

# **1 APR::Brigade - Perl API for manipulating APR Bucket Brigades**

## 1.1 Synopsis

```
use APR::Brigade ();

$bb = APR::Brigade->new($r->pool, $c->bucket_alloc);
$ba = $bb->bucket_alloc();
$pool = $bb->pool;

$bb->insert_head($b);
$bb->insert_tail($b);

$b_first = $bb->first;
$b_last  = $bb->last;

$b_prev = $bb->prev($b_last);
$b_next = $bb->next($b);

$bb2 = APR::Brigade->new($r->pool, $c->bucket_alloc);
$bb1->concat($bb2);

$len = $bb->flatten($data);
$len = $bb2->flatten($data, $wanted);

$len = $bb->length;
$bb3 = $bb->split($b_last);

last if $bb->is_empty();
$bb->cleanup();
$bb->destroy();
```

## 1.2 Description

APR::Brigade allows you to create, manipulate and delete APR bucket brigades.

## 1.3 API

APR::Brigade provides the following functions and/or methods:

### 1.3.1 *cleanup*

Empty out an entire bucket brigade:

```
$bb->cleanup;
```

- **obj:** `$bb` (APR::Brigade object)

The brigade to cleanup

- **ret:** no return value
- **since:** 2.0.00

This method destroys all of the buckets within the bucket brigade's bucket list. This is similar to `destroy()`, except that it does not deregister the brigade's `pool()` cleanup function.

Generally, you should use `destroy()`. This function can be useful in situations where you have a single brigade that you wish to reuse many times by destroying all of the buckets in the brigade and putting new buckets into it later.

### 1.3.2 *concat*

Concatenate brigade `$bb2` onto the end of brigade `$bb1`, leaving brigade `$bb2` empty:

```
$bb1->concat($bb2);
```

- **obj:** `$bb1` ( **APR::Brigade object** )

The brigade to concatenate to.

- **arg1:** `$bb2` ( **APR::Brigade object** )

The brigade to concatenate and empty afterwards.

- **ret:** no return value
- **since:** 2.0.00

### 1.3.3 *destroy*

destroy an entire bucket brigade, includes all of the buckets within the bucket brigade's bucket list.

```
$bb->destroy();
```

- **obj:** `$bb` ( **APR::Brigade object** )

The bucket brigade to destroy.

- **ret:** no return value
- **excpt:** **APR::Error**
- **since:** 2.0.00

### 1.3.4 *is\_empty*

Test whether the bucket brigade is empty

```
$ret = $bb->is_empty();
```

- **obj:** `$bb` ( **APR::Brigade object** )
- **ret:** `$ret` ( **boolean** )
- **since:** 2.0.00

## 1.3.5 *first*

Return the first bucket in a brigade

```
$b_first = $bb->first;
```

- **obj:** `$bb` ( `APR::Brigade` object )
- **ret:** `$b_first` ( `APR::Bucket` object )

The first bucket in the bucket brigade `$bb`.

`undef` is returned if there are no buckets in `$bb`.

- **since:** 2.0.00

## 1.3.6 *flatten*

Get the data from buckets in the bucket brigade as one string

```
$len = $bb->flatten($buffer);  
$len = $bb->flatten($buffer, $wanted);
```

- **obj:** `$bb` ( `APR::Brigade` object )
- **arg1:** `$buffer` ( `SCALAR` )

The buffer to fill. All previous data will be lost.

- **opt arg2:** `$wanted` ( `number` )

If no argument is passed then all data will be returned. If `$wanted` is specified -- that number or less bytes will be returned.

- **ret:** `$len` ( `number` )

How many bytes were actually read.

`$buffer` gets populated with the string that is read. It will contain an empty string if there was nothing to read.

- **since:** 2.0.00
- **excpt:** `APR::Error`

## 1.3.7 *insert\_head*

Insert a list of buckets at the front of a brigade

```
$bb->insert_head($b);
```

- **obj: \$bb (APR::Brigade object)**

Brigade to insert into

- **arg1: \$b (APR::Bucket object)**

the bucket to insert. More buckets could be attached to that bucket.

- **ret: no return value**
- **since: 2.0.00**

### *1.3.8 insert\_tail*

Insert a list of buckets at the end of a brigade

```
$bb->insert_tail($b);
```

- **obj: \$bb (APR::Brigade object)**

Brigade to insert into

- **arg1: \$b (APR::Bucket object)**

the bucket to insert. More buckets could be attached to that bucket.

- **ret: no return value**
- **since: 2.0.00**

### *1.3.9 last*

Return the last bucket in the brigade

```
$b_last = $bb->last;
```

- **obj: \$bb (APR::Brigade object)**
- **ret: \$b\_last (APR::Bucket object)**

The last bucket in the bucket brigade \$bb.

undef is returned if there are no buckets in \$bb.

- **since: 2.0.00**

### 1.3.10 *length*

Return the total length of the data in the brigade (not the number of buckets)

```
$len = $bb->length;
```

- **obj:** `$bb` (`APR::Brigade` object)
- **ret:** `$len` (number)
- **since:** 2.0.00

### 1.3.11 *new*

```
my $nbb = APR::Brigade->new($p, $bucket_alloc);
my $nbb = $bb->new($p, $bucket_alloc);
```

- **obj:** `$bb` (`APR::Brigade` object or class)
- **arg1:** `$p` (`APR::Pool` object)
- **arg2:** `$bucket_alloc` (`APR::BucketAlloc` object)
- **ret:** `$nbb` (`APR::Brigade` object)

a newly created bucket brigade object

- **since:** 2.0.00

Example:

Create a new bucket brigade, using the request object's pool:

```
use Apache2::Connection ();
use Apache2::RequestRec ();
use APR::Brigade ();
my $bb = APR::Brigade->new($r->pool, $r->connection->bucket_alloc);
```

### 1.3.12 *bucket\_alloc*

Get the bucket allocator associated with this brigade.

```
my $ba = $bb->bucket_alloc();
```

- **obj:** `$bb` (`APR::Brigade` object or class)
- **ret:** `$ba` (`APR::BucketAlloc` object)
- **since:** 2.0.00

### 1.3.13 *next*

Return the next bucket in a brigade

```
$b_next = $bb->next($b);
```

- **obj:** `$bb` ( **APR::Brigade object** )
- **arg1:** `$b` ( **APR::Bucket object** )

The bucket after which the next bucket `$b_next` is located

- **ret:** `$b_next` ( **APR::Bucket object** )

The next bucket after bucket `$b`.

`undef` is returned if there is no next bucket (i.e. `$b` is the last bucket).

- **since:** 2.0.00

### 1.3.14 *pool*

The pool the brigade is associated with.

```
$pool = $bb->pool;
```

- **obj:** `$bb` ( **APR::Brigade object** )
- **ret:** `$pool` ( **APR::Pool object** )
- **since:** 2.0.00

The data is not allocated out of the pool, but a cleanup is registered with this pool. If the brigade is destroyed by some mechanism other than pool destruction, the destroying function is responsible for killing the registered cleanup.

### 1.3.15 *prev*

Return the previous bucket in the brigade

```
$b_prev = $bb->prev($b);
```

- **obj:** `$bb` ( **APR::Brigade object** )
- **arg1:** `$b` ( **APR::Bucket object** )

The bucket located after bucket `$b_prev`

- **ret:** `$b_prev` ( **APR::Bucket object** )

The bucket located before bucket `$b`.

`undef` is returned if there is no previous bucket (i.e. `$b` is the first bucket).

- **since:** 2.0.00

### 1.3.16 *split*

Split a bucket brigade into two, such that the given bucket is the first in the new bucket brigade.

```
$bb2 = $bb->split($b);
```

- **obj: \$bb** ( **APR::Brigade object** )

The brigade to split

- **arg1: \$b** ( **APR::Bucket object** )

The first bucket of the new brigade

- **ret: \$bb2** ( **APR::Brigade object** )

The new brigade.

- **since: 2.0.00**

This function is useful when a filter wants to pass only the initial part of a brigade to the next filter.

Example:

Create a bucket brigade with three buckets, and split it into two brigade such that the second brigade will have the last two buckets.

```
my $bb1 = APR::Brigade->new($r->pool, $c->bucket_alloc);
my $ba = $c->bucket_alloc();
$bb1->insert_tail(APR::Bucket->new($ba, "1"));
$bb1->insert_tail(APR::Bucket->new($ba, "2"));
$bb1->insert_tail(APR::Bucket->new($ba, "3"));
```

\$bb1 now contains buckets "1", "2", "3". Now do the split at the second bucket:

```
my $b = $bb1->first; # 1
$b = $bb1->next($b); # 2
my $bb2 = $bb1->split($b);
```

Now \$bb1 contains bucket "1". \$bb2 contains buckets: "2", "3"

## 1.4 See Also

mod\_perl 2.0 documentation.

## **1.5 Copyright**

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## **1.6 Authors**

The mod\_perl development team and numerous contributors.



## Table of Contents:

1	APR::Brigade - Perl API for manipulating APR Bucket Brigades	1
1.1	Synopsis	2
1.2	Description	2
1.3	API	2
1.3.1	cleanup	2
1.3.2	concat	3
1.3.3	destroy	3
1.3.4	is_empty	3
1.3.5	first	4
1.3.6	flatten	4
1.3.7	insert_head	4
1.3.8	insert_tail	5
1.3.9	last	5
1.3.10	length	6
1.3.11	new	6
1.3.12	bucket_alloc	6
1.3.13	next	6
1.3.14	pool	7
1.3.15	prev	7
1.3.16	split	8
1.4	See Also	8
1.5	Copyright	9
1.6	Authors	9