AsyncFunction

The **`Async Function` constructor** creates a new `async function` object. In JavaScript every asynchronous function is actually an `AsyncFunction` object.

Note that `AsyncFunction` is not a global object. It could be obtained by evaluating the following code.

```
Object.getPrototypeOf(async function(){}).constructor
```

Syntax

```
new AsyncFunction([arg1[, arg2[, ...argN]],] functionBody)
```

Parameters

`arg1, arg2, ... argN`
Names to be used by the function as formal argument names. Each must be a string that corresponds to a valid JavaScript identifier or a list of such strings separated with a comma; for example "`x`", "`theValue`", or "`a,b`".

`functionBody`
A string containing the JavaScript statements comprising the function definition.

Description

`async function` objects created with the `AsyncFunction` constructor are parsed when the function is created. This is less efficient than declaring an async function with an `async function expression` and calling it within your code, because such functions are parsed with the rest of the code.

All arguments passed to the function are treated as the names of the identifiers of the parameters in the function to be created, in the order in which they are passed.

> **Note:** `async functions` created with the `AsyncFunction` constructor do not create closures to their creation contexts; they are always created in the global scope. When running them, they will only be able to access their own local variables and global ones, not the ones from the scope in which the `AsyncFunction` constructor was called. This is different from using `eval` with code for a async function expression.

Invoking the `AsyncFunction` constructor as a function (without using the `new` operator) has the same effect as invoking it as a constructor.

Properties

`AsyncFunction.length`
The `AsyncFunction` constructor's length property whose value is 1.

`AsyncFunction.prototype`
Allows the addition of properties to all async function objects.

`AsyncFunction` prototype object

Properties

`AsyncFunction.constructor`
The initial value is `AsyncFunction`.

`AsyncFunction.prototype[@@toStringTag]`
Returns "AsyncFunction".

`AsyncFunction` instances

`AsyncFunction` instances inherit methods and properties from `AsyncFunction.prototype`. As with all constructors, you can change the constructor's prototype object to make changes to all `AsyncFunction` instances.

Examples

Creating an async function from an `AsyncFunction` constructor

```
function resolveAfter2Seconds(x) {
  return new Promise(resolve => {
    setTimeout(() => {
      resolve(x);
```

```
    }, 2000);
  });
}

var AsyncFunction = Object.getPrototypeOf(async function(){}).constructor

var a = new AsyncFunction('a',
                          'b',
                          'return await resolveAfter2Seconds(a) + await re

a(10, 20).then(v => {
  console.log(v); // prints 30 after 4 seconds
});
```

Specifications

Specification	Status	Comment
ECMAScript Latest Draft (ECMA-262) The definition of 'AsyncFunction object' in that specification.	LS Living Standard	Initial definition in ES2017.

Browser compatibility

Desktop Mobile

Feature	Chrome	Edge	Firefox	Internet Explorer	Opera	Safari
Basic Support	55	?	52	No	42	?
`prototype`	55	?	52	No	42	?

See also

- `async function function`
- `async function expression`
- `Function`
- `function statement`
- `function expression`
- Functions and function scope