_t(const char* s, int len); // for conversion from tuple key
    nbox_t(const char* s);          // for conversion from ASCII for Tcl

    virtual ~nbox_t() {}

    int dimension() const          { return dim; }
    int bound(int n) const         { return array[n]; }
    int side(int n) const          { return array[n+dim]-array[n]; }
    int center(int n) const { return (array[n+dim]-array[n])/2+array[n]; }

    bool    empty() const;        // test if box is empty
    void    squared();            // make the box squared
    void    nullify();            // make the box empty

    int hvalue(const nbox_t& universe, int level=0) const; // Hilbert value
    int hcmp(const nbox_t& other, const nbox_t& universe,
             int level=0) const; // Hilbert value comparison

    void print(int level) const;
    void draw(int level, FILE* DrawFile, const nbox_t& CoverAll) const;

    //
    // area of a box :
    //      >0 : valid box
    //      =0 : a point
    //      <0 : null box
    //
    double area() const;

    //
    // margin of a Rectangle
    //
    int margin();

    //
    // some binary operations:
    //      ^: intersection -> box
    //      +: bounding box -> box (result of addition)
    //      +=: enlarge by adding the new box
    //      ==: exact match -> boolean
    //      /: containment -> boolean
    //      ||: overlap -> boolean
```

```

//      >: bigger (compare low values) -> boolean
//      <: smaller (compare low values) -> boolean
//      *: square of distance between centers of two boxes
//
nbox_t  operator^(const nbox_t& other) const;
nbox_t  operator+(const nbox_t& other) const;

nbox_t&  operator+=(const nbox_t& other);
nbox_t&  operator=(const nbox_t& other);
bool     operator==(const nbox_t& other) const;
bool     operator/(const nbox_t& other) const;
bool     operator||(const nbox_t& other) const;
bool     operator>(const nbox_t& other) const;
bool     operator<(const nbox_t& other) const;
double   operator*(const nbox_t& other) const;

//
// for tcl use only
//
operator      char*();
void put(const char*); // conversion from ASCII for tcl

//
// conversion between key and box
//
void bytes2box(const char* key, int klen);
const void* kval() const { return (void *) array; }
int klen() const { return 2*sizeof(int)*dim; }

};

```

**DESCRIPTION**

TODO

**VERSION**

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

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