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```

```
#ifdef __cplusplus
extern "C" {
#endif

#ifdef _WIN32
# define WIN32_LEAN_AND_MEAN
# include <windows.h>
# undef WIN32_LEAN_AND_MEAN
typedef unsigned char u_char;
typedef unsigned short u_short;
#else
# include <sys/types.h>
# include <sys/time.h>
# include <inttypes.h>
#endif

#include <stdarg.h>

/* Fix so that ppl dont have to run with <sys/queue.h> */
#ifndef TAILQ_ENTRY
#define _EVENT_DEFINED_TQENTRY
#define TAILQ_ENTRY(type)     \
struct {       \
 struct type *tqe_next; /* next element */  \
 struct type **tqe_prev; /* address of previous next element */ \
}
#endif /* !TAILQ_ENTRY */
#ifndef RB_ENTRY
#define _EVENT_DEFINED_RBENTRY
#define RB_ENTRY(type)      \
struct {       \
 struct type *rbe_left;  /* left element */ \
 struct type *rbe_right;  /* right element */ \
 struct type *rbe_parent; /* parent element */ \
 int rbe_color;   /* node color */ \
}
#endif /* !RB_ENTRY */

/*
* Key-Value pairs.  Can be used for HTTP headers but also for
* query argument parsing.
```

```
*/
struct evkeyval {
 TAILQ_ENTRY(evkeyval) next;

 char *key;
 char *value;
};

#ifdef _EVENT_DEFINED_TQENTRY
#undef TAILQ_ENTRY
struct event_list;
struct evkeyvalq;
#undef _EVENT_DEFINED_TQENTRY
#else
TAILQ_HEAD (event_list, event);
TAILQ_HEAD (evkeyvalq, evkeyval);
#endif /* _EVENT_DEFINED_TQENTRY */
#ifdef _EVENT_DEFINED_RBENTRY
#undef RB_ENTRY
#undef _EVENT_DEFINED_RBENTRY
#endif /* _EVENT_DEFINED_RBENTRY */

struct eventop {
 char *name;
 void *(*init)(struct event_base *);
 int (*add)(void *, struct event *);
 int (*del)(void *, struct event *);
 int (*recalc)(struct event_base *, void *, int);
 int (*dispatch)(struct event_base *, void *, struct timeval *);
 void (*dealloc)(struct event_base *, void *);
};

/* These functions deal with buffering input and output */

struct evbuffer {
 u_char *buffer;
 u_char *orig_buffer;

 size_t misalign;
 size_t totallen;
 size_t off;

 void (*cb)(struct evbuffer *, size_t, size_t, void *);
 void *cbarg;
};

/* Just for error reporting - use other constants otherwise */
#define EVBUFFER_READ  0x01
```

```
#define EVBUFFER_WRITE  0x02
#define EVBUFFER_EOF  0x10
#define EVBUFFER_ERROR  0x20
#define EVBUFFER_TIMEOUT 0x40

struct bufferevent;
typedef void (*evbuffercb)(struct bufferevent *, void *);
typedef void (*everrorcb)(struct bufferevent *, short what, void *);

struct event_watermark {
 size_t low;
 size_t high;
};

struct bufferevent {
 struct event ev_read;
 struct event ev_write;

 struct evbuffer *input;
 struct evbuffer *output;

 struct event_watermark wm_read;
 struct event_watermark wm_write;

 evbuffercb readcb;
 evbuffercb writecb;
 everrorcb errorcb;
 void *cbarg;

 int timeout_read; /* in seconds */
 int timeout_write; /* in seconds */

 short enabled; /* events that are currently enabled */
};

struct bufferevent *bufferevent_new(int fd,
   evbuffercb readcb, evbuffercb writecb, everrorcb errorcb, void *cbarg);
int bufferevent_base_set(struct event_base *base, struct bufferevent *bufev);
int bufferevent_priority_set(struct bufferevent *bufev, int pri);
void bufferevent_free(struct bufferevent *bufev);
int bufferevent_write(struct bufferevent *bufev, const void *data, size_t size);
int bufferevent_write_buffer(struct bufferevent *bufev, struct evbuffer *buf);
size_t bufferevent_read(struct bufferevent *bufev, void *data, size_t size);
int bufferevent_enable(struct bufferevent *bufev, short event);
int bufferevent_disable(struct bufferevent *bufev, short event);
void bufferevent_settimeout(struct bufferevent *bufev,
   int timeout_read, int timeout_write);
```

```c
#define EVBUFFER_LENGTH(x) (x)->off
#define EVBUFFER_DATA(x) (x)->buffer
#define EVBUFFER_INPUT(x) (x)->input
#define EVBUFFER_OUTPUT(x) (x)->output

struct evbuffer *evbuffer_new(void);
void evbuffer_free(struct evbuffer *);
int evbuffer_expand(struct evbuffer *, size_t);
int evbuffer_add(struct evbuffer *, const void *, size_t);
int evbuffer_remove(struct evbuffer *, void *, size_t);
char *evbuffer_readline(struct evbuffer *);
int evbuffer_add_buffer(struct evbuffer *, struct evbuffer *);
int evbuffer_add_printf(struct evbuffer *, const char *fmt, ...);
int evbuffer_add_vprintf(struct evbuffer *, const char *fmt, va_list ap);
void evbuffer_drain(struct evbuffer *, size_t);
int evbuffer_write(struct evbuffer *, int);
int evbuffer_read(struct evbuffer *, int, int);
u_char *evbuffer_find(struct evbuffer *, const u_char *, size_t);
void evbuffer_setcb(struct evbuffer *, void (*)(struct evbuffer *, size_t, size_t, void *), void *);

/*
 * Marshaling tagged data - We assume that all tags are inserted in their
 * numeric order - so that unknown tags will always be higher than the
 * known ones - and we can just ignore the end of an event buffer.
 */

void evtag_init(void);

void evtag_marshal(struct evbuffer *evbuf, uint32_t tag, const void *data,
    uint32_t len);

void encode_int(struct evbuffer *evbuf, uint32_t number);

void evtag_marshal_int(struct evbuffer *evbuf, uint32_t tag, uint32_t integer);

void evtag_marshal_string(struct evbuffer *buf, uint32_t tag,
    const char *string);

void evtag_marshal_timeval(struct evbuffer *evbuf, uint32_t tag,
    struct timeval *tv);

int evtag_unmarshal(struct evbuffer *src, uint32_t *ptag, struct evbuffer *dst);
int evtag_peek(struct evbuffer *evbuf, uint32_t *ptag);
int evtag_peek_length(struct evbuffer *evbuf, uint32_t *plength);
int evtag_payload_length(struct evbuffer *evbuf, uint32_t *plength);
int evtag_consume(struct evbuffer *evbuf);

int evtag_unmarshal_int(struct evbuffer *evbuf, uint32_t need_tag,
```

```
    uint32_t *pinteger);

int evtag_unmarshal_fixed(struct evbuffer *src, uint32_t need_tag, void *data,
    size_t len);

int evtag_unmarshal_string(struct evbuffer *evbuf, uint32_t need_tag,
    char **pstring);

int evtag_unmarshal_timeval(struct evbuffer *evbuf, uint32_t need_tag,
    struct timeval *ptv);

#ifdef __cplusplus
}
#endif
```

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