# Berkeley DB XML Reference Card

## DbEnv

### Constructor flags:
DB_CREATE|DB_INIT_LOCK|DB_INIT_LOG|DB_INIT_MPOOL|DB_INIT_TXN|DB_RECOVER

### Methods:
open($dir [,flags] [,mode])
close($flags)

## DbXml

### Class methods:
setLogCategory(category, bool)

categories: CATEGORY_MANAGER, CATEGORY_CONTAINER, CATEGORY_INDEXER, CATEGORY_QUERY, CATEGORY_OPTIMIZER, CATEGORY_DICTIONARY, CATEGORY_NODESTORE, CATEGORY_ALL

setLogLevel(level, bool)

levels: LEVEL_DEBUG, LEVEL_INFO, LEVEL_WARNING, LEVEL_ERROR, LEVEL_ALL

dbxml_version(major, minor, patch)

## XmlManager

### Constructor args:
[dbenv] [,flags]

### Constructor flags:
DBXML_ALLOW_EXTERNAL_ACCESS, DBXML_ALLOW_AUTO_OPEN, DBXML_ADOPT_DBENV

### Methods:
createContainer([txn,] name, [,flags] [,type] [,mode])

flags: DB_CREATE, DB_EXCL, DB_RDONLY, DB_DIRTY_READ, DB_NOMMAP, DB_THREAD, DB_XA_CREATE, DB_TXN_NOT_DURABLE, DBXML_CHKSUM, DBXML_ENCRYPT, DBXML_INDEX_NODES, DBXML_TRANSACTIONAL, DBXML_ALLOW_VALIDATION
types: XmlContainer::NodeContainer, XmlContainer::WholedocContainer

createDocument()
createIndexLookup(container, uri, name, index, value, op)

ops: XmlIndexLookup::NONE, ::EQ, ::LT, ::LTE, ::GT, ::GTE

createLocalFileInputStream(filename)
createMemBufInputStream(bytes, count, buffer)
createModify()
createQueryContext(rt, et)

et: XmlQueryContext::LiveValues, XmlQueryContext::DeadValues
rt: XmlQueryContext::Eager, XmlQueryContext::Lazy

createResults()
createStdInInputStream()
createTransaction([txn,] flags)

flags: DB_DEGREE_2, DB_DIRTY_READ, DB_TXN_NOSYNC, DB_TXN_NOWAIT, DB_TXN_SYNC

createURLInputStream(baseid, systemid [,publicid])
createUpdateContext()
dumpContainer(name, outfile)
existsContainer(name)
getDbEnv()
getHome()
loadContainer(name, inputstream, lineno, ucontext)
openContainer([txn,] name [,flags] [,type] [,mode])
prepare([txn,] query, qcontext)
query(txn,] query, qcontext, flags)

flags: DBXML_LAZY_DOCS, DB_DEGREE_2, DB_DIRTY_READ, DB_RMW

reindexContainer([txn,] name, ucontext, flags)

### Methods (cont. for XmlManager):
removeContainer([txn,] name)
renameContainer([txn,] oldname, newname)
setDefaultContainerFlags(flags)
setDefaultContainerType(type)
setDefaultPageSize(pagesize)
upgradeContainer(name, ucontext)
verifyContainer(name, outfile, flags)

flags: DB_SALVAGE, DB_SALVAGE|DB_AGGRESSIVE

## XmlContainer

### Methods:
addAlias(alias)
addIndex([txn,] uri, name, index, ucontext)
addDefaultIndex([txn,] index, ucontext)
deleteDocument([txn,] name (or document), ucontext)
deleteIndex([txn,] uri, name, index, ucontext)
deleteDefaultIndex([txn,] index, ucontext)
getAllDocuments([txn,] flags)

flags: DBXML_LAZY_DOCS, DB_RMW, DBXML_REVERSE_ORDER, DB_DEGREE_2, DB_DIRTY_READ

getContainerType()
getDocument([txn,] name, flags)

flags: DBXML_LAZY_DOCS, DB_RMW, DB_DEGREE_2, DB_DIRTY_READ

getIndexNodes()
getIndexSpecification([txn,] flags)
getManager()
getName()
getNumDocuments([txn])
getPageSize()
lookupStatistics([txn,] uri, name, parent_uri, parent_name, index [,val])
putDocument([txn,] name, stream (or content), ucontext [,flags])
putDocument([txn,] name, document, ucontext [,flags])

flags: DBXML_GEN_NAME

removeAlias(alias)
replaceIndex([txn,] uri, name, index, ucontext)
replaceDefaultIndex([txn,] index, ucontext)
setIndexSpecification([txn,] indexspec, ucontext)
sync()
updateDocument([txn,] document, ucontext)

## XmlDocument

### Methods:
fetchAllData()
getContent()
getContentAsDOM()
getContentAsXmlInputStream()
getMetaData(uri, name, value)
getMetaDataIterator()
getName()
removeMetaData(uri, name)
setContent(content (or xmldata or stream))
setContentAsDOM(xercesdom)
setContentAsXmlInputStream(stream)
setMetaData(uri, name, string (or xmlvalue))
setName(name)

## Index string format:
unique-{path type}-{node type}-{key type}-{syntax}

path types: node, edge

node types: element, attribute, metadata

key types: presence, equality, substring

syntaxes: none, anyURI, base64Binary, boolean, date, dateTime, dayTimeDuration, decimal, double, duration, float, gDay, gMonth, gMonthDay, gYear, gYearMonth, hexBinary, NOTATION, QName, string, time,

## XmlIndexSpecification

### Methods:
addIndex(uri, name, index)
addDefaultIndex(index)
deleteIndex(uri, name, index)
deleteDefaultIndex(index)
find(uri, name, index*)
getDefaultIndex()
next()
replaceIndex(uri, name, index)
replaceDefaultIndex(index)
reset()

## XmlQueryContext

### Methods:
clearNamespaces()
removeNamespace(prefix)
setDefaultCollection(uri)
setNamespace(prefix, uri)
setBaseURI(uri)
setEvaluationType(type)

types: XmlQueryContext::Eager, XmlQueryContext::Lazy

setReturnType(type)

types: XmlQueryContext::LiveValues, XmlQueryContext::DeadValues

setVariableValue(name, value)

## XmlQueryExpression

### Methods:
execute([txn,] [contextitem,] qcontext, flags)

flags: DBXML_LAZY_DOCS, DB_DIRTY_READ, DB_DEGREE_2, DB_RMW

getQuery()
getQueryPlan()

## XmlResults

### Methods:
add(xmlvalue)
hasNext()
hasPrevious()
next(xmlvalue (or document)*)
peek(xmlvalue (or document)*)
previous(xmlvalue (or document)*)
reset()
size()

# Berkeley DB XML Reference Card

## XmlTransaction

Methods:
    abort()
    commit([flags])
        flags:   DB_TXN_NOSYNC, DB_TXN_SYNC
    createChild()
    getDbTxn()

## XmlUpdateContext

Methods:
    setApplyChangesToContainers(bool)
    getApplyChangesToContainers()

## XmlModify

Methods:
    addAppendStep(expr, type, name, content [,location])
    addInsertAfterStep(expr, type, name, content)
    addInsertBeforeStep(expr, type, name, content)
        types:   XmlModify::Element, ::Attribute, ::Text,
                 ::ProcessingInstruction, ::Comment
    addRemoveStep(expr)
    addRenameStep(expr, newname)
    addUpdateStep(expr, content)
    execute([txn,] tomodify, content, ucontext)

## XmlStatistics

Methods:
    getNumberOfIndexedKeys()
    getNumberOfUniqueKeys()

## XmlMetaDataIterator

Methods:
    next(uri, name, value)
    reset()

## XmlValue

Constructor args:
    [value (or document)]
    [type,] [value (or document)]
        types:   XmlValue::NONE,
                 XmlValue::NODE,
                 XmlValue::ANY_SIMPLE_TYPE,
                 XmlValue::ANY_URI,
                 XmlValue::BASE_64_BINARY,
                 XmlValue::BINARY,
                 XmlValue::BOOLEAN,
                 XmlValue::DATE,
                 XmlValue::DATE_TIME,
                 XmlValue::DAY_TIME_DURATION,
                 XmlValue::DECIMAL,
                 XmlValue::DOUBLE,
                 XmlValue::DURATION,
                 XmlValue::FLOAT,
                 XmlValue::G_DAY,
                 XmlValue::G_MONTH,
                 XmlValue::G_MONTH_YEAR,
                 XmlValue::G_YEAR,
                 XmlValue::G_YEAR_MONTH,
                 XmlValue::HEX_BINARY,
                 XmlValue::NOTATION,
                 XmlValue::QNAME,
                 XmlValue::STRING,
                 XmlValue::TIME,
                 XmlValue::YEAR_MONTH_DURATION,
                 XmlValue::UNTYPED_ATOMIC

Methods:
    getType()                      equals(value)
    isType(type)                   getNodeName()
    isBoolean()                    getNodeValue()
    isBinary()                     getNamespaceURI()
    isNumber()                     getPrefix()
    isString()                     getLocalName()
    isNode()                       getNodeType()
    isNull()                       getParentNode()
    asBoolean()                    getFirstChild()
    asBinary()                     getLastChild()
    asDocument()                   getPreviousSibling()
    asNode()                       getNextSibling()
    asNumber()                     getAttributes()
    asString()                     getOwnerElement()

## XmlException

Methods:
    what()
    getExceptionCode()
    getDbError()

### XML Schema Data Types:

    item()                         xs:hexBinary
    node()                         xs:ID
    xdt:anyAtomicType              xs:IDREF
    attribute()                    xs:IDREFS
    comment()                      xs:int
    document-node()                xs:integer
    element()                      xs:language
    namespace()                    xs:long
    processing-instruction()       xs:Name
    text()                         xs:NCName
    xs:anyURI                      xs:negativeInteger
    xs:base64Binary                xs:nonNegativeInteger
    xs:boolean                     xs:nonPositiveInteger
    xs:byte                        xs:normalizedString
    xs:date                        xs:NOTATION
    xs:dateTime                    xs:positiveInteger
    xdt:dayTimeDuration            xs:QName
    xs:decimal                     xs:short
    xs:double                      xs:string
    xs:duration                    xs:time
    xs:float                       xs:token
    xs:gDay                        xs:unsignedByte
    xs:gMonth                      xs:unsignedInt
    xs:gMonthDay                   xs:unsignedLong
    xs:gYear                       xs:unsignedShort
    xs:gYearMonth                  xdt:untypedAtomic
                                   xdt:yearMonthDuration

### XQuery Functions:

abs(number)
adjust-dateTime-to-timezone(dateTime, time zone)
adjust-date-to-timezone(date, time zone)
adjust-time-to-timezone(time, time zone)
avg(seq)
base-uri(node)
boolean(seq)
ceiling(number)
codepoints-to-string(sequence)
collection(string)
compare(string1, string2)
concat(string1, ...)
contains(string1, string2)
count(seq)
current-date()
current-dateTime()
current-time()
data(seq)
day-from-date(date)
day-from-dateTime(dateTime)

days-from-duration(duration)
dbxml:metadata()
deep-equal(seq, seq)
default-collation()
distinct-values(seq)
doc(string)
document-uri(node)
empty(seq)
ends-with(string1, string2)
error(item)
escape-uri(string, boolean)
exactly-one(seq)
exists(seq)
false()
floor(number)
hours-from-dateTime(dateTime)
hours-from-duration(duration)
hours-from-time(time)
id(string)*
idref(string)*
implicit-timezone()
index-of(seq, item)

in-scope-prefixes(element)
position, seq2)
lang(string)
last()
local-name(node)
local-name-from-QName(stringQName)
lower-case(string)
matches(string, pattern)
max(seq)
min(seq)
minutes-from-dateTime(dateTime)
minutes-from-duration(duration)
minutes-from-time(time)
month-from-date(date)
month-from-dateTime(dateTime)
months-from-duration(duration)
name(node)
namespace-uri(node)
namespace-uri-for-prefix(element, string)
namespace-uri-from-QName(QName)
node-name(node)
normalize-space(string)

insert-before(seq1,
normalize-unicode(string)not(expr)
number(expr)
one-or-more(seq)
position()
QName(namespace, local name)
remove(seq, position)
replace(string, pattern1, pattern2)
resolve-QName(string, element)
resolve-uri(string)
reverse(seq)
root(node)
round(number)
round-half-to-even(number)
seconds-from-dateTime(date)
seconds-from-duration(duration)
seconds-from-time(time)
starts-with(string1, string2)
string(item)
string-join(seq, delim)
string-length(string)
string-to-codepoints(string)
subsequence(seq, position1, position2)

substring(string, position1, position2)
substring-after(string1, string2)
substring-before(string1, string2)
sum(seq)
timezone-from-date(date)
timezone-from-dateTime(dateTime)
timezone-from-time(time)
tokenize(string1, string2)
trace(seq, string)
translate(string1, string2, string3)
true()
unordered(seq)
upper-case(string)
year-from-date(date)
year-from-dateTime(dateTime)
years-from-duration(duration)
zero-or-one(seq)