MAT A Sek-13-3-h.pdf, Blatt 1

(TS//SI//REL)VPN SigDev Basics

S31244 - OTTERCREEK

Derived From: NSA/CSSM 1-52 Dated: 20070108

Declassify On: 20341101

MAT A Sek-13-3-h.pdf. Blatt 2

Overall Classification:

TOP SECRET//COMINT//REL TO USA, FVEY

(U) What is a VPN?

- (U) A Virtual Private Network or VPN is a computer network that uses encryption to securely connect remote users/networks over an otherwise insecure network, usually the public internet.
- · (U) Common Types:
 - PPTP, IPSec, SSL
- · (U) Public Key Encryption
 - Diffie-Hellman, RSA

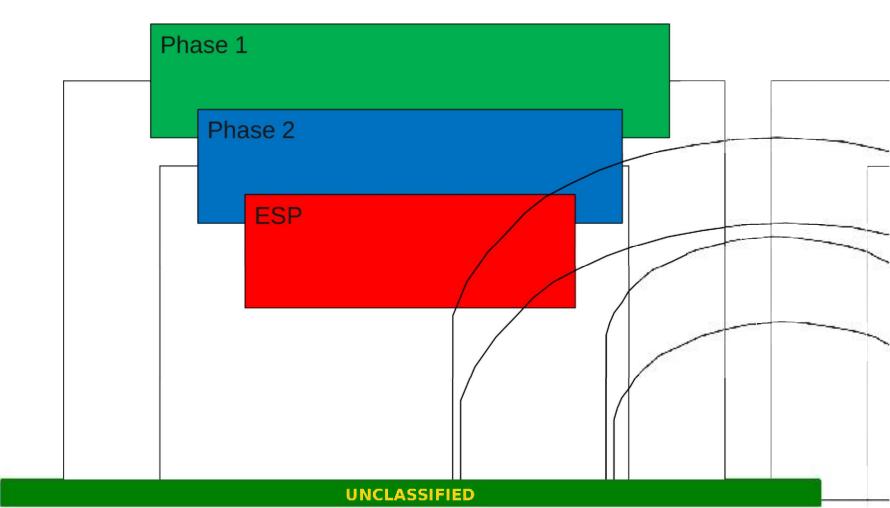
(U) PPTP

- · (U) Microsoft Point-to-Point Tunneling Protocol
- · (U) Control Channel
 - TCP port 1723
- · (U) Data Channel
 - GRE-Next Protocol 47
- · (U) RFC 2637, RFC 3078

(U) IPSec

- · (U) Authentication
 - Pre-shared key (PSK) or Public key certificates
- (U) ISAKMP/IKE packets are used for key exchange and to establish the secure connection
 - UDP port 500, 4500; TCP port 500
- · (U) ESP packets contain the encrypted data
 - IP Next Protocol 50; UDP port 500
- · (U) RFC2402, RFC2406, RFC2409, RFC4306, RFC2408

(U) IPSec in a nutshell



(U) SSL/TLS

- (U) Secure Sockets Layer/Transport Layer Security
- (U) WARNING! e-commerce = tons of uninteresting SSL traffic
- · (U) Common ports: TCP ports 443, 995
- · (U) RFC2246, RFC4346, RFC5246

(U) SSL in a nutshell

CLIENT

Certificate

Subject Validity Public Key

<mark>Issu</mark>er

Etc...

(U) SSL Exchange

- 1. Client connects to server
- 2. Server sends cert to client
- 3. Client validates cert
- 4. Key exchange
- 5. Pass encrypted material

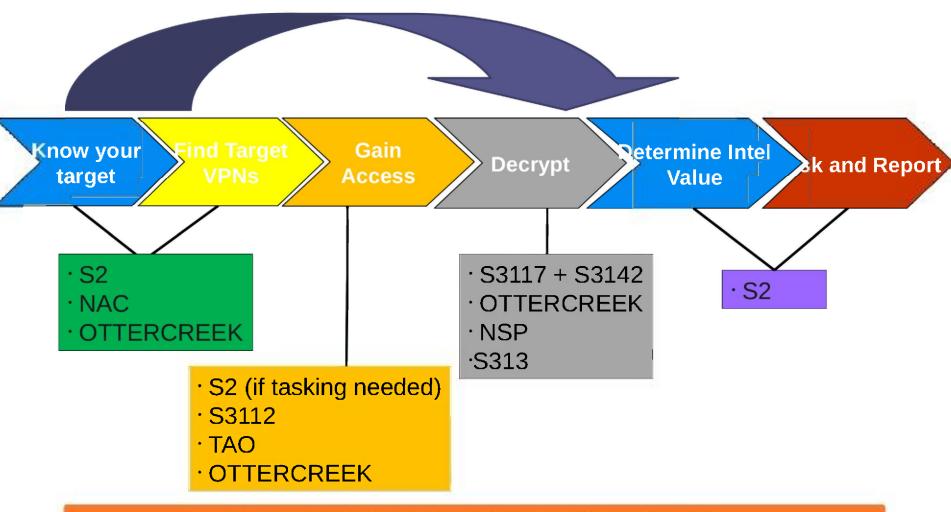
UNCLASSIFIED

CEDVED

(TS//SI/REL) Who works VPNs?

- (TS//SI//REL) VPN Working Group (go vpn)
 - S2, SSG, CES (OTTERCREEK, NSP, S31322, S3117, S3112), TAO, etc.
- (TS//SI//REL) Alias:
 - (Board alias:
- (TS//SI//REL) Meets every other Thursday at 1300

(TS//SI/REL) Who works VPNs?



(TS//SI//REL) So you think your target is using a VPN...

(TS//SI//REL) SigDev Tools

(TS//REL) VPN Specific

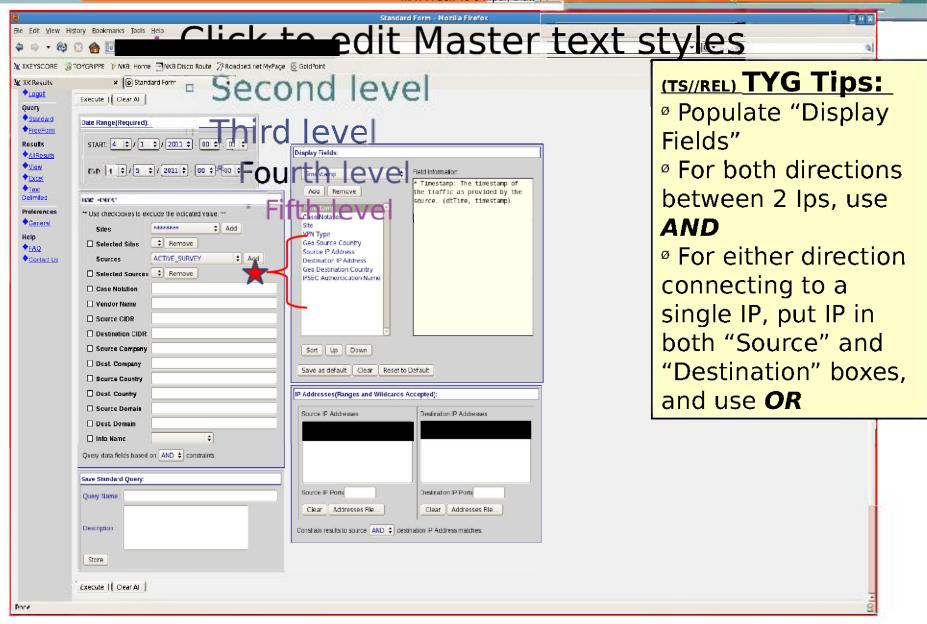
- BLEAKINQUIRY
- DISCOROUTE
- TOYGRIPPE

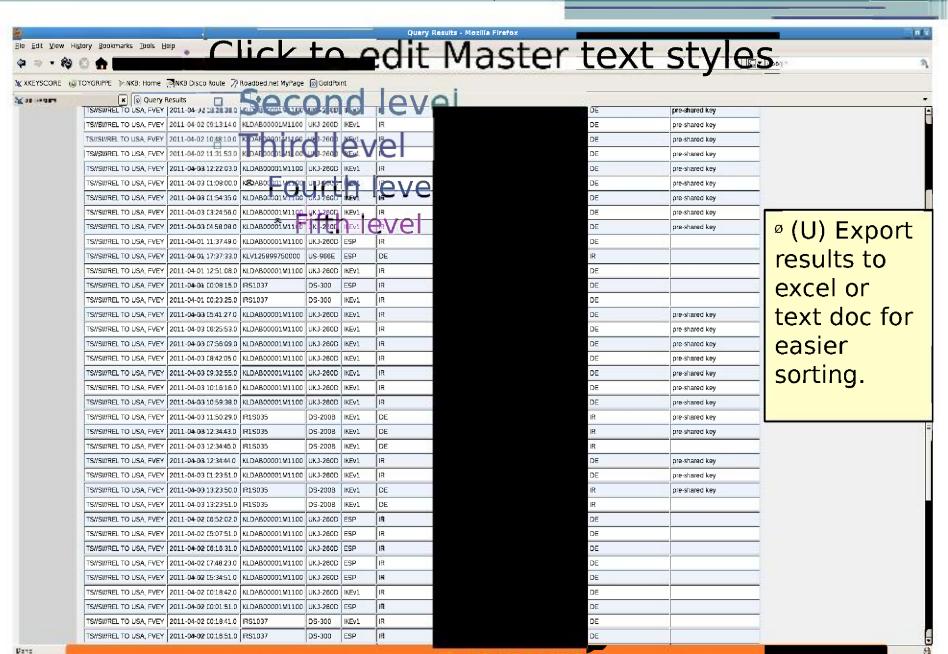
(TS//REL) Also useful

- MARINA
- MASTERSHAKE
- NKB
- PINWALE
- RENOIR
- TREASUREMAP
- TUNINGFORK
- XKEYSCORE

(TS//SI//REL) TOYGRIPPE

- * (TS//SI//REL) Database of VPN metadata
 - IPSec, PPTP, ViPNet





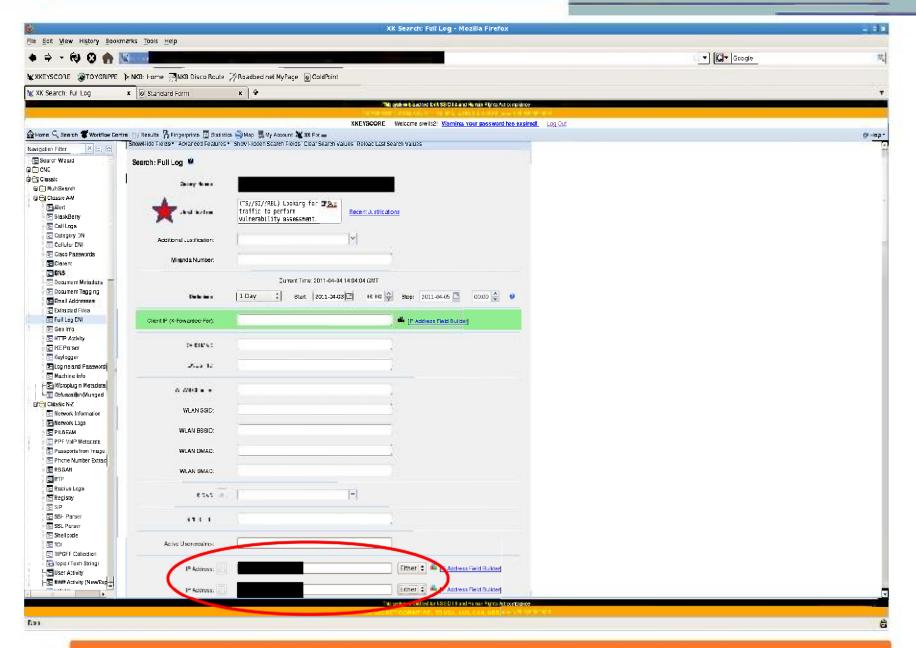
(TS//SI//REL) XKEYSCORE

(TS//REL) Fingerprints

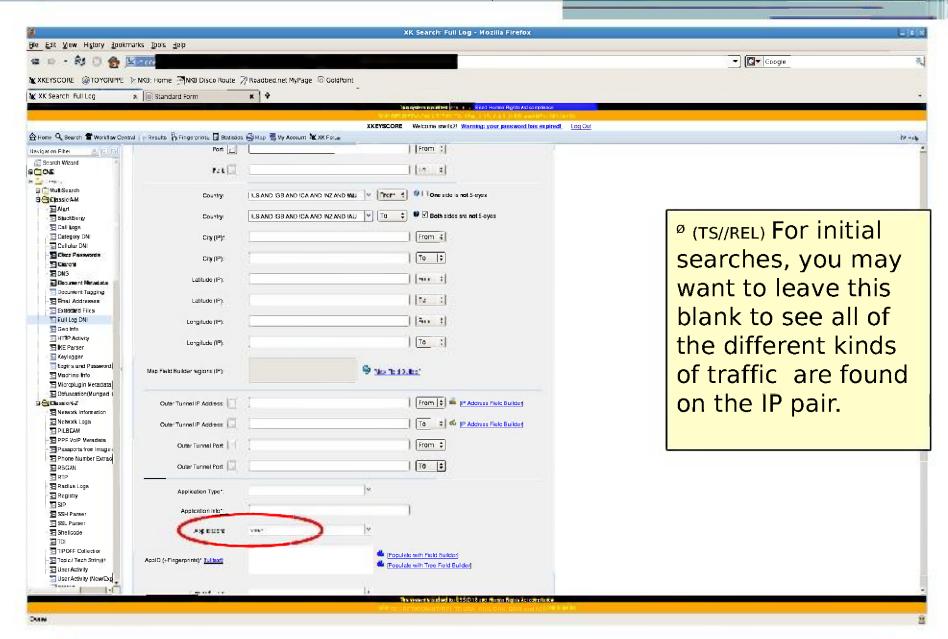
- IPSec
 - vpn/esp
 - vpn/isakmp
- · PPTP
 - vpn/pptp*
- · SSL
 - network_encyption/ssl

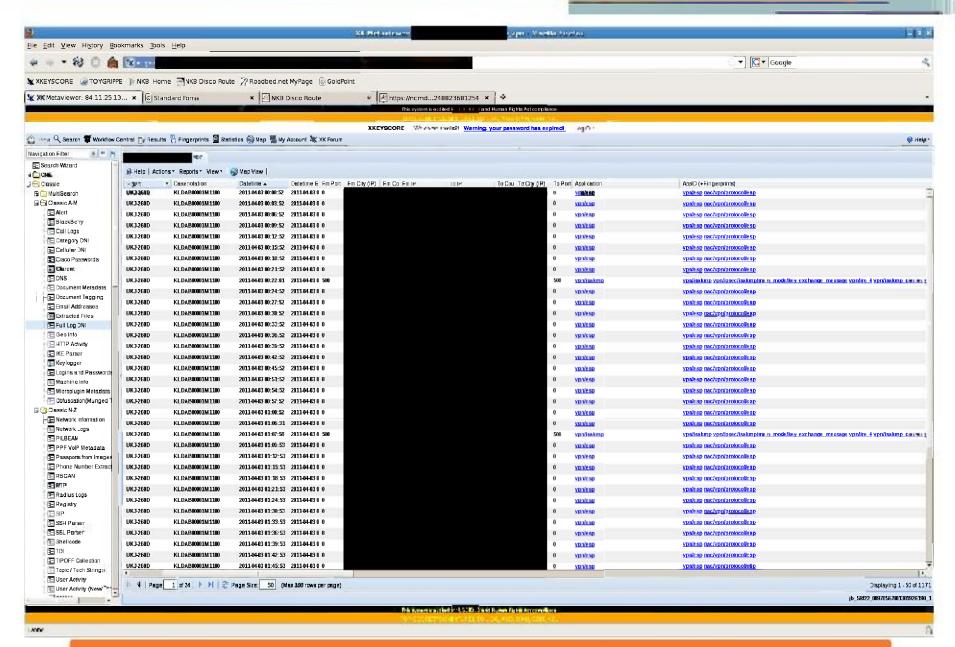
(TS//REL) Search Forms

- Start with FULL DNI
 - vpn/*
 - network_encrytion/*
- · IPSec
 - IKE Parser
- · SSL
 - SSL Parser

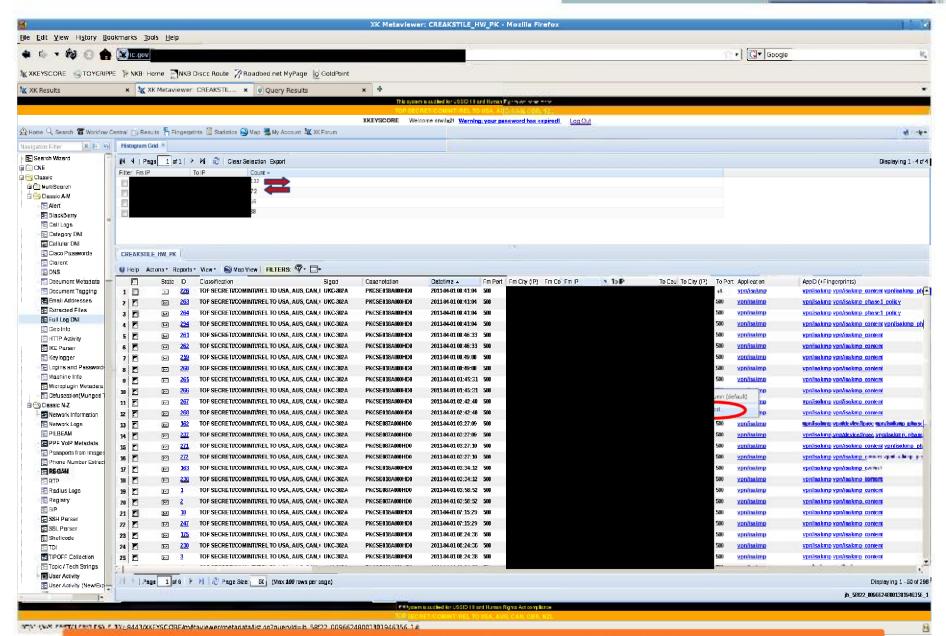


TOP SERET//COMINT//REL TO USA, AUS, CAN, GBR, NZL





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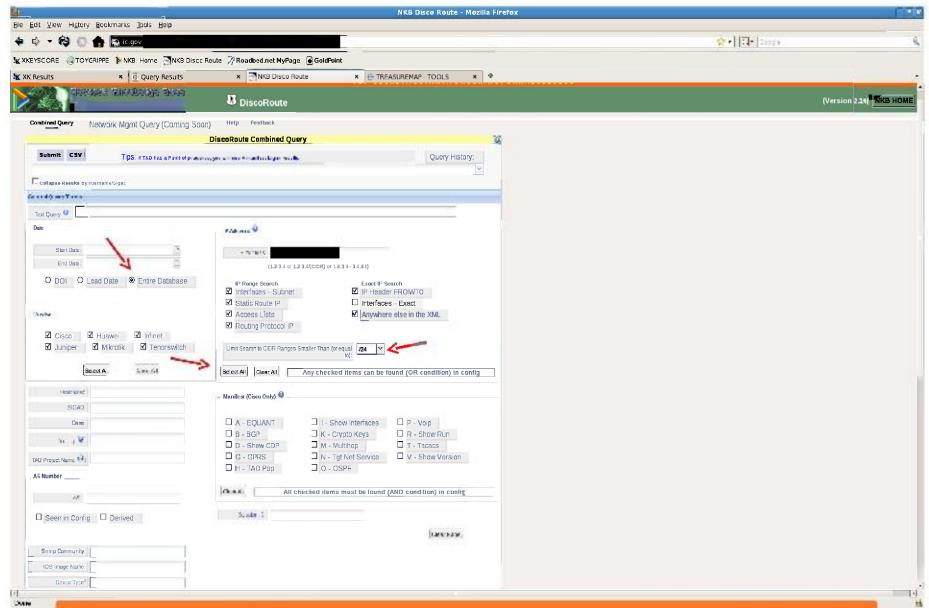
(TS//SI//REL) PINWALE

· (TS//SI/REL) Both VPN traffic and Sys Admins passing information about VPN setup

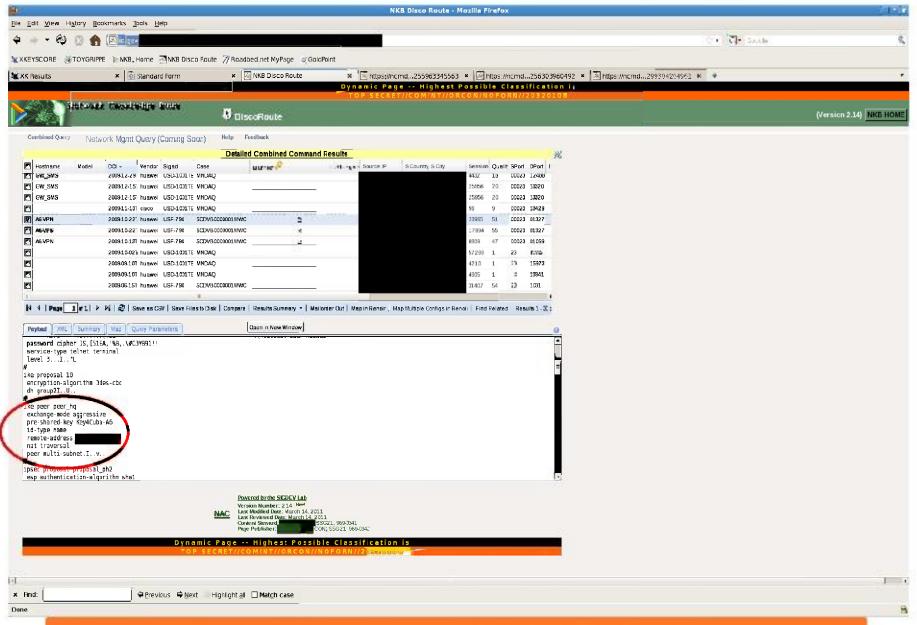
- · (TS//SI/REL) IP addresses and port numbers (ex. AP 00500) *****Document Zone** = **C2C**
- (TS//SI/REL) Display 'DZ Protocol SRC Port', 'DZ Protocol DEST Port', 'Next Protocol Name'

(TS//SI//REL) DISCOROUTE

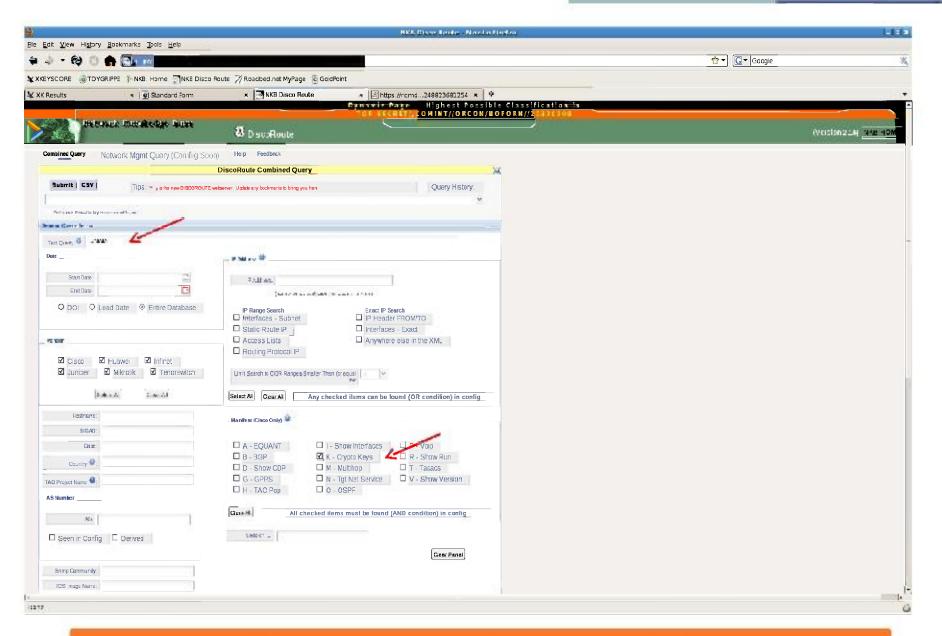
- · (TS//SI/REL) Router configuration data
 - From passive and active collection
 - Key terms to search for within configs:
 - 'crypto map', 'isakmp', 'ipsec', 'pre-shared-key'

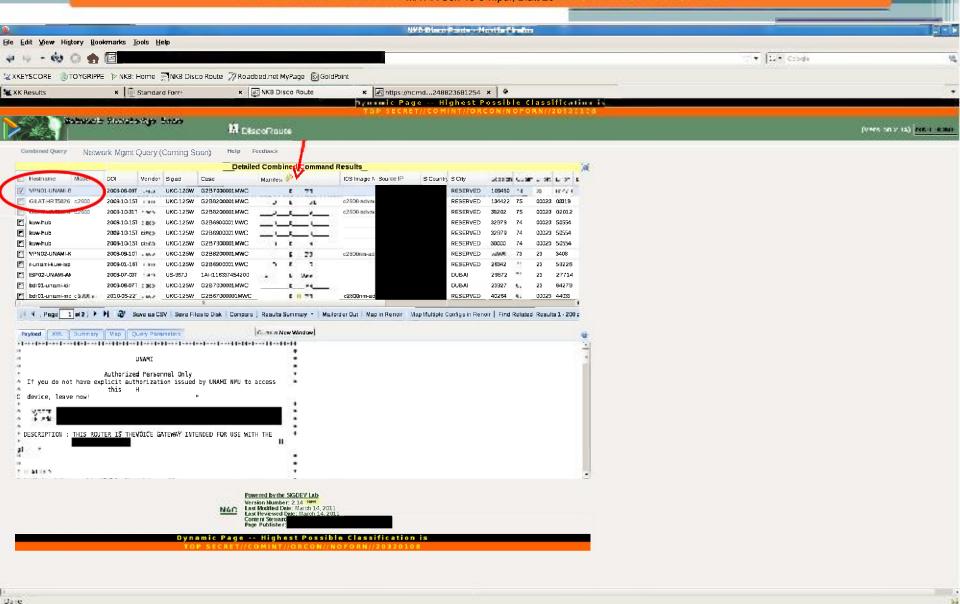


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(U) Others

- · (TS//REL) NKB
- · (TS//REL) TUNINGFORK
- · (TS//REL) TREASUREMAP
- · (TS//REL) RENOIR
- · (TS//REL) MASTERSHAKE
- · (TS//REL) ROADBED
- · (TS//REL) BLEAKINQUIRY

(TS//SI//REL) Basic VPN rules of

(TS//REL) If you have an IP address...



- Check TOYGRIPPE and XKS
 - Look for paired traffic
- For IPSec, check sys admin chatter for PSK (DISCOROUTE; PINWALE; MARINA)
- Share your data with OTTERCREEK for vulnerability assessment (XKEYSCORE or DROPBOX)
- Submit tasking

- Look in DISCOROUTE
- Query Sys Admins in PINWALE and MARINA
- Check your targets TAO projects

EITHER WAY,
JOIN THE
VPN WORKING GROUP

FOR ALL OF YOUR VPN SIGDEV NEEDS

(U//FOUO) Useful Links

- · (TS//SI//REL) VPN Working Group (go vpn)
- (TS//SI//REL) OTTERCREEK (go VPN XFT)
 - VPNXFT DROPBOX

(TS//SI//REL) Network Security Products (go NSP)

(U) Questions?



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