NAME

EVP_PKEY-DSA, EVP_KEYMGMT-DSA - EVP_PKEY DSA keytype and algorithm support

DESCRIPTION

For **DSA** the FIPS186–4 standard specifies that the values used for FFC parameter generation are also required for parameter validation. This means that optional FFC domain parameter values for *seed*, *pcounter* and *gindex* may need to be stored for validation purposes. For **DSA** these fields are not stored in the ASN1 data so they need to be stored externally if validation is required.

DSA parameters

The **DSA** key type supports the FFC parameters (see "FFC parameters" in **EVP_PKEY-FFC** (7)).

DSA key generation parameters

The **DSA** key type supports the FFC key generation parameters (see "FFC key generation parameters" in **EVP_PKEY-FFC**(7)

The following restrictions apply to the "pbits" field:

For "fips186_4" this must be either 2048 or 3072. For "fips186_2" this must be 1024. For "group" this can be any one of 2048, 3072, 4096, 6144 or 8192.

EXAMPLES

An EVP_PKEY context can be obtained by calling:

```
EVP_PKEY_CTX *pctx = EVP_PKEY_CTX_new_from_name(NULL, "DSA", NULL);
```

The **DSA** domain parameters can be generated by calling:

```
unsigned int pbits = 2048;
unsigned int qbits = 256;
int gindex = 1;
OSSL_PARAM params[5];
EVP PKEY *param key = NULL;
EVP PKEY CTX *pctx = NULL;
pctx = EVP_PKEY_CTX_new_from_name(NULL, "DSA", NULL);
EVP_PKEY_paramgen_init(pctx);
params[0] = OSSL_PARAM_construct_uint("pbits", &pbits);
params[1] = OSSL_PARAM_construct_uint("qbits", &qbits);
params[2] = OSSL_PARAM_construct_int("gindex", &gindex);
params[3] = OSSL_PARAM_construct_utf8_string("digest", "SHA384", 0);
params[4] = OSSL_PARAM_construct_end();
EVP_PKEY_CTX_set_params(pctx, params);
EVP_PKEY_generate(pctx, &param_key);
EVP_PKEY_CTX_free(pctx);
EVP_PKEY_print_params(bio_out, param_key, 0, NULL);
```

A **DSA** key can be generated using domain parameters by calling:

```
EVP_PKEY *key = NULL;

EVP_PKEY_CTX *gctx = NULL;

gctx = EVP_PKEY_CTX_new_from_pkey(NULL, param_key, NULL);

EVP_PKEY_keygen_init(gctx);

EVP_PKEY_generate(gctx, &key);

EVP_PKEY_CTX_free(gctx);

EVP_PKEY_print_private(bio_out, key, 0, NULL);
```

CONFORMING TO

The following sections of FIPS 186-4:

- A.1.1.2 Generation of Probable Primes p and q Using an Approved Hash Function.
- A.2.3 Generation of canonical generator g.
- A.2.1 Unverifiable Generation of the Generator g.

SEE ALSO

EVP_PKEY-FFC(7), EVP_SIGNATURE-DSA (7) provider-keymgmt(7), $EVP_PKEY(3)$, $\textbf{EVP_KEYMGMT} (3), \textbf{OSSL_PROVIDER-default} (7), \textbf{OSSL_PROVIDER-FIPS} (7)$

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