

### LDAPS (LDAP OVER TLS)

DOCUMENTS 5.0e

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## 1. Requirements

From version 5.0d HF1 (#2065) DOCUMENTS supports LDAP OVER SSL.

The first prerequisite is that LDAP OVER SLL has been activated on the AD server and that an LDAP connection can be established via TLS/SSL. This can be checked on the AD via the command line with the program "Idp":

8	Ldp - disconnected	= 🗆 X
Connection Brow	e View Options Utilities Help	
Connection Brow	e View Options: Utilize: Help Proceedings and point (Utilize: Help Proceedings and point (Lap, LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, set, option(Lube), LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, set, option(Lube), LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, set, option(Lube), LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, set, option(Lube), LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, set, option(Lube), LDP, OTF, PROTOCOL, VERSON, 3); Pror 0 + Kap, SS, SL, other starms, 228 kits Pathemistic Start, 200 kits Prove Start, 200 kits Pro	)RECTORY_V61 ); 40.1135561.4.1413 40.000 (2010) ; 4. (DN_NPUT); 2.205 = ( 8.1.4.2255; mpTableSize;
	MaxResultSetSize, MinResultSets, MaxResultSetSerConn, MaxVolfificationPerConn, MaxVolRange; MaxVolRangeTranstive; ThreadMemoryLimt, SystemMemoryLimtPercent; supportedSASLMechanisms (4): GSSAPI; GSS-SPIEGO; EXTERIAL; DIGEST-MD5;	

Figure 1: ldp -> connect -> SSL

A successful SSL connection setup is logged accordingly.

It is also assumed that you are familiar with setting up and configuring the LDAP job on standard port 389 (unencrypted) (e.g. using the LDAP Configuration Wizard in the DOCUMENTS Manager).

In the following, only those points are listed where there are deviations from the LDAP standard configuration:

- Generation of the necessary PEM certificate file for the TLS/SSL connection between the DOCUMENTS server and the AD (LDAPS).
- Testing the Connection Parameters and Configuring the DOCUMENTS Server to Use TLS/SSL

### 2. Certificate chain of the AD server

In the following, a "certificate" file in PEM format for the DOCUMENTS server is generated from the SSL certificate of the AD server.

Certificate	×	Certificate
General Details Certification Path		General Details Certification Path
Certification path dopaag-W12DOPAAG-CA-1 w12dopaag.dopaag.local		Certificate Information This certificate is intended for the following purpose(s): • Ensures the identity of a remote computer • Proves your identity to a remote computer • KDC Authentication • Smart Card Logon
		Issued to: w12dopaag.dopaag.local
View Certificate		Issued by: dopaag-W12DOPAAG-CA-1
Cartificate statur:		Valid from 17. 12. 2019 to 16. 12. 2020
This certificate is OK.		Issuer Statement
OF	к	ОК

Figure 2: SSL – Certificate LDAP-Servers

The figure above shows the SSL certificate of the AD machine named "w12dopaag". The certificate was issued by the CA "CA-1". To verify the connection, the DOCUMENTS server only needs the root CA, which is exported below.

#### Important note

Only the top certificate (CA-1) must be exported.

Based on the certificate, a "PEM certificate" file is created in a few steps, which must then be stored on the DOCUMENTS server.

1) The certificate at the end of the certificate chain and possible intermediate certificates do not have to be considered further.

R Certificate	×
General Details Certification Path	
Certification path	
dopaag-W12DOPAAG-CA-1	
[	View Certificate
Certificate status:	
This certificate is OK.	
I	
	ОК

Figure 3: Select and view root certificate

2) On the detail dialog for the certificate "CA-1" a certificate export can now be initiated via the button "Copy to file".

Certificate ×	Certificate
General Details Certification Path	General Details Certification Path
Certification path	Show: <all></all>
View Certificate	Field       Value       ^         Version       V3       Serial number       7a ad d7 c7 1e 60 06 88 4e b0       =         Signature algorithm       sha 1RSA       signature algorithm       sha 1         Signature hash algorithm       sha 1       sha 1       =         Valid from       Dienstag, 17. Dezember 2019       =         Valid to       Dienstag, 17. Dezember 2024       valid to         Subject       dopaag-W12DOPAAG-CA-1, d       v
Certificate status: This certificate is OK.	Edit Properties
ОК	ОК

Figure 4: Start a certificate export on the opened root certificate

3) Export the certificate "Base 64 encodes X.509 (.CER)" e.g. to the file "adroot.cer".

xport File Format Certificates can be exported in	n a variety of file formats.
Select the format you want to	use:
O DER encoded binary X.	509 (.CER)
Base-64 encoded X.509	9 (.CER)
Cryptographic Message	e Syntax Standard - PKCS #7 Certificates (.P7B)
Include all certificat	es in the certification path if possible
O Personal Information E	xchange - PKCS #12 (.PFX)
Include all certificat	es in the certification path if possible
Delete the private	key if the export is successful
Export all extended	l properties
O Microsoft Serialized Cer	tificate Store (.SST)

Figure 5: Initiate base-64-encoded certificate export

4) Rename the file adroot.cer to adroot.pem (the base-64 encoded X.509 (.CER) format corresponds to the PEM format).

The adroot.pem must then be made available to the DOCUMENTS server so that it can access it, for example by storing it in the server directory.

#### Note

A correctly configured LDAPS server implicitly delivers possible intermediate certificates during TLS/SSL handshake. If this does not happen due to incorrect configuration, additional intermediate certificates can be added to the pem file.

### 3. DOCUMENTS-LDAPS-configuration

First, the test script "otrTestLdapConnection.xml" must be imported. The file is delivered with the test script and is located in the directory "\server\scriptlibs\Ldap\".

Applica	tion Server settings Administration Docu w 🖸 Edit 🗘 Update	iments Help 💥 Delete 🛛 📇 P	rint	ద్ద <sup>6</sup> Configure	← Back	→ Next	🚓 Home	
Adm	inistration							
3	Administration     User Management			Welcor	ne to DO	CUMEN	TS 5	
_	> ⊕ Content ✓ ⇔ Documents	📴 Open						x
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-	Filetypes 0	Organize 🕶 Ne	w folder				#I • 🔲	0
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	Search categories 0	Desktop	* - 1	01_LDAP_Scripts	.xml	12/12	/2019 12:21 PM	XML
	Distribution Lists 0	Documents	*	02_LDAP_Config	urationFiletype.xm	I 12/12,	/2019 12:21 PM	XML
•	E Filing plans 0	OneDrive		LDAP_Configura	tionFiletype.xml	12/12	/2019 12:21 PM	XML
	A Number ranges 0 > Scripts 1	This PC	=	LDAP_Configura LdapTestScripts.a	tionFolder.xml ml	8/7/2	017 2:22 PM /2019 11:58 AM	XML
JS	<ul> <li>Scripting categories 0</li> <li>Monitoring</li> </ul>	programs (D:)		🍸 otrTestLdapConr	nection.xml	12/6/2	2019 2:09 PM	XML
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	★ Favorites 0	i Network	~ <		ш			>
	Filter favorites 0		File name:	otrTestLdapConne	ection.xml	XML-Datei		~
						Open	Cancel	

Figure 6: XML-Import openLdapSSLConnection.xml

The connection data must then be configured as script parameters and the script executed. (Please do not make any changes to the script source code, as it is signed and can therefore be executed without a scripting license).

a escription / you	Testing	Properties					
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	Name	otrTestLdapCo	nnection			]	
Portal-S	cript category	<->			<b>~</b> ©	)	
Source code from se	rver/scriptlibs					1	
Source code						_	
51445567161b190072a1 51445567161b190072a1 5013438594060464757627 550135402277055551a1 e64351d42501117570a29 0c1b24391124322e69585 40347796762444157627 21e096a7a155b347f5b42 485f1d091c09421e096a7 e255a1b0e2020b065557 0071963180a153814181b	11b5f4a3c2e401 3595a4c4f64485 304232f2c41425 4d384c0417191 218415f450d5f4 595a4c4f64485 155b14585940 450a095a48333 20163d171b525	c096a7a155b14 if3d2e3c2e0047 if1b03134c2501 00-3d450e1528 if1d091c09421e0 97d4e4d64485f 60464f57425f79 24a5604551204 i711194f55452b	38594060464157627839544_446448511 56693b517495b160228020cebe2800 31400534005544332340b21705151 3c1a03041340b25156450452135426 4343391917166274786b0343175c5 93687a155b1458594060444577627895 1d001c1534b1c5454110a03542326334 211070874587c1815106709165154114 211070874587c18151067091651541	0091c09421e096a7a 59090d3a11520d045 391c04082b7549571 254b13701b00453d0 405054415f4b203e56 4a4c4f64485f1d091c0 464f576278595a4c4ff 134a015a01290a123 800544d29235054a6	55b14585940604641575 94b1c471f4a5d57024b51 1033a16055f56551f6239 1100e666e797d6c88261 1025c0600432e0a21173d 9421e096a7a155b14585 54485f1d091c09421e096 32e2611330f426958525c 5b070e221b075a727546 134b37324a17441c1b03	2278595a4c4f64485f1 b18092c1b4c1620321 00b8774b02581b100 1001e4855451f1d482i 21321e0d0769585253 94060464f576278595 ia7a155b1458594060- 4050542d5257221376 4c6c682611001e4855 2c07423b3b21061e0	0091c09421e096a d1915073a115c4 c3f0f4214203b54 83051184d100719 l4572411d47622e adc4f64485f1d09 464f576278595a4c 54d347f1b193f450 4451f1d482830511
4142330/30440140004 554404190-15520491741 26849445-517458460192 26849445-517458460192 26849445-517425841641 5342441194b1154012805 41452-26120284453327 10349401c161742784506 #22190652202106590d06	/4444135b2/3 ab054b0448495 ic19520e197a6a 0033a16055f565 050e276e541b4 3331c1245290el 445c503579541; 28155c5c4b564	a1b0503394b1e2 07565f4772684 054b044849507 50d143e2e4e3e a49601e7f3a2d3 000f287c0f7a6b 258055a01220c0 d014741342316 Run si	H4336aL1955733795706507151924 H4336aL19557337957065070151924 H4365477458404a55774584040190c1 5556477268404a55477458401190c1 55649140713430410166252970858 B24116540547511016562397085401616 563501713219065366627974681734 058000713219065366627974681734 cript	440c1b23140003130b 440044849507056544 350197365054b044 370400105654544f0 3732587e7e68102c11 015646221110542331 88294d5e4d0250195a 0c1e1e4b445047117	2b1006555711194/6806; 77264944a6-683740010 4950706687745587e7; 046575037b337c73db22 07424a11560a431f4a5d2 02381f4a581f340704160 428254c2a4d575f023919 Edit external	2a3255145c073b0b6f 4054461a54047a775 6b502c1121552547 194a0c2e27541b415 10054777417281f170 5571b144c28244c5f02 433b112e44061a430a 44c162b3404590d0d2	1755007165587747a6 17555011560061 40e405730384a12 405554910481118 821750416121138 821750416121138 821750416121138 821750416121138 82012441425041
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Figure 7: Connection data for SSL access

If the connection could be opened, the following message is displayed in the server window and on the client:

```
Connection established with [Domain-Name]
```

If the connection cannot be established, the error message is displayed that was passed on to the server from the openLdap interface.

Note

If changes have been made to the caCertFile, it may be necessary to restart the DOCUMENTS server because the openLdap interface caches the certificates.

If the connection test was successful, the SSL-specific parameters for the LDAP job and the LDAP logon must also be adapted as properties for the client or optionally in the script "LdapParamDomain".

If the configuration was carried out using the LDAP Wizard in the DOCUMENTS Manager, we recommend that you set the properties LdapPort, LdapEnableSSL and LdapCaCertFile for the client (in future versions of DOCUMENTS, this configuration can be carried out in the LDAP Wizard).

LdapPort	636
LdapEnableSSL	true
LdapCaCertFile	D:\documents5\server\adroot.pem

Figure 8: LDAP-SSL settings at principal

Optionally the configuration can be made in the script "server\scriptlibs\Ldap\LdapParamDomain.js" (e.g. if several LDAPS servers have to be addressed) or if the LDAP scripts were imported into the DOCUMENTS Manager (XML import: 01\_LDAP\_Scripts.xml), then the configuration in the DOCUMENTS Manager must be made in the PortalScript "LdapParamDomain".



Figure 9: LdapParamDomain" script with the SSL parameters "enableSSL, tcpPort, caCertFile"

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