

# TinyLA API Reference

## VariableMatrix

The `VariableMatrix` class template represents a matrix with variable elements. The elements can be of any scalar type, and the matrix dimensions are specified as template parameters. The data is stored in a contiguous column-major array.

E.g.

<pre>auto A = tinyla::VariableMatrix&lt;float, 2, 2, '0'&gt;{};</pre>	$0_{2 \times 2} = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$
<pre>auto A = tinyla::VariableMatrix&lt;double, 2, 3, 'A'&gt;{     {1.0, 2.0, 3.0},     {4.0, 5.0, 6.0} };</pre>	$A_{2 \times 3} = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$
<pre>auto I = tinyla::VariableMatrix&lt;int, 3, 3, 'I'&gt;::identity();</pre>	$I_{3 \times 3} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$