



# NVIDIA TensorRT

API Reference | NVIDIA Docs

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# Chapter 1. Added, Deprecated, And Removed APIs

## 1.1. API Changes For TensorRT 8.2.0 EA

The following tables show which APIs were added, deprecated, and removed for the NVIDIA® TensorRT™ 8.2.0 EA release.

### C++ changes

Table 1. New C++ APIs

| New C++ APIs                           |
|--|
| <a href="#"><u>IAssertionLayer</u></a> |
| <a href="#"><u>IConditionLayer</u></a> |
| <a href="#"><u>IEinsumLayer</u></a>    |
| <a href="#"><u>IScatterLayer</u></a>   |

### Python changes

Table 2. New Python APIs

| New Python APIs                        |
|--|
| <a href="#"><u>IAssertionLayer</u></a> |
| <a href="#"><u>IConditionLayer</u></a> |
| <a href="#"><u>IEinsumLayer</u></a>    |
| <a href="#"><u>IScatterLayer</u></a>   |

## 1.2. API Changes For TensorRT 8.0.1

The following tables show which APIs were added, deprecated, and removed for the TensorRT 8.0.1 release.

### C++ changes

Table 3. New C++ APIs

| New C++ APIs   |
|--|
| <code>class IDequantizeLayer</code>                      |
| <code>class IQuantizeLayer</code>                        |
| <code>class ITimingCache</code>                          |
| <code>IBuilder::buildSerializedNetwork()</code>          |
| <code>IBuilderConfig::getTimingCache()</code>            |
| <code>IBuilderConfig::setTimingCache()</code>            |
| <code>IGpuAllocator::reallocate()</code>                 |
| <code>INetworkDefinition::addDequantize()</code>         |
| <code>INetworkDefinition::addQuantize()</code>           |
| <code>INetworkDefinition::setWeightsName()</code>        |
| <code>IPluginRegistry::deregisterCreator()</code>        |
| <code>IRefitter::getMissingWeights()</code>              |
| <code>IRefitter::getAllWeights()</code>                  |
| <code>IRefitter::setNamedWeights()</code>                |
| <code>IResizeLayer::getCoordinateTransformation()</code> |
| <code>IResizeLayer::getNearestRounding()</code>          |
| <code>IResizeLayer::getSelectorForSinglePixel()</code>   |
| <code>IResizeLayer::setCoordinateTransformation()</code> |
| <code>IResizeLayer::setNearestRounding()</code>          |
| <code>IResizeLayer::setSelectorForSinglePixel()</code>   |
| <code>IScaleLayer::setChannelAxis()</code>               |
| <code>enum ResizeCoordinateTransformation</code>         |
| <code>enum ResizeMode</code>                             |
| <code>BuilderFlag::kSPARSE_WEIGHTS</code>                |

| New C++ APIs                              |
|---|
| <a href="#">TacticSource::kCUDNN</a>      |
| <a href="#">TensorFormat::kDLA_HWC4</a>   |
| <a href="#">TensorFormat::kDLA_LINEAR</a> |
| <a href="#">TensorFormat::kHWC16</a>      |

Table 4. Removed C++ APIs

| Removed C++ APIs                     |
|--------------------------------------|
| <b>Core Library</b>                  |
| DimensionType                        |
| Dims::Type                           |
| class DimsCHW                        |
| class DimsNCHW                       |
| class IOutputDimensionFormula        |
| class IPlugin                        |
| class IPluginFactory                 |
| class IPluginLayer                   |
| class IRNNLayer                      |
| IBuilder::getEngineCapability()      |
| IBuilder::allowGPUFallback()         |
| IBuilder::buildCudaEngine()          |
| IBuilder::canRunOnDLA()              |
| IBuilder::createNetwork()            |
| IBuilder::getAverageFindIterations() |
| IBuilder::getDebugSync()             |
| IBuilder::getDefaultDeviceType()     |
| IBuilder::getDeviceType()            |
| IBuilder::getDLACore()               |
| IBuilder::getFp16Mode()              |
| IBuilder::getHalf2Mode()             |
| IBuilder::getInt8Mode()              |
| IBuilder::getMaxWorkspaceSize()      |
| IBuilder::getMinFindIterations()     |

**Removed C++ APIs**

IBuilder::getRefittable()

IBuilder::getStrictTypeConstraints()

IBuilder::isDeviceTypeSet()

IBuilder::reset()

IBuilder::resetDeviceType()

IBuilder::setAverageFindIterations()

IBuilder::setDebugSync()

IBuilder::setDefaultDeviceType()

IBuilder::setDeviceType()

IBuilder::setDLACore()

IBuilder::setEngineCapability()

IBuilder::setFp16Mode()

IBuilder::setHalf2Mode()

IBuilder::setInt8Calibrator()

IBuilder::setInt8Mode()

IBuilder::setMaxWorkspaceSize()

IBuilder::setMinFindIterations()

IBuilder::setRefittable()

IBuilder::setStrictTypeConstraints()

ICudaEngine::getWorkspaceSize()

IMatrixMultiplyLayer::getTranspose()

IMatrixMultiplyLayer::setTranspose()

INetworkDefinition::addMatrixMultiply()

INetworkDefinition::addPlugin()

INetworkDefinition::addPluginExt()

INetworkDefinition::addRNN()

INetworkDefinition::getConvolutionOutputDimensionsFormula()

INetworkDefinition::getDeconvolutionOutputDimensionsFormula()

INetworkDefinition::getPoolingOutputDimensionsFormula()

INetworkDefinition::setConvolutionOutputDimensionsFormula()

INetworkDefinition::setDeconvolutionOutputDimensionsFormula()

INetworkDefinition::setPoolingOutputDimensionsFormula()



| Removed C++ APIs                        |
|---|
| <code>ITensor::getDynamicRange()</code> |
| <code>TensorFormat::kNHWC8</code>       |
| <code>TensorFormat::NCHW</code>         |
| <code>TensorFormat::kNC2HW2</code>      |
| Caffe Parser                            |
| <code>class IPluginFactory</code>       |
| <code>class IPluginFactoryExt</code>    |
| <code>setPluginFactory()</code>         |
| <code>setPluginFactoryExt()</code>      |
| UFF Parser                              |
| <code>class IPluginFactory</code>       |
| <code>class IPluginFactoryExt</code>    |
| <code>setPluginFactory()</code>         |
| <code>setPluginFactoryExt()</code>      |

Table 5. Removed Plugins

| Removed Plugins                  |
|----------------------------------|
| <code>class INvPlugin</code>     |
| <code>createLReLUPlugin()</code> |
| <code>createClipPlugin()</code>  |
| <code>PluginType</code>          |
| <code>struct SoftmaxTree</code>  |

For plugins based on `IPluginV2DynamicExt` and `IPluginV2IOExt`, certain methods with legacy function signatures (derived from `IPluginV2` and `IPluginV2Ext` base classes) which were deprecated and marked for removal in TensorRT 8.0 will no longer be available. Plugins using these interface methods must stop using them or implement the versions with updated signatures, as applicable.

Table 6. Unsupported plugin methods removed in TensorRT 8.0

| Removed Plugins  |
|--|
| <code>IPluginV2DynamicExt::canBroadcastInputAcrossBatch()</code> |
| <code>IPluginV2DynamicExt::isOutputBroadcastAcrossBatch()</code> |

| Removed Plugins  |
|--|
| <code>IPluginV2DynamicExt::getTensorRTVersion()</code> |
| <code>IPluginV2IOExt::configureWithFormat()</code>     |
| <code>IPluginV2IOExt::getTensorRTVersion()</code>      |

Table 7. Updated versions for supported plugin methods

| Removed Plugin                                     | Replaced with   |
|--|---|
|  | <code>IPluginV2DynamicExt::configurePlugin()</code>           |
|  | <code>IPluginV2DynamicExt::enqueue()</code>                   |
|  | <code>IPluginV2DynamicExt::getOutputDimensions()</code>       |
|  | <code>IPluginV2DynamicExt::getWorkspaceSize()</code>          |
|  | <code>IPluginV2IOExt::configurePlugin()</code>                |
| <code>IPluginV2DynamicExt::supportsFormat()</code> | <code>IPluginV2DynamicExt::supportsFormatCombination()</code> |
| <code>IPluginV2IOExt::supportsFormat()</code>      | <code>IPluginV2IOExt::supportsFormatCombination()</code>      |

## Python changes

Table 8. New Python APIs

| New Python APIs                                    |
|--|
| <code>class IDequantizeLayer</code>                |
| <code>class IQuantizeLayer</code>                  |
| <code>class ITimingCache</code>                    |
| <code>Builder.build_serialized_network()</code>    |
| <code>IBuilderConfig.get_timing_cache()</code>     |
| <code>IBuilderConfig.set_timing_cache()</code>     |
| <code>IGpuAllocator.reallocate()</code>            |
| <code>INetworkDefinition.add_dequantize()</code>   |
| <code>INetworkDefinition.add_quantize()</code>     |
| <code>INetworkDefinition.set_weights_name()</code> |
| <code>IPluginRegistry.deregister_creator()</code>  |
| <code>Refitter.get_all_weights()</code>            |
| <code>Refitter.get_missing_weights()</code>        |
| <code>Refitter::set_named_weights()</code>         |

| New Python APIs   |
|---|
| <a href="#"><u>IResizeLayer.coordinate_transformation</u></a> |
| <a href="#"><u>IResizeLayer.nearest_rounding</u></a>          |
| <a href="#"><u>IResizeLayer.selector_for_single_pixel</u></a> |
| <a href="#"><u>IScaleLayer.channel_axis</u></a>               |
| <a href="#"><u>enum ResizeCoordinateTransformationDoc</u></a> |
| <a href="#"><u>enum ResizeMode</u></a>                        |
| <a href="#"><u>BuilderFlag.SPARSE_WEIGHTS</u></a>             |
| <a href="#"><u>TacticSource.CUDNN</u></a>                     |
| <a href="#"><u>TensorFormat.DLA_HWC4</u></a>                  |
| <a href="#"><u>TensorFormat.DLA_LINEAR</u></a>                |
| <a href="#"><u>TensorFormat.HWC16</u></a>                     |

Table 9. Removed Python APIs

| Removed Python APIs                          |
|--|
| <b>Core Library</b>                          |
| <code>class DimsCHW</code>                   |
| <code>class DimsNCHW</code>                  |
| <code>class IPlugin</code>                   |
| <code>class IPluginFactory</code>            |
| <code>class IPluginLayer</code>              |
| <code>class IRNNLayer</code>                 |
| <code>Builder.build_cuda_engine()</code>     |
| <code>Builder.average_find_iterations</code> |
| <code>Builder.debug_sync</code>              |
| <code>Builder.fp16_mode</code>               |
| <code>IBuilder.int8_mode</code>              |
| <code>Builder.max_workspace_size</code>      |
| <code>Builder.min_find_iterations</code>     |
| <code>Builder.refittable</code>              |
| <code>Builder.strict_type_constraints</code> |
| <code>ICudaEngine.max_workspace_size</code>  |
| <code>IMatrixMultiplyLayer.transpose0</code> |

| Removed Python APIs   |
|---|
| <code>INetworkDefinition.add_matrix_multiply_deprecated()</code>        |
| <code>INetworkDefinition.add_plugin()</code>                            |
| <code>INetworkDefinition.add_plugin_ext()</code>                        |
| <code>INetworkDefinition.add_rnn()</code>                               |
| <code>INetworkDefinition.convolution_output_dimensions_formula</code>   |
| <code>INetworkDefinition.deconvolution_output_dimensions_formula</code> |
| <code>INetworkDefinition.pooling_output_dimensions_formula</code>       |
| <code>ITensor.get_dynamic_range()</code>                                |
| <code>Dims.get_type()</code>  |
| <code>TensorFormat.HWC8</code>  |
| <code>TensorFormat.NCHW</code>  |
| <code>TensorFormat.NCHW2</code>   |
| Caffe Parser  |
| <code>class IPluginFactory</code>                                       |
| <code>class IPluginFactoryExt</code>                                    |
| <code>CaffeParser.plugin_factory</code>                                 |
| <code>CaffeParser.plugin_factory_ext</code>                             |
| UFF Parser  |
| <code>class IPluginFactory</code>                                       |
| <code>class IPluginFactoryExt</code>                                    |
| <code>UffParser.plugin_factory</code>                                   |
| <code>UffParser.plugin_factory_ext</code>                               |

## Deprecated

For our deprecation policy, refer to the [TensorRT Deprecation Policy](#) section in the *TensorRT Developer Guide*.

Table 10. Depreciated APIs

| Deprecated APIs                                      | Replaced with  |
|--|--|
| <code>nvinfer1::IResizeLayer::setAlignCorners</code> | <code>nvinfer1::IResizeLayer::setCoordinateTransformation</code> |
| <code>nvinfer1::IResizeLayer::getAlignCorners</code> | <code>nvinfer1::IResizeLayer::setSelectorForSinglePixel</code>   |
|  | <code>nvinfer1::IResizeLayer::setNearestRounding</code>          |

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# Chapter 2. C++ API

The NVIDIA® TensorRT™ C++ API allows developers to import, calibrate, generate and deploy networks using C++. Networks can be imported directly from ONNX. They may also be created programmatically by instantiating individual layers and setting parameters and weights directly.

Within the core C++ API in `NvInfer.h`, the following APIs are included:

- ▶ [Builder API](#)
- ▶ [Execution API](#)
- ▶ [Network Definition API](#)
- ▶ [ONNX Parser API](#)
- ▶ [Plugin API](#)

To view this API, see [TensorRT C++ API](#).

For more information about the C++ API, including sample code, see [NVIDIA TensorRT Developer Guide](#).

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## Chapter 3. Python API

The NVIDIA® TensorRT™ Python API enables developers in Python based development environments and those looking to experiment with TensorRT to easily parse models (for example, from ONNX) and generate and run PLAN files.

To view this API, see [TensorRT Python API](#).

For more information about the Python API, including sample code, see [TensorRT Developer Guide](#).

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