All about Vectors

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Abstract

This document lists various aspects of vectors

1 Meta Data

1.1 Type

- Every vector must have a valid qtype.

1.2 width

- The width of a vector can be determined from the qtype. There is one exception, as noted below

- When qtype is SC, the width must be provided by the creator. It must be at least 2. The reason being that this qtype is used for constant length strings where the length must be at least 1 and 1 character is used for null termination.

1.3 Nulls Vector

The way we identify null values in a vector is to create an auxiliary vector, called the nn vector.

Therefore, with each vector, we store 2 fields

1. nn_vctr_key

2. parent_vctr_key

- Assume a has no nulls. In that case, these fields will be -1

- If a has a null vector b, then

    1. a's nn_vctr_key will point to b
    2. b's parent_vctr_key will point to a

Constraints on nn vectors

1. same length as parent

2. qtype is BL or B1

3. properties like memo_len, . . . same as parent

4. an nn vector cannot be shared. So, a vector c cannot also have b as its nn vector

5. an nn vector cannot have a nn vector

1.4   Reference Count