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## Function

# vDSP\_vgen

Generates a single-precision vector that contains monotonically incrementing or decrementing values within a range.

iOS 4.0+ | iPadOS 4.0+ | Mac Catalyst 13.1+ | macOS 10.4+ | tvOS | visionOS 1.0+ | watchOS 2.0+

```
extern void vDSP_vgen(const float * __A, const float * __B, float * __C, vDSP_Stride __IC, vDSP_Length __N);
```

## Parameters

**\_\_A**

The start value of the ramp.

**\_\_B**

The end value of the ramp.

**\_\_C**

The output vector.

**\_\_IC**

The distance between the elements in the output vector.

**\_\_N**

The number of elements that the function processes.

## Mentioned in

 Using linear interpolation to construct new data points

# Discussion

Use this function to generate and return a vector populated with ramped values.

The following code generates a ramped vector with values in the range 0 ... 7:

```
let n = 8
let stride = 1

var start: Float = 0
var end: Float = 7

let ramp = [Float](unsafeUninitializedCapacity: n) {
    buffer, initializedCount in

        vDSP_vgen(&start,
                  &end,
                  buffer.baseAddress!,
                  stride,
                  vDSP_Length(n))

        initializedCount = n
}

// Prints "[0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0]".
print(ramp)
```

## See Also

### Vector generation with ramps using a range

#### vDSP\_vgenD

Generates a double-precision vector that contains monotonically incrementing or decrementing values within a range.