



Crosskey Banking Solutions
PKI File Transfer Technical Description for software supplier
Version 2.3.3, June 2021



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1 Revision list

Most recent change	Changed by	What was changed
30.11.2018	Mikael Andersson	Verified document information and version. Updated file type codes.
2.6.2021	Mikael K Andersson	Updated with new file type code (0860)

2 Introduction

This specification should be seen as an addition to the following documents from the bank association:

“Security and Message Specification For Financial Messages Using Web Services”.

BankCorporateFileService_20080616.wsdl

ApplicationRequest_20080918.xsd

ApplicationResponse_20080918.xsd

They can be found through searching for WebServices on www.fkl.fi

The services from the specification implemented in step one are UploadFile, DownloadFileList, DownloadFile and GetUserInfo.

Enrolling for the service is done in 2 steps. Step one takes place at the bank-office and step 2 takes place when the customer is back at the company office and subscribes through his Corporate bank software. When the customer has typed in necessary information into the bank-connection program, the software does a web-service call to the bank and the service getCertificate. A central piece of the information needed here is the Transfer key and this is delivered to the customer in 2 parts.

3 Description service by service

3.1 GetCertificate

The service is described in CKCertService.wsdl, CertApplicationRequest.xsd, CertApplicationResponse.xsd.

The three most important inparameters here is the public key, customerId and transferkey. The public key and customerId are both part of the PKCS10-package. The customerId should be in CNstring as this:

CN=[CustomerId up to 10 digits, no leading zeros]

The transfer key comes in CertApplicationRequest. Transfer key is 16 digits. The algorithm used here to create a verification digit is Luhn:

http://en.wikipedia.org/wiki/Luhn_algorithm

The last digit is the checksum digit.



In production the field Environment has to be PRODUCTION otherwise the request will be rejected.

CertApplicationRequest and SOAP don't need to be signed on the registration-call.

3.1.1 Certificate renewal

On certificate renewal, a signed CertApplicationRequest is used and the Transfer key should be empty. The Certificate used in the signature is the certificate that is expiring and this only works during the renewal period. Once the certificate is expired new shared secrets have to be requested from the bank. The renewal period is:

- 60 days in test, where the total validity time is 61 days, meaning that it is almost the whole period.
- In production the renewal period is 3 months before the certificate has expired. Meaning that if the validity time is 2 years, then the certificate can be renewed between 21 months and 24 months after it has been received. New private key and csr should be generated in the renewal scenario and not only a new request with the old csr, thus you can also call this renewal rekeying.

3.1.2 Keys and algorithms.

Private key should be a RSA key, 2048 bytes long. Material should be signed using SHA1. Certificate request should be in PEM form and then binary64-encoded into the Certificate Applicationrequest. This means that if you have the key in DER-form it should be binary64-encoded once, placed in between "-----BEGIN CERTIFICATE-----" and "-----END CERTIFICATE-----", then binary-64 encoded again and the bin64-string then placed in content.

3.1.3 Certificate revocation list

When certificates are revoked, their serial numbers are placed in the CRL-list which then is published on the following LDAP-URL:s

Ålandsbanken test CA

[1]CRL Distribution Point

URL=ldap://tyrni.cover.sonera.net:389/cn=Ålandsbanken%20Test%20CA,o=Ålandsbanken?certificate revocationlist;binary

Ålandsbanken production CA

[1]CRL Distribution Point

URL=ldap://crl-

1.trust.teliasonera.com/cn=Ålandsbanken%20CA,o=Ålandsbanken?certificaterevocationlist;binary

[2]CRL Distribution Point

URL=ldap://crl.Ålandsbanken.fi/cn=Ålandsbanken%20CA,o=AAB,c=fi?certificaterevocationlist;binary

S-Pankki test CA

[1]CRL Distribution Point



URL=<http://crl-3.trust.teliasonera.com/s-pankkitestca.crl>

[2]CRL Distribution Point

URL=<ldap://tyrni.cover.sonera.net:389/cn=S-Pankki%20Test%20CA,o=SPankki,c=FI?certificaterevocationlist;binary>

S-Pankki production CA

Verification of that a certificate isn't on the CRL is preferably done each time a signature is verified, meaning that on client side this should be done when they verify the validity of the banks response messages.

3.2 UploadFile

The materials are sent one by one through UploadFile.

We prefer if the content in applicationrequest is compressed, in particular for large files.

The compression method should be GZIP and compression of content should be made before base64encoding of content. In the ApplicationRequest, compression should be set to true when compression is used.

We do not support encryption of the Applicationrequest content, so Applicationrequest encryption should be set to false.

3.3 DownloadFileList

This service is used to retrieve a list of files in the bank. Fetched materials can be fetched again through specifying status DLD or ALL. With status DLD (downloaded) fetched materials will be listed. With status ALL, all materials regardless of status will be listed.

3.4 DownloadFile

The materials are fetched one by one through DownloadFile. This means that we only support one file reference in one request. The unique file reference fetched through DownloadFileList has to be specified in the field FileReference. For realtimebalances (0710) and transactions (0711) please see chapter 4.



GetUserInfo

This service will retrieve the file types the user has access to.

4 Realtimebalances and transactions(0710 and 0711)

Real time balances and transactions can be downloaded through a call to DownloadFile directly, without first calling DownloadFileList. Instead of the unique file id as file reference, you specify the account number in the FileReference-field as shown below:

```
<FileType>(fileType: 0710 or 0711)</FileType>
<FileReferences>
  <FileReference>FI5366010005634415</FileReference>
  <FileReference>FI5366010005634416</FileReference>
</FileReferences>
```

Multiple accounts per request are supported. Each account-number in the request/s must be in IBAN-format. A file will be generated on-the-fly and returned in content of applicationresponse as usual on DownloadFile.

The maximum number of accounts per request is 50, if the request contains more than 50 accounts the request will be denied.

5 Response codes

Code	Name	Remarks
00	Ok	Everything went as it should
02	SOAP signature error	Soap-level signature verification failed
07	Contract not valid	Certificate has expired, is faulty or other reason that fails authentication and authorization.
12	Schema validation failed	To large file, SOAP envelope or body validation error, Schema validation error
25	Content not allowed	Content not allowed, Invalid business id
26	Technical error	Examples: Backend query failed, result was null or empty when a value was expected.
29	Invalid parameters	If request parameters were null or empty.

6 File type codes

The application codes currently used with PATU will not change when switching to PKI. In the list below the file type codes available with PKI are displayed.

Ålandsbanken

Code	Name**	Explanation
0100	SCCT	CustomerCreditTransferInitiation
0130	SPSR	CustomerPaymentStatusReport



0200	FAKT	Bill payment
0230	FAKS	Bill payment - return answer
0250	REFG	Incoming reference payments
0391	VALK	Currency
0410	SKÅT	IBAN control & conversion*
0420	SKÅR	IBAN control & conversion return*
0500	KRED	Credit card - Download*
0505	KREE	Credit card - Download EMV*
0510	CLTE	Cardline - Sending EMV*
0511	CARD	Cardline - Sending*
0520	CLRE	Cardline - Return EMV*
0521	CRDR	Cardline - Return*
0540	SBAS	Block card list: Base*
0541	SDA0	Block card list: Day 0*
0542	SDA1	Block card list: Day 0-1*
0543	SDA2	Block card list: Day 0-2*
0544	SDA3	Block card list: Day 0-3*
0561	AID1	AID1 to customer*
0562	AID2	AID2 to customer*
0563	AID3	AID3 to customer*
0564	AID4	AID4 to customer*
0571	BINU	BIN to customer*
0573	KEYU	Keys to customer*
0700	KTOF	Account statement
0702	KNCT	Group statement + transactions
0710	SALD	Balances
0711	TRAN	Balances + transactions
0750	SWKF	Foreign account statements
0800	EFAK	E-invoice sending
0810	EFAS	E-invoice return answer
0820	EFAH	E-invoce fetching
0830	ESAN	Sender Info
0840	EMOT	Receiver info
0850	EFRP	Receiver proposal
0860	EFOS	E-invoice return for operator
1250	REFX	Reference transactions XML
1700	KTOX	Account statement XML
1702	KNCX	Group statement + transactions XML
1710	SALX	Balances XML
1711	TRAX	Balances + transactions XML
2100	MYIN	Authority requests
2105	MYUT	Authority requests – return material

* = Not in use for corporate customers in Ålandsbanken.

**= Name for internal use only.



S-Pankki

Code	Name**	Explanation
0100	SCCT	CustomerCreditTransferInitiation
0130	SPSR	CustomerPaymentStatusReport
0200	FAKT	Bill payment
0230	FAKS	Bill payment - return answer
0250	REFG	Incoming reference payments
0391	VALK	Currency
0410	SKÅT	IBAN control & conversion
0420	SKÅR	IBAN control & conversion return
0700	KTOF	Account statement
0702	KNCT	Group statement + transactions
0710	SALD	Balances
0711	TRAN	Balances + transactions
0800	EFAK	E-invoice sending
0810	EFAS	E-invoice return answer
0820	EFAH	E-invoice fetching
0830	ESAN	Sender Info
0840	EMOT	Receiver info
0850	EFRP	Receiver proposal
0860	EFOS	E-invoice return for operator
1250	REFX	Reference transactions XML
1700	KTOX	Account statement XML
1702	KNCX	Group statement + transactions XML
1710	SALX	Balances XML
1711	TRAX	Balances + transactions XML
2100	MYIN	Authority requests
2105	MYUT	Authority requests – return material

**= Name for internal use only.

7 Service url:s

CertificateService

Environment	Bank	Adresses
Production	Ålandsbanken	https://pft.alandbanken.fi/CertificateService-v1
	S-Pankki	https://pft.s-pankki.fi/CertificateService-v1
Stage/Test	Ålandsbanken	https://stagepft.alandbanken.fi/CertificateService-v1
	S-Pankki	https://stagepft.s-pankki.fi/CertificateService-v1
Test	Crosskey Banking Solutions	https://testpft.crosskey.fi/CertificateService-v1



CorporateFileService

Environment	Bank	Adresses
Production	Ålandsbanken	https://pft.alandbanken.fi/CorporateFileService-v1
	S-Pankki	https://pft.s-pankki.fi/CorporateFileService-v1
Stage/Test	Ålandsbanken	https://stagepft.alandbanken.fi/CorporateFileService-v1
	S-Pankki	https://stagepft.s-pankki.fi/CorporateFileService-v1
Test	Crosskey Banking Solutions	https://testpft.crosskey.fi/CorporateFileService-v1

8 Charset for the applications

There will be no change in the character sets used for the applications. The applications will use the same as with PATU-FTP transfer. That means that SEPA files use UTF-8 and all other filetypes use ISO8859-1.

9 Other information

9.1 Test

Test is done in test environment. We do not support test in production environment thru specifying the xml-element environment to 'Test'. In production the environment has to be 'Production'.

10 Root Certificates

The root certificates are provided here and they are also available on the LDAP where the CRL-list resides.

10.1 Ålandsbanken test

```
-----BEGIN CERTIFICATE-----
MIIFWjCCA0KgAwIBAgIRAILkP4UDZ+EL1l6hshJQ0u0wDQYJKoZIhvcNAQELBQAw
NjEVMbGA1UECgwMQWxhbmRzYmFua2VuMR0wGwYDVQQDDBRBbGFuZHNiYW5rZW
4g
VGvzdCBdQTAEfW0xMDA4MzExMTI2MzhaFw0zNTA4MzEwOTI2MzhaMDYxFTATBgNV
BAoMDEFsYW5kczJhbmtlbjEdMBsGA1UEAwwUQWxhbmRzYmFua2VuIFRlc3QgQ0Ew
ggliMA0GCsqsGSIb3DQEBAQUAA4ICDwAwggIKAoICAQDNH/47oPN3Y+YkjhyS0ZZp
Ovqy6P6XSVSIVYHuR0k4FmFNNV/vm/RV0XQon7R8hIYXrQrQpsyQhZ/0hQ7jDhHY1
lbHlthT+91guJxILQDzjAJL4N9rJKxqrFf+Ummni3gmRkiAGFcCn1o9gLO4a4DmF
AhxmvX5MTI7x/cyRdTusJ50o4zIUPpeyG/+FDwCxpceIQYJF3InPKui6AMssKBt
k1l+tXxXz++nYiA9CVEVNassU3gVUyZTbmjKKhciuKovjULaXI24UCw6zRqCYvZ/
uTB0YanLua2XIAI2faLoKDSIKoQwHTTSl+AtM6ECqDQce6c8XLmbDsC713fLzg+n
oentVoMF2ZGSXLU9Er94IRxehzVOAFOKQVurEJNABzaJ/ZiJ35kY1eDZzpF4rhKr
5sioh1zhg/SjqwAz95bxnSsQWZt7XS6Q1/szkjFIOcrhUEnSOFuMMkzefWBpQKsa
rEB1Qq4zRxENsGn08kmSoDtklyR1Q3nhOJuDsSjhdDp/XDfK0iTv1ghKISuxgsi
27WwPRNCRPGHFhq2ZqgaTx2wB0dDKyqKL8ZCywzTG9Xe7cWjMyum31//SoiBAeBL
RltizBLFrmGq90frZR29nUA471sX3/CaUxumKNSOTch4EOkflnbN2niD5GaOS5AT
rdRy3gp8VmmSMBubR6nlwIDAQABo2MwYTAOBgNVHQ8BAf8EBAMCAYYwDwYDVR0T
AQH/BAUwAwEB/zAdBgNVHQ4EFgQUbw9j1jP5FLIN2TU11Hmjv0dWMPowHwYDVR0j
BBgwFoAUbw9j1jP5FLIN2TU11Hmjv0dWMPowDQYJKoZIhvcNAQELBQADggIBALi+
smwvHiaWGAA9vdRGpLn0mK7VWRSjM2nnEPQyM3tMspZe5byo31RB8TzQgDphEvv
NH7i2DGXq0Y3OvH04MZeRCqh99KUhp8J6j9e10ifivsGgSs2G3VICF6z9+hkdF5
```



NPtK7Aaz2+OdkUWu/abfJ4jRGFuPZmNvPOOIdbVjUdULwlll/YgirMfLeH8kxemu
UjBJkGHp79nHWmTeC9JL8GTI6Q6UluYPU+gzlunVnsYNYDJ2UpfLUBWLIftukqvm
rTf0zul/O8toWhE2PseZwCidZ3CQf7kT3dFvqXiePaNYR3k4SCv6t+aFGEMMW4mH
B3IUortGrfQ1nodFOzracm5xbxuTN3RL0PdAtch+z03eRPKjriUVyVfJB1CAayf
9D4MAU7tLsP4A3HIIej1Rh6tJ48t3QG1z0b7aBS71G2Jb4dp1PEwStPWRxbOAYJc qPeSh-
PzcP8e1qsCiFTUuAEyOs7/7UZYoxZLxD/2M3/KoQNi/xUPya7NRddnaKfBS XStrB-
mEJMDzjkXgU4aTgT5adtNDNjmg2NWFxoltsd4U+Mi160lwRFai5JxU3gbtO
fIF4I5b/KoinXRw4uwtDkIBymFlonvCdrTwwKNwF15uTxgGCEo5J72JzAD8RTV6r
dkEZ3Db1KZYzKiATNbeHjNV7Kq1jBkxqwzjQuROL
-----END CERTIFICATE-----

10.2 Ålandsbanken production

-----BEGIN CERTIFICATE-----
MIIFUDCCAzigAwIBAgIRAMU2DAa3giQvk1pM4I7OXzQwDQYJKoZIhvcNAQELBQAw
MTEVMBMGGA1UECgwMQWxhbmRzYmFua2VuMRgwFgYDVQQDDA9BbGFuZHNiYW5rZ
W4g
Q0EwHhcNMTEwMTMxMDgzNzI1WhcNMzYwMTMxMDgzNzI1WjAxMRUwEwYDVQQK
DAXB bGFuZHNi-
YW5rZW4xGDAWBgNVBAMMD0FsYW5kc2JhbmtlbiBDQTCCAILwDQYJKoZI hvc-
NAQEBBQADggIPADCCAgoCggIBANYZOWsJbS+Mp6Cuq8pfXWQjpeFNzUjP3DZU
LKc6Njp2NMn/I6EFq0tvR54P7idTaQ13sc/hxEdl7/eaGTro4e0PFkpDfEvfDx9+
JhTTzu3UQXSTHMB7iqQXE+wW0GoPaMzlr1kqgtgi+JKgUNokUYumcNujlnqVwFbrQ
DctvfmeNnW3ksIOq9EZxzjNeX306XBG6kPRZ4ysZf4yiVCIXjAb10I+6I7hINH0w
swftdhQeMnkw3i8JDPLtPYxXjPy5q6kRRqiAC8Ypvl1WtH7MwLcWG4HHR602uupY
x8swECrXDY1V6aEsJeqy3cLUkxVhmNJXq0elGepxsf7308uKGMN6PVPof7AZSgM
OwyWql1Kc/7q1sFDfL2aam2TvZgLXiNm++PECGulUXE7DvfhYrP5I0Byt//Hcswb
8gcrC0DtSHh9zi8uBuD/45/KgH1FWb0ngWBLXHoChGllKQkbMXN+0C000uUPt0GR
mMNx7cuD0WpcQt55Xs1WOWnv+IQ61d0ozqRqC4VyPF2qMDFwqqya9ah3Hcsn7Mhq
wA7IlyG6cxCHEOE49aa7GWx4kn5sfm2DoNPPWRprP8oJ72xWhQOJSzTH1/93InXp
ev7ZKCEjclY2BIJo1GbXOmJd2ZcZ461LeP+Ovx84vFyLodr+M/nwLifAlvqnf
gp/46qcBAgMBAAGjYzBhMA4GA1UdDwEB/wQEAwIBhjAPBgNVHRMBAf8EBTADAQH/
MB0GA1UdDgQWBBSazcpdMd1MhO+tWTBMUdiOylsx0jAfBgNVHSMEGDAWgBSazcpd
Md1MhO+tWTBMUdiOylsx0jANBgkqhkiG9w0BAQsFAAOCAgEAR6oTLoDYjEg71eo/
O+wV+RT/ev1dmFzzx0CXUm8LlIzefMjOjBXqxeNU1ZFybbiMKBk9hMce+X/gv/Y/7
jFNBETAetKtxql4eIPfH8T9NRAIVFKlav2U8wtbv1zZztPbmH6KUigKJPohActIJDI-
Vays7thBbwPNgXS5JJ6COBYe7GtG1DZGKUS+Vfnuc+drq5cxKctn6VyXzCMVT
3W5mjoKqmkczUrTVIOeYEH8Ri0NI0XknNGM4jqTsf9bFAftQ7NSAk9+q8zv+eJ36
4BPN07DA+th4b4AmdrcEsZF+Qd5IbuKEFMW8v6O2h3Jx3VDio1wEDynfYQ2i9Y4T
7NOuYJ243ZCcOfPFEnqspFcyhWxs6g9sHZVCA6BA1TfueN7ide67Y9YvtBuqHLE
F00+/qd6FXptGFK0EJLC8XRaYDT1DIBE9FE9Zf8bFf0RqD5iXh1vjUcN1XK63n7K
Vipxo9+TpN3LmcA9hCUALxEGCONveA8e+J1wZgk5SiM/P53ysoOjmoRwB0o1+e00
ebvLIqClh56t0gTvhs9ZuPNnNayz95c426dh6rkHo4vBxvCBROq0ezuDIP4nWktl
+fwhVzrb3zP9vFK+qhhyhUYN6L/caGr8oAXnrfJ5VedX6ur8+C+/Cj0AzabhXdkC
A4f0EaLzMDBs6yRW3OQdrHx/62A=
-----END CERTIFICATE-----



10.3 S-Pankki test

-----BEGIN CERTIFICATE-----
MIIFZDCCA0ygAwIBAgIRANM9ql1dXV1x4F4pJig1Nv8wDQYJKoZIhvcNAQELBQAw
OzELMAkGA1UEBhMCRkkxETAPBgNVBAoMCFMtUGFua2tpMRkwFwYDVQQDDDBTLVB
h
bmtraBUZXNOIENBMB4XDTE0MDgxMTA2MTk1OVVoXDTM0MDgxMTA2MjAwMFowOzE
L
MAkGA1UEBhMCRkkxETAPBgNVBAoMCFMtUGFua2tpMRkwFwYDVQQDDDBTLVBhbm
t r
aSBUXNOIENBMMIICjANBgkqhkiG9w0BAQEFAAOCAg8AMIICCgKCAgEA7EPL5bEI
ws/Uu/L6HdD39ubK65wTNFiJFb3fDQrQLHivDFzXdpvSCUVLoC18Mowefz4aRB8y
te8KX0aFyfd1K2XjUPG/SWpD4iRpKBDXUcqLmhMDpG37WZNDcdqLbyLi9GxGGgJP
AXvPt+jVj8iOtnVidD0e52x9V3p/Qh1zRRUy6Kmr42TRGVktHsfvi3blym0gowqs
GiLZtiB43vFdKzYEMPWUGrTbeRziO/c87PdcufhdQyNth7+Jqxllpau9aWXeKNwA
nonlt+rtgy59n6b5YytuXYofO1wwsPr/ApylAlqWgGdih2//5FtSsYF9NttI64Av
y/qjlozSvc+fSBH1LvCApwwqLaudUNR7coy9gpL+isj9BdtjE2507LfKJlltBFjs
X2DngHu4ldzCvtdeRmyaSdbLT5W9hL7bT742Fm0UJ4loanvnedZOPIf9+vYezCY1
oweGA8kKKJzANJBmUe9uclaky2wHq5Ltp5BfeAx2sP3BK98wZFDTHKTLIZqsM0z4
J5ORG3UAIXyU/3Z0IKJM+i5hbzHjPYf8yrYxOf2Ks+0j16rltaCkVuYfuZxnSps2
RCA/16iQn5YYIdWggek4JHFnO4Epu6vOJKvDYTFG04uo6ieU086BAQR+xB0PWXW
QyzCubdXE3zP7Z96DwWWJ8VTDIXU6m7FXrkCAwEAAaNjMGEwDgYDVR0PAQH/BAQD
AgGGMA8GA1UdEwEB/wQFMAMBAf8wHQYDVR0OBBYEFC72/ODt1qVEShG/5h4cU8nl
cth4MB8GA1UdIwQYMBaAFC72/ODt1qVEShG/5h4cU8nlcth4MA0GCSqGSIb3DQEB
CwUAA4ICAQC0etXMekAL6mR99Mu+8ICLUXJeYO4IX7xghnrBkixr0PUbxMTnivva
z2Tr/qcMJ+LjXUvdX1Is/llynZc9CVmi28zGYA7LrWleaQ/LjDzlnVSLhUsNh1E
wHcZp/A1lwrt4/tXK2avin5IN67KvxcNAN05qNKbwdwtWFW+y3W/FpH0Rs5JjDAX
yuihvPljppq3Lxqj4NbgfVes2cLKmyvLFrp0Cj7ZlS9lgGpy9mkp+gmKolHke/X
LgtKV1jIJsDhfWXZCdH6lthMILDV9+MC854ovzpTjLjzdNjacV4CROPIWZ286Re5
br7jkwjQM8AoVclDwMUIyCD1SoOKYyixgp8TRwHU2gnJvJENMW6Z+0fe/xgEUMS
tsYZOxmAxlt3jYtl/lAljN/j4VkhNpWHop5iH4AG+YUuKPLEkln5m5Fr+IVfRLV
05uWY8ZhKswjfvAqr4ToBd3RQs2IUnpABegTOAawskhgYyYJrY2LYy8g1cQJVnJ0
PTwb0wJt5m/7ZzMFr1vpsT3HEoF9SHsL3WDabFXI/0sgTM3LxVcwDhmbDcDi4PPo
ODwYTgKdO09cV4P54FXI+X96obCpqqeb7u1UxctGvOtlpnU1dgH4cCwalcC1kj0Q
FjPdQG3tTTiEND7XXrNPSXq5B3MiwkEBgMMZf7rO10ToWINezV8NbA==
-----END CERTIFICATE-----

10.4 S-Pankki production

-----BEGIN CERTIFICATE-----
MIIFWTCCA0GgAwIBAgIQWQ4Kfzi6JwP9182G2B266zANBgkqhkiG9w0BAQsFADA2
MQswCQYDVQQGEwJG-
STEMA8GA1UECgwIUy1QYW5ra2kxFDASBgNVBAMMC1MtUGFu
a2tpIENBMB4XDTE0MDgxNDExMjYwMloXDTM0MDgxNDExMjYwM1owNjELMAkGA1UE
E
BhMCRkkxETAPBgNVBAoMCFMtUGFua2tpMRQwEgYDVQQDDAtTLVBhbmtraSBDQTCC
AilwDQYJKoZIhvcNAQEBBQADggIPADCCAgoCggIBAO/IEtv/FakilNo5a6gN5FGE
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-----END CERTIFICATE-----