

Appendix B. Type Utilities

TypeScript's type utilities come bundled into its standard library. [Table B-1](#) enumerates all of the available utilities at the time of writing.

See [es5.d.ts](#) for an up-to-date reference.

Table B-1. Type utilities

Type utility	Use it on	Description
ConstructorParameters	Class constructor types	A tuple of a class constructor's parameter types
Exclude	Union types	Exclude a type from another type
Extract	Union types	Select a subtype that's assignable to another type
InstanceType	Class constructor types	The instance type you get from <code>new</code> - ing a class constructor
NonNullable	Nullable types	Exclude <code>null</code> and <code>undefined</code> from a type
Parameters	Function types	A tuple of a function's parameter types
Partial	Object types	Make all properties in an object optional
Pick	Object types	A subtype of an object type, with a subset of its keys

Type utility	Use it on	Description
Readonly	Array, Object, and Tuple types	Make all properties in an object read-only, or make an array or tuple read-only
ReadonlyArray	Any type	Make an immutable array of the given type
Record	Object types	A map from a key type to a value type
Required	Object types	Make all properties in an object required
ReturnType	Function types	A function's return type