

## tf.contrib.learn.BaseEstimator

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Class **BaseEstimator**Inherits From: [Evaluable](#), [Trainable](#)Defined in [tensorflow/contrib/learn/python/learn/estimators/estimator.py](#).See the guide: [Learn \(contrib\) > Estimators](#)

Abstract BaseEstimator class to train and evaluate TensorFlow models.

Users should not instantiate or subclass this class. Instead, use an [Estimator](#).

## Properties

**config****model\_dir**

## Methods

**\_\_init\_\_**

```
__init__(  
    model_dir=None,  
    config=None  
)
```

Initializes a BaseEstimator instance.

Args:

- `model_dir`: Directory to save model parameters, graph and etc. This can also be used to load checkpoints from the directory into a estimator to continue training a previously saved model. If `None`, the model\_dir in `config` will be used if set. If both are set, they must be same.
- `config`: A RunConfig instance.

**evaluate**

```

evaluate(
    x=None,
    y=None,
    input_fn=None,
    feed_fn=None,
    batch_size=None,
    steps=None,
    metrics=None,
    name=None,
    checkpoint_path=None,
    hooks=None,
    log_progress=True
)

```

See **Evaluable** . (deprecated arguments)

SOME ARGUMENTS ARE DEPRECATED. They will be removed after 2016-12-01. Instructions for updating: Estimator is decoupled from Scikit Learn interface by moving into separate class SKCompat. Arguments x, y and batch\_size are only available in the SKCompat class, Estimator will only accept input\_fn. Example conversion: est = Estimator(...) -> est = SKCompat(Estimator(...))

Raises:

- **ValueError** : If at least one of **x** or **y** is provided, and at least one of **input\_fn** or **feed\_fn** is provided. Or if **metrics** is not **None** or **dict** .

## export

```

export(
    export_dir,
    input_fn=export._default_input_fn,
    input_feature_key=None,
    use_deprecated_input_fn=True,
    signature_fn=None,
    prediction_key=None,
    default_batch_size=1,
    exports_to_keep=None,
    checkpoint_path=None
)

```

Exports inference graph into given dir. (deprecated)

THIS FUNCTION IS DEPRECATED. It will be removed after 2017-03-25. Instructions for updating: Please use Estimator.export\_savedmodel() instead.

Args:

- **export\_dir** : A string containing a directory to write the exported graph and checkpoints.
- **input\_fn** : If **use\_deprecated\_input\_fn** is true, then a function that given **Tensor** of **Example** strings, parses it into features that are then passed to the model. Otherwise, a function that takes no argument and returns a tuple of (features, labels), where features is a dict of string key to **Tensor** and labels is a **Tensor** that's currently not used (and so can be **None** ).
- **input\_feature\_key** : Only used if **use\_deprecated\_input\_fn** is false. String key into the features dict returned by **input\_fn** that corresponds to a the raw **Example** strings **Tensor** that the exported model will take as input. Can only be **None** if you're using a custom **signature\_fn** that does not use the first arg (examples).
- **use\_deprecated\_input\_fn** : Determines the signature format of **input\_fn** .

- `signature_fn` : Function that returns a default signature and a named signature map, given `Tensor` of `Example` strings, `dict` of `Tensor` s for features and `Tensor` or `dict` of `Tensor` s for predictions.
- `prediction_key` : The key for a tensor in the `predictions` dict (output from the `model_fn`) to use as the `predictions` input to the `signature_fn`. Optional. If `None`, predictions will pass to `signature_fn` without filtering.
- `default_batch_size` : Default batch size of the `Example` placeholder.
- `exports_to_keep` : Number of exports to keep.
- `checkpoint_path` : the checkpoint path of the model to be exported. If it is `None` (which is default), will use the latest checkpoint in `export_dir`.

Returns:

The string path to the exported directory. NB: this functionality was added ca. 2016/09/25; clients that depend on the return value may need to handle the case where this function returns `None` because subclasses are not returning a value.

## fit

```
fit(
    x=None,
    y=None,
    input_fn=None,
    steps=None,
    batch_size=None,
    monitors=None,
    max_steps=None
)
```

See `Trainable`. (deprecated arguments)

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Raises:

- `ValueError` : If `x` or `y` are not `None` while `input_fn` is not `None`.
- `ValueError` : If both `steps` and `max_steps` are not `None`.

## get\_params

```
get_params(deep=True)
```

Get parameters for this estimator.

Args:

- `deep` : boolean, optional  
If `True`, will return the parameters for this estimator and contained subobjects that are estimators.

Returns:

- `params` : mapping of string to any Parameter names mapped to their values.

## **get\_variable\_names**

```
get_variable_names()
```

Returns list of all variable names in this model.

Returns:

List of names.

## **get\_variable\_value**

```
get_variable_value(name)
```

Returns value of the variable given by name.

Args:

- `name` : string, name of the tensor.

Returns:

Numpy array - value of the tensor.

## **partial\_fit**

```
partial_fit(  
    x=None,  
    y=None,  
    input_fn=None,  
    steps=1,  
    batch_size=None,  
    monitors=None  
)
```

Incremental fit on a batch of samples. (deprecated arguments)

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This method is expected to be called several times consecutively on different or the same chunks of the dataset. This either can implement iterative training or out-of-core/online training.

This is especially useful when the whole dataset is too big to fit in memory at the same time. Or when model is taking long time to converge, and you want to split up training into subparts.

Args:

- `x` : Matrix of shape [n\_samples, n\_features...]. Can be iterator that returns arrays of features. The training input

samples for fitting the model. If set, `input_fn` must be `None`.

- `y`: Vector or matrix [n\_samples] or [n\_samples, n\_outputs]. Can be iterator that returns array of labels. The training label values (class labels in classification, real numbers in regression). If set, `input_fn` must be `None`.
- `input_fn`: Input function. If set, `x`, `y`, and `batch_size` must be `None`.
- `steps`: Number of steps for which to train model. If `None`, train forever.
- `batch_size`: minibatch size to use on the input, defaults to first dimension of `x`. Must be `None` if `input_fn` is provided.
- `monitors`: List of `BaseMonitor` subclass instances. Used for callbacks inside the training loop.

Returns:

`self`, for chaining.

Raises:

- `ValueError`: If at least one of `x` and `y` is provided, and `input_fn` is provided.

## predict

```
predict(  
    x=None,  
    input_fn=None,  
    batch_size=None,  
    outputs=None,  
    as_iterable=True  
)
```

Returns predictions for given features. (deprecated arguments)

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Args:

- `x`: Matrix of shape [n\_samples, n\_features...]. Can be iterator that returns arrays of features. The training input samples for fitting the model. If set, `input_fn` must be `None`.
- `input_fn`: Input function. If set, `x` and 'batch\_size' must be `None`.
- `batch_size`: Override default batch size. If set, 'input\_fn' must be 'None'.
- `outputs`: list of `str`, name of the output to predict. If `None`, returns all.
- `as_iterable`: If True, return an iterable which keeps yielding predictions for each example until inputs are exhausted. Note: The inputs must terminate if you want the iterable to terminate (e.g. be sure to pass num\_epochs=1 if you are using something like read\_batch\_features).

Returns:

A numpy array of predicted classes or regression values if the constructor's `model_fn` returns a `Tensor` for `predictions` or a `dict` of numpy arrays if `model_fn` returns a `dict`. Returns an iterable of predictions if `as_iterable` is True.

Raises:

- `ValueError` : If `x` and `input_fn` are both provided or both `None` .

## set\_params

```
set_params(**params)
```

Set the parameters of this estimator.

The method works on simple estimators as well as on nested objects (such as pipelines). The former have parameters of the form `<component>__<parameter>` so that it's possible to update each component of a nested object.

Args:

- `**params` : Parameters.

Returns:

`self`

Raises:

- `ValueError` : If `params` contain invalid names.

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