

# Package ‘onnx’

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**Type** Package

**Title** R Interface to 'ONNX'

**Version** 0.0.3

**Description** R Interface to 'ONNX' - Open Neural Network Exchange <<https://onnx.ai/>>. 'ONNX' provides an open source format for machine learning models. It defines an extensible computation graph model, as well as definitions of built-in operators and standard data types.

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**URL** <https://github.com/onnx/onnx-r>

**BugReports** <https://github.com/onnx/onnx-r/issues>

**Encoding** UTF-8

**Depends** R (>= 3.1)

**Imports** reticulate (>= 1.4)

**RoxygenNote** 7.0.2

**Suggests** testthat, knitr, rmarkdown

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

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check	<i>Check Whether The Proto is Valid</i>
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## Description

This method checks whether a protobuf in a particular type is valid.

## Usage

```
check(proto, ir_version)

## S3 method for class 'onnx_pb2.ModelProto'
check(proto, ir_version = 3L)

## S3 method for class 'onnx_pb2.GraphProto'
check(proto, ir_version = 3L)

## S3 method for class 'onnx_pb2.TensorProto'
check(proto, ir_version = 3L)

## S3 method for class 'onnx_pb2.AttributeProto'
check(proto, ir_version = 3L)

## S3 method for class 'onnx_pb2.NodeProto'
check(proto, ir_version = 3L)
```

## Arguments

proto	The proto
ir_version	The version of the proto

## Examples

```
## Not run:

library(onnx)

# Define a node protobuf and check whether it's valid
node_def <- make_node("Relu", list("X"), list("Y"))
check(node_def)

## End(Not run)
```

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load_from_file	<i>Loads a binary protobuf that stores onnx model</i>
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**Description**

Loads a binary protobuf that stores onnx model

**Usage**

load\_from\_file(obj)

**Arguments**

obj                    a file-like object (has "read" function) or a string containing a file name

**Value**

ONNX ModelProto object

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load_from_string	<i>Loads a binary string that stores onnx model</i>
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**Description**

Loads a binary string that stores onnx model

**Usage**

load\_from\_string(s)

**Arguments**

s                      string object containing protobuf

**Value**

ONNX ModelProto object

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make\_attribute      *Make Different Types of Protos*

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### Description

This includes AttributeProto, GraphProto, NodeProto, TensorProto, TensorValueInfoProto, etc.

### Usage

```
make_attribute(key, value, doc_string = NULL)
```

```
make_graph(nodes, name, inputs, outputs, initializer = NULL, doc_string = NULL)
```

```
make_node(op_type, inputs, outputs, name = NULL, doc_string = NULL)
```

```
make_tensor(name, data_type, dims, vals, raw = FALSE)
```

```
make_tensor_value_info(name, elem_type, shape, doc_string = "")
```

### Arguments

key	The key
value	The value
doc_string	The doc_string
nodes	The nodes
name	The name
inputs	The inputs
outputs	The outputs
initializer	The initializer
op_type	The op type
data_type	The data type
dims	The dimensions
vals	The values
raw	If this is FALSE, this function will choose the corresponding proto field to store the values based on data_type. If raw is TRUE, use "raw_data" proto field to store the values, and values should be of type bytes in this case.
elem_type	The element type, e.g. onnx\$TensorProto\$FLOAT
shape	The shape

## Examples

```
## Not run:

library(onnx)

# Define a node protobuf and check whether it's valid
node_def <- make_node("Relu", list("X"), list("Y"))
check(node_def)

# Define an attribute protobuf and check whether it's valid
attr_def <- make_attribute("this_is_an_int", 123L)
check(attr_def)

# Define a graph protobuf and check whether it's valid
graph_def <- make_graph(
  nodes = list(
    make_node("FC", list("X", "W1", "B1"), list("H1")),
    make_node("Relu", list("H1"), list("R1")),
    make_node("FC", list("R1", "W2", "B2"), list("Y"))
  ),
  name = "MLP",
  inputs = list(
    make_tensor_value_info('X' , onnx$TensorProto$FLOAT, list(1L)),
    make_tensor_value_info('W1', onnx$TensorProto$FLOAT, list(1L)),
    make_tensor_value_info('B1', onnx$TensorProto$FLOAT, list(1L)),
    make_tensor_value_info('W2', onnx$TensorProto$FLOAT, list(1L)),
    make_tensor_value_info('B2', onnx$TensorProto$FLOAT, list(1L))
  ),
  outputs = list(
    make_tensor_value_info('Y', onnx$TensorProto$FLOAT, list(1L))
  )
)
check(graph_def)

## End(Not run)
```

## Description

R Interface to ONNX

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`print_readable`*Print the Human-readable Representation of the Proto Object*

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**Description**

Print the Human-readable Representation of the Proto Object

**Usage**

```
print_readable(x)
```

**Arguments**

x                    The proto object

**Examples**

```
## Not run:
```

```
library(onnx)
```

```
graph_def <- make_graph(  
  nodes = list(  
    make_node("FC", list("X", "W1", "B1"), list("H1")),  
    make_node("Relu", list("H1"), list("R1")),  
    make_node("FC", list("R1", "W2", "B2"), list("Y"))  
  ),  
  name = "MLP",  
  inputs = list(  
    make_tensor_value_info('X' , onnx$TensorProto$FLOAT, list(1L)),  
    make_tensor_value_info('W1' , onnx$TensorProto$FLOAT, list(1L)),  
    make_tensor_value_info('B1' , onnx$TensorProto$FLOAT, list(1L)),  
    make_tensor_value_info('W2' , onnx$TensorProto$FLOAT, list(1L)),  
    make_tensor_value_info('B2' , onnx$TensorProto$FLOAT, list(1L))  
  ),  
  outputs = list(  
    make_tensor_value_info('Y' , onnx$TensorProto$FLOAT, list(1L))  
  )  
)  
print_readable(graph_def)
```

```
## End(Not run)
```

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