# Release Notes for DrayTek Vigor 2925 series (UK/Ireland)

Firmware Version	3.9.8.5_BT (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	10 <sup>th</sup> April 2025
Release Date	14 <sup>th</sup> May 2025
Revision	21900_1215_291af03c23
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

### **New Features**

(None)

### **Improvements**

- 1. Improved Web GUI Security.
- 2. Improvements with handling some suspicious TCP packets

# **Known Issues**

#### **Firmware File Types**

The ZIP file contains the firmware with two different file extensions, .ALL and .RST. The firmware is identical, but the RST file contains factory default settings. If you install the ALL file, your router will retain all existing settings. If you use the RST file, <u>all settings will be wiped from your router</u>.

#### **Upgrade Instructions**

It is recommended that you take a configuration backup prior to upgrading the firmware. This can be done from the router's system maintenance menu.

To upgrade firmware, select 'firmware upgrade' from the router's system maintenance menu and select the correct file. Ensure that you select the ALL file <u>unless</u> you want to wipe out your router's settings back to factory default.



#### **Manual Upgrade**

If you cannot access the router's menu, you can put the router into 'TFTP' mode by holding the RESET whilst turning the unit on and then use the Firmware Utility. That will enable TFTP mode. TFTP mode is indicated by all LEDs flashing. This mode will also be automatically enabled by the router if there is a firmware/settings abnormality. Upgrading from the web interface is easier and recommended – this manual mode is only needed if the web interface is inaccessible.

Firmware Version	3.9.8.4_BT (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	16 <sup>th</sup> December 2024
Release Date	8 <sup>th</sup> January 2025
Revision	21328_1199_da9bbb6666
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

1. In some circumstances the router could not save the filter rule (authentication error) when applied via Firefox

# **Known Issues**

Firmware Version	3.9.8.3_BT (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	21 <sup>st</sup> October 2024
Release Date	22 <sup>nd</sup> November 2024
Revision	20731_1197_974fed38cc
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

- 1. Web GUI Security Improvements
- 2. Improvements to the system performance when used with WCF

# **Known Issues**

Firmware Version	3.9.8.2 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	13 <sup>th</sup> September 2024
Release Date	18 <sup>th</sup> October 2024
Revision	20541_1190_930264d97c
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

- 1. The Validation Code on the login page did not work
- 2. Some Country Objects could not work due to the firewall settings
- 3. Rebooting the router did not work when CPE set parameter contained WAN1 username/password details

# **Known Issues**

Firmware Version	3.9.8 (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	16 <sup>th</sup> July 2024
Release Date	13 <sup>th</sup> August 2024
Revision	21105_1171_e88d2883dd
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

1. Web GUI security improvements

# Known Issues

Firmware Version	3.9.6 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	08 <sup>th</sup> January 2024
Release Date	06 <sup>th</sup> February 2024
Revision	19205_1139_62678ecf3c
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

1. Web GUI security improvements

# Known Issues

Firmware Version	3.9.5 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	24 <sup>th</sup> August 2023
Release Date	15 <sup>th</sup> September 2023
Revision	17965_1124_603129e803
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

1. Support for the new WCF service – URL Reputation. If you have an existing activate licence, then this will be upgraded to the URL Reputation licence

### **Improvements**

- 1. Web GUI security improvements
- 2. Improvements to the Let's Encrypt Certificate creation mechanism

# **Known Issues**

Firmware Version	3.9.4 (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	10 <sup>th</sup> January 2023
Release Date	3 <sup>rd</sup> March 2023
Revision	15683_1075_c3b0ec94ea
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

1. Improvements to the Web GUI Security (CVE-2023-23313)

# **Known Issues**

Firmware Version	3.9.3 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	01 <sup>st</sup> November 2022
Release Date	29 <sup>th</sup> November 2022
Revision	14357_1061_1a9d23dd63
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

1. Some IPsec options missing for Vietnam country code products.

# **Known Issues**

Firmware Version	3.9.2 (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	11 <sup>th</sup> August 2022
Release Date	26 <sup>th</sup> August 2022
Revision	13686_1017_cae451c8aa
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

- 1. Improve Web GUI Security (CVE-2022-32548)
- 2. Improve the OpenSSL security (CVE-2022-0778)

# **Known Issues**

Firmware Version	3.9.1 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	09 <sup>th</sup> June 2021
Release Date	18 <sup>th</sup> June 2021
Revision	7944_678_f61ed62
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

#### **Improvements**

- A new telnet command added to turn on/off the validation code feature mngt ValidationCode enable/disable
- 2. LAN DNS did not work properly with previous firmware
- 3. Corrected the mechanism of obtaining global IPv6 address
- 4. IPSec VPN connections would drop every 60 minutes
- 5. Wake on LAN sent from WAN did not work with previous firmware
- 6. SSL option in [Objects Setting] > [SMS / Mail Service Object] > [Mail Server] could not be saved
- 7. L2TP over IPsec tunnel would disconnect due to unexpected DPD timeout
- 8. An issue of Web Login failure when the validation code feature is enabled
- 9. The router did not use a real Internet IP address for DrayDDNS updates when behind NAT
- 10. Traffic of LAN host were not sent to NATed IPsec Xauth tunnel when a policy-route rule was enabled

#### **Known Issues**

Firmware Version	3.9.0 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	15 <sup>th</sup> January 2021
Release Date	23 <sup>rd</sup> March 2021
Revision	3827_471_138e074
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

# **Improvements**

- 1. Support for Huawei E3372h-320 USB modem
- 2. Support of new encryption mechanisms for license, network, and MyVigor connections

# **Known Issues**

Firmware Version	3.8.9.8 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	24 <sup>th</sup> March 2020
Release Date	24 <sup>th</sup> April 2020
Revision	89283
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

#### **Improvements**

- 1. A failover interface can be defined for [System Maintenance] > [TR-069 Setting]
- 2. Customised DDNS profiles support IP address of a provider
- 3. Improvements added to welcome message in [System Maintenance] > [Login Page Greeting] section
- 4. Dray DDNS license would not synchronise with MyVigor server
- 5. Improved CPE notification mechanism where empty log value was sent while there are frequent login attempts (see ACS2, section [ACS Monitoring] > [Logs])
- 6. Improved compatibility with Windows 10 IKEv2 EAP client to reduce the number of password requests

### **Known Issues**

Firmware Version	3.8.9.7 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	18 <sup>th</sup> December 2019
Release Date	24 <sup>th</sup> January 2020
Revision	87440
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

- 1. Improved WebGUI security
- 2. Updated GeoIP database
- 3. Improved mechanism of forwarding packets via SSL VPN LAN to LAN  $\,$
- 4. ICMPv6 packets would not work on additional LANs (except LAN1)

# **Known Issues**

Firmware Version	3.8.9.6 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	16 <sup>th</sup> October 2019
Release Date	12 <sup>th</sup> November 2019
Revision	85472
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

- Improved SSL VPN compatibility with Apple devices. Self-Signed certificate's Valid To date is now 2 years from date of generation. Regenerate the router's Self-Signed Certificate to meet the new trusted certificate requirements of Apple iOS 13 & macOS 10.15.
   Longer Valid To periods can be specified by generating a Local Certificate and self-signing it with the router's internal Root CA.
- Additional configuration options available in [VPN and Remote Access] > [LAN to LAN] for
  passing Routed LAN through VPN and enable/disable Internet access if VPN tunnel specified
  as default route drops

#### **Known Issues**

Firmware Version	3.8.9.5 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	16 <sup>th</sup> May 2019
Release Date	17 <sup>th</sup> July 2019
Revision	82070
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

None.

### **Improvements**

- 1. Specific LAN interface can be selected for use with TR-069 management in [System Maintenance] > [TR-069] with the "ACS Server On" setting
- 2. OpenDNS DDNS update mechanism improved
- 3. Country Object database updated
- 4. Authenticating Hotspot Web Portal clients via Google authentication did not work
- 5. Enabled brute force protection for TR-069 blocked VigorACS server
- 6. IKEv2 EAP VPN connection could not be established from Windows 10 when using a self-signed CA on the router

#### **Known Issues**

Firmware Version	3.8.9.4 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	30 <sup>th</sup> January 2019
Release Date	4 <sup>th</sup> March 2019
Revision	79611
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

1. IPsec EAP (IKEv2) is now supported as a LAN to LAN VPN protocol

### **Improvements**

- 1. Added settings for Station Control in Central AP Management WLAN profiles
- 2. Data Flow Monitor did not display RX traffic when downloading through VPN tunnel
- 3. Corrected an issue with Routed Assisted Client Roaming
- 4. Improved interoperability of IPsec xAuth VPN tunnels when receiving Remote Dial In User connections from Samsung S8 and other Android handsets

#### **Known Issues**

Firmware Version	3.8.9.3 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	29 <sup>th</sup> August 2018
Release Date	26 <sup>th</sup> September 2018
Revision	76226
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

1. SNMP monitoring clients can now read out the CPU load and memory usage percentages as part of the router and firmware details in the sysDescr.0 (OID 1.3.6.1.2.1.1.1) value

### **Improvements**

- 1. Disabling a port redirection from the summary view ([NAT] > [Port Redirection]) rather than the profile entry itself did not disable the port forwarding entry
- 2. NAT loopback could not operate with port forwards configured using ports 768 to 1023
- 3. In some scenarios SSL VPN connection from Windows Smart VPN Client could not be established

### **Known Issues**

Firmware Version	3.8.9.1 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
	Note: A previous firmware (3.8.8.2) was a <b>critical release</b> .
	This f/w includes all changes/improvements that were in 3.8.8.2.
Build Date	12 <sup>th</sup> June 2018
Release Date	9 <sup>th</sup> July 2018
Revision	74520
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

#### **Security Advisory**

1. Check your DNS and DHCP settings on your router.

https://www.draytek.co.uk/support/security-advisories/kb-advisory-csrf-and-dns-dhcp-web-attacks

If you have a router supporting multiple LAN subnets, check settings for each subnet. Your DNS settings should be either blank, set to the correct DNS server addresses from your ISP or DNS server addresses of a server which you have deliberately set (e.g. Google 8.8.8.8). A known rogue DNS server is 38.134.121.95 - if you see that, your router has been changed.

#### **New Features**

- 1. Firewall Filter rules can now be linked to specified LAN and WAN interfaces by selecting a Direction then clicking Advanced and selecting the interfaces that the Filter rule will affect
- 2. ISO 3166 Country objects configured in [Objects Setting] > [Country Object] menu can be applied as Source / Destination IP ranges in Firewall Filter rules
- 3. Support DrayOS IKEv1 IPsec XAuth as a VPN protocol for Remote Dial-In User VPN tunnels
- 4. Support for EAP Tunnelled Transport Layer Security (EAP\_TTLS) security method added to [Applications] > [Local 802.1X General Setup].
- Configuration backup / restore is now available for Remote Dial-In User and LAN-to-LAN profiles to back up all VPN profiles configured, separately from the main router configuration file
- 6. Larger certificate files now supported in [Certificate Management] > [Local Certificate] making it possible to include additional certificates required to complete a certificate chain
- 7. Support for mOTP and 2FA (two factor authentication) via e-mail/SMS added for remote management in [System Maintenance] > [Administrator Password]

- 1. Fixed the App Enforcement profile issue in 3.8.9 firmware
- 2. Fixed the Web UI Issue if Bandwidth Limit and Data Flow Monitor were enabled in 3.8.9 firmware
- 3. Support for VigorACS 2 version 2.3.0
- 4. Layout of [WAN] > [Internet Access] > [Details Page] improved to group essential settings in the left pane, with additional / advanced options grouped in the right pane
- 5. Subnet Mask settings in the web interface now use a drop-down box for selection

- 6. Schedule entries are now selected from a drop-down box which displays each schedule entry number and configured Comment fields
- 7. The number of characters allowed in a text box, such as a username or password field, is now displayed in the web interface when no text is entered in that text box
- 8. Layout of [VPN and Remote Access] > [Connection Management] improved with separate tabs for active LAN-to-LAN and Remote Dial-In User VPN tunnels
- 9. Layout of [Bandwidth Management] > [Quality of Service] improved
- 10. DoS Defence moved to [Firewall] > [Defence Setup]
- 11. Anti-Spoofing Defence settings for IP and ARP spoofing added to [Firewall] > [Defence Setup]
- 12. Removed deprecated CLI commands "ip dmz" and "ip aux [Join to NAT pool]"
- 13. Added "IPv6 Address Random Allocation" option for DHCPv6 Server settings
- 14. IKEv2 LAN to LAN VPN tunnels can specify these new Proposal options:
  - a. Diffie-Hellman (DH) Group 19 (256-bit Elliptic Curve)
  - b. Diffie-Hellman (DH) Group 20 (384-bit Elliptic Curve)
  - c. Diffie-Hellman (DH) Group 21 (512-bit Elliptic Curve)
- 15. Gmail access could not be blocked by the Web Content Filter when "Web-based Mail" category was set to be blocked by the content filtering
- 16. The firewall default rule when set to Block, would block DNS responses from the router if a LAN client used the router as its DNS server
- 17. Windows 10's built-in VPN client could not establish a VPN using L2TP over IPsec
- 18. Improved interoperability of the DHCP Relay function with Windows Server's DHCP server
- 19. Improvements to WAN Budget scheduling
- 20. Schedule entries configured to operate overnight did not work correctly
- 21. Improved handling of Firewall filter rules configured to operate on a schedule
- 22. Enabling Session Limit could block Internet connectivity for Remote Dial-In User VPN tunnel connections from VPN clients sending Internet traffic through the VPN tunnel
- 23. The router could stop responding to WAN SNMP requests under some conditions
- 24. Traffic statistics from [NAT] > [Port Redirection] forwards are now displayed in the [Diagnostics] > [Data Flow Monitor]
- 25. Inter-LAN Routing table in [LAN] > [General Setup] now allows routing between LAN1 and DMZ when VLANs are not enabled
- 26. Improved load balancing algorithm for VoIP STUN and SIP connections will now remain on the same WAN interface by default
- 27. Session timeout values for SSH and Telnet can now be adjusted with "mngt telnettimeout/sshtimeout" CLI commands
- 28. If TR-069 was configured with STUN, the resulting UDP connection request address would still be sent to the TR-069 server after disabling STUN for TR-069
- 29. Improved warning notifications given when disabling LAN ports, USB ports and buttons in [System Maintenance] > [Panel Control]
- 30. The Router Name set in [System Maintenance] > [Management] can be used as L2TP Client's Host name
- 31. Improved VLAN Tag Insertion layout for [WAN] > [General Setup]
- 32. DHCP Relay did not work with Remote Dial-In User VPN tunnels
- 33. Improved compatibility with "freedns.afraid.org" and "UBDDNS" Dynamic DNS providers
- 34. Log information could not be displayed for DtDNS Dynamic DNS hostname updates

- 35. The Domain Name "ddns.net" could not be selected when using No-IP.com Dynamic DNS
- 36. Added support for EntryDDNS Dynamic DNS provider
- 37. Unable to get DrayDDNS domain name after registering and activating the DrayDDNS license
- 38. Dynamic DNS configured with the provider "1984.is" was unable to update due to an HTTPS handshake failure
- 39. Could not register Avaya phone [H.323] to IPPBX server through router's NAT
- 40. Multiple objects can now be selected configuring an object group
- 41. Added "Next" and "Previous" links on each object profile editing page
- 42. DHCP server state of LAN Subnets could not be displayed incorrectly on the [Dashboard]
- 43. Restart is no longer required for changes to [Applications] > [RADIUS/TACACS+] > [Internal Server] when enabling/disabling Internal Radius Server or modifying the Authentication List
- 44. When the Interface LAN section is expanded on the [Dashboard], click on Host ID/Comment text to switch between ARP Table's Host ID and Bind IP to MAC's Comment
- 45. Added switching between viewing All Users and Online Users view in [User Management] > [User Online Status] by clicking on the text in the upper right
- 46. Bind IP to MAC was incorrectly limited to 300 entries instead of 1024
- 47. Increased Hotspot Web Portal profile Terms and Conditions Content field length to 1360 characters
- 48. ARP Table displayed Comments incorrectly for some IP addresses i.e. x.x.x.10 would display the same comment as x.x.x.101

#### **Known Issues**

Firmware Version	3.8.9 (Not Released)
Release Type	Regular – Upgrade recommended when convenient
	Note: A previous firmware (3.8.8.2) was a <b>critical release</b> .
	This f/w includes all changes/improvements that were in 3.8.8.2.
Build Date	31 <sup>st</sup> May 2018
Release Date	-
Revision	74249
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac,
	Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK & Ireland Only

(See Firmware 3.8.9.1)

### **Improvements**

(See Firmware 3.8.9.1)

### **Known Issues**

- 1. The router cannot be managed from the Web UI if Bandwidth Limit is enabled on the router. This will be corrected in the next firmware release.
- 2. [VoIP models only] Fax Mechanism will fail to send multiple papers/files from Phone1 to Phone 2

Firmware Version	3.8.8.2 (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	18 <sup>th</sup> May 2018
Release Date	18 <sup>th</sup> May 2018
Revision	73951
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

None

#### **Improvements**

1. This firmware includes improvements to harden the web interface against attacks. We have become aware of specific attacks against router, including DrayTek models where hackers have altered specific settings relating to your DNS servers and DHCP settings. You should urgently check those settings on your router. If they appear to have been tampered with, correct them and change your admin password and for any other config anomalies. Restore a configuration backup if you have one (from prior to the attack). We continue to investigate this issue but the first priority was to issue updated firmware.

#### **Known Issues**

Firmware Version	3.8.8 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	26 <sup>th</sup> March 2018
Release Date	24 <sup>th</sup> April 2018
Revision	72760
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

1. [LTE models only] Improvements to LTE module operation

# **Known Issues**

Firmware Version	3.8.7 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	18 <sup>th</sup> December 2017
Release Date	27 <sup>th</sup> February 2018
Revision	71502
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

(None)

### **Improvements**

- 1. Improvements to [CSM] > [Web Content Filter Profile] / [URL Content Filter Profile] > [App Enforcement Profile] / [DNS Filter] menus
- 2. Support for extra TR-069 parameters
- 3. Remote Dial-In Users connecting via PPTP protocol were not assigned DNS addresses configured for the LAN subnet

### **Known Issues**

Firmware Version	3.8.6 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	18 <sup>th</sup> December 2017
Release Date	11 <sup>th</sup> January 2018
Revision	70642
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

EAPOL Key Retry Enable/Disable setting added to [Wireless LAN (2.4GHz/5GHz)] > [Security]
 Disabling this setting can prevent WPA2 Key Reinstallation Attack (KRACK) attack vectors, for
 more details please read this security advisory:
 https://www.draytek.co.uk/information/our-technology/wpa2-krack-vulnerability

(EAPOL Key Retry is set to Enabled by default and in previous firmware)

#### **Improvements**

- Incorrect information could be displayed in [Diagnostics] > [Data Flow Monitor] when an L2TP over IPsec VPN connection is active
- 2. Firmware could only be upgraded through Firmware Upgrade Utility 3.6.6 when router was manually put into TFTP mode

#### **Known Issues**

Firmware Version	3.8.5 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	30 <sup>th</sup> November 2017
Release Date	17 <sup>th</sup> December 2017
Revision	69729
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

- 1. [Hotspot Web Portal] replaces [LAN] > [Web Portal Setup]
- **2.** Support for IPsec IKEv2 for LAN to LAN tunnels and Remote Dial-in User VPN clients that support Pre-Shared-Key authentication
- 3. [Wireless LAN] > [Roaming] has new Router-assisted Client Roaming options to disassociate clients based on RSSI (recommended) or data rate, compatible with VigorAP AP-Assisted Mobility: <a href="https://www.draytek.co.uk/information/our-technology/wireless-optimisation#ap-assisted-mobility">https://www.draytek.co.uk/information/our-technology/wireless-optimisation#ap-assisted-mobility</a>
- **4.** Supported LAN subnet size increased to 1023 IP addresses per subnet (/22)
- **5.** Added [NAT] > [ALG] menu to configure the router's SIP & RTSP ALG (Application Layer Gateway) functionality
- **6.** Support for BGP (Border Gateway Protocol)
- 7. Remote Monitoring & Management (RMM) mechanism added for use with VigorACS
- **8.** LAN IP Alias added to [LAN] > [General Setup] to define which WAN is used for outbound traffic by sending to a different Gateway address for the router
- **9.** Forward packets from WAN to VPN tunnel (single-arm VPN)
- **10.** WAN Connection Detection Ping Detect now supports Primary/Secondary Ping IP, Interval & Retry parameters
- **11.** Switch Management now supports Alert & Log, which stores and notifies of events such as port disconnections for connected VigorSwitches
- **12.** Added Bandwidth Utilisation Notification Settings to [System Maintenance] > [TR-069] to give more detailed bandwidth usage information to VigorACS

- Improvements to Wireless WAN (WAN2) mode WPA2 security to protect against WPA2 Key Reinstallation Attack (KRACK), for more details please read this security advisory: <a href="https://www.draytek.co.uk/information/our-technology/wpa2-krack-vulnerability">https://www.draytek.co.uk/information/our-technology/wpa2-krack-vulnerability</a>
- 2. Default Protocol for NAT Port Redirection entries is now "TCP/UDP"
- 3. Switch Management now supports management of the VigorSwitch P1280
- **4.** Added Users Information section to Hotspot Web Portal (requires USB storage to operate) to store details of users that have connected through the Hotspot Web Portal
- 5. DNS Filter Local Setting, which performs content filtering on DNS queries to the router's IP address, now supports a whitelist / blacklist of IP addresses/IP groups to control access to the router's DNS server
- 6. Auto backup router configuration to USB Storage either periodically or upon setting change

- 7. Resolved an issue with QoS operation when Bandwidth Limit is also enabled
- 8. Schedule entries can now operate on a set date each month, or daily cycle (max 30 days)
- 9. Automatic monthly reset of User Profile time/data quotas (with monthly schedule entry)
- 10. Certificate import can now be performed via CLI using "mngt cert\_import" command via URL
- 11. LAN Access Control can now disable management interface(s) for LAN1
- **12.** Resolved an issue with DNS that could occur when using the DNS Filter with Web Content Filtering
- **13.** When the router was configured with an external RADIUS server for authentication and Remote Dial-In VPN user accounts configured, authenticating with a user account configured on the router would log an authentication error with the RADIUS server
- **14.** Resolved an issue with manually configured ARP entries which could be cleared from the router's ARP table after 3 minutes
- 15. [External Devices] "On Line" link now supports non-standard management ports
- 16. L2TP over IPsec VPN performance was reduced while DoS Defence was enabled
- 17. DHCP Offer packets are no longer detected as a Trace Route attack in DoS Defense
- 18. Improved interoperability with Broadsoft ITSP when using SIP ALG
- 19. Resolved RTSP SSRC value calculation issue
- **20.** [Vn-Plus model only] When receiving a call through the Phone port, some phone handsets would play both a ringing sound and a call hung up sound
- 21. Enabling WAN Budget for WAN3 / WAN4 would disable Hardware Acceleration for WAN1 / WAN2
- **22.** Improved Path MTU Discovery algorithm to improve compatibility with some connection types
- 23. Enabling IGMP Snooping could stop IGMP Proxy / IPTV packets passing through to clients
- **24.** Resolved an issue with Hardware Acceleration that could cause problems with web browsing & TCP session handling
- 25. Syslog data would not save to USB disk correctly
- **26.** Virtual IP Mapping for LAN to LAN VPN tunnels was unable to send traffic to the mapped IP subnet in some scenarios
- **27.** IPsec traffic was not passed correctly to a VPN server connected to a Vigor 2925's Routed Subnet
- 28. Enabling Hardware Acceleration could stop Bandwidth Limit from taking effect
- 29. WAN Connection Detection via Ping Detect could fail with some network configurations
- **30.** NAT Loopback did not work for DMZ Host addresses
- **31.** Improved stability of VPN tunnels from a PC to the router's SSL VPN server, when that PC is connected through a mobile phone's Mobile Hotspot wireless network
- **32.** VigorACS could not read [NAT] > [DMZ Host] configuration through TR-069
- **33.** Updating the router's time through NTP could be delayed with some router configurations
- 34. When DoS Defence was triggered, there was a delay in sending a Mail Alert to notify of this
- **35.** Enabling DoS Defence could stop a Vigor 130 modem connected to a WAN port from displaying DSL information
- 36. The web interface did not accept IPv6 Object IP addresses ending with "::"
- **37.** Route Policy Diagnostics would indicate an incorrect rule for Route Policies with a domain name specified as the destination
- **38.** Route Policy Diagnostics gave incorrect results for some LAN interfaces

- **39.** VPN traffic could be routed incorrectly when connecting a Dial In VPN tunnel from LAN2 of one router to LAN2 of another router
- **40.** WAN IP Alias addresses did not work correctly with ports opened in [NAT] > [Open Ports]
- **41.** Improvements to [Applications] > [High Availability] Config Sync tab
- 42. Improved detection of Telnet sessions with App Enforcement
- **43.** Access List was not applied correctly to HTTPS management when additional administrator accounts were configured on the router
- **44.** [Vn-Plus model only] Duration of VoIP calls could not be recorded after performing a call transfer between Phone port 1 & 2
- 45. Improved session handling when using VPN Trunk in Weighted Round Robin mode

#### **Known Issues**

Firmware Version	3.8.4.2 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
Build Date	6 <sup>th</sup> July 2017
Release Date	2 <sup>nd</sup> August 2017
Revision	66764
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

- 1. DrayDDNS (DrayTek Dynamic DNS) support added in [Applications] > [Dynamic DNS]
- 2. Support for extra TR-069 parameters
- 3. Certificates generated by the router can now be signed with the SHA-256 algorithm

### **Improvements**

1. Resolved an issue with specifying Virtual IP Mapping addresses in LAN to LAN VPN profiles

#### **Known Issues**

Firmware Version	3.8.4.1 (Formal Release)
Release Type	Regular – Upgrade recommended when convenient
	Note: A previous firmware (3.8.4) was a critical release. This f/w
	includes all changes/improvements that were in 3.8.4.
Build Date	21st March 2017
Release Date	21 <sup>st</sup> April 2017
Revision	63482
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

(None)

#### **Improvements**

- 1. SNMP Manager Host IP(IPv4) setting did not take effect with a Subnet Mask of "255.255.255.255 / 32"
- 2. Resolved an issue with performing a configuration backup of a VigorSwitch through [Central Management] > [Switch] > [Maintenance]
- 3. Improved handling of SMB (Samba, Windows networking) traffic across PPTP and L2TP VPN tunnels
- 4. The Start Date of the Root CA certificate created in [Certificate Management] > [Trusted CA Certificate] would be 1 day after the time of creation

#### **Known Issues**

Firmware Version	3.8.4 (Formal Release)
Release Type	Critical – Upgrade recommended immediately
Build Date	15th December 2016
Release Date	13th January 2017
Revision	61327
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK & Ireland Only

- 1. [WAN] > [Internet Access] > [IPv6] PPP WAN now supports IPv6 RIPng (RIP for IPv6)
- 2. Added [Central Switch Management] > [Switch Management] to manage compatible VigorSwitches
- **3.** Support for DNSSEC added in [Application] > [DNS Security]
- **4.** Firewall configuration can be backed up / restored from [Firewall] > [General Setup]
- **5.** WAN2 can now operate in 2.4GHz or 5GHz Wireless Station Mode, switchable with Ethernet mode in [WAN] > [General Setup] > [WAN2]
- **6.** Band Steering added (requires same SSID & PSK on both 2.4GHz & 5GHz), to help 5GHz capable clients connect to the faster 5GHz band
- 7. Support for [Wireless LAN] > [Airtime Fairness] added to 2.4GHz and 5GHz wireless
- 8. [Wireless LAN] SSIDs now support individual Schedules
- 9. Router auto-generates unique Self-Signed Certificate for HTTPS [System Maintenance] > [Self-Signed Certificate]
- **10.** Added [Diagnostics] > [VPN Graph] to view VPN connection history
- **11.** Ping Detect latency Graph is available in [Diagnostics] > [Traffic Graph] for WAN interfaces using Ping for WAN Connection Detection
- 12. VoIP QoS Statistics / Log added to [Bandwidth Management] > [Quality of Service]
- 13. WAN Failover in [WAN] > [General Setup] now supports Failover by Traffic Threshold
- **14.** [Applications] > [Schedule] re-designed to simplify management of schedules
- 15. [Objects Setting] > [IP Objects] can now be uploaded to the router in CSV format
- **16.** [NAT] > [Port Redirection] and [Open Ports] can specify an allowed Source IP Object (Single IP, Subnet or Range IP) to allow only specified IPs to access port forwards without making Firewall Filter Rules
- **17.** [Load-Balance/Route Policy] Rules can now be applied to Hostnames / Domain names as Destination addresses

- 1. Security improvements including one or more considered critical.
- 2. Misc. minor WUI changes/corrections.
- 3. Added options in [System Maintenance] > [Management] to disable HTTPS management via TLS 1.0, TLS 1.1 or TLS 1.2
- 4. High Availability can now operate over IPv6 in addition to IPv4
- 5. Central AP Management [AP Map] interface improvements
- 6. Central AP Management [WLAN Profile] can be applied to router's Wireless LAN interfaces with "Apply to Local" option
- 7. VoIP Models only SIP account registration failover options added
- 8. VoIP Models only WAN IP Alias can be selected for SIP account registration
- 9. LTE Models only Send SMS alerts using LTE modem SMS interface

Firmware Version	3.8.2.3
Release Type	Regular – Upgrade recommended when convenient
Release Date	23rd June 2016
Build Date	26th May 2016
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus, Vigor2925Vn-
	Plus
Locale	UK/Ireland ONLY

(None)

# <u>Improvement</u>

- 1. Changed TCP Initial sequence number mechanism
- 2. Added X-Frame-Options to HTTP headers
- 3. Session validation method improved in Web UI
- 4. Improvements to [Hardware Acceleration] functionality

Firmware Version	3.8.2.2
Release Date	30th March 2016
Build Date	2nd February 2016
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus,
	Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

(None)

# **Improvement**

 Resolved an issue that stopped Wi-Fi clients from VigorAP access points connecting via SSIDs with VLAN tags enabled

Firmware Version	3.8.2
Release Date	23rd October 2015
Build Date	1st October 2015
Applicable Models	Vigor 2925, Vigor 2925n, Vigor2925ac, Vigor2925n-Plus,
	Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

- 1. Support for High Availability to use a secondary Vigor 2925 as a redundant router [Applications] > [High Availability]
- Port forwarding (Port Redirection, Open Ports) to remote clients connected via an IPsec LAN to LAN VPN now supported
- 3. WAN2 can now operate in 2.4GHz Wireless Station Mode, switchable with Ethernet mode ([WAN] > [General Setup] > [WAN2]
- 4. Path MTU detection added to simplify correct MTU detection
- 5. Static or Dynamic IP now supports Bridge mode with firewall applied
- 6. Notification Objects now have WAN Budget and Central VPN Management options
- 7. URL Content Filter Profiles now have Exception List option
- 8. Internal RADIUS / 802.1X server ([Applications] > [RADIUS], accounts configured in [User Management])
- 9. [Web Portal] feature improvements, now supports HTTPS redirection
- 10. [Load Balance / Route Policy] > [Diagnose] added
- 11. LAN to LAN VPN now supports SSL Tunnel
- 12. Switch Management added, accessible via network icon on [Dashboard]
- 13. [Central AP Management]:
  - a. [Event Log] added
  - b. [Dashboard] added
  - c. [Station Number] added to show history of connected clients per AP
  - d. [Total Traffic] added to show bandwidth usage per AP
  - e. [AP Maintenance] can now send firmware to multiple APs simultaneously
- 14. [System Maintenance] > [Management] now support Captcha validation for Internet / LAN access to router Login page
- 15. [Diagnostics] > [Authentication Information] shows details on users authenticated by internal RADIUS server
- 16. TACACS+ support for VPN authentication [VPN and Remote Access] > [PPP General Setup]
- 17. Added support for TLS 1.2

- 1. IP Filter telnet command could not configure Service Type Protocol to UDP or TCP
- 2. WAN connectivity issue with IPv6 when using DHCPv6 or 6rd
- 3. QoS Statistics would not display corrected when Firewall > Data Filter was disabled
- 4. URL Filter blocked some HTTPS sites incorrectly
- 5. Not all DHCP clients were displayed in the router's DHCP Table

- 6. Resolved an issue with 5GHz wireless when using Mixed(11a+11n) mode amd some client device connections
- 7. Improvements to the functionality of the IPv6 Firewall filter
- 8. When SMB service on WAN was disabled, TCP Port 445 could be detected in a port scan. This is no longer detectable in a port scan
- 9. Vigor 2925V models only: The web interface Dashboard LED for Line linked to the QoS page
- 10. Active True IP DMZ assigned an incorrect subnet mask to the True IP DMZ host
- 11. The web interface reboot facility was not working in some situations

Firmware Version	3.8.0.1
Release Date	19th June 2015
Build Date	22nd May 2015
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

1. Support for GRE Tunnel under [VPN and Remote Access] > [LAN to LAN VPN] for compatibility with Cisco routers.

- 1. Improved 500 server internal error response code behavior relating to using retry-after header field (per RFC 3261 Section 14.2)
- 2. The Telnet command 'ip dhcpc status' could not show WAN1 DHCP mode information correctly.
- 3. LAN Access Control did not work correctly.
- 4. SSL Tunnel could fail to connect with a username/password error with valid credentials.
- 5. Improved handing of USB share access via SMB.

Firmware Version	3.8.0
Release Date	27th April 2015
Build Date	1st April 2015
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

- 1. IPv6 support added for all LAN and WAN interfaces.
- 2. LAN DNS now supports CNAME hostname aliasing.
- 3. 2925Vn-Plus only: The router's VoIP service can now be disabled through the web interface.
- 4. Support for RFC4638 to increase Ethernet frame size / MTU to 1500 for PPPoE connections.

- 1. Improvements to SMB file sharing and a new SMB Client Support List under the [USB Application].
- 2. WAN Budget can be configured under [Object Setting] > [Notification Object] to send SMS / E-Mail alerts.
- 3. Improvements to the display of "More Options" under [Load Balance/Route Policy].
- 4. Modified wording of [Hardware Acceleration] to show Dest Port Start/End instead of Start/End Port.
- 5. TR-069 settings added for control via Vigor ACS-SI:
  - a. SNMP configuration settings
  - b. IPv6 Access List
- 6. Web Console was unable to display TR-069 parameters.
- 7. LAN to LAN VPN Ping to Keep Alive setting is now restricted to IPSec tunnels only (not beneficial for other protocols).
- 8. The router will only send DHCP Discover syslog messages when the WAN port is physically online.
- 9. Improvements to the router's web server's Session ID generation method to improve security.
- 10. User Mode now correctly limits access to [Wireless LAN (5GHz)] settings.
- 11. When using a VPN Trunk with a Route Policy, the wrong VPN tunnel could be used under some circumstances if the selected VPN dropped.
- 12. [Application] > [IGMP], wording for PVC interface changed to PVC/VLAN.
- 13. Notes added to [User Management] > [User Online Status].
- 14. Multicast via VPN was not working correctly.
- 15. Resolved an issue with DNS Filter.
- 16. 2925Vn-Plus only: [VoIP] > [Phone Book] was not showing the Secure Phone options.
- 17. Quick Start Wizard did not support USB Modem (DHCP Mode).
- 18. Resolved an issue with [CSM] > [App Enforcement] filtering that could block traffic incorrectly once SNMP was enabled.

- 19. Resolved an issue that stopped Vigor ACS-SI from switching Wireless LAN Access Control from White List to Black List mode.
- 20. When "Allow Management from LAN" was disabled, clients were unable to access the User Management Login page.
- 21. The Telnet command "srv nat showall" was showing private IP port information incorrectly.

Firmware Version	3.7.8.1
Release Date	4th February 2015
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

(None)

- 1. SSL3 now disabled in favour of TLS by default for SSL tunnels and web management.
- 2. DNS Queries other than A and AAAA were blocked by the router.
- 3. 2925n-Plus / 2925Vn-Plus only: 5GHz wireless LAN DFS was affecting 2.4GHz wireless.
- 4. 2925Vn-Plus only: The Secure Phone option was missing from [VoIP] [DialPlan] [Phone Book] entries.
- 5. The Quick Start Wizard now supports "USB Modem (DHCP Mode)" as a WAN option.

Firmware Version	3.7.6
Release Date	1st December 2014
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

- App-Enforcement signature updates downloadable via MyVigor http://www.draytek.co.uk/support/guides/kb-appe-sigupgrade
- 2. New multi-level WAN backup mechanism.
- 3. Supports TACACS+ remote authentication.
- 4. Supports Virtual IP Mapping for LAN to LAN VPN tunnels, to map / NAT local IPs to a required subnet.
- 5. Adds the DNS filter object in [Firewall]-[General Setup] which allows the DNS filter to be applied using filter rules.
- 6. Configuration backup [Maintenance]-[Configuration Backup] can be password protected
- 7. Support for the WAN budget facility, which can notify / disable a WAN interface if it uses more than its allowed bandwidth.
- 8. Added [Wireless LAN]-[Station Control].
- 9. Support for RFC3021, a /31 subnet mask used for point to point WAN interfaces.
- 10. Support for customized login page image for User Management login.
- 11. Support for new 3G/4G dongles. (K5150/K4203).
- 12. Wireless LAN 5GHz Support for DFS (Dynamic Frequency Selection). Please note that when selecting a DFS channel (52-140) the router's 5GHz wireless will stop broadcasting for 60 seconds to determine whether the channel is allowed to be used, as per the DFS specification.

- 1. Added Wi-Fi 5G to dashboard.
- 2. Support for setting a wildcard in LAN DNS.
- 3. LAN DNS Wildcard now supports PTR type.
- 4. Resolved an issue with Port-Redirection.
- 5. User mode password setting page allowed more characters than is supported for the password.
- 6. Resolved Wireless interface latency issue.
- 7. Resolved an issue with the wired 802.1x facility.
- 8. Removed FragFINN WCF option, which cannot be used in the UK.
- 9. Improved some wording in the router web interface.
- 10. Lengthened True IP DMZ DHCP lease time.
- 11. PPPoE WAN drop issue.
- 12. Bind IP to MAC page could not display "\_" in the Comment field.
- 13. Dashboard CPU usage display was incorrect.
- 14. Resolved VoIP Phone book issue.
- 15. QoS speed was not accurate above 100Mbps.
- 16. Improved NAT sessions recycling mechanism

Firmware Version	3.7.4.2
Release Date	11th July 2014
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

(None)

# <u>Improvement</u>

- 1. Updated SSL for CVE-2014-0224
- 2. Dashboard was missing some items.

Firmware Version	3.7.4.1
Release Date	24th May 2014
Applicable Models	Vigor 2925, Vigor 2925n,, Vigor2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

(None)

- 1. Can now set USB WAN for SIP account via telnet command.
- 2. Wireless LAN allocated correct subnet index from DHCP server.
- 3. FXS speaker gain displayed correctly in VoIP call status web page.
- 4. Call log information now complete when the call was made by Digit Map.
- 5. Fixed issue with WAN1 up but Default Route disappearing when WAN2 PPPoE is down.
- 6. Merge CVM schedule profiles (index number from 9 to 16).
- 7. Add VLAN tag for WAN IPv6 packets if WAN VLAN tag is enabled.
- 8. Send a DHCPv6 release message before DHCPv6 WAN sends any solicitation.
- 9. Support a list to bypass NAT acceleration for specific port (service).

Firmware Version	3.7.4
Release Date	24th March 2014
Applicable Models	Vigor 2925, Vigor 2925n, Vigor 2925n-Plus, Vigor2925Vn-Plus
Locale	UK/Ireland ONLY

- 1. Add URL link for dashboard panel.
- 2. Add station list and traffic graph for APM.
- 3. Support CVM (Central VPN Management) function.
- 4. Support dual 3G/4G modems
- 5. Support IPv6 for SSH.
- 6. New AP Management feature

- 1. Increase no of port redirection and open port rules
- 2. Enhance WCF function.
- 3. Add LAN access control.
- 4. Add TR-069 port in management setting.
- 5. Increase routed subnet IP pool count from 10 to 32.
- 6. Modify the WUI for Load-Balance/Route Policy
- 7. Allow longer names for VPN host/server.
- 8. Wireless wizard modifications.
- 9. DHCP lease time for subnet.
- 10. Able to block LINE app for PC and mobile phone.
- 11. Support a note for Remote Dial-in User authenticating with LDAP server.
- 12. Force MPPE encryption for PPTP improved with MS-CHAP v2
- 13. Prevent issue with SSH & WCF causing hangs/reboots in certain circumstances
- 14. Fixed iPhone wireless connection dropped issue.
- 15. SSL user can now always be joined user group.
- 16. Web portal setup now visible when the profile disabled.
- 17. Soilved issue with telnet "sys tr get Int." stability
- 18. Policy route issue fixed
- 19. L2TP mode now correctly displays WAN IP.
- 20. Improved some minor WUI elements

Firmware Version	3.7.3.2
Release Date	14th November 2013
Applicable Models	Vigor 2925, Vigor 2925n
Locale	UK/Ireland ONLY

# First Firmware Release for this model

[END OF FILE]