TeleComp
Research & Development Corp

READ ME FIRST!!
4180

MULTIPLE PROTOCOL

"ALL IN ONE"

INTEGRATED ACCESS DEVICE

PRODUCT / RELEASE NOTES

RELEASE 14.6

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TABLE OF CONTENTS

Important Safety Instructions

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

When installing, operating, or maintaining this equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

❑ Read and understand all instructions.
❑ Follow all warnings and instructions marked on this product.
❑ For information on proper mounting instructions, consult the User's Manual provided with this product.
❑ The telecommunications interface should not leave the building premises unless connected to telecommunication devices providing primary and secondary protection.
❑ This product should only be operated from the type of power source indicated in the User's Manual.
❑ This unit is intended to be powered from either –48 V DC or AC voltage sources. See User's Manual before connecting to the power source.
❑ The –48 V DC input terminals are only provided for installations in Restricted Access Areas locations.
❑ Do not use this product near water, for example, in a wet basement.
❑ Never touch uninsulated wiring or terminals carrying direct current or leave this wiring exposed. Protect and tape wiring and terminals to avoid risk of fire, electric shock, and injury to service personnel.
❑ To reduce the risk of electrical shock, do not disassemble this product. Service should be performed by trained personnel only. Opening or removing covers and/or circuit boards may expose you to dangerous voltages or other risks. Incorrect re-assembly can cause electric shock when the unit is subsequently used.
❑ For a unit intended to be powered from –48 V DC voltage sources, read and understand the following:
  ➢ This equipment must be provided with a readily accessible disconnect device as part of the building installation.
  ➢ Ensure that there is no exposed wire when the input power cables are connected to the unit.
  ➢ Installation must include an independent frame ground drop to building ground. Refer to User's Manual.

This symbol is marked on the 4180, adjacent to the ground (earth) area for the connection of the ground (earth) conductor.

❑ This Equipment is to be Installed Only in Restricted Access Areas on Business and Customer Premises Applications in Accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA No. 70.   Other Installations Exempt from the Enforcement of the National Electrical Code May Be Engineered According to the Accepted Practices of the Local Telecommunications Utility.
❑ For a unit equipped with an AC Wall Plug-In Unit, read and understand the following:
  ➢ Use only the K'TRON, Model KA-52A Wall Plug-In Unit shipped with this product.
  ➢ Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
  ➢ Do not staple or otherwise attach the power supply cord to the building surfaces.
  ➢ Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
  ➢ The socket outlet shall be installed near the equipment and shall be readily accessible.
  ➢ The Wall Plug-In unit may be equipped with a three-wire grounding type plug, a plug having a third (grounding) pin. This plug is intended to fit only into a grounding type power outlet. Do not defeat the safety purpose of the grounding type plug.
  ➢ Do not allow anything to rest on the power cord. Do not locate this product where the cord may be abused by persons walking on it.
  ➢ Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a) When the powers supply cord or plug is damaged or frayed.
    b) If liquid has been spilled into the product.
    c) If the product has been exposed to rain or water.
    d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by qualified technician to restore the product to normal operation.
    e) If the product has been dropped or the cabinet has been damaged.
    f) If the product exhibits a distinct change in performance.

Save These Instructions

IMPORTANT !!

USER DOCUMENTATION IS AVAILABLE AT OUR WEB SITE.

Documentation:	http://www.trdcusa.com
Sales:	sales@trdcusa.com

The **4180** is factory configured for 48VDC usage. Operation with an AC power adapter to 5VDC requires a different jumper setting on the **4180** system board. Refer to the latest **4180** User's Manual at http://www.trdcusa.com for instructions on changing this factory setting.

1 INTRODUCTION

These release notes highlight the product features, modifications, known caveats and any special considerations for the **4180** product. For detailed information on this product, reference the **4180** User's Manual.

2 PRODUCT FEATURES

The **4180** is a Multiple Protocol Inter-Networking device with enhanced vertical services. It has 16 synchronous, or asynchronous ports that support rates up to 115.2 kbps. Popular protocols such as asynchronous, various Bi-Synchronous variants, HDLC, SDLC, X.25, and E2A are all supported interchangeably on a per port basis. In addition, vertical services for X.25 typically found on Embedded Network Processors have been incorporated. This allows the **4180** to directly mediate X.25 to individual circuits over TCP/IP connections.

The **4180** supports a Time Slot Router (TSR) on an RJ48C physical interface. The TSR allows transport of proprietary protocols on DS0s, or aggregated on a multiplexed link. T1, E1, and J1 formats are all supported. Each time slot may be uniquely routed on the TCP/IP infrastructure. Individual CODECs may be installed for load optimization. HDLC time slots may be terminated for use by embedded network processor applications, or for routing to any endpoint on the TCP/IP network. The **4180** can be used as a min "DACS" or as a Channel Bank replacement with the TSR feature.

Consult the **4180** User's manual for a complete enumeration of the features..

3 R ELEASE C HANGES

3.1   RELEASE 14.6 ERRATA

- The E2A Protocol waveform was made to precisely model a 202T so that certain legacy devices could be supported. In particular, some devices needed the carrier acquisition time to be similar to a 202T in order to operate properly. Further, these devices also needed the carrier hold time to be similar to a 202T in order to operate properly. In both these situations, the operation prior to the change was within published specifications. The change was made only for compatibility with certain legacy devices.

- The elapsed time since the last boot has been added to the output of the "verify module" command. This addition was a customer request.

3.2   RELEASE 14.5 ERRATA

- The database conversion necessary for the 14.4 release did not convert exceptionally old databases correctly and a manual recovery was required. This release corrects that anomaly. It should be noted that only very old databases were affected, and any prior release database within the maintenance window was not affected by this anomaly.

3.3   RELEASE 14.4 ERRATA

- The E2A Protocol features have the same errata level as the current DT-9480/DT-4284 devices. This enables E2A 1:1 E-tails, as well as 1:N connectivity to a virtual E2A network via E2AHOB. The E2A protocol may be used on any serial port without regard to the configuration of any other serial port. Both DTE and DCE operations are supported, as well as constant and switched carriers.

3.4   RELEASE 14.3 ERRATA

- The PVCRSTLNK feature of a BX.25 virtual circuit has been altered in its operation to allow configurable control of the DCD lead. The syntax of the option is as follows:

    Syntax: port <#> VC=<range> [pvcrstlnk=< OFF | CONSTDCD | SWDCD >]

    The value of **OFF** disables the feature in its entirety.

    The value of **CONSTDCD** enables the feature and specifies that the DCD lead is to be held constantly asserted during the link reset.

    The value of **SWDCD** enables the feature and specifies that the DCD lead is to be cycled during the link reset.

    The legacy value of **ON** is still supported since automated configuration scripts use the value. It has identical operation to the value of **CONSTDCD**.

    Please note that a #5ESS switch link must use CONSTDCD. If the DCD lead is cycled, the link will not restore.

3.5 RELEASE 14.2 ERRATA

- This release is substantially identical to 14.1, and rebuilt for a specific customer.

3.6 RELEASE 14.1 ERRATA

- Support added for Optional Facility Throughput class specification on SVC virtual circuits. At least one AMA device has been identified that requires explicit throughput class negotiation. All of the X.25 specification throughput classes are supported. These are 75 through 48000 BPS. Unless needed, this option should always be set to **NONE**. The syntax of the option is as follows:

  Syntax: port <#> VC=<range> [svctclass=< NONE | Throughput >]

  - The X.25 Optional Facility for SVC window sizes is corrected. This is an optional feature of a SVC call request and is generally only used during extended address negotiation; and now for throughput class negotiation. Previously, it would advertise the LAPB window for both transmit and receive. It now correctly specifies the administered VC transmission window for TX and the entire LAPB window for RX.

  - The X.25 Optional Facility for SVC packet sizes has been enhanced to include 512 and 1024 packet sizes. Generally, large packet sizes are only used on PVC connections. This change would only be relevant for CCITT interfaces where extended addressing is used; or now when the throughput class is negotiated.

- Conversions of X.25 options from devices on a device upgrade that skipped several releases were incorrectly defaulted. This errata corrects that issue.

- An IDLE TIMER for the LAPB link is established. Should a timeout period elapse (currently at 30+ seconds) with no data or status received from the X.25 line; the link is probed. If found dead; the link is restarted and all TCP endpoints are disconnected.

3.7 RELEASE 13.1 ERRATA

- Support for TACACS+ RADIUS servers is added. Two servers are supported, a primary and a secondary. Non-standard TCP ports are fully supported. Each server may be individually enabled. The syntax is as follows:

  Syntax: tac < PRI | SEC > [ipaddr=<IP Address>]
  [port=<TCP Port>]
  [key="Encryption Key" | NONE]
  [ENABLE]
  [DISABLE]

- The BANNER page has been enhanced up to 24 lines of 80 characters each. Previously it was 10 lines. The syntax is changed as follows:

  Syntax: banner [clear] [L#="Line # Message"]

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3.8   RELEASE 12.2 ERRATA

- Each Virtual Circuit may have a comment field. The comment is up to 32 characters in length. It may contain spaces, and special characters. The comment may not contain an embedded double quote as this character is used for deliniation.

    Syntax:
    port x vc=a-b vccom="User Comment"

- Per Port comments are now allowed to have Upper and Lower case characters. This was an oversight found during the per-VC comment testing.

- The TCP implementation has been updated to avoid packet traffic after a connection teardown with some test equipment. This is a pre-emptive correction as the problem has never been seen in the connection teardown of a deployed device.

3.9   RELEASE 12.1 ERRATA

- The **4180** X25PAD-32 FP was re-integrated with the ability to convert X25PAD-8 FP databases automatically.

- The PVCRSTLNK option to a X25PAD VC has been enhanced to switch the DCD lead as the BX.25 link layer is controlled. This yields a more effective simulation of a dynamic modem connection. It is required by some legacy devices. This operation is only valid for physical DCE configurations.

- The DBRESET command was not deleting the X25PAD configuration, the TSR configuration, the DNS PDD configuration, and the Banner configuration. All these have been corrected.

- Four forwarding groups were added to the PADFWD option for an X.25 VC. These are:

    ➢ GRP1 --> Forwards on ESC, BEL, ENQ, NAK.

    ➢ GRP2 --> Forwards on DEL, CAN, DC2

    ➢ GRP3 --> Forwards on ETX, EOT

    ➢ GRP4 --> Forwards on HT, LF, VT, FF.

- The PADFWD VC option allows multiple forwarding conditions to be applied. Setting a forwarding condition aggregates into the PADFWD option. In order to clear, the PADFWD, the forwarding condition of NONE is used (e.g. port 1 vc=1-7 padfwd=none).

3.10   RELEASE 11.2 ERRATA

- The **4180** console timeout has semantic changes where the number of units specified is now in minutes. This was formerly seconds. The valid range is 1 through 255 minutes, or approximately 4 hours and 15 minutes.

- The NORTEL XFER protocol is now supported via the X25PAD PAD API. Since the NORTEL XFER protocol does not have unique forwarding conditions, the forward should be based on the timer only and approximately 3 ticks.

3.11 RELEASE 11.1 ERRATA

- The **4180** has been updated to allow it to be a standalone companion to an Embedded Network Processor for TNC replacement in offices without an IP presence. In such a situation, a short cross-over cable is used between ethernet PHYs.

- The switched carrier option has been added to the E2A protocol. This was previously only available on the **4281**, **4284**, and **9480**.

- The "Carrier" display on the "Verify Port" report for a DTE port has been removed. Carrier is a DCE option.

- Configuration of a port as DTE automatically sets the port as "Permanently Active", and also sets the operation of the DTR lead (after suitable cabling) to be always asserted.

- A port configured for (B)X.25 will now enter disconnect mode when taken out of service. The port will respond with a DM where previously it was merely silent. If the link was active when the port was removed from service, it will send a DISC prior to entering disconnect mode.

- The **4180** supports (B)X.25 Iframe passwords per BX.25 Issue 3. These may be enabled on a per link basis.

  Syntax:
  > **port <port#> x25pass=<OFF | DFLT | "Password String">**
  > **port <port#> x25xid=< XID Link ID >**

  At the present time, only AMA processing is supported for this BX.25 feature. The AMA option uses passwords in their normal rotation. The default AMA link ID is '4'. This is the standard value. Setting the **x25pass** to the **DFLT** value will also set the link ID to it's default value. It is noted that this feature is used primarily with PVCs.

- The operation of a PVC upon connection from a TCP/IP endpoint has been made an option.

  Syntax:
  > **port <port#> pvcreset=<ON | OFF>**

  The PVC may be RESET per standard operation, or the RESET may be inhibited. Some network elements cannot tolerate a RESET on their PVC. The default is to have the RESET issued upon each connection.

- A rather unique feature has been added to the 4180. This feature is not found on any other (B)X.25 device. The option provides that the entire (B)X.25 link be restarted upon a TCP/IP connection to a PVC.

  Syntax:
  > **Port <port#> pvcrstlnk=<ON | OFF>**

  When enabled (ON), the feature operates as follows:

  - ❑ When no TCP/IP connection is present to a PVC, the (B)X.25 stays in disconnect mode.

  - ❑ When a TCP/IP connection is made to the PVC, the (B)X.25 link is restarted. Each PVC is reset (or not) depending on the pvcreset option for that PVC.

❑ When the TCP/IP connection is dropped, the (B)X.25 link is again placed into disconnect mode.

This feature allows craft personnel with multiple AMA interfaces to see the active interface as "green" on their system board. Interfaces that are not currently active show up as "Red".

- The (B)X.25 built-in snooper has been enhanced with additional on-demand buffering to capture large flows without over-runs.

3.12 RELEASE 10.6 ERRATA

- For a port defined as type=x25, a new parameter has been added:

Syntax:
       port <port#> x25dar=<ON | OFF >

The **x25dar** parameter, when enabled, will immediately restart the link layer if the peer disconnected it with a DISC. When disabled, the link is left disconnected and allows the peer to restart it at will. The default is **OFF** (disabled).

- Packet sizes of 512 and 1024 bytes may now be specified for (B)X.25 VCs.

Syntax:
       port <port#> vc=<VC Range> vcpkt=<128 | 256 | 512 | 1024 >

The larger packet sizes were added in order to comply with GR-385 (the replacement for TR-TSY-000385) that is used for AMATPS processing of billing data.

- The AMA features of this release have been independently tested at Telesciences Inc., whom is a major provider of billing software to the major telephone companies.

- The VFY PORT command output has been changed to display the settings of the **x25dar** option and new packet sizes.

- The (B)X.25 snooper has been enhanced to display the disconnect mode messages properly. They were previously displayed as Verbose output bytes without decoding.

3.13 RELEASES PRIOR TO 10.6

Contact support@trdcusa.com with specific questions on releases older than 10.6.

4 INSTALLATION ADDENDUM

4.1 OBTAINING INFORMATION FROM TELECOMP R&D

Load modules for all the TeleComp R&D products are obtained by sending email to support@trdcusa.com. All other documentation, including release notes, user manuals, "white-papers", etc. can be accessed on the TeleComp R&D web site and downloaded for your use.

To insure that the correct version of the binary load modules have been retrieved and has not been corrupted during the transmission process, the UNIX® **sum** command can be used.

On some hosts, the "-s" flag must be used with the **sum** command. On X86 linux hosts, the –sysv flag must be used with the **sum** command.

Key-in **sum** < name of load module file>.

The values returned must match the numbers shown below:

For example:

Key-in**: sum –sysv dt_4180.14.6**
Response**: 54460 2326   dt_4180.14.6**

4.2 DATABASE CONVERSIONS

When moving from one release or version to the next, the database is usually automatically converted. Therefore, **do not attempt** to perform a **backup** on an earlier release/version and then do a **reload** on the new release/version. The database structures may not be the same. For safety reasons, do a **backup** on the earlier release/version in case you need to revert back to this release/version. Then upgrade to the new release/version, and do a backup again which will now be the converted database for use with this release/version. Backups and restores should only be used with the same release/version, not across releases or versions.

4.3 SOFTWARE REGISTRATION

The **4180** must be registered when it is upgraded with new software. The **4180** will continue to operate without registration, but **user ports cannot be placed into service until registration is complete.** See the **4180** User's Manual for the registration procedure.

4.4 UTILITIES

The current version of the upgrade, backup, and reload utilities are 19.1 respectively. The getinfo, devrep, and setreg utilities have a current revision level of 2.1 respectively. All of the utilities are available by contacting support@trdcusa.com. Please note that the TCP port for the console is 1023.

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4.5   POWER

The **4180** may be powered via -48VDC or 5VDC via an AC power adapter. Should a new unit not illuminate it's power LED, review that the power options are properly configured. Consult the **4180** User's Manual for the location of the strap on the system board.

5   DOCUMENTATION

The current version of the **4180** User manual, and this release letter, may be downloaded from the support area of http://www.trdcusa.com. The **4000XA**, **4180**, **4280**, **4281**, **4284**, and **9480** now share a common user manual.

6 HARDWARE WARRANTY

The warranty period for hardware shall be ninety (90) days from the date of shipment from TeleComp R&D or a designated manufacturer. Replacements and repairs are guaranteed for the longer of the remaining original warranty period or 30 days.

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10 AUTHOR

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