

NAME

EC_GFp_simple_method, EC_GFp_mont_method, EC_GFp_nist_method,
 EC_GFp_nistp224_method, EC_GFp_nistp256_method, EC_GFp_nistp521_method,
 EC_GF2m_simple_method, EC_METHOD_get_field_type - Functions for obtaining EC_METHOD
 objects

SYNOPSIS

```
#include <openssl/ec.h>
```

The following functions have been deprecated since OpenSSL 3.0, and can be hidden entirely by defining **OPENSSL_API_COMPAT** with a suitable version value, see **openssl_user_macros(7)**:

```
const EC_METHOD *EC_GFp_simple_method(void);
const EC_METHOD *EC_GFp_mont_method(void);
const EC_METHOD *EC_GFp_nist_method(void);
const EC_METHOD *EC_GFp_nistp224_method(void);
const EC_METHOD *EC_GFp_nistp256_method(void);
const EC_METHOD *EC_GFp_nistp521_method(void);

const EC_METHOD *EC_GF2m_simple_method(void);

int EC_METHOD_get_field_type(const EC_METHOD *meth);
```

DESCRIPTION

All const EC_METHOD *EC_GF* functions were deprecated in OpenSSL 3.0, since EC_METHOD is no longer a public concept.

The Elliptic Curve library provides a number of different implementations through a single common interface. When constructing a curve using EC_GROUP_new (see **EC_GROUP_new(3)**) an implementation method must be provided. The functions described here all return a const pointer to an **EC_METHOD** structure that can be passed to EC_GROUP_NEW. It is important that the correct implementation type for the form of curve selected is used.

For F_2^m curves there is only one implementation choice, i.e. EC_GF2_simple_method.

For Fp curves the lowest common denominator implementation is the EC_GFp_simple_method implementation. All other implementations are based on this one. EC_GFp_mont_method builds on EC_GFp_simple_method but adds the use of montgomery multiplication (see **BN_mod_mul_montgomery(3)**). EC_GFp_nist_method offers an implementation optimised for use with NIST recommended curves (NIST curves are available through

`EC_GROUP_new_by_curve_name` as described in `EC_GROUP_new(3)`.

The functions `EC_GFp_nistp224_method`, `EC_GFp_nistp256_method` and `EC_GFp_nistp521_method` offer 64 bit optimised implementations for the NIST P224, P256 and P521 curves respectively. Note, however, that these implementations are not available on all platforms.

`EC_METHOD_get_field_type()` was deprecated in OpenSSL 3.0. Applications should use `EC_GROUP_get_field_type()` as a replacement (see `EC_GROUP_copy(3)`).

RETURN VALUES

All `EC_GFp*` functions and `EC_GF2m_simple_method` always return a const pointer to an `EC_METHOD` structure.

`EC_METHOD_get_field_type` returns an integer that identifies the type of field the `EC_METHOD` structure supports.

SEE ALSO

`crypto(7)`, `EC_GROUP_new(3)`, `EC_GROUP_copy(3)`, `EC_POINT_new(3)`, `EC_POINT_add(3)`, `EC_KEY_new(3)`, `d2i_ECParameters(3)`, `BN_mod_mul_montgomery(3)`

HISTORY

`EC_GFp_simple_method()`, `EC_GFp_mont_method(void)`, `EC_GFp_nist_method()`, `EC_GFp_nistp224_method()`, `EC_GFp_nistp256_method()`, `EC_GFp_nistp521_method()`, `EC_GF2m_simple_method()`, and `EC_METHOD_get_field_type()` were deprecated in OpenSSL 3.0.

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